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The Opportunity for Entrepreneurship in Ontario: An Analysis of Self-Employment across City-Regions

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Executive Summary

Ontario continues its transition from old sources of economic strength, particularly large manufacturing firms, towards new growth sectors. Likewise, the prevailing modes of production continue to change in step: from highly-centralized and stable relationships between labour, management, customer and supplier; to that which is more fluid, transitory and responsive to innovation. It is clear that entrepreneurship, the novel introduction or reinvention of economic activity, will be a critical part of a successful transition, to ensure that the province retains its competitiveness and prosperity into this new economic era.

In this paper I describe entrepreneurship in Ontario from a labour force perspective, examining the fundamental element of the entrepreneurial economy: self-employed workers. During the past 20 to 30 years we've experienced what has been described as a "renaissance" in self-employment across the country. In Ontario alone, growth in self-employment has equalled or exceeded growth in wage and salary work in all but one of the past five 5-year census periods. Indeed, during the early 1990s, the period of the last major Canadian recession, self-employment accounted for all net employment growth in this province. During the current period of economic contraction, it is very likely that the ranks of the self-employed will swell once again, and it is critical that we enhance the opportunity for these workers – to the benefit of the individual, region, and provincial economy as a whole.

This paper is intended to both provide a cross-sectional analysis of entrepreneurial work in the province, as well as spur discussion about where, from a regional perspective, entrepreneurial opportunity exists and where it has lagged behind. To this end, I first discuss the salient aspects of self-employed work in Ontario's labour force, the types of sector-based work and the income returns that characterize different types of self-employed workers in the province – based on the occupational skills classes introduced in the *Ontario in the Creative Age* report: creativity-oriented, routine-service and routine-physical. Some of the key observations relating to creativity-oriented work include:

1. Highly-centralized and publically-funded sectors such as health-care, education and government are the most common employers of wage-salary earning creativity-oriented workers, professional service and R&D jobs predominate among the self-employed.
2. On average, self-employed creativity-oriented workers are the highest paid class of workers in the province, albeit in a small range of industries.
3. A significant number of self-employed creativity-oriented workers are drawn into sectors in which earning potential is far less than that available to wage-salary earners. Given the mobility of these workers, this likely indicates the presence of intrinsic rewards to this type of work.

For routine-oriented (both service and physical) two key observations are made:

1. Routine-oriented workers, both physical- and service-based, are predominately found in sectors that provide a service to *local* residents and businesses and have relatively low barriers to entry.
2. While self-employed routine-service workers make less, on average, than their wage-salary peers, there are a large number of industries – collectively providing work for more than half of this labour force – in which earning potential is actually enhanced. At

present, there are very few industries in which routine-physical workers can make more by becoming self-employed.

My approach to analyzing entrepreneurial opportunity among these workers is regional: the jurisdictional level increasingly understood as the locus of innovation and entrepreneurial activity. There has been ample effort paid to encouraging enterprise creation and improving self-employed work across the province, but despite these efforts, it does not occur in equal measure in all places. Many authors have detailed the fundamental characteristics that must be present within the regional economy to support entrepreneurship – access to finance, business mentorship supports, access to markets, a supportive culture; however, no recent effort been made to systematically detail how and why some regions are fruitful for entrepreneurs while others stagnate in Ontario. This is the gap that this paper is intended to address. In this paper I use some conventional measures of regional industrial activity in Ontario: cluster size, self-employment share, growth and regional productivity. But as opposed to considering these factors in isolation, I employ them together in a composite measure, the *Entrepreneurship Index*, in order to develop a more holistic understanding of entrepreneurial opportunity across Ontario and other Canadian city-regions. Rather than an economy-wide measure, I consider the index for both creativity-oriented sector groupings – high-technology, information and culture – and routine-oriented sector groupings – local market and personal services, physically-intensive services, physically-intensive manufacturing. In so doing, I acknowledge that opportunity in one industry does not necessarily hold for another, and likewise, there are multiple sectors, not simply the most innovative and technologically-intensive, in which entrepreneurship occurs.

What is apparent from this analysis is that there is an uneven geography for entrepreneurship in Ontario. The largest, most diverse metropolitan regions in the province, Toronto and Ottawa, perform well on the measure across multiple sectors. Others offer advantages particular to specific industries – creativity-oriented entrepreneurs have flourished in Guelph and other regions approximate to the Greater Toronto Area with substantial institutional endowments. Entrepreneurs in routine-oriented sectors have had substantial success in fast-growing regions such as Peterborough and Barrie. Other city-regions, particularly those that are peripherally-located or overly reliant on manufacturing work, demonstrate lower entrepreneurial opportunity across most industrial groupings examined in the paper.

But there are hopeful prospects for these regions. Researchers have yet to truly explore the opportunity for entrepreneurship in many traditional, physically-intensive manufacturing sectors – this is a mistake. In this paper, I note that as plants have closed and large firms shed thousands of jobs conventional manufacturing employment has shrunk across the province. However, at the same time, self-employment in these same sectors has actually increased. This may indicate a new opportunity for innovative, locally-based manufacturing work in hard-hit regions such as Windsor, Kitchener and Thunder Bay. The challenge for researchers and policy-makers concerned with promoting regional entrepreneurship is to determine what makes some regions attractive and prosperous for entrepreneurs, and how to enhance opportunity in regions and sectors that are less so. At the end of the paper, I briefly discuss the importance of strengthening support for one policy model, the Regional Innovation Network, and suggest that a similar model could be successfully deployed to support entrepreneurs and regions more broadly.

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Introduction

When we discuss the state of Ontario's economy for the 21st century, it is important that we not only consider the types of work that our labour force is engaged in, but also how that work is now being organized and carried out. For one, conventional employment is no longer defined in the same way as it once was. The demand for competitiveness in a just-in-time, globally-integrated economy has resulted in companies moving away from the corporate ladder to greater use of temporary contracts, flexible work arrangements and part-time labour. No matter the sector, it is unlikely that an individual can rely on a single firm to provide stable employment for an extended period of his or her working life. We have developed inbuilt assumptions about work being tenuous and impermanent; and as a result we tend now to talk more about work experience and resume-building, rather than developing a singular career.

For many workers this lack of stability has had negative consequences. This is particularly the case for those who have relied on the same job for the same firm for many years, or even decades. In the new economic environment, such singular loyalty can be a liability rather than an asset if workers have not developed a broad set of applicable skills and competencies. For these workers and others who lack the necessary education, training or experience, it is a struggle to find and keep good jobs. In these circumstances, it is essential that jurisdictions such as Ontario ensure that some measure of protection or remedial support is made available. In the *Ontario in the Creative Age* report, recently released by the Martin Prosperity Institute, the authors highlight a number of innovative ideas for supporting transitioning workers, such as wage insurance, which may go a long way towards protecting those left behind in this shift.

But this shift in employment – and production activity more generally – also creates a variety of new opportunities. Province-wide, recent news has highlighted the dire financial situation that now characterizes some of Ontario's largest and most influential firms. While the most recent economic downturn exacerbated this situation, it was by no means the fundamental cause. Many firms, particularly large manufacturers, have become less globally competitive for a variety of reasons over the last several decades. If the Ontario economy is to recover fully and reclaim a stable, globally-competitive position, it must not rely solely upon sustaining previous sources of economic prosperity; it must be supportive of emergent industries as well as innovations in existing ones. The current economic transition allows for a fundamental shift in economic development.

At the individual level, too, this contraction and reorganization can be beneficial. As firms now look outwards for vital production inputs and innovation, small companies and enterprising individuals are provided a chance to stake their own claim in new markets and supply chains previously dominated by large corporations. It creates the impetus for all Ontarians, whether engaged in leading-edge technologies, basic services and even manufacturing to think more broadly about their options during their working lives.

And as is the primary focus of this paper, many regions stand to benefit as the prevailing spatial order for production activity is thrown into flux. This is particularly the case in

economic hinterlands to turn towards more sustainable and competitive forms of industrial development. But also for those who are looking to enhance their local competitive edge against highly innovative jurisdictions across the globe. In a word, this means the opportunity to become more *entrepreneurial*.

An opportunity founded on self-employment

In the most basic sense, entrepreneurship is the introduction of new activity to the economy, be it through the creation of a novel product or service, or a new way of delivering those that already exist. The individuals behind this activity pursue work for themselves so that they retain productive control and/or ownership, and reap the rewards of success – or endure the costs of failure. It can therefore be said that, at the foundational level, entrepreneurship is compelled by, and ultimately attributable to self-employed work.

For much of modern history, this type of work was a defining characteristic of the urban economy, with the majority of businesses comprised of owner-operated shops and independent artisans. Even after the full-scale reorganization of production with the industrial revolution and well into the 20th century, independent proprietors represented the major segment of cities' commercial activity. But with the end of World War Two, and the rise of Fordist-era corporate structure, prevailing work arrangements in most Western countries changed. There was a dramatic increase in stable, prosperous jobs and, as a result, workers became less inclined towards pursuing work for themselves. In the late 1970s, when large firms such as General Motors were at the height of their ascendancy, roughly 6 percent of workers in Canada were self-employed in their own businesses, incorporated or otherwise – lower than at any time in the past half-century.

However, during the last decades of the 20th century this trend reversed. For many countries in the developed world, the rate of nonfarm self-employment increased substantially – in Canada, the self-employment rate increased consistently until the mid-1990s when it was higher than at any other time in the previous 40 years. Indeed, during that decade the rise in the number of self-employed workers accounted for all of net employment growth in this country (Manser & Picot, 1999). And while the proportion of self-employed workers has levelled out somewhat in the period since, it remains around 10 percent of the total labour force, or almost 2 million Canadian workers. For a substantial number of Canadians, entrepreneurship is the reality of the creative age.

Among them is Mike Lazaridis, founder, president and CEO of Waterloo-based Research in Motion (RIM), manufacturer of the ubiquitous Blackberry handheld device. His story has been often-repeated, and bears a striking resemblance to that of other highly successful technology entrepreneurs – albeit with a Canadian twist. The Turkish-born son of immigrants to Ontario drops out of the University of Waterloo prior to completion of his degree, starts a small technology enterprise, eventually finds a partner who augments his skills with business acumen (Jim Balsillie), and then, with time, the technology explodes. Mr. Lazaridis is what many regard as the real, perhaps even heroic, entrepreneur: working from a basic idea, facing down formidable market challengers through innovative solutions, and then ultimately reaping the reward of his success.

Likewise he opened substantial new market opportunities for other venturesome individuals and became the anchor tenant for Canada's Technology Triangle, one of the most innovative regions in North America.

But entrepreneurial opportunity in Ontario is by no means limited to just high-technology sectors. Noted prominently in the *Ontario in the Creative Age* report is the Four Seasons hotel chain for its ingenuity in routine-oriented work. What isn't mentioned is that this highly successful multinational corporation began with a single hotel in downtown Toronto, opened by Isadore Sharpe in 1961. Sharpe was trained as an architect, but realized his entrepreneurial potential in an entirely different industry: hospitality. The Four Seasons headquarters remains in Toronto. A similar story could be told for Frank Stronach and Magna International (started as a small investment company in Toronto in 1956). Now Ontario's largest automobile parts manufacturer and one of the few major sector participants to as of yet successfully weather the current economic downturn – Stronach was initially trained as a tool and die maker. It is never certain from which set of skills or industry the most successful forms of entrepreneurialism emerge.

And there are countless others as well. We now discuss entrepreneurship in reference to a diverse array of sectors and enterprise types, including those previously thought to be outside the purview of the market. For example, many cultural professionals including artists and musicians are considering new ways to build markets and create new sources of income from their work. They do not necessarily see this as diminishing their integrity as artists; indeed for many, licensing rights, promotional spots and marketing across multiple commercial platforms may be necessary to support more individualistic pursuits. The term "social entrepreneurship," defined by the double bottom line of profitability and net social benefit, has also entered the lexicon as a way for enterprising principles to be melded with civic and environmental responsibility. And even when market incentives are virtually absent, such as in not-for-profit sectors, "thinking as an entrepreneur" is encouraged. Although creating a social organization, charity, or political movement may be compelled by an altogether different set of values, idealism alone is not enough for success: one must be audacious in vision but pragmatic, resourceful and responsive in execution – as with any other form of entrepreneurship.

What links all these workers together, from the founder of the leading high-technology firm to the enterprising community organizer, is that at a critical point they chose to break away from more conventional (and often comfortable) work arrangements. For these workers, self-employment may be a way to break from the constraints of a prejudiced or short-sighted employer. It may also be the path that best allows them to fully capitalize on the value of their idea. (As I demonstrate later in this report, average earnings are greater for self-employed than conventionally-employed wage and salary workers across a broad range of sectors.) But at the same time, when individuals forsake conventional employment, whether by choice or necessity, they expose themselves to acute financial risk and psychological stress – in some cases to an extent that undermines the potential benefits. It is for this reason that entrepreneurship represents an *opportunity* rather than a defined path towards broadly shared prosperity in Ontario.

Why city-regions matter for entrepreneurship, and vice-versa

As we look towards enhancing the likelihood of success for such individuals, many consultants and researchers have focused on the importance of developing particular personal qualities, such as enterprising skills, and the need for a robust yet realistic business plan. Others have focused on the need for effective national-level policies, such as clarifying the tax code for self-employed work. But an often neglected fact is that when it comes to entrepreneurial opportunity, place matters almost as much as any other factor. For one, this is simply a matter of efficiency. If one is closer, or better linked into customers, clients, suppliers and collaborators they can greatly enhance the opportunity for developing new relationships and reduce the cost and time involved with existing ones. Alternatively, if one is located too far from these networks, they may have difficulty succeeding. But place also matters because of the external economies – or spillovers – that are created among clusters of individuals and businesses. As many regional economists and geographers have long noted, such spillovers of market knowledge, innovative practices and personnel that create benefits to enterprises, especially those in the earliest stages of development, are non-existent when they operate in isolation.

And the reverse is also true; regions must be attractive to and supportive of enterprising individuals and innovative new businesses. Historically, policy related to economic development has been geared towards attracting firms from elsewhere, either to relocate or establish branch plant operations. As noted by Acs et al., “such ‘smokestack chasing’ – or, in this cleaner era, simply ‘firm chasing’ – often has degenerated into what is essentially a zero-sum game for the national economy,” as one city’s success at attracting a firm through tax breaks or other inducements, comes at another’s expense (2008, p. 2). In contrast, the *positive sum game* comes through the formation and growth of new firms. This is particularly the case for those cities that do not have readily apparent natural strengths, such as strong urban network linkages, fortuitous physical location, or jurisdictional advantages. But even when a region seems naturally supportive of emergent enterprises, such as Silicon Valley in the US, it often involves significant further support from public funding agencies (e.g., defence contracting) – the importance of government support, although insufficient on its own, should also be recognized.

Report outline

The report proceeds as follows. After addressing the methodology and approach of this research, I consider the “renaissance” in self-employed work across Canadian provinces over the past three decades. Using research and statistics available at the international level I describe how Canada, like a number of other OECD countries, has seen a dramatic increase in self-employment levels and the implications of this trend for future economic growth. In Ontario, the self-employment rate has risen substantially since the early 1970s, with the self-employed labour force growing at more than two times the rate of wage and salary employment. I then explore some of the reasons that have been used to explain this shift towards more self-employed work in Canada and Ontario economy including the dual incidence of rising levels of education and increasingly perilous working conditions for those with low levels of human capital; cultural attitudes that indicate a preference for self-employed work; and cyclical trends – although there is

significant debate about macroeconomic effects such as the rising unemployment, on self-employment rates. In addition to these individual and economy-wide characteristics, which have already received ample attention from Canadian researchers at the national level, I discuss differences in self-employment activity across city-regions both in Ontario and Canada, linking this discussion to similarly-minded research recently released in the United States. The rate of participation in self-employment varies significantly across the province's urban regions, with relatively high levels in major urban centres such as Ottawa and Toronto, and low levels in peripheral, primarily manufacturing cities such as Sudbury, Windsor and Thunder Bay.

Important research is currently being conducted to systematically understand some of the reason why cross-regional differences in overall self-employment continue to prevail (see for example Acs et al., 2008; Glaeser, 2007). In this paper I draw upon this work for conceptual understanding, but instead of replicating their research I seek to introduce a new way of conceiving entrepreneurial opportunity for Ontario's city-regions. First, rather than consider entrepreneurial activity among the urban labour force as whole, I distinguish between three occupational skills groups identified in the *Ontario in the Creative Age* report, based on the categories first introduced by Florida (2002): creativity-oriented and routine-service and routine-physical (collectively referred to as routine-oriented) work. Through this analytical filter, I present the industrial sectors of Ontario's economy in which self-employed workers – belonging to each of these skills groups – tend to predominate. For example, while professional services and research and development comprise 14 percent of wage-salary creativity-oriented workers, 41 percent of all creativity-oriented *entrepreneurs* are involved in these knowledge-intensive areas of economy. I then consider entrepreneurial activity in five key sector groupings in further detail: two of which are primarily creativity-oriented: high-technology, information and culture; and three which are routine-oriented: local market and personal services, physically-intensive services, and physically-intensive manufacturing. Here I introduce the Entrepreneurship Index, a composite measure which I use to gauge entrepreneurial opportunity, in the broadest sense, within these sectors across different regions. The index includes the share of self-employed workers in the sector grouping or the size of the cluster (i.e., Location Quotient) depending on its local versus extra-local, or *traded*, orientation, respectively. (For the sake of this analysis, local market and personal services and physically-intensive services are considered to have a more local orientation, while high-technology, information and culture, and physically-intensive manufacturing sectors are considered to be traded industries.) But rather than consider participation or cluster size in isolation, I also take account of the vibrancy of the regional environment as indicated by the 5-year growth rate in self-employment and the regional strength and productivity of local industries as indicated by average employment income.

What is made clear through these descriptive statistics is that while there are common features that make some regions attractive to entrepreneurs across all sectors – for example, metropolitan population size – there tends to be significant variation between those regions that are demonstrably fertile for entrepreneurial activity in more creativity-oriented versus routine-oriented sector groupings. For example, creativity-oriented sectors tend to benefit by the strength of local civic institutions, while entrepreneurs in routine-oriented sectors tend to benefit by high levels of growth in the

local market. I conclude with a discussion of the policy implications of this work in the context of Ontario, and a broad proposal for ensuring that entrepreneurial opportunity is maximized across all regions, for all Ontarians.

Methods and approach

Research into entrepreneurship can be divided into two streams of thought. On the one hand, ample attention has been paid to the particular conditions that either foster, or diminish the possibility for new businesses to emerge and prosper in urban regions. These entail the particular socio-economic qualities of a place – including the prevailing industry mix, presence of innovative firms and vibrant research institutions, as well as investment and regulatory conditions. Policy responses in this area have been apt to focus on strengthening young enterprises and reducing the various market barriers that can prematurely stifle their competitiveness. In Ontario, these have included business mentorship services, networking resources, advocacy programs, low-rent incubator facilities and investment funds to support innovation and commercialization – with various levels of success.¹ We might refer to these priorities as reflecting an *environmental resource* approach to entrepreneurship in Ontario.² Research work by McQuaid (2002), Feldman and Desrocher (2003), Feldman (2001), Malecki (1994), and Saxenian (1996) have shed significant light on this area of entrepreneurship within regions.

On the other hand, entrepreneurship is about novelty, innovation and resourcefulness on the part of individuals. It is about their ability to capitalize on the power of an idea and transform it into a product or service that is useful to society. Therefore, it is the presence of risk-taking, enterprising, highly-skilled, but also highly-motivated individuals that determines a region's entrepreneurial potential at a fundamental level. This is an area that has received far less attention. I refer to this as the *human resource* approach.

This paper is positioned between these two distinct but interrelated streams, drawing upon the analysis of what makes a region an innovative, entrepreneurial environment, but approaching this by analyzing the entrepreneurs themselves. As such, I employ statistics relating to self-employment as the fundamental unit for analyzing the entrepreneur. Based primarily on profile data from the most recent Canadian Census of 2006, this report is intended to provide a detailed cross-section of self-employment activity by occupation, industry and regional geography (i.e., CMAs) in the province of Ontario.

Previous research, primarily focused on the US, has employed firm level statistics as a means to gauge successful business creation (i.e., business formation, turnover, proportion of fast-growing firms). However, while these data allow researchers to observe some important dynamics, they reveal little about the factors that compel and differentiate entrepreneurship in the first place. A business does not emerge without an

¹ Particularly important recent initiatives have included the Regional Innovation Network program and the Ontario Centres of Excellence. Refer to Creutzberg (2006) and the Toronto Region Research Alliance (2007) for summaries of these initiatives.

² Important research specific to Ontario has been conducted by the University of Toronto's Program for Globalization and Regional Innovation Systems (PROGRIS). See, for example, Gertler and Wolfe (2004).

individual or group behind it. Furthermore, in Canada, time series analysis of firm formation is notoriously unreliable given classification problems. Because both of these areas are of interest to this paper, firm level statistics were deemed to be too limiting.

But the focus on self-employment as opposed to firm level statistics in studying entrepreneurial activity presents a set of issues that should be addressed up front. For one, self-employment data does not provide a means to distinguish between highly innovative as opposed to more imitative entrepreneurs. This is to say it captures both Mike Lazaridis and the independent retailer selling cell phone accessories at a mall kiosk. While this is a concern in research that attempts to strictly isolate for highly innovative areas of the economy; in this paper I take a more holistic approach to the study of entrepreneurship. The opportunity for entrepreneurship in Ontario is not strictly limited to the introduction of innovative new technologies or the creation of valuable intellectual property. Rather, it can be vested in creative new approaches to service delivery and production methods across a wide range of industries. Therefore, I distinguish between sector groupings as creativity-oriented (i.e., where competitive strength is more often innovation-led) versus routine-oriented (i.e., based on conventional or routine practices, performed with various levels of skill and effectiveness). However, given my focus on assessing opportunity for entrepreneurship rather than measures of success for entrepreneurs, I consider all self-employed workers, as defined by Statistics Canada, as potentially entrepreneurial.

Finally, a brief word on data sources. While I primarily use aggregate statistics available from the most recent Canadian Census, much of the existing research I draw upon in Canada is based on other forms of survey data. There are potential discrepancies that arises from reporting findings both from the Census (large-sample, limited time frame) and microdata sources (small-sample, long time frame). For example, the Labour Force Survey, which is the source of most findings related to socio-economic determinants and cyclical trends consistently over-report self-employment as compared to the Census. (This is due in part to some persons being considered as paid employees in the Census, but being considered as self-employed without a business in the Labour Force Survey.) As a result, when reporting the work of other researchers, I present their key findings rather than specific statistics.

The 'renaissance' of entrepreneurship

A 2000 report issued by the Organization for Economic Co-operation and Development highlights the prominence of self-employment in job growth for many member countries since the 1970s. While in some countries, growth in self-employment has been modest (e.g., the United States) or negative (e.g., France), in Canada, Germany, the United Kingdom and others, self-employment has increased at a greater rate than civilian employment as a whole.

FIGURE 1 THE SELF-EMPLOYMENT RATE IN CANADA HAS RISEN SUBSTANTIALLY IN RECENT DECADES AND HAS SURPASSED THE UNITED STATES SINCE 1990.



Source: Author's analysis based on data from the Organization for Economic Co-operation and Development, *SourceOECD Employment and Labour Market Statistics - Employment by activities and status Vol 2008 release 01 - Emploi par activités et par statut Vol 2008 édition 01*

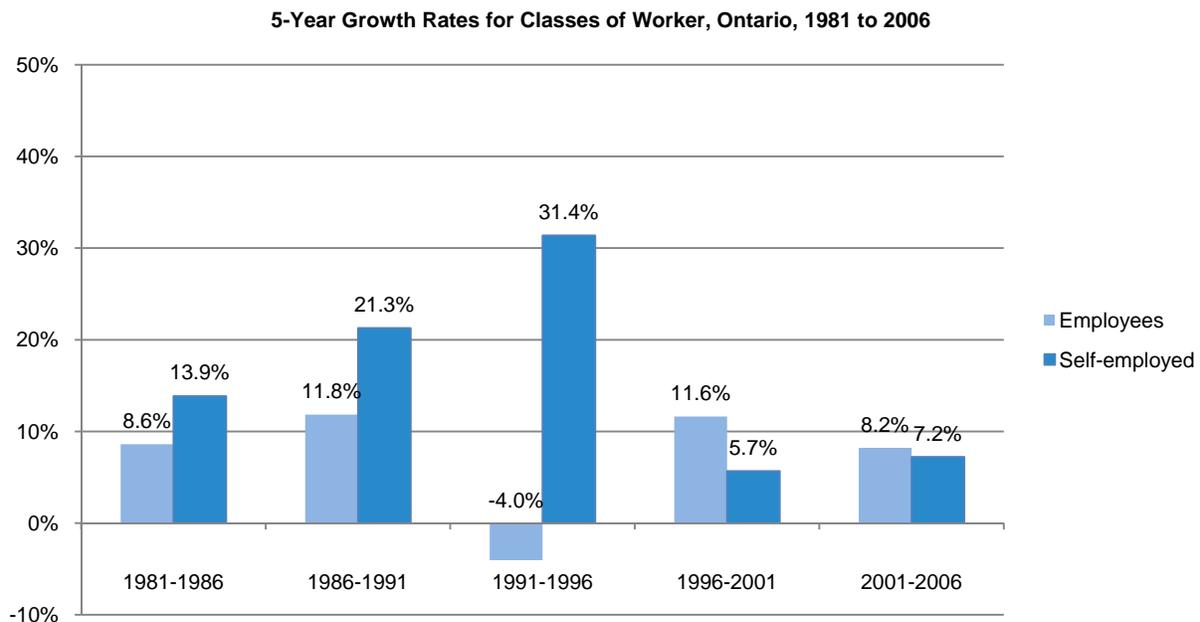
From a historical perspective, this runs counter to the expected trend. As economies mature and develop, it is thought that individuals formerly engaged in small-scale enterprises will pursue employment in increasingly larger organizations – either by choice or necessity. Indeed, this was the pattern that Canada followed for much of the 20th century, as individuals began to take the stable and relatively high-wage jobs offered in rapidly expanding manufacturing sectors, as well as the services provided up and down the associated value chain. By the end of the 1960s, just 6 percent of the non-agricultural workforce was classified as self-employed, the lowest national rate of the past 50 years.

But starting in the early 1980s and the restructuring that attended the deep recession of 1980-82 this trend began to reverse. Across a broad range of sectors, self-employment rates rose steadily in Canada until the turn of the century. And while the overall self-employment rate remains modest in comparison to a selection of OECD economies

(Figure 1), Canada experienced one of the highest rates of growth in self-employment relative to paid employment from 1980 to 2000 among the OECD countries (OECD, 2000, p. 159). Indeed, during most of the 1990s, self-employment accounted for all of net employment growth within this country (Manser & Picot, 1999).

Since 1980, self-employment in Canada's largest province has grown at a greater rate than employment as a whole, averaging 7.7 percent annually compared to 3.3 percent for conventional employment. In fact, during the early 1990s, self-employment accounted for all of net job growth in Ontario, attesting to its crucial contribution to the provincial economy during a period of general contraction (Figure 2). As with the rest of the country, the provincial self-employment rate peaked during the mid-1990s, and experienced modest decline in the latter part of the decade. But in the period since, this sector of employment has increased at a nearly equivalent rate to conventional wage-salary work.

FIGURE 2 GROWTH IN SELF-EMPLOYMENT HAS BEEN EQUAL TO OR EXCEEDED WAGE-SALARY EMPLOYMENT IN ONTARIO DURING ALL BUT ONE OF THE PAST FIVE CENSUS PERIODS.



In 2009, amidst significant uncertainty about the viability of conventional employment markets, some suggest that we will experience resurgent levels of self-employment similar to those observed in the early 1990s. As one prominent economist with CIBC recently articulated, “[There] is no doubt in my mind that the fastest-growing segment of the labour market in the next year or two will be self-employment. If you go back to the 2001 recession, such employment was rising faster than any other segment” (quoted from Grant, 2008).

What compels entrepreneurship in Ontario?

Research that has sought to explain the factors behind changing self-employment levels in Ontario and the rest of the country typically rests on one of two rivalling assumptions, or some combination of both. The first suggests that individuals are compelled to pursue

their own business because of attractive factors: higher earning potential, improved job satisfaction, intergenerational links which predispose some towards entrepreneurship, as well as greater market opportunity made possible by advanced education, skills and work experience. This research is typically referred to as the “entrepreneurial pull” side of the debate, suggesting that it is because of inherent (or inherited) qualities or opportunity-driven perceptions that most individuals *choose* to become self-employed.

On the other side are those researchers who suggest that self-employment is in fact affected by negative cyclical changes in the economy, such that those workers unable to find gainful employment opportunity during a market downturn, have the incentive to pursue self-employment when they might otherwise choose not to do so. This is particularly the case for workers with below-average levels of education, among whom higher rates of self-employment generally prevail. These workers leave wage and salary jobs out of necessity and thus, are viewed as being subject to an “unemployment push” into self-employment or, as a one researcher puts it, “forced entrepreneurship.”

The reality is that self-employment in Ontario, as with the rest of the country, is driven by some combination of both push and pull factors. The strong preference for entrepreneurship, as well as higher earning potential among self-employed workers in many industry sectors suggests that, on average, self-employment may be viewed as an opportunity-driven phenomenon for a large portion of the labour force. Furthermore, despite the observation that more people work for themselves during periods of recession, the evidence for a direct relationship between self-employment levels and general economic conditions over a longer period is far less certain. Below I consider some of this evidence, in terms of cyclical trends as well as individual level characteristics. I then discussed a growing area for the discussion of variable self-employment and entrepreneurship rates – the city-region.

Cyclical trends

One of the most contentious issues relating to self-employment in Canada is the question of whether it is affected, positively or negatively, by cyclical trends in the economy. On the one hand, there is a school of thought that suggests that individuals are subject to a recession push into self-employment. This is to say, during extended periods of economic downturn individuals are compelled to establish their own business owing to a shortage of suitable opportunities in the paid employment market. Evidence in support of this hypothesis has been offered by Kuhn and Schuetze (2001) who suggest that the rise in Canadian self-employment has an involuntary dimension, but only when specified along gender lines. For men, increasing levels of self-employment appear to be attributable to diminished stability in the paid employment sector, while the increased levels among women largely resulted from higher retention rates in the self-employment sector of the long term – more women remain self-employed for longer periods of time. Moore and Mueller (2002) find a varied relationship between “push” factors and self-employment: involuntarily leaving a job is positively related to the propensity for self-employment, and while the likelihood of self-employment increases among workers who experience longer spells of unemployment, the effect is relatively small. Moreover, their statistical analysis does not indicate a significant relationship between flows into self-employment and the unemployment rate. Lin *et al.* (2000) have also made a compelling case that this evidence is not altogether significant.

But while the self-employment rate is not directly related to the overall health of the labour market, during periods of significant economic contraction and job loss, it is a simple truth that many workers are forced to pursue alternative sources of income outside of conventional employment markets. Given the current period of economic turbulence, it remains to be seen if more Canadians will find themselves forced to work outside of more conventional jobs, as much by necessity, as by opportunity. With the continued erosion of traditional sources of employment such as manufacturing, trends suggest that much employment growth in the near term will likely result from self-employment.

Individual characteristics

Personal fulfillment

Even at the best of times, the challenges in starting a business, both real and perceived, are numerous. But despite the financing challenges, market constraints, psychological risks of failure and multiple other tests of will that face individuals attempting to go it alone, the attraction of starting a business is generally high among workers. Blanchflower and Oswald (1999), citing international survey data, note that many individuals who are currently employed with a firm would, in fact, prefer to be self-employed. The majority of Americans sampled, 63 percent, indicated that they would prefer to work for themselves if given the opportunity, and roughly half of Britons and Germans responded the same way. European survey data cited by the OECD (2000) indicates a more modest preference for self-employment, 26 percent; however, this expressed preference among the employed (both employees and self-employed workers) is significantly higher than the self-employment rate in most countries. Similar survey results were not available for Canada, however, Menzies (cited from OECD, 2000) notes that the preference for entrepreneurship is differentiated along gender lines, with men more likely to select self-employment for the independence it offers, 47 percent, compared to 32 percent among women.

Educational attainment

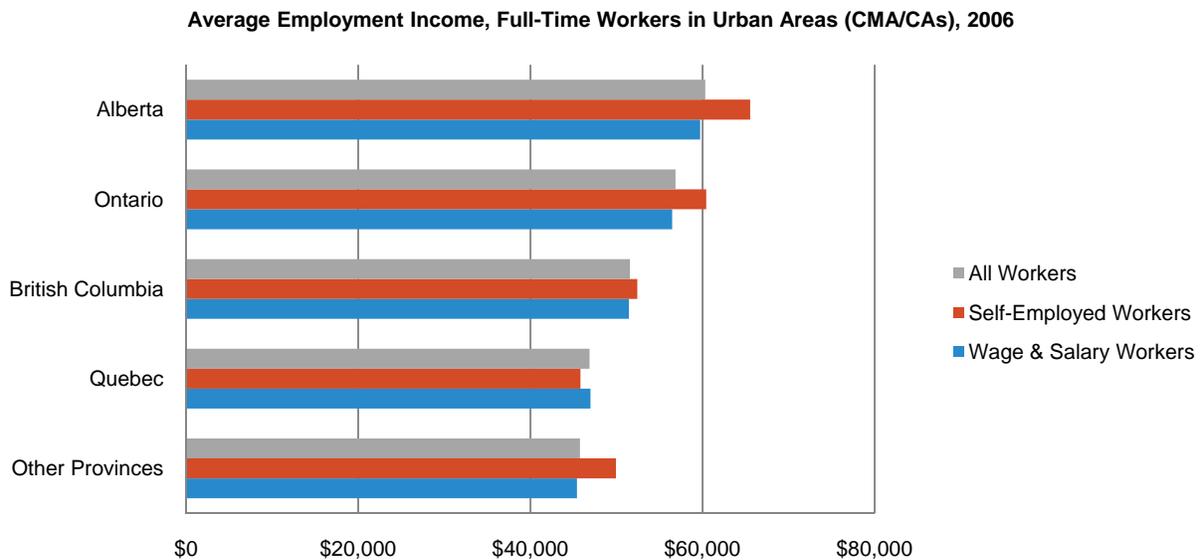
As one researcher notes, the preference for self-employment tends to increase with education, with the strongest preferences being expressed by young men with above-average education qualifications entering the labour market (OECD, 2000). And, in fact, one of the most effective predictors of self-employment among individuals – irrespective of the industry in which they are employed – is skills level. In Canada, research by both Manser and Picot (1999) and Finnie and Laporte (2003) suggest that when considering the effect of education on self-employment, it is greatest at the extremes. Finnie and Laporte, employing a survey of recent post-secondary graduates, show that those with a Bachelor's or advanced degree are more likely than diploma holders to become self-employed. Furthermore, immediately after graduation, individuals tend to take employment with a firm; and thus the self-employment rate among this group is quite low. But after 5 years on the job market, a period during which employment opportunities are generally understood to increase, self-employment rates actually rise (Finnie & Laporte, 2003). But as demonstrated by Manser and Picot, self-employment levels are also far greater than the average for those with little or no education, likely reflecting the difficulty that such workers encounter finding work in conventional markets.

Earning potential

For Ontario, there is some evidence that in urban areas, self-employed work may be compelled not just for psychological reasons, or as a result of changes within the labour market, but also the opportunity for increased earning potential. Self-employed workers are among the highest paid workers in the province, earning an average income that exceeds their wage and salary earning peers by almost \$4,000 annually (Figure 3). In fact, self-employed workers make more than conventional workers in the urban areas of all but three provinces – Quebec, Saskatchewan and Prince Edward Island.

In some provinces this differential is quite striking. For example, in Newfoundland and Labrador self-employed workers make almost 20,000 more than their wage-salary peers; although this differential is primarily owing to returns among health care workers, workers in business and finance, and education. While typically representing a smaller proportion of the total self-employed workforce in other provinces, these highly paid workers are particularly predominant in the Atlantic province’s relatively small entrepreneurial base.

FIGURE 3 SELF-EMPLOYED WORKERS IN ONTARIO AVERAGE \$4,000 MORE IN ANNUAL EARNINGS THAN WAGE AND SALARY WORKERS



Regional environment

The city-region is a relatively recent area of focus for those engaged in the study of entrepreneurship; increasingly it is understood that there are significant variations in self-employment and associated measures that cannot be understood through individual or economy-wide statistics alone. Recent research by Edward Glaeser (2007) and colleagues affiliated with the Kauffman Foundation (Acs *et al.*, 2008) has sought to elaborate the factors that affect differing levels of entrepreneurship across United States metropolitan areas, including self-employment. Among the researchers' most compelling findings was that approximately half of the variation in self-employment could be explained by both the demographic and industrial composition of a place. For example, self-employment rates were particularly tied to large numbers of older citizens. It is not surprising that Florida, with four of the five regions with the highest self-employment rates, is considered "a bastion of self-employment," in part, owing to its high proportion of retired residents. Looking at another measure of entrepreneurship, average firm size, the researchers note that a strong negative relationship exists with employment growth, suggesting that as entrepreneurship intensifies (i.e., firm size declines) overall employment levels increase. Other factors such as human capital levels contributed little to explaining cross-regional differences in self-employment levels.

Observing a different set of variables, Lee, Florida, and Acs (2004) also make an important contribution to our understanding about urban entrepreneurship. Consistent with the findings of Glaeser, the authors note that firm formation is closely associated with regional population and income growth. But they also argue that, far from a residual factor in analysis, culture is a significant contributor to differing levels of entrepreneurship at the regional level. Consistent with the arguments of Florida (2002), lower barriers to entry for individuals (as indicated by the presence of a diverse population) facilitate a more vibrant regional economy and, by extension, greater entrepreneurial opportunity. They find that creation of new firms tends to occur to a greater extent in regions that rank highly on the Creative Index. They also find that firm formation is positively and significantly associated with levels of diversity in regions, but not immigration.

When agriculture and public administration (in which no self-employment exists) are excluded from the analysis, the highest rates of self-employment are observed in the westernmost provinces, 14.5 percent in British Columbia and 12 percent in Alberta. Ontario and Quebec have self-employment rates roughly equivalent to the national mean, 11.5- and 11- percent respectively. In contrast, the Atlantic Provinces generally have lower rates of self-employment, ranging from 9.5 percent in Prince Edward Island to 5.5 percent in Newfoundland and Labrador.

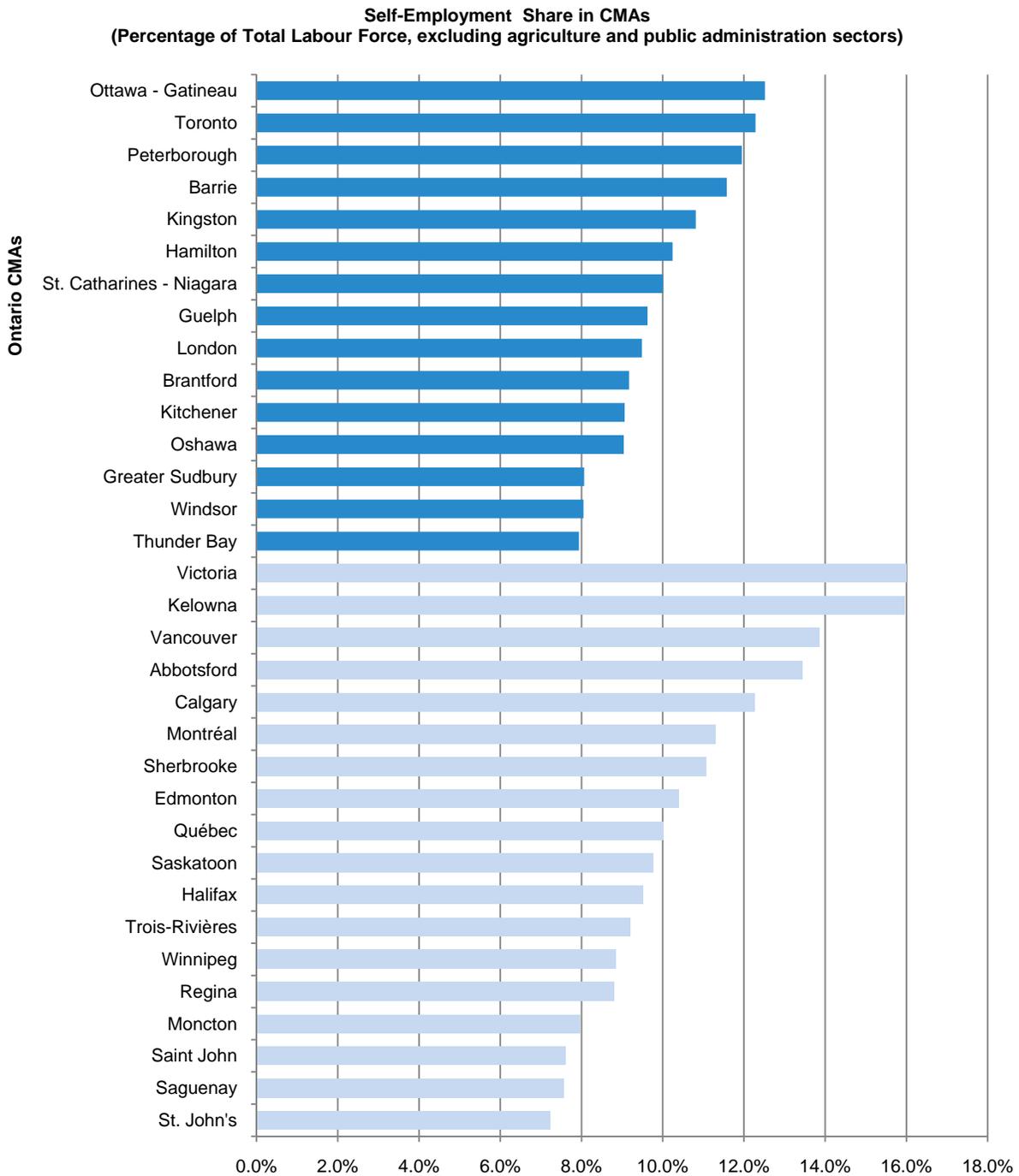
Likewise, among urban regions, the highest self-employment levels in the country are observed in British Columbia's metropolitan regions, and generally high rates prevail among other western cities as well. Conversely, the lowest levels of self-employment are generally observed in Atlantic cities such as Moncton, NB and St. John's, NL (Figure 4).

Within Ontario, self-employment levels vary to a far greater extent than observed in any other single province in the country. For example, the self-employment rate in Ottawa-Gatineau is more than 1.5 times that of Thunder Bay.

Ottawa-Gatineau and Toronto, respectively, have the highest rates of entrepreneurship of any metropolitan region outside of British Columbia, and rank ahead (albeit, slightly) of Calgary, one of the most dynamic and fastest growing large metropolitan regions in the country. Behind these two major centres and, along with Montreal, rounding out the top ten, are Peterborough and Barrie – small and relatively fast growing urban regions within Ontario.

The preceding observations point to two key factors that at least partially correspond with overall self-employment rates in Canada's city-regions. The first is that high-levels of self-employment tend to occur in large, diverse, talent-rich regions such as Toronto, Ottawa, Vancouver, Calgary and, to a lesser, extent, Montreal. The second is population growth. Fast growing regions such as Barrie, Kelowna, Sherbrooke, have relatively high rates of self-employment compared to other CMAs in their respective provinces. On the flip side, regions with slow or negative growth such as Saguenay, Saint John, NB, and Regina have relatively low rates of self-employment. This, of course, is not surprising. Regions with a rapidly expanding population base also tend to provide significant new opportunity for business owners, whether it is servicing the local population or other businesses. In Ontario, urban areas that have traditionally been largely dependent on manufacturing or primary industries for employment growth, such as Windsor, Sudbury and Thunder Bay, large firms dominate the job market and a much smaller portion of the labour force is engaged in entrepreneurial activity.

FIGURE 4 HIGH LEVELS OF SELF-EMPLOYMENT TEND TO BE OBSERVED IN WESTERN CITIES, LARGE METROPOLITAN REGIONS AND FAST GROWING CENTRES.



A new framework for looking at entrepreneurship

Typically when researchers discuss self-employment and entrepreneurship, they distinguish between two forms: first, that which is novel, fraught with risk and often disruptive at an economy-wide level – i.e., the innovation-led – and that which is primarily based on conventional practices and addressing local market deficiencies, i.e., the local and imitative. Glaeser (2007) distinguishes between these types of industries based on their human capital content – the proportion of the industry labour force with a Bachelor's degree and above. Consistent with the *Ontario in the Creative Age* report, in this paper I distinguish economic activity – in this case, industries – based on the skills employed by labour force (i.e., occupational mix) rather than their educational attainment. In this way, I describe two broad categories of entrepreneurial work in Ontario's economy – creativity-oriented and routine-oriented. (For a more detailed description of these categories based on occupations, refer to *Ontario in the Creative Age*.)

Creativity-oriented work

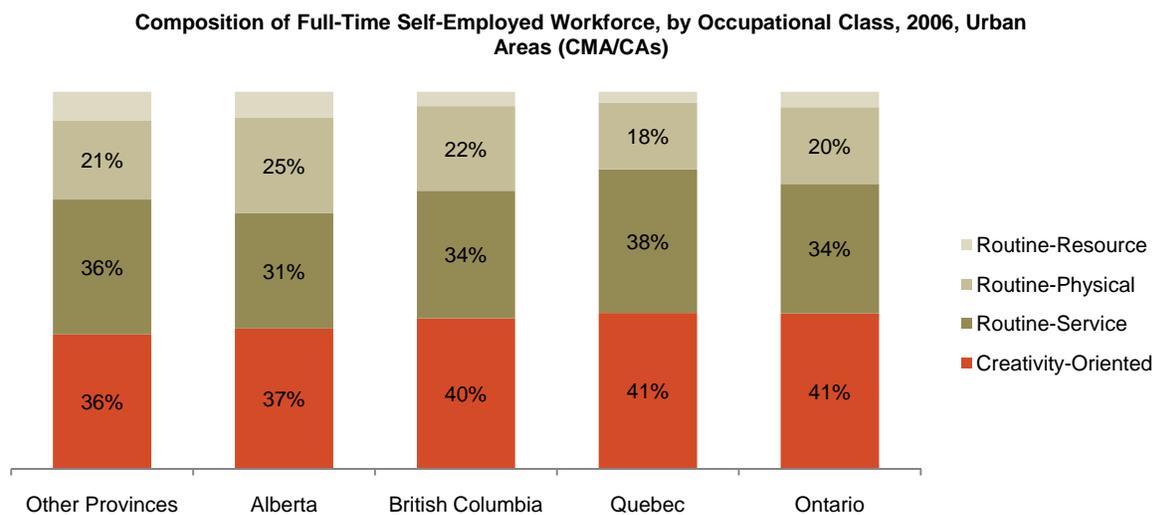
When we discuss entrepreneurship and innovation in a general sense, we tend to think first of work being done in leading edge, highly innovative sectors of the economy: information and communication technologies, health science and biotechnologies, media and design, and other R&D-intensive activity. In these sectors, individual success is not simply contingent on developing a viable business plan, but rather on the creation of novel – perhaps revolutionary – value creation, often against substantial intellectual odds or countervailing market forces. It is this type of work that Schumpeter described as “creative destruction,” premised on a form of competition not of price, but “the new commodity, the new technology, the new source of supply, the new type of organization – competition which commands a decisive cost or quality advantage...” (1975, p.84).

Although we have to be wary of taking this theoretical ideal too literally in a policy context – it necessarily involves the creation of some work at the expense of others – it is economic innovativeness that will create new and sustainable market advantages, enhanced productivity, and sources of employment for the province into the future. As we look forward this may come through the development of green technology in Guelph, information and communication in Ottawa or Kitchener-Waterloo, or medical technology in the Greater Toronto Area. And while large firms will continue to command many of the capital resources necessary to fully realize and deploy such innovation, much of the formative energy will necessarily be exerted by those economic actors who do not have a directly vested interest in legacy technologies or longstanding customer/client/supplier relationships.

This is why Schumpeter described the entrepreneur in heroic terms, standing above the crowd and creating new market spaces, or more favourable conditions for others to follow. Entrepreneurship in this vein often requires significant human capital resources, whether developed through years of schooling or natural business acumen. This holistic form of capital (neither based on educational attainment nor a single set of skills) is manifest most clearly in what Florida (2002) describes as *creativity* and embodies in the creativity-oriented worker.

The total self-employed workforce in Ontario’s urban areas is comprised of roughly 41 percent creativity-oriented workers (Figure 5). In the *Ontario in the Creative Age* report, the authors state the goal of having half of Ontario’s total labour force being engaged in creativity-oriented jobs by 2030. As it stands, the authors note, that number currently stands at roughly 30 percent of all jobs. If we consider just full-time workers, close to 35 percent of province-wide employment is currently found in creativity-oriented occupations. The move towards a more highly-skilled workforce is already advanced among Ontario’s self-employed workforce.

FIGURE 5 URBAN ONTARIO HAS THE HIGHEST PROPORTION OF SELF-EMPLOYED CREATIVITY-ORIENTED WORKERS AMONG CANADA’S FOUR LARGEST PROVINCES



Note: Because of my focus on urban entrepreneurship, self-employed workers in routine-resource occupations, which represent only 5 percent of workers in Ontario’s urban areas, are excluded from discussion and analysis in this paper.

In some regions, Ontario’s self-employed workforce already closely resembles the province-wide workforce that the report envisages two decades from now. Among all of Ontario’s urban regions (both CAs and CMAs), creativity-oriented work constitutes about 41 percent of all full-time self-employed workers. In rural regions, it is a much smaller share – about 20 percent. But in both Ottawa and Toronto, creativity-oriented workers represent close to 47 percent of regional self-employed workers. Even more striking is that only a fraction of these workers are engaged in educational services, and none are employed in government services – two of the larger contributors to creativity-oriented employment in the broader labour force. Clearly, if the goal set forth in *Ontario in the Creative Age* is to be achieved, a substantial share of those jobs will have to be created through the development of new businesses. Therefore it is imperative that attention be paid to the sectors in which creativity-oriented entrepreneurial activity is occurring, and those regions that have been successful in enhancing the opportunity for creativity-oriented entrepreneurs.

Routine-oriented work

As has been discussed in previous research released by the Martin Prosperity Institute, routine-oriented workers – primarily routine-physical, but also routine-service – have disproportionately borne the weight of job losses during periodic downturns of the past twenty years.³ And while there is no solid evidence that total self-employment levels are affected by recessionary cycles, when conventional job markets contract, working for one's self may be the lone remaining option available to avoid or mitigate for unemployment. Therefore, during this current downturn, it is imperative that we consider entrepreneurship among routine-oriented workers, not simply as a means for enhanced opportunity but, in some cases, as a necessary alternative to more traditional forms of employment.

Supporting entrepreneurship among routine-oriented workers presents a series of novel challenges. Entrepreneurship in creativity-oriented sectors may be a difficult and complex policy issue; but usually, at least, it consists of clearly identifiable market deficiencies for which market and non-market solutions can be sought. These often relate to accessing or securing sufficient financing, management skills, intellectual property rights, a reliable or accessible customer/client base or some combination of each. It is rarely for lack of novel or economically-valuable ideas – at least at the regional level. But for routine-oriented workers, entrepreneurship entails a host of other issues as well. It is not simply a matter of identifying and addressing market deficiencies within a region, although this is likely to be a component of policy support. It is also about putting incentives in place for those many workers, who may never have had to adjust their practices, to become more innovative in the goods they produce and especially the services they provide – for even among routine-physical workers, self-employment typically means delivering a service: employing trade skills within a project setting, making repairs, or transporting goods. For those workers who have traditionally relied on employment in a conventional firm setting, it means considering if their skills might more effectively – and gainfully – made use of through self-employment. For those workers who are already self-employed, it means upgrading their business plan, but also where possible, the types of services they deliver – to not just be self-employed, but to think as an entrepreneur.

Creativity- and routine-oriented sectors

In which industry sectors do creativity- and routine-oriented self-employed workers tend to work? If we observe the top five industry groups for self-employed workers in Table 1, it is clear that it is not just knowledge-intensive sectors that predominate among the creativity-oriented, rather it is those types of work that are chiefly contract- and project-based, particularly professional services and research and development. This set of “high-tier” services, includes sectors like advanced design and engineering, as well as consultancy services (ranging from environmental assessment to business strategy) and highly-specialized research work. Other high-value services such as legal and accounting are included in this group as well. What distinguishes these from lower-tier services is that their work is primarily dependent on human capital inputs, specifically the knowledge and skills of well-trained experts. Because this form of work typically occurs

³ For more information refer the December 2008 Martin Prosperity Insight, *Economic Pain Not Spread Evenly*, available from <http://martinprosperity.org/insights/insight/economic-pain-not-spread-equally>.

on an assignment basis, where an individual or team is responsible for delivering to a specific client, workers in this sector are apt to develop the skills necessary to effectively initiate projects and manage resources for themselves. When they feel that their initiative cannot be fully realized within the bounds of a conventional firm setting, and this independent impulse is supported by other resources (access to capital, etc.), they may be compelled to develop their own business. Furthermore, because these workers are often implicated within established professional associations or informal societies, they have ample networking resources to draw upon. And as was the case with architect cum hotel magnate Isadore Sharpe, the skills developed in the professional setting may successively be employed in entirely different, traditionally non-entrepreneurial sectors of the economy. It is therefore not surprising that creativity-oriented workers, when compelled by the entrepreneurial impulse, tend to pursue opportunity in these types of industries more than any other.

Routine-oriented entrepreneurs are primarily found in sectors with low-barriers to entry. Self-employed workers tend towards occupations with relatively modest training requirements and low capital inputs such as construction, hospitality and personal services, administration support services and real estate (Table 4). These are sectors in which work typically does not require advanced education, offer relatively low average income levels but, at the same time, they are also high-growth with large proportions of self-employed workers. It should be noted that while there is substantial opportunity in these industries, these high-growth, low-income industries are also particularly susceptible to business and real estate cycles. Therefore, they present significant opportunities for entrepreneurial activity during boom periods, but are typically the first to experience contraction during periods of recession. One merely needs to look at the breadth of newspaper articles covering lay-offs in the construction industry over the past couple of months to recognize this.

TABLE 1 KEY SECTORS OF EMPLOYMENT FOR SELF-EMPLOYED VERSUS WAGE & SALARY WORKERS, 2001

Creativity-Oriented Workers			
Self-Employed Workers		Wage & Salary Workers	
Top-5 Industry Groups	Share of Labour Force	Top-5 Industry Groups	Share of Labour Force
High-Technology Sectors			
Professional Services / R&D	40.4%	Education	15.2%
Ambulatory Health Care	12.3%	Professional Services / R&D	13.9%
Arts and Entertainment	5.1%	Health Care	11.7%
Contracting	4.1%	Finance and Insurance	9.8%
Administrative Services	2.9%	Government	8.9%
<i>Other Sectors</i>	<i>35.2%</i>	<i>Other Sectors</i>	<i>40.4%</i>
Routine-Service Workers			
Self-Employed Workers		Wage & Salary Workers	
Top-5 Industry Groups	Share of Labour Force	Top-5 Industry Groups	Share of Labour Force
Retail Trade	25.4%	Retail Trade	15.6%
Hospitality	13.6%	Health Care / Social Work	10.2%
Personal Services	11.8%	Government	9.5%
Administrative / Clerical Work	8.1%	Hospitality	8.5%
Social Work	6.8%	Banking / Insurance	5.9%
<i>Other Sectors</i>	<i>34.4%</i>	<i>Other Sectors</i>	<i>50.3%</i>
Routine-Physical Workers			
Self-Employed Workers		Wage & Salary Workers	
Top-5 Industry Groups	Share of Labour Force	Top-5 Industry Groups	Share of Labour Force
Skilled Trades	31.4%	Manufacturing	51.0%
Repair and Maintenance	15.3%	Transportation / Storage	11.1%
Truck Transportation	13.5%	Skilled Trades	7.8%
Manufacturing	11.7%	Wholesale Trade	4.9%
Contracting	10.1%	Contracting	4.1%
<i>Other Sectors</i>	<i>18.0%</i>	<i>Other Sectors</i>	<i>21.2%</i>

Among the occupational groups, self-employed creativity-oriented workers are the highest paid workers, on average in Ontario's economy. On average their earnings exceed those of creativity-oriented wage and salary workers by more than \$10,000, annually. Reflecting the significant potential income returns to lead innovators in fields such as business management and analysis, investment, research and development and, particularly, health care, the average annual income for creative class entrepreneurs is the highest among any class of workers in the province. Self-employed creativity-oriented workers are the only occupational skills class that make more, on average, than their wage-salary peers and do so by a substantial margin: while conventionally-employed creativity-oriented workers average close to \$75,000 annually, self-employed

creativity-oriented workers earn close to \$90,000 a year, an annual premium of \$15,000. This is comparable to Alberta where creativity-oriented entrepreneurs make a premium of almost \$16,000 a year, but far exceeds British Columbia and Quebec where self-employed workers make slightly more than \$4,000 and \$5,000, respectively, than their wage-salary peers.

Much of this premium is accounted for by the much higher wages of self-employed health care workers who, although designated as self-employed, may not necessarily be regarded as entrepreneurial in the traditional sense, owing to the highly-regulated nature of Canada's health care industry. But self-employed creativity-oriented workers also tend to earn more in professional services and R&D as well, about 15 percent according to the 2001 Census, the most recent year for which this cross-section is available (Refer to Figure 6). What this clearly reveals is that for Ontario's self-employed workers with advanced level of education or skill-set, working in sectors with modest regulatory burden or low public sector involvement generally means that entrepreneurial activity is substantially rewarded.

But a look at Table 1 also indicates another compelling fact about self-employed creative types, particularly those employed in arts and entertainment sectors. The reality is that while average earnings for these workers are high, many self-employed creativity-oriented workers are drawn to professions with low relative incomes, as Figure 6 demonstrates. This is the case for arts and entertainment sectors where self-employed workers outnumber their wage and salary counterparts by 60 to 40, but their rate of pay is roughly two thirds of what they could earn as employees. For many self-employed creativity-oriented workers in Ontario, it must be acknowledged that the rewards of working for one's self are far less tangible than simple economic returns.⁴

While self-employed routine-service workers make less, on average, than their wage-salary peers, there are a large number of industries – collectively providing work for more than half of this labour force – in which earning potential is actually enhanced. Although the average salary for all self-employed routine-service workers is lower than for those who earn wages and salaries, in some ways this statistic is misleading. In fact, there are a broad range of industries that actually offer greater earnings for self-employed work. For the majority of service-oriented workers (58 percent) in Ontario, self-employment entails average earnings that are equivalent to or greater than wage-salary employees in their respective industries. This is also the case for creativity-oriented workers (67 percent), but fewer than 1 percent of routine-physical workers (Figure 6).

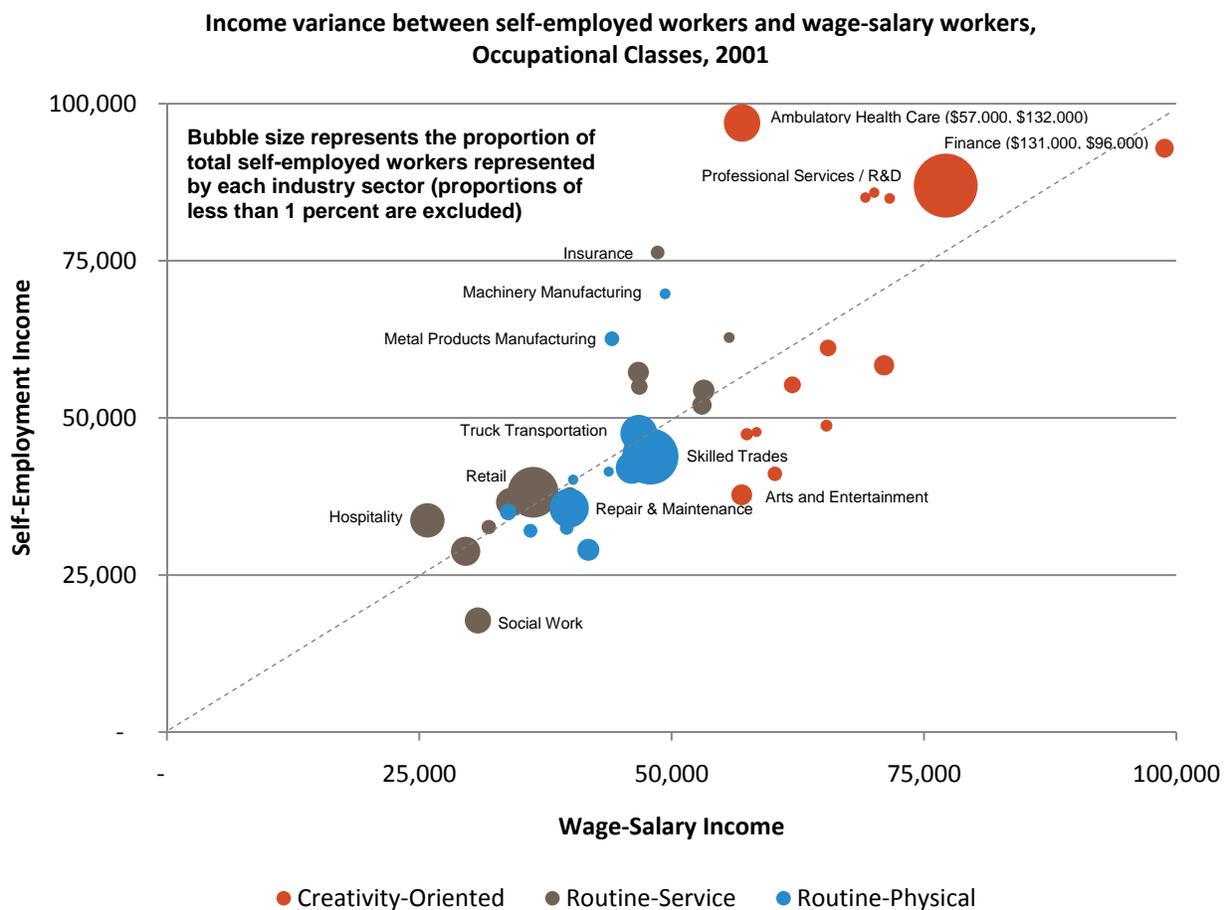
While creativity-oriented entrepreneurs are, as a whole, the most affluent class of workers in Ontario's economy, in actual fact, they receive higher wages than their wage-salary peers in a small number of industries – health care and professional services and R&D. In contrast, entrepreneurial opportunity is far more dispersed for routine-service entrepreneurs. Six sectors in which self-employment rates exceed 4 percent, self-employed routine-service entrepreneurs have greater average earnings than available through more conventional forms of employment.

⁴ For a more detailed discussion of the factors that compel one group of creativity-oriented workers, musicians, please refer to Brian Hrac's Martin Prosperity Institute working paper, *Building Ontario's Music Economies*.

Routine-service entrepreneurs are likely to have greater earnings across a wider range of industries, although in many cases by no more than \$3,000 a year. This implies that while self-employment does not offer the absolute rewards for routine-service workers that it does for the creativity-oriented, it offers a potential avenue for increased income. This is particularly the case in retail trade, administrative support and hospitality industries, where self-employment income and participation is relatively high.

Currently routine-physical entrepreneurship offers far less potential for increased income than available to the other classes. In only one industry, wholesale trade, do working class entrepreneurs make more than their wage-salary counterparts and, in that case, by only about \$3,000 a year. The objective for self-employment in all routine areas of the economy needs to be both enhancing the quality of opportunities, and allowing such workers to think in a more enterprising way about their market prospects.

FIGURE 6 ROUTINE-SERVICE ENTREPRENEURS MAKE THE EQUIVALENT OR GREATER INCOME THAN THEIR WAGE-SALARY PEERS IN A VARIETY OF INDUSTRY SECTORS, WHILE OPPORTUNITY FOR THE OTHER OCCUPATION CLASSES IS MORE SECTOR-SPECIFIC



Note: Analysis was conducted using 3-digit NAICS codes, however, where appropriate these have been aggregated into larger groupings (based on 2-digit codes). Income calculations are based on data collected for 2000, adjusted to 2005 dollars based on a 5-year annual rate of inflation of 2.5 percent.

The opportunity for entrepreneurship in Ontario city-regions

As has been discussed in previous sections of this paper, self-employed work has been a significant contributor to employment growth in Ontario over the past three decades. Furthermore, for a large number of both creativity- and routine-oriented workers, entrepreneurial work has represented a significant opportunity for improved earning potential. However, increasingly it is recognized by researchers that entrepreneurship must also be understood in terms of differences across city-regions.

Previous studies that have sought to describe cross-regional differences in entrepreneurship, primarily originating from the US, have typically ended with something resembling the preceding analysis – a general depiction of the self-employment rate, growth in activity and income. However this assumes that there is some consistency in what makes a region beneficent for one sector as to another. There is some evidence that this is in fact the case – at least in terms of levels of participation. In British Columbia's cities, self-employment levels are above the national average in almost every major industrial category. Yet, at the same time, income returns and growth are highly variable across industries in that province. As shown previously in Figure 4, one of British Columbia's CMAs, Abbotsford, has one of the highest proportions of self-employed workers in Canada – albeit the lowest in the province. And in this relatively small city, located about an hour's drive from downtown Vancouver, there is evidence that the opportunity for self-employed routine-oriented workers (particularly, routine-physical workers) has been significant. But it does not likewise follow that Abbotsford is entrepreneurial hotspot. In fact, on any measure employed in this report, it is among the worst performing regions in terms of entrepreneurship in creativity-oriented sectors (high-technology and information and culture), with one of the lowest rates of industry growth and a relatively insubstantial clusters in both sector groupings. What this is meant to illustrate is simply that the self-employment sector, while in many ways linked by common attributes, is highly diverse. And the types of resources or regional attributes that prove supportive to one sector do not necessarily provide the same value to another.

That is what the following section seeks to draw out. By separating out for sector groupings based on the skills that comprise each, I provide a distinct picture of the types of entrepreneurial opportunity that exist within Ontario's city-regions. By employing a composite measure, the Entrepreneurship Index, which looks at either cluster size or self-employment share, as well as growth and productivity, I provide a more robust profile of where entrepreneurial opportunity has been apparent in Ontario, and where it has lagged behind.

Sector groupings

A variety of industries could be included for consideration in this paper, however I have selected for five key sector groupings based on their entrepreneurial potential – based both on the presence of self-employed workers – such that telecommunication providers and other highly-centralized sectors are excluded – and the opportunity to open new market opportunities. Because some discretion was expressed in making these selections (e.g., some high-tier services such as accounting and legal services were excluded because they were deemed inappropriate to include in either of the creativity-

oriented sectors groupings), this research should not be considered a comprehensive analysis of entrepreneurship across all sectors.

Two sector groupings in this analysis are loosely described as creativity-oriented as per the preceding discussion. The first, high-technology sectors, includes the professional and R&D services described above (minus legal and accounting services) as well as number of advanced manufacturing sectors. The second is information and culture industries, which comprises those who work in areas of performance (predominately artists, musicians and other entertainers) as well as other cultural professionals such as recording studios, film production and advertising.

For routine-oriented industry groupings I generally use the top five industry categories described in the preceding section; thus creating three broad sector groupings: local market and personal service sectors, which predominately employ routine-service workers; and physically-intensive service sectors, which predominately employ routine-physical workers. The only exception is manufacturing – which is subdivided according to whether each subsector contains a greater proportion of creativity-oriented workers (in which case it is classified as high-technology) or routine-physical workers (classified as physically-intensive). Appendix A provides a complete list of 2002 NAICS industry codes used to compose each sector grouping.

Entrepreneurship Index

The Entrepreneurship Index is a composite measure of three factors considered important in assessing the quality of entrepreneurial opportunity within regions. The index is measured differently for those industry groupings likely to be focused towards broader provincial and national markets (both creativity-oriented sector groupings and physically-intensive manufacturing) and for the two routine-oriented sectors (local market and personal services, and physically-intensive services) that are primarily focused on local markets. For creativity-oriented sectors and physically-intensive manufacturing the three included variables are:

- (1) Self-employment cluster score (2001): This is a measure of the relative level of industry concentration within a region, as measured by the proportion of the regional self-employed workforce engaged in the target sector grouping.
- (2) Self-employment growth (2001-2006): This is a measure of 5-year growth in self-employed work for the target sector grouping.
- (3) Regional productivity (2006): This is a measure of total employment income for the target sector grouping. Due to data limitations and a desire to cover all geographies, the value used is the average employment income for workers in the target sector grouping, not self-employment income. As such, this measure can viewed in two ways: one, as a proxy value for the productivity of the local labour force and, two, the strength and dynamism of the local industrial market based on wage-salary competitiveness (with higher average incomes indicating greater intensity of competition for workers). In both respects, regional productivity bears highly on the opportunity for success among local entrepreneurs.

In calculating the Entrepreneurship Index for local market and personal services and physically-intensive services, both (2) self-employment growth and (3) regional productivity are included. But rather than (1) self-employment cluster score, which measures cross-regional concentrations of industry-specific entrepreneurs, I employ a measure of the share of workers in the target industry who are self-employed. The reason for this is that while creativity-oriented sectors tend to be specialized industries which are concentrated, or clustered, in specific locations and serving broader provincial and national markets, routine-oriented service sectors tends to be dispersed across all regions, primarily serving the local population. So long as they are focused on serving the local market, there is likely to be an upper threshold for the size of these sectors. Furthermore, because they service a limited market, competition is likely to be pronounced among these producers, and the benefits of clustering, long recognized for traded industries, may be less apparent in these sectors. Therefore, the key focus here is not the concentration of entrepreneurs in these industry groupings operating in the region; rather it is whether or not workers who do provide these local services have a higher propensity to be self-employed. Therefore the following variable is employed for the local market and personal services and physically-intensive service industries:

- (4) Self-employment share (2006): This is a measure of the share of the target industry workforce classified as self-employed.

The Entrepreneurship Index score for a given city-region is calculated as a composite value, based on the region's relative rankings on each of the variables described above, weighted equally. All 34 national CMAs are included in the rankings, with 1 representing the highest value and 34 the lowest. The Entrepreneurship Index score varies between 1 (which corresponds to a 1st ranking on all three variables) and 0 (34th on all three variables). For each set of Entrepreneurship Index scores based on sector groupings, CMAs are divided into three tiers for the sake of discussion. For the reasons discussed above, a high relative score on the Entrepreneurship Index is considered to be indicative of higher entrepreneurial opportunity in the given industrial cluster from a national perspective. In what follows, I provide a detailed discussion of the results of this analysis for Ontario.

Unleashed potential: Creativity-oriented entrepreneurship in city-regions

As mentioned above, creativity-oriented workers are over-represented among the self-employed when compared to the labour force as a whole. Given the increased prevalence of self-employment and its contribution to provincial job growth, creativity-oriented entrepreneurship will be critically important to the ongoing prosperity of the provincial economy.

However, the opportunity for this type of work is not evenly distributed across Ontario's urban regions. If we consider two key industrial groups in which creativity-oriented workers predominate, high-technology and information and culture industries, Ontario's CMAs are distributed across the spectrum, when ranked nationally using the Entrepreneurship Index (Tables 2 & 3, Figures 7 & 8, national results are provided in Appendix B). Some, such as Toronto, Ottawa, Guelph and Hamilton, perform consistently well on both scores; while others, such as Kingston and Thunder Bay, indicate a far less favourable regional environment for entrepreneurship in creativity-oriented sectors. Still others rank highly on only one measure – notably Kitchener-Waterloo, which ranks behind only Calgary nationally for high-technology entrepreneurship, but appears far lower for information and culture (ranking 22nd).

What factors characterizes those regions with higher levels of entrepreneurial opportunity in creativity-oriented sectors? The first is the scale and diversity of the city-region. Ontario's three largest and, most cases, culturally-dynamic urban regions – Toronto, Ottawa and Hamilton – each have substantial clusters of entrepreneurs in high-technology – in the case of Ottawa, the largest in the country – as well as information and culture. Furthermore, as measured by average employment income, levels of regional productivity in both groupings are among the highest in country in these three regions. And while growth has been modest in relation to smaller regions in the province; self-employment in these sector groupings have nonetheless remained vibrant in Ontario's large centres. In the case of Ottawa, while wage-salary employment in professional services and R&D declined by 10 percent, or roughly 3,000 jobs from 2001 to 2006, self-employed work in these same sectors increased by roughly 10 percent - almost a thousand workers.

The fact that entrepreneurial opportunity in creativity-oriented sectors is concentrated in Ontario's largest centers is not an altogether surprising observation. On the one hand, it indicates that early-stage businesses and own-account workers tend to disproportionately benefit from the scale and sophistication of the local market, as well as linkages to other national and global markets unique to these hub cities. These linkages benefit entrepreneurs by potentially increasing the number and quality of clients and contract opportunities, as well as enhancing access to prospective collaborators and product exposure. But it also points to the fact that, as with creativity-oriented workers as whole, self-employed workers in these sectors, typically highly-skilled and mobile, choose to live and work amidst the cultural diversity and amenities particular to big cities. Major urban centres elsewhere in the country – primarily Calgary, but also Montreal and Vancouver – also represent above average opportunity for entrepreneurship in these sectors. In Calgary and Vancouver, overall growth in these sectors has been exceptionally strong over the past decade, reflecting the general dynamism of urban economies in the west during the past decade.

TABLE 2 ENTREPRENEURSHIP INDEX FOR HIGH-TECHNOLOGY SECTORS, ONTARIO CMAs, 2001-2006

Census Metropolitan Area	Self-Employment Cluster Rank	Self-Employment Growth Rank	Regional Productivity Rank	Entrepreneurship Index Score (National Rank, N=34)
<i>Top Tier</i>				
Kitchener - Waterloo	11	8	4	0.77 (2)
Ottawa	1	23	1	0.75 (3)
Toronto	3	24	3	0.71 (4)
Guelph	8	14	10	0.69 (5)
Hamilton	14	18	5	0.64 (9)
<i>Middle Tier</i>				
St. Catharines - Niagara	19	4	22	0.56 (14)
Oshawa	17	25	6	0.53 (16)
Windsor	28	7	14	0.52 (17)
Barrie	27	17	7	0.50 (18)
London	18	6	29	0.48 (19)
Brantford	33	2	23	0.43 (22)
<i>Bottom Tier</i>				
Thunder Bay	23	15	30	0.33 (24)
Kingston	25	34	11	0.31 (26)
Peterborough	31	22	19	0.29 (28)
Greater Sudbury	22	28	28	0.24 (30)

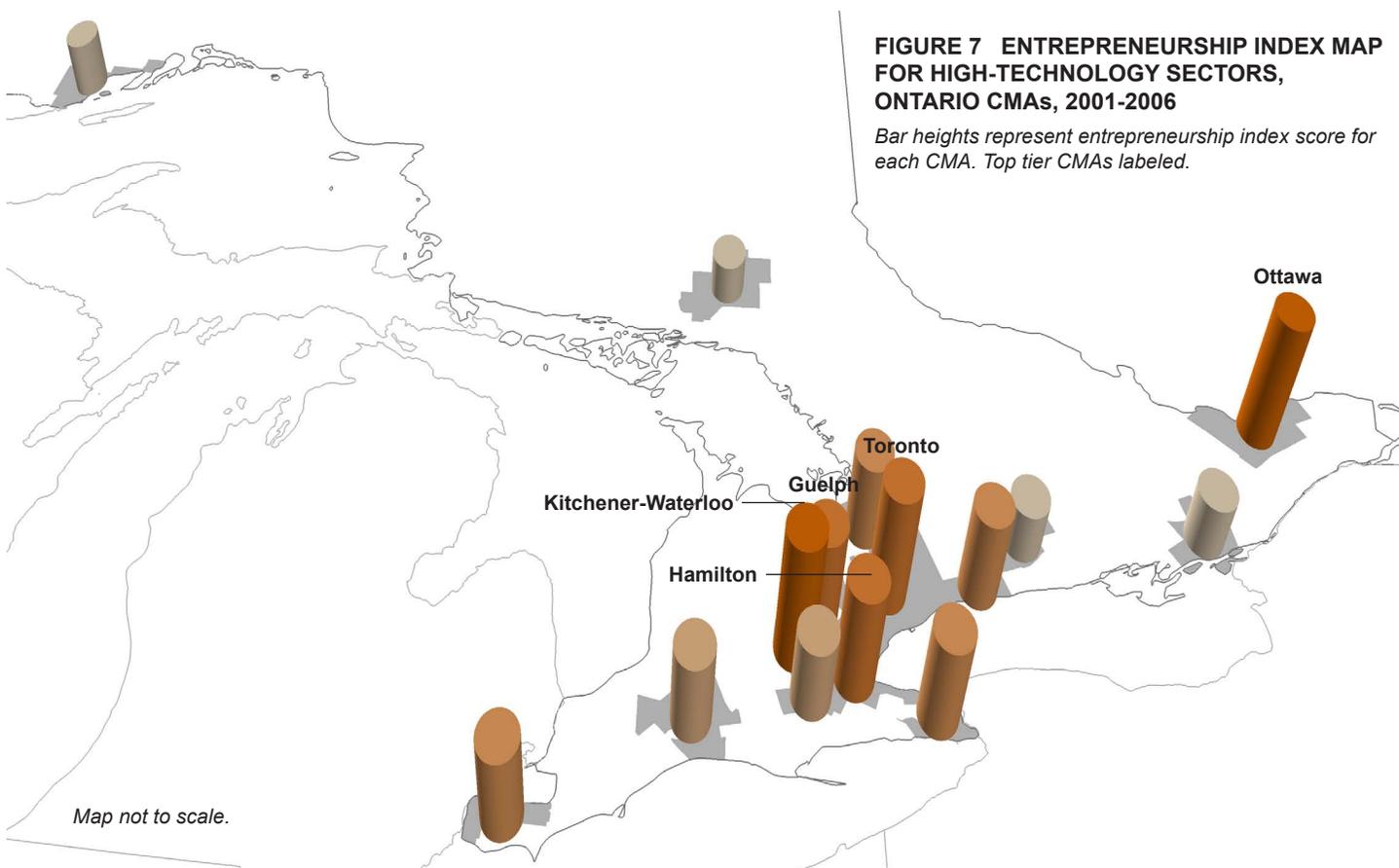
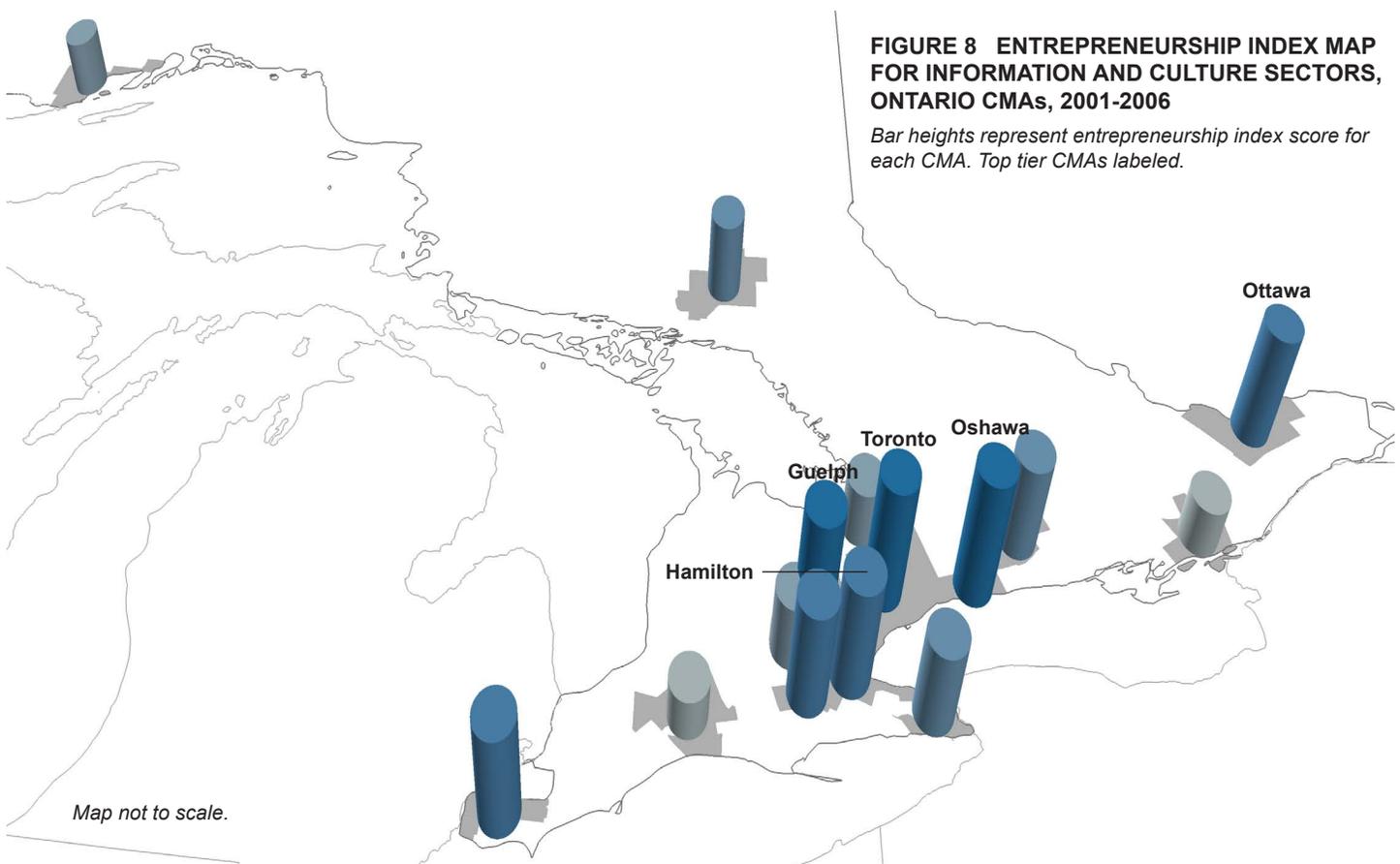


TABLE 3 ENTREPRENEURSHIP INDEX FOR INFORMATION AND CULTURE SECTORS, ONTARIO CMAs, 2001-2006

Census Metropolitan Area	Self-Employment Cluster Rank	Self-Employment Growth Rank	Regional Productivity Rank	Entrepreneurship Index Score (National Rank, N=34)
<i>Top Tier</i>				
Guelph	6	6	9	0.79 (1)
Oshawa	18	3	3	0.76 (3)
Toronto	2	21	2	0.75 (4)
Ottawa	10	23	1	0.67 (7)
Hamilton	14	16	4	0.67 (7)
<i>Middle Tier</i>				
Brantford	15	2	20	0.64 (10)
Windsor	19	4	14	0.64 (10)
Peterborough	9	7	29	0.56 (14)
St. Catharines - Niagara	17	8	25	0.51 (15)
Greater Sudbury	20	1	32	0.48 (16)
Kitchener - Waterloo	25	29	8	0.39 (22)
<i>Bottom Tier</i>				
Thunder Bay	27	9	31	0.34 (25)
Barrie	31	26	11	0.33 (26)
Kingston	12	28	33	0.28 (28)
London	28	31	17	0.25 (30)



But perhaps the most notable observation is that, with the exception of Ottawa and Toronto, entrepreneurial opportunity across both sector groups is in fact greatest in one of Ontario's smallest cities, Guelph. For high-technology entrepreneurship, Guelph, a metropolitan region of about 127,000 just over an hour's drive away from downtown Toronto, ranks slightly behind the large urban centres discussed above and Kitchener-Waterloo, the frequently-cited, and much studied source region for some of Ontario's most successful and innovative firms – RIM, Open Text, DALSA, among others. While still small in absolute size (numbering approximately 500 full-time workers), Guelph's *cluster* of high-technology entrepreneurs is greater both in terms of share of total self-employment in the region and per capita numbers than Kitchener-Waterloo. In terms of information and culture industries, Guelph ranks first nationally, owing to the substantial size and growth of the cluster, as well as levels of productivity above the national average.

Why? For one, Guelph has natural advantages over some other comparably sized regions in the province. It has certainly benefitted from its proximity to the Greater Toronto Area, as the largest financial and customer market in the province; as well as Kitchener-Waterloo with which it constitutes one of the country's most significant innovative regions, Canada's Technology Triangle. But while it is strongly linked into both these regions; Guelph does not have the cost, or in the case of downtown Toronto, the space limitations inherent to other locales. Indeed the low cost of real estate is particularly significant as it partially offsets the fact that Guelph is one of the few major innovative regions in the province without a high-profile business incubator program comparable to the Accelerator Centre in Waterloo, or the MaRS Centre in Toronto.

But civic leadership in Guelph has also been proactive in promoting and supporting regional entrepreneurs in a few key ways. For one, Guelph has positioned itself as a major hub for research and development in a number of key high-technology sectors in the province: agro-science and other sectors of the bio-economy, advanced manufacturing (building on the foundation laid by precision manufacturer Linamar Co., the region's largest employer) and environmental technologies, including remediation services. This is not simply a matter of advertising the strength of the cluster; this has also meant actively reaching out and forming linkages both within the region and beyond. MaRS Landing, opened in 2006, has been a critical source of business mentorship services, networking resources and stakeholder advocacy for small firms that have emerged out of the University of Guelph and elsewhere in the region. Through its ongoing ties with the MaRS Discovery District and joint-sponsored forums such as the "Rising Food Prices: Global Dynamics & Canada's Response" to raise the profile of Guelph-based firms in downtown Toronto, the burgeoning organization has developed a critical catalyzing function.

Smaller regions in Ontario, that have demonstrated recent growth in their innovative clusters but have yet to develop a critical mass of similarly-engaged entrepreneurs – such as Sudbury, Windsor, St. Catharines and Thunder Bay – would be well-advised to look at the example of Guelph and its supportive civic organizations as they consider the most effective ways to support entrepreneurial work in creativity-oriented sectors of the economy.

Better outcomes: Routine-oriented entrepreneurship in city-regions

In what regions do self-employed workers in routine-oriented sectors of the economy, both physical- and service-based find the greatest opportunity? For one, both the size and vibrancy of major metropolitan markets has proven to be a significant boom over the past five years. Toronto and Ottawa in Ontario are in the upper tier on the Entrepreneurship Index for both physically-intensive services such as trades, transportation, repair and maintenance, and local market and personal services such as sales, hospitality and clerical work (Tables 4 & 5, Figures 9 & 10). In part, routine-oriented entrepreneurs have benefitted from the residential development boom that had occurred in Toronto during the earlier period of this decade, both in terms of increasing number of jobs and relatively high wages offered. Routine-service workers also benefit from the dynamism Toronto's consumer market, as well as the rapid turn-over of businesses that occur in the core. Toronto also has among the highest levels of self-employment in its local market and personal service sectors, trailing only Peterborough in Ontario. In part this could be due to the substantial populations of recent immigrant to these metropolitan regions, among whom higher rates of self-employment typically prevail (Schellenberg, 2004), but access to higher wage jobs has been limited.

In part, routine-oriented entrepreneurs benefit from the strength of the market in large urban centres, both on the part of other firms as well as affluent residents. But this does not mean that the same regional conditions that benefit creativity-oriented entrepreneurs similarly benefit those in other sectors of the economy. There is little relationship between creativity-oriented and either routine-physical or -service opportunity among cities. Likewise, determinants of regional prosperity that clearly encourage self-employment in knowledge intensive sectors, such as human capital stock have little direct role in cross-regional differences in routine-oriented entrepreneurship.

What appears to be the most consequential factor is, in fact, the growth in the regional market. Fast-growing regions in Ontario, but as well in the rest of the country tend to offer higher salaries to workers in these sectors and also demonstrate a greater proportion of self-employed workers. For example, among the top tier of metropolitan areas, ranked according to their score on the Entrepreneurship Index for Lower-Tier Services, the average population growth rate between 2001 and 2006 was about 8 percent. Among the middle tier, the average growth rate was slightly lower, 7 percent; but among the bottom tier cities, growth was only 2 percent. If entrepreneurial opportunity in routine-oriented sectors tends to be concentrated in fast-growing regions of the province, how do we enhance entrepreneurial opportunity for those with stable or declining population? This will be an ongoing challenge for policy-makers, but one option may be to look at traded industries that already have established regional presence, such as manufacturing.

TABLE 4 ENTREPRENEURSHIP INDEX FOR LOCAL MARKET AND PERSONAL SERVICE SECTORS, ONTARIO CMAs, 2001-2006

Census Metropolitan Area	Self-Employment Share Rank	Self-Employment Growth Rank	Regional Productivity Rank	Entrepreneurship Index Score (National Rank, N=34)
<i>Top Tier</i>				
Toronto	7	13	1	0.79 (1)
Barrie	9	8	7	0.76 (2)
Hamilton	14	7	6	0.74 (5)
Ottawa	15	6	10	0.70 (7)
Brantford	12	1	21	0.67 (8)
Peterborough	3	2	30	0.66 (9)
Oshawa	22	12	3	0.64 (11)
<i>Middle Tier</i>				
Windsor	19	4	19	0.59 (15)
Kitchener - Waterloo	23	17	2	0.59 (15)
Guelph	18	32	11	0.40 (21)
St. Catharines - Niagara	16	21	25	0.39 (22)
London	20	29	13	0.39 (22)
<i>Bottom Tier</i>				
Kingston	21	33	17	0.30 (26)
Thunder Bay	24	22	31	0.25 (27)
Greater Sudbury	28	34	26	0.14 (34)

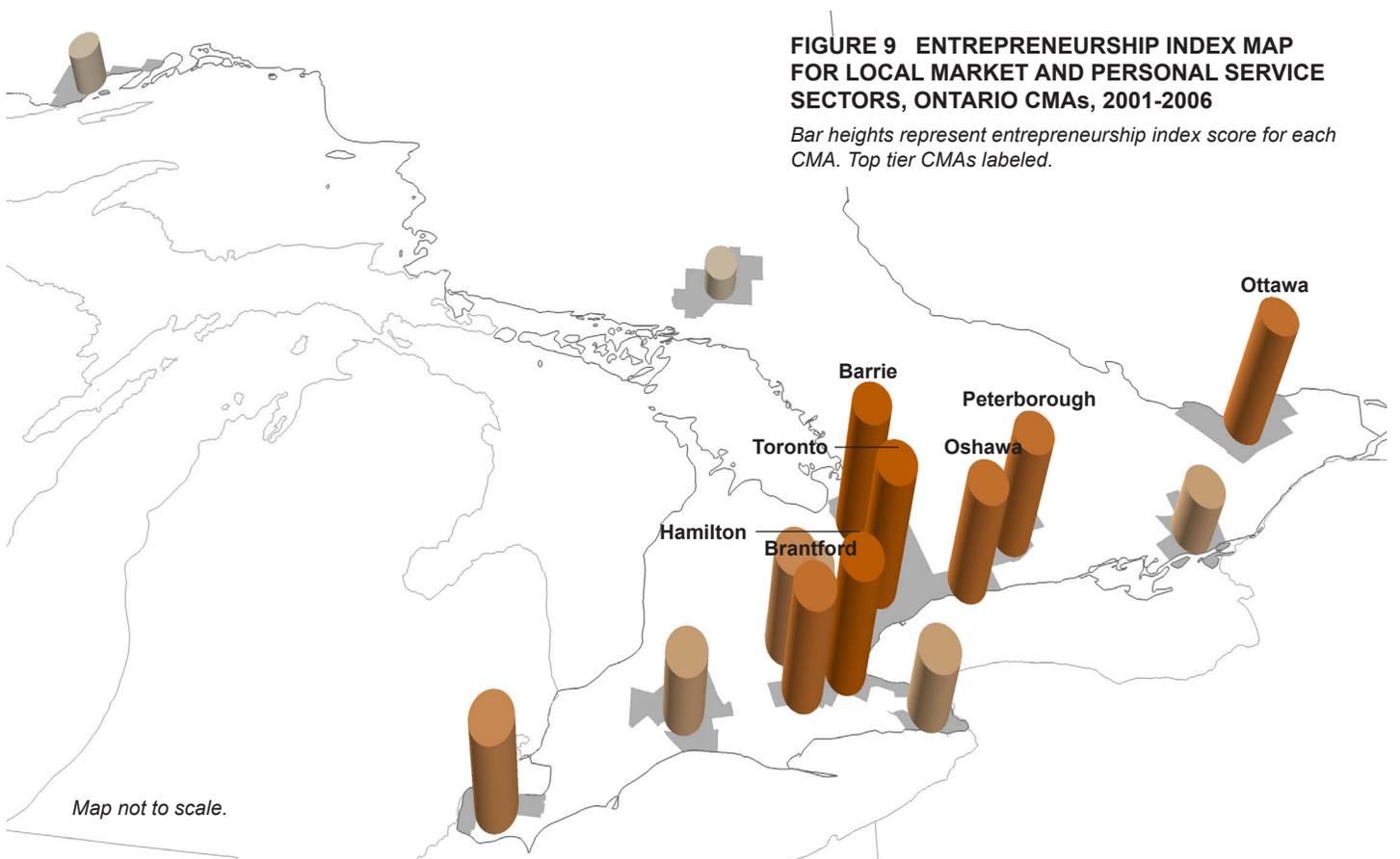
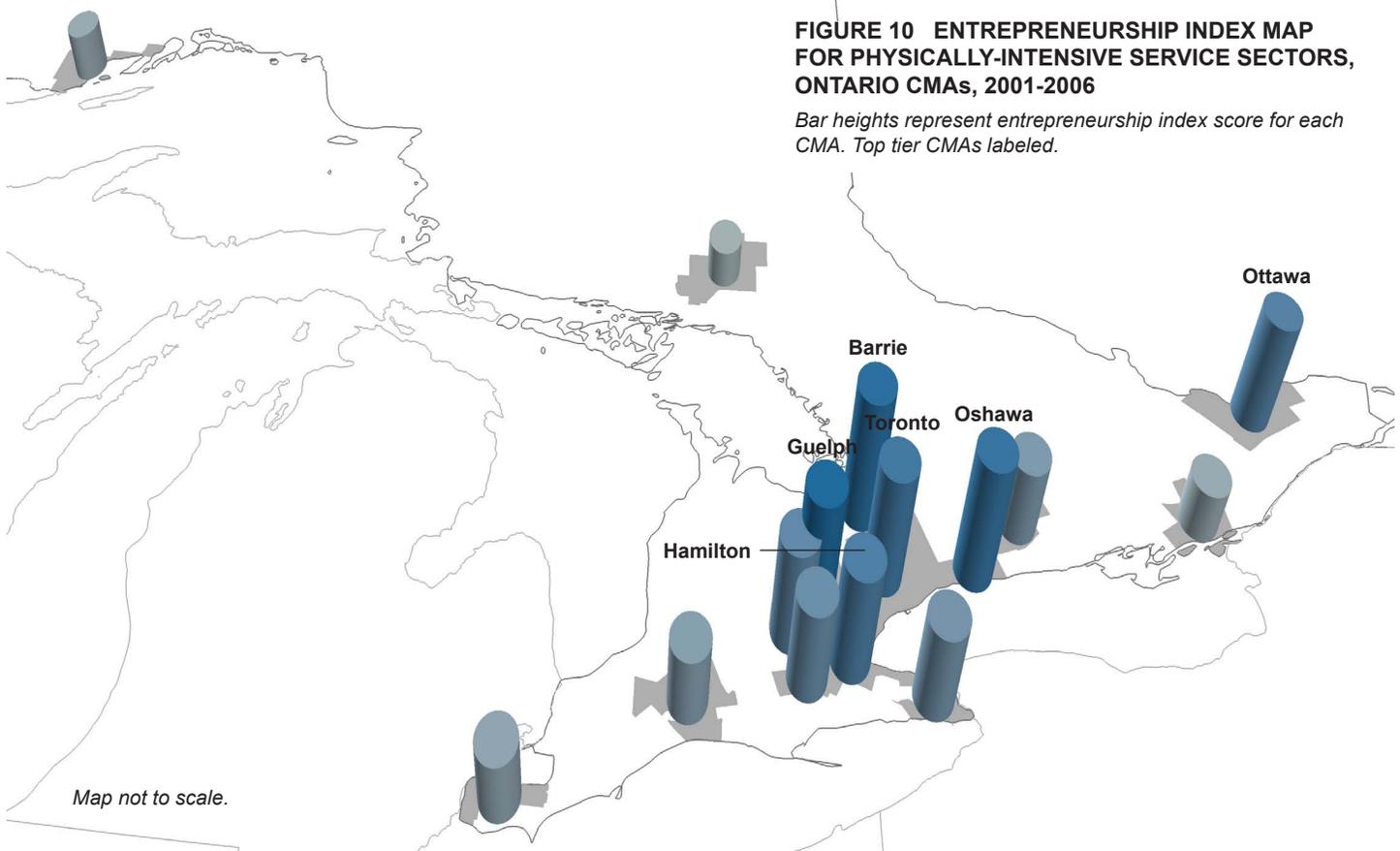


TABLE 5 ENTREPRENEURSHIP INDEX FOR PHYSICALLY-INTENSIVE SERVICE SECTORS, ONTARIO CMAs, 2001-2006

Census Metropolitan Area	Self-Employment Share Rank	Self-Employment Growth Rank	Regional Productivity Rank	Entrepreneurship Index Score (National Rank, N=34)
<i>Top Tier</i>				
Guelph	6	8	4	0.82 (1)
Barrie	5	12	3	0.80 (3)
Oshawa	15	4	5	0.76 (5)
Toronto	8	10	10	0.73 (6)
Hamilton	13	16	6	0.66 (10)
Ottawa	9	20	7	0.65 (11)
<i>Middle Tier</i>				
Kitchener - Waterloo	18	11	9	0.63 (12)
Brantford	23	6	16	0.56 (15)
St. Catharines - Niagara	16	15	17	0.53 (17)
Peterborough	4	24	28	0.45 (19)
London	14	33	13	0.41 (20)
Windsor	21	28	14	0.38 (22)
<i>Bottom Tier</i>				
Thunder Bay	32	29	11	0.29 (26)
Kingston	7	34	31	0.29 (26)
Greater Sudbury	28	30	22	0.22 (29)

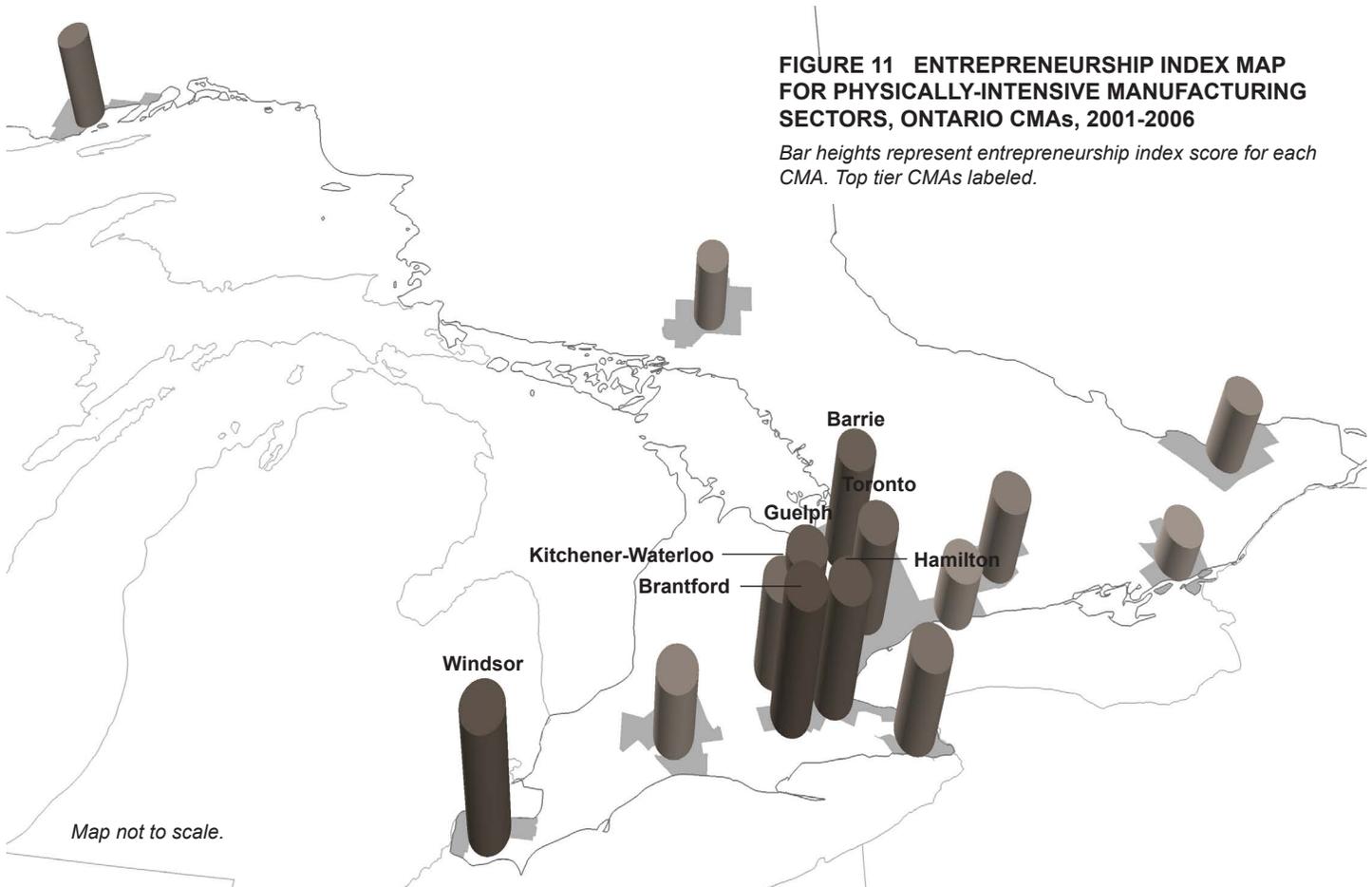


The preceding discussion of routine-oriented entrepreneurship primarily focused on basic services and work oriented towards local markets; but, in reality, entrepreneurial opportunity is not limited to service-based work alone. Nationwide, we have witnessed a dramatic decline in manufacturing employment as a whole since the beginning of the decade. But while plants were closing and jobs being shed from 2001 to 2006, the number of self-employed craftspeople and manufacturing workers actually increased. This sector of entrepreneurial work still represents only a modest share of total national employment – there are roughly 75,000 self-employed workers in physically-intensive manufacturing nationwide. However, as layoffs continue with the inevitable restructuring and downsizing of the present recession, there is likely to be greater interest in this sector both from workers and policy-makers.

As compared to many other regions in Canada, Ontario's city-regions are well placed to capitalize on the opportunity for manufacturing-based entrepreneurial work – given both the core skills of Ontario's still large manufacturing labour force and the mature institutional resources (e.g., labour organizations and support agencies) present within the province. Indeed, as indicated in Table 6 and Figure 11, nine Ontario CMAs rank above the national median score for the Entrepreneurial Index of physically-intensive manufacturing sectors. And the distribution of this opportunity is significantly different than for the other four industry clusters analyzed here. Toronto and Hamilton still appear in among the top scoring regions. But so do established manufacturing regions such as Windsor, Brantford and Kitchener-Waterloo (likely resulting from manufacturing activity in Kitchener and Cambridge) and, to a lesser extent, St. Catharines-Niagara and Thunder Bay. This area of entrepreneurship may be a particularly important opportunity for regions such as Windsor, St. Catharines-Niagara, Thunder Bay and other peripheral regions that have generally indicated lower levels of opportunity for entrepreneurship in other sector groupings. Identifying and strategically-enhancing the value and viability of entrepreneurial work in manufacturing should be a key focus for successive researchers and policy-makers engaged with these issues.

TABLE 6 ENTREPRENEURSHIP INDEX FOR PHYSICALLY-INTENSIVE MANUFACTURING SECTORS, ONTARIO CMAs, 2001-2006

Census Metropolitan Area	Self-Employment Cluster Rank	Self-Employment Growth Rank	Regional Productivity Rank	Entrepreneurship Index Score (National Rank, N=34)
<i>Top Tier</i>				
Brantford	5	5	7	0.83 (3)
Windsor	7	11	1	0.81 (3)
Hamilton	13	10	3	0.75 (4)
Guelph	12	18	4	0.67 (7)
Barrie	17	8	11	0.65 (8)
Toronto	11	16	15	0.59 (9)
Kitchener - Waterloo	10	28	5	0.58 (11)
<i>Middle Tier</i>				
St. Catharines - Niagara	15	20	10	0.56 (12)
Thunder Bay	23	7	16	0.55 (13)
Peterborough	18	14	23	0.46 (18)
London	26	25	6	0.44 (20)
<i>Bottom Tier</i>				
Ottawa	33	15	14	0.39 (23)
Greater Sudbury	24	30	8	0.39 (23)
Oshawa	27	34	9	0.31 (29)
Kingston	34	29	17	0.22 (31)



Enhancing the opportunity for entrepreneurship across Ontario

Even after the current economic downturn, Ontario will likely continue its inexorable transition away from old sources of economic strength, particularly large manufacturing firms, and will need to focus on new forms of economic activity. Likewise, the prevailing modes of production continue to change in step, and Ontario's workers may want or need to consider different sources of employment, including self-employment, during the course of their working lives. It is likely that entrepreneurial work will be a key part of Ontario's transition in the near term. And fostering new businesses and supporting their contribution to the provincial economy will be critical to ensuring the ongoing competitiveness of the province well into the future.

From a labour force perspective, the basic building blocks of an entrepreneurial economy are self-employed workers. And during the past 20 to 30 years we've experienced what has been described as a "renaissance" in this type of work across the country. In Ontario alone, growth in self-employment has equalled or exceeded growth in wage and salary work in all but one of the past five 5-year census periods. Indeed, during the early 1990s, the period of Canada's last major recession, self-employment accounted for all net employment again in this province. As noted by a prominent economist, during the current period of economic contraction, it is very likely that the ranks of the self-employed will swell once again.

In this paper I considered entrepreneurial opportunity for Ontario from two important perspectives: workers, classified broadly according to the types of skills they contribute to the economy, and city-regions, the jurisdictional level increasingly understood as the locus of entrepreneurial activity. In both cases, I took apart industrial sector groups to provide further detail to the analysis.

Of course, not all self-employed work is characteristically "entrepreneurial" in the traditional sense of the word. What we describe as "creativity-oriented" workers, those for whom thinking and knowledge skills in dynamic situations are critical, are the occupational group from which innovative and novel new types of economic activity are most likely to arise. This group represents approximately 41 percent of urban Ontario's self-employed labour force. Earlier I detailed three key points that relating the entrepreneurial work among this group:

- (1) Highly-centralized and publically-funded sectors such as health-care, education and government are the most common employers of wage-salary earning creativity-oriented workers, professional service and R&D jobs predominate among the self-employed.
- (2) On average, self-employed creativity-oriented workers are the highest paid class of workers in the province, albeit in a small range of industries.
- (3) A significant number of self-employed creativity-oriented workers are drawn into sectors in which earning potential is far less than that available to wage-salary earners. This indicates the presence of other, more intrinsic forms of rewards to these workers.

For this group of workers, the challenge is not so much encouraging innovative business practices, in many ways these are inherent to their profession; rather it is to understand the factors that compel these workers to pursue their own businesses, and the market challenges they face when they do so.

But there are also a large proportion of self-employed workers in Ontario who we describe as occupying routine-oriented jobs. These are jobs which involve tasks being carried out in a prescribed order, or being done repetitively according to an established set of criteria, and include both physical- and service-based activities. Routine-service workers represent 34 percent of the self-employed labour force in Ontario's cities, while routine-physical workers represent 20 percent. (The remaining 5 percent are those found in resource-based work.) The two key take-away points for self-employed work among this group are:

- (4) Routine-oriented workers, both physical- and service-based, are predominately found in sectors that provide a service to local residents and businesses and have relatively low barriers to entry.
- (5) While self-employed routine-service workers make less, on average, than their wage-salary peers, there are a large number of industries – collectively providing work for more than half of this labour force – in which earning potential is actually enhanced. There are very few industries in which routine-physical workers can make more by becoming self-employed.

Improving entrepreneurial opportunity among this group requires a comprehensive strategy of skills upgrading, training, and communication of opportunity, as well as more direct supports, such as securing loans, and supporting provincially-based businesses through marketing, and where possible, procurement policy.

The uneven geography of entrepreneurship

But despite existing efforts to encourage business creation and enterprising skills through national and provincial funding strategies, as well local mentorship programs, this paper demonstrates that entrepreneurial opportunity does not exist in equal measure across all regions. Researchers have detailed the fundamental characteristics that must be present within the regional economy to support start-ups – access to finance, business mentorship supports, access to markets, however, only recently have efforts been made to systematically understand why some regions are fruitful regions for entrepreneurs while others stagnate. Employ a composite measure of cluster size or self-employment share, as well as growth and regional productivity – the Entrepreneurship Index, I demonstrated how the opportunity for entrepreneurship in five key sector groupings is distributed across city-regions in Ontario, and the rest of Canada. What this analysis revealed is that some city-regions, particularly Toronto, but also Ottawa and Hamilton, have shown significant strength in entrepreneurship across a wide-range of sectors – including those that are both more creativity-oriented and routine-oriented. This is likely owing to the size and sophistication of the local market, access to networks extending both locally and afar, and the fact that many highly-skilled entrepreneurs will be drawn to these regions for their institutional resources and cultural amenities available in these larger metros.

Smaller regions which have scored well for entrepreneurship in one or both creativity-oriented sectors considered in this paper – high-technology and information and culture – such as Oshawa, Guelph and Kitchener-Waterloo, have benefitted by their close proximity to the Greater Toronto Area market and, in the case of the latter two regions, strong institutional capacity and active civic leadership which has promoted local entrepreneurship and innovation. In the paper, I detailed some notable efforts in Guelph to support and provide exposure for local entrepreneurial work in high-technology sectors.

For entrepreneurs in more routine-oriented sectors of the economy, such local and personal and physically-intensive services, the vibrancy of the local economy (e.g., growth) is a significant factor when considering cross-regional opportunity. As mentioned earlier, the average 5-year growth rate for those city-regions which scored well on the Entrepreneurship Index for local market and personal services (such as Barrie, Brantford and Peterborough) was 8 percent, compared to 2 percent among the bottom tier (Kingston, Thunder Bay and Greater Sudbury). Entrepreneurship in these sectors, typically characterized by a more local market focus, benefit to a lesser degree from clustering with similar firms (at least at the regional level) and are more reliant on the strength and demand of the surrounding consumer market. The enduring challenge for policy-makers is to consider how to enhance opportunity in Ontario's peripheral and slow- or no-growth regions.

One potential strategy is to encourage those workers with particular routine-oriented competencies towards industries with a broader market potential. In this paper, I focused on physically-intensive manufacturing (sectors for which process as opposed to product innovation is likely to bring the greater benefit), however other, service-based industries should be considered in future work (e.g., particularly those take advantage of digital networks to link with customers and clients, external to the region). For example, while conventional employment in manufacturing as a whole has been on the decline in Ontario, self-employment in physically-intensive manufacturing actually rose from 2001 to 2006. Furthermore, while modest in numbers, much of this activity continues to be concentrated in Ontario's traditional manufacturing centres, which in many cases have lagging opportunity for entrepreneurship in other sector groupings – particularly Windsor, but also Thunder Bay, with the second highest growth rate within the province. Further research in this area would do well to consider the prospects for sustainable, innovation-led growth in more physically-intensive manufacturing sectors, and the most effective strategies for supporting workers who have the inclination, basic skill-set and often the financial resources – but perhaps not the business acumen or market understanding – for this and other forms of entrepreneurial work.

A new regional agenda

The key take away from this paper for provincial policy-makers is that, although province-wide strategies and funding programs are critical resources, much of the challenge in strengthening entrepreneurial opportunity must be addressed at the regional level. Local jurisdictions and regional institutions must be active in promoting and supporting the work of emergent businesses, for it is this type of economic activity, not simply business *attraction*, that sustainable economic advantage is built. But this also requires that the provincial government, through the coordinated efforts of the

appropriate Ministries (Research and Innovation, Economic Development, Small Business and Consumer Services) and local jurisdiction partners, take an explicitly regional approach to supporting and assessing program effectiveness.

The Ministry of Research and Innovation has already demonstrated the effectiveness of this approach through one of its key initiatives. The Regional Innovation Network (RIN) program was established in 2004 to provide a 'commercialization framework' by which partnerships among businesses, institutions and government could be forged and sustained in the regional context. Twelve networks have been formed within Ontario, and although the initial focus had been in the life sciences, the mandate of the RINs has since been expanded to include innovative sector competencies or opportunities particular to the regions they represent. The services provided by many of these networks, catered to particular local and sectoral challenges (e.g., commercialization of new technologies or networking among firms), and have been highly valuable in establishing connectivity among some regions, such as Canada's Technology Triangle, consensus for key collaborative efforts (e.g., MaRS Innovation in downtown Toronto), and providing resources to local firms.

As the current economic downturn puts pressure on the government to cut budget spending, the importance of this program as a uniquely regionally-oriented initiative should be recognized, and funding sustained. But at the same time improvements can be made. For one, while the sectoral orientation of the RINs has been ostensibly broadened from the life sciences, for many their mandate remains intently focused on the institutional as opposed to broader industrial competencies of a region. The RINs should continue to leverage their pre-existing assets, but should also strive to develop linkages with and between participants in other innovative sectors of the economy not currently addressed through the RIN networks – e.g., advanced manufacturing.

There are also a number of potentially highly-innovative regions that have yet to be networked into the program. One is Oshawa, whose capacity for R&D in manufacturing could likely make a significant Ontario-based contribution to the evolution of global automobile production. But as well, the St. Catharines–Niagara region at the far southern end of the Greater Golden Horseshoe, which has experienced rapid growth in the presence of high-technology entrepreneurs since the beginning of the decade but has limited institutional resources to capitalize on this natural growth.

But the benefits in strengthening existing RINs and the establishment of new network centres will be fleeting unless a concerted effort is made to strengthen linkages *between* the RINs. As of yet, most RINs operate largely in isolation from one another or are linked up based on pre-existing sector- or regionally-based network relationships. It is through broader ties, across the province, that the institutional strength of regions such as Toronto and Waterloo will begin to influence the opportunities in more peripheral areas. At the MaRS Discovery District, a close partner with downtown Toronto's RIN *BioDiscovery Toronto*, a novel, web-based resource centre is being launched this summer to provide advice and support to aspiring entrepreneurs across the province. Similarly, RINs elsewhere should be considering *extra*-local strategies and new media platforms to enhance their value, not just for the region but as broader networking resources.

But, perhaps most importantly, the RIN program should be used as a model for successive efforts to support entrepreneurship more broadly. For example, a similar program of network-based resources, mentorship programs and institutional linkages would likely be appropriate for clustered information and culture industries, although no such province-wide program yet exists. But as mentioned above, it is critical that resources be made available to well-founded and viable enterprises, no matter their origin – the opportunity for entrepreneurship exists within routine-oriented sectors as well. As discussed, this is true at the individual level; but also for regions which may not have realistic near term prospects for high-technology entrepreneurship. These regions may be able to capitalize on existing strengths (manufacturing) or emerging marketing platforms (e.g., digital media) to access new markets. It is critically important that entrepreneurs in peripheral and declining regions have similar access to network resources and consultation services if they are to succeed. Likewise, encouraging new businesses with innovative production processes or product development could be critical for regions such as Windsor, Hamilton and parts of Kitchener-Waterloo that have been particularly hard hit by lay-offs within established areas of the economy.

Here, a broader program of RENs (Regional *Entrepreneurship* Networks) established based on the Ministry of Research and Innovation model, but involving the ministries mentioned above may also be beneficial. These programs could be oriented more towards small firm needs, as opposed to institutional challenges, and serve both to provide consultation resources as well as a network to link and support entrepreneurs in currently under-serviced urban regions. The opportunity to enhance entrepreneurship in Ontario is significant; however a broader focus, both in terms of city-regions and sectors should be adopted.

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Appendix A

Creativity-oriented sector groupings – 2002 NAICS Code Classification

HIGH-TECHNOLOGY SECTORS

NAICS Code	Industry Description
3254	Pharmaceutical and Medicine Manufacturing
3341	Computer and Peripheral Equipment Manufacturing
3342	Communications Equipment Manufacturing
3344	Semiconductor and Other Electronic Component Manufacturing
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing
5413	Architectural, Engineering, and Related Services
5415	Computer Systems Design and Related Services
5417	Scientific Research and Development Services
5419	Other Professional, Scientific, and Technical Services

INFORMATION AND CULTURE SECTORS

NAICS Code	Industry Description
5414	Specialized design services
5418	Advertising and related services
7111	Performing arts companies
7112	Spectator sports
7113	Promoters (presenters) of performing arts, sports and similar events
7114	Agents and managers for artists, athletes, entertainers and other public figures
7115	Independent artists, writers and performers
5111	Newspaper, periodical, book and directory publishers
5112	Software publishers
5121	Motion picture and video industries
5122	Sound recording industries
511	Publishing industries (except Internet)

Routine-oriented sector groupings – 2002 NAICS Code Classification

LOCAL MARKET AND PERSONAL SERVICE SECTORS

NAICS Code	Industry Description
441	Motor vehicle and parts dealers
442	Furniture and home furnishings stores
443	Electronics and appliance stores
444	Building material and garden equipment and supplies dealers
445	Food and beverage stores
446	Health and personal care stores
447	Gasoline stations
448	Clothing and clothing accessories stores
451	Sporting goods, hobby, book and music stores
452	General merchandise stores
453	Miscellaneous store retailers
454	Non-store retailers
524	Insurance carriers and related activities
531	Real estate
532	Rental and leasing services
561	Administrative and support services
721	Accommodation services
722	Food services and drinking places
812	Personal and laundry services

PHYSICALLY-INTENSIVE SERVICE SECTORS

NAICS Code	Industry Description
23	Construction
48-49	Transportation and warehousing
811	Repair and maintenance

PHYSICALLY-INTENSIVE MANUFACTURING SECTORS

NAICS Code	Industry Description
312	Beverage and tobacco product manufacturing
313	Textile mills
314	Textile product mills
315	Clothing manufacturing
316	Leather and allied product manufacturing
321	Wood product manufacturing
323	Printing and related support activities
332	Fabricated metal product manufacturing
333	Machinery manufacturing
337	Furniture and related product manufacturing
339	Miscellaneous manufacturing

ENTREPRENEURSHIP INDEX FOR HIGH-TECHNOLOGY SECTORS, ALL CMAs, 2001-2006

Census Metropolitan Area	Self-Employment Cluster			Self-Employment Growth		Regional Productivity		Entrepreneurship Index Score (National Rank)
	Self-Employed Labour Force	Location Quotient	Rank	5-Year Growth Rate	Rank	Avg. Employment Income (\$)	Rank	
<i>Top Tier</i>								
Calgary	9,350	1.92	2	19.2%	16	65,922	2	0.80 (1)
Kitchener-Waterloo	1,525	1.08	11	31.5%	8	58,564	4	0.77 (2)
Ottawa	5,985	2.00	1	10.5%	23	70,616	1	0.75 (3)
Toronto	28,695	1.41	3	8.4%	24	59,765	3	0.71 (4)
Guelph	535	1.26	8	28.9%	14	54,682	10	0.69 (5)
Montréal	17,225	1.33	6	22.4%	13	52,088	13	0.69 (5)
Gatineau	1,230	1.36	5	13.9%	21	55,865	8	0.67 (7)
Halifax	1,390	1.24	10	29.9%	9	49,358	16	0.66 (8)
Hamilton	2,355	1.04	14	16.0%	18	58,184	5	0.64 (9)
Victoria	2,190	1.39	4	14.4%	19	49,641	15	0.63 (10)
Québec	2,705	1.24	9	26.7%	11	46,013	20	0.61 (11)
<i>Middle Tier</i>								
Kelowna	845	0.99	15	50.9%	5	45,361	21	0.60 (12)
Vancouver	12,010	1.26	7	5.8%	26	55,627	9	0.59 (13)
St. Catharines - Niagara	1,095	0.87	19	49.0%	4	45,266	22	0.56 (14)
Winnipeg	1,975	0.98	16	49.1%	3	42,602	26	0.56 (14)
Oshawa	905	0.94	17	8.4%	25	57,986	6	0.53 (16)
Windsor	605	0.75	28	33.0%	7	51,155	14	0.52 (17)
Barrie	535	0.79	27	25.9%	17	56,629	7	0.50 (18)
London	1,365	0.92	18	33.2%	6	41,279	29	0.48 (19)
Edmonton	4,075	1.07	12	1.7%	30	53,281	12	0.47 (20)
Trois-Rivières	340	0.87	20	78.9%	1	37,056	34	0.46 (21)
Brantford	250	0.63	33	72.4%	2	44,035	23	0.43 (22)
Moncton	275	0.83	24	34.1%	12	42,526	27	0.38 (23)
<i>Bottom Tier</i>								
Thunder Bay	255	0.84	23	27.5%	15	40,008	30	0.33 (24)
St. John's	420	1.06	13	7.7%	31	43,356	25	0.32 (25)
Kingston	395	0.82	25	-4.8%	34	54,247	11	0.31 (26)
Regina	495	0.85	21	-2.0%	33	48,312	17	0.30 (27)
Peterborough	295	0.66	31	20.4%	22	46,773	19	0.29 (28)
Saguenay	210	0.63	34	35.5%	10	39,493	31	0.26 (29)
Saint John	200	0.70	30	11.1%	28	48,158	18	0.25 (30)
Sherbrooke	530	0.81	26	21.8%	20	38,283	32	0.24 (31)
Greater Sudbury	315	0.85	22	10.5%	29	42,362	28	0.23 (32)
Saskatoon	605	0.74	29	5.2%	32	43,634	24	0.17 (33)
Abbotsford	435	0.65	32	11.5%	27	37,337	33	0.10 (34)

ENTREPRENEURSHIP INDEX FOR INFORMATION AND CULTURE SECTORS, ALL CMAs, 2001-2006

Census Metropolitan Area	Self-Employment Cluster			Self-Employment Growth		Regional Productivity		Entrepreneurship Index Score (National Rank)
	Self-Employed Labour Force	Location Quotient	Rank	5-Year Growth Rate	Rank	Avg. Employment Income (\$)	Rank	
<i>Top Tier</i>								
Guelph	595	1.43	6	58.7%	6	39,701	9	0.79 (1)
Montréal	20,065	1.58	1	34.2%	14	40,894	7	0.78 (2)
Oshawa	820	0.87	18	82.2%	3	45,510	3	0.76 (3)
Toronto	30,570	1.54	2	19.4%	21	48,913	2	0.75 (4)
Victoria	2,245	1.46	5	44.4%	10	35,057	13	0.73 (5)
Vancouver	13,920	1.49	4	18.5%	22	41,400	5	0.70 (6)
Ottawa	3,285	1.12	10	18.4%	23	56,887	1	0.67 (7)
Hamilton	2,130	0.97	14	29.1%	16	41,591	4	0.67 (7)
Calgary	4,625	0.97	13	27.2%	17	40,934	6	0.65 (9)
Brantford	365	0.94	15	82.5%	2	31,287	20	0.64 (10)
Halifax	1,655	1.51	3	35.7%	13	31,246	21	0.64 (10)
Windsor	675	0.86	19	68.8%	4	34,876	14	0.64 (10)
<i>Middle Tier</i>								
Québec	2,550	1.20	8	42.9%	11	31,375	19	0.63 (13)
Peterborough	520	1.18	9	57.6%	7	26,278	29	0.56 (14)
St. Catharines - Niagara	1,080	0.88	17	52.1%	8	29,270	25	0.51 (15)
Edmonton	2,830	0.76	24	20.7%	19	38,608	10	0.48 (16)
Greater Sudbury	305	0.84	20	90.6%	1	24,770	32	0.48 (16)
Winnipeg	2,105	1.07	11	10.5%	27	32,229	16	0.47 (18)
Regina	515	0.91	16	17.0%	24	33,098	15	0.46 (19)
Gatineau	695	0.79	23	13.9%	25	37,109	12	0.41 (20)
Sherbrooke	510	0.80	22	37.8%	12	26,601	27	0.40 (21)
Kitchener-Waterloo	1,020	0.74	25	7.9%	29	40,881	8	0.39 (22)
St. John's	480	1.24	7	6.7%	30	27,420	26	0.38 (23)
<i>Bottom Tier</i>								
Saint John	235	0.84	21	30.6%	15	26,551	28	0.37 (24)
Thunder Bay	215	0.72	27	48.3%	9	26,216	31	0.34 (25)
Barrie	430	0.65	31	13.2%	26	38,488	11	0.33 (26)
Kelowna	590	0.71	29	22.9%	18	30,635	22	0.32 (27)
Saguenay	155	0.47	34	63.2%	5	20,144	34	0.28 (28)
Kingston	480	1.02	12	9.1%	28	24,670	33	0.28 (28)
London	1,045	0.72	28	5.0%	31	31,890	17	0.25 (30)
Saskatoon	585	0.73	26	-8.6%	32	29,996	23	0.21 (31)
Moncton	210	0.65	30	-14.3%	33	31,572	18	0.21 (31)
Trois-Rivières	235	0.61	32	20.5%	20	26,231	30	0.20 (33)
Abbotsford	340	0.52	33	-21.8%	34	29,976	24	0.11 (34)

ENTREPRENEURSHIP INDEX FOR LOCAL AND PERSONAL SERVICE SECTORS, ALL CMAs, 2001-2006

Census Metropolitan Area	Self-Employment Share			Self-Employment Growth		Regional Productivity		Entrepreneurship Index Score (National Rank)
	Self-Employed Labour Force	Self-Emp. Share	Rank	5-Year Growth Rate	Rank	Avg. Employment Income (\$)	Rank	
<i>Top Tier</i>								
Toronto	83,310	11.2%	7	9.4%	13	30,480	1	0.79 (1)
Barrie	3,085	10.9%	9	13.0%	8	25,863	7	0.76 (2)
Calgary	17,205	10.3%	11	11.4%	9	27,728	4	0.76 (2)
Montréal	56,535	11.0%	8	16.4%	3	24,087	15	0.75 (4)
Hamilton	9,940	10.1%	14	13.4%	7	26,149	6	0.74 (5)
Vancouver	39,900	11.9%	6	7.3%	19	27,719	5	0.71 (6)
Ottawa	11,500	9.9%	15	14.4%	6	25,213	10	0.70 (7)
Brantford	1,805	10.2%	12	28.0%	1	22,978	21	0.67 (8)
Kelowna	3,565	12.9%	2	3.5%	24	25,399	9	0.66 (9)
Peterborough	2,225	12.6%	3	21.9%	2	20,890	30	0.66 (9)
Oshawa	4,335	9.0%	22	9.6%	12	27,992	3	0.64 (11)
<i>Middle Tier</i>								
Victoria	7,070	13.5%	1	2.6%	27	24,557	12	0.61 (12)
Gatineau	4,010	10.2%	13	14.9%	5	22,664	22	0.61 (12)
Abbotsford	2,455	12.1%	5	8.4%	16	23,313	20	0.60 (14)
Windsor	4,000	9.3%	19	16.1%	4	23,637	19	0.59 (15)
Kitchener-Waterloo	6,200	9.0%	23	8.0%	17	28,947	2	0.59 (15)
Sherbrooke	3,050	12.3%	4	8.5%	15	19,461	32	0.50 (17)
Québec	9,775	8.8%	27	11.3%	10	24,198	14	0.50 (17)
Trois-Rivières	2,015	10.7%	10	9.2%	14	18,822	33	0.44 (19)
Edmonton	14,175	8.9%	25	3.1%	26	25,548	8	0.42 (20)
Guelph	1,605	9.6%	18	-12.3%	32	24,815	11	0.40 (21)
St. Catharines - Niagara	6,210	9.6%	16	5.3%	21	22,171	25	0.39 (22)
London	6,405	9.1%	20	-4.9%	29	24,269	13	0.39 (22)
<i>Bottom Tier</i>								
Moncton	1,650	7.3%	31	10.4%	11	22,398	24	0.35 (24)
Saskatoon	3,250	9.6%	17	4.2%	23	21,589	28	0.33 (25)
Kingston	2,130	9.1%	21	-13.9%	33	23,866	17	0.30 (26)
Thunder Bay	1,610	9.0%	24	4.2%	22	20,606	31	0.25 (27)
Regina	2,455	7.4%	30	-7.9%	31	24,022	16	0.25 (27)
Winnipeg	8,290	7.9%	29	-5.6%	30	23,798	18	0.25 (27)
Saguenay	1,725	8.8%	26	7.8%	18	18,102	34	0.24 (30)
Halifax	4,490	7.2%	32	0.1%	28	22,452	23	0.19 (31)
St. John's	1,530	5.4%	34	5.9%	20	20,905	29	0.19 (31)
Saint John	1,220	6.2%	33	3.4%	25	21,606	27	0.17 (33)
Greater Sudbury	1,855	8.1%	28	-14.9%	34	21,619	26	0.14 (34)

ENTREPRENEURSHIP INDEX FOR PHYSICALLY-INTENSIVE SERVICE SECTORS, ALL CMAs, 2001-2006

Census Metropolitan Area	Self-Employment Share			Self-Employment Growth		Regional Productivity		Entrepreneurship Index Score (National Rank)
	Self-Employed Labour Force	Self-Emp. Share	Rank	5-Year Growth Rate	Rank	Avg. Employment Income (\$)	Rank	
<i>Top Tier</i>								
Guelph	1,550	21.7%	6	22.5%	8	43,794	4	0.82 (1)
Abbotsford	3,515	23.5%	2	24.2%	5	39,298	12	0.81 (2)
Barrie	3,230	22.1%	5	17.9%	12	43,954	3	0.80 (3)
Kelowna	3,690	24.6%	1	44.1%	1	37,553	20	0.78 (4)
Oshawa	4,410	19.6%	15	27.5%	4	43,295	5	0.76 (5)
Toronto	68,450	21.1%	8	19.6%	10	41,676	10	0.73 (6)
Calgary	18,950	18.9%	19	20.7%	9	47,412	2	0.71 (7)
Edmonton	17,555	17.7%	22	23.6%	7	47,667	1	0.71 (7)
Vancouver	30,915	20.0%	12	17.9%	13	42,792	8	0.68 (9)
Hamilton	8,800	19.6%	13	17.0%	16	42,980	6	0.66 (10)
Ottawa	8,460	20.9%	9	7.4%	20	42,969	7	0.65 (11)
<i>Middle Tier</i>								
Kitchener-Waterloo	5,655	19.1%	18	18.2%	11	41,824	9	0.63 (12)
Gatineau	3,700	20.6%	11	36.5%	2	35,739	26	0.62 (13)
Victoria	4,775	22.4%	3	15.2%	17	37,508	21	0.60 (14)
Brantford	1,425	17.0%	23	23.9%	6	38,430	16	0.56 (15)
Sherbrooke	2,070	20.7%	10	28.2%	3	31,486	34	0.54 (16)
St. Catharines - Niagara	4,810	19.3%	16	17.2%	15	38,390	17	0.53 (17)
Montréal	38,890	18.5%	20	17.7%	14	38,321	18	0.49 (18)
Peterborough	1,655	22.3%	4	3.8%	24	34,175	28	0.45 (19)
London	5,505	19.6%	14	-4.4%	33	39,189	13	0.41 (20)
Saskatoon	3,300	19.3%	17	6.3%	21	36,907	23	0.40 (21)
Windsor	3,000	17.9%	21	1.0%	28	38,931	14	0.38 (22)
Halifax	3,780	15.9%	25	5.3%	22	38,212	19	0.35 (23)
<i>Bottom Tier</i>								
Winnipeg	7,235	15.2%	26	1.9%	26	38,507	15	0.34 (24)
Québec	5,740	14.6%	27	8.5%	19	35,802	25	0.30 (25)
Thunder Bay	975	11.9%	32	0.0%	29	40,184	11	0.29 (26)
Kingston	1,700	21.2%	7	-6.8%	34	32,602	31	0.29 (26)
Moncton	1,240	12.5%	30	11.7%	18	34,000	29	0.25 (28)
Greater Sudbury	1,390	13.7%	28	-2.5%	30	36,951	22	0.22 (29)
Regina	2,120	16.9%	24	-3.6%	32	36,321	24	0.22 (29)
St. John's	1,285	12.3%	31	4.9%	23	33,018	30	0.18 (31)
Trois-Rivières	1,020	13.7%	29	2.5%	25	32,496	32	0.16 (32)
Saint John	970	11.7%	33	-2.5%	31	35,031	27	0.11 (33)
Saguenay	945	11.0%	34	1.1%	27	32,433	33	0.08 (34)

ENTREPRENEURSHIP INDEX FOR PHYSICALLY-INTENSIVE MANUFACTURING SECTORS, ALL CMAs, 2001-2006

Census Metropolitan Area	Self-Employment Cluster			Self-Employment Growth		Regional Productivity		Entrepreneurship Index Score (National Rank)
	Self-Employed Labour Force	Location Quotient	Rank	5-Year Growth Rate	Rank	Avg. Employment Income (\$)	Rank	
<i>Top Tier</i>								
Brantford	280	1.29	5	30.2%	5	45,145	7	0.83 (1)
Saint John	220	1.40	3	37.5%	3	43,604	12	0.82 (2)
Windsor	535	1.22	7	12.6%	11	55,201	1	0.81 (3)
Hamilton	1,285	1.04	13	12.7%	10	48,227	3	0.75 (4)
Abbotsford	515	1.40	2	45.1%	2	35,416	26	0.71 (5)
Edmonton	1,890	0.91	19	14.9%	9	48,520	2	0.71 (5)
Guelph	250	1.07	12	4.2%	18	47,664	4	0.67 (7)
Barrie	345	0.93	17	15.0%	8	44,277	11	0.65 (8)
Toronto	12,865	1.16	11	4.8%	16	42,502	15	0.59 (9)
Québec	1,470	1.24	6	25.1%	6	34,374	30	0.59 (9)
Kitchener-Waterloo	905	1.17	10	-18.1%	28	47,201	5	0.58 (11)
<i>Middle Tier</i>								
St. Catharines - Niagara	655	0.95	15	1.6%	20	44,295	10	0.56 (12)
Thunder Bay	135	0.81	23	17.4%	7	42,309	16	0.55 (13)
Montréal	9,405	1.33	4	-5.2%	21	35,696	24	0.52 (14)
Moncton	145	0.81	25	52.6%	1	35,541	25	0.50 (15)
Regina	225	0.71	30	32.4%	4	39,375	19	0.48 (16)
Calgary	1,950	0.73	28	10.8%	13	43,515	13	0.47 (17)
Peterborough	225	0.92	18	7.1%	14	36,057	23	0.46 (18)
St. John's	210	0.97	14	2.4%	19	36,902	22	0.46 (18)
London	645	0.80	26	-10.4%	25	45,626	6	0.44 (20)
Saguenay	220	1.20	8	4.8%	17	32,129	32	0.44 (20)
Trois-Rivières	330	1.54	1	-8.3%	23	28,029	34	0.43 (22)
Victoria	725	0.84	21	12.4%	12	34,402	29	0.39 (23)
Kelowna	435	0.94	16	-11.2%	26	39,342	20	0.39 (23)
Ottawa	1,010	0.62	33	6.3%	15	42,898	14	0.39 (23)
Vancouver	4,730	0.91	20	-9.0%	24	40,992	18	0.39 (23)
Greater Sudbury	165	0.81	24	-19.5%	30	45,126	8	0.39 (23)
<i>Bottom Tier</i>								
Sherbrooke	425	1.19	9	-17.5%	27	30,660	33	0.32 (28)
Oshawa	385	0.73	27	-37.9%	34	44,325	9	0.31 (29)
Saskatoon	325	0.72	29	-5.8%	22	34,994	28	0.23 (30)
Kingston	145	0.55	34	-19.4%	29	41,598	17	0.22 (31)
Winnipeg	900	0.82	22	-27.1%	32	33,635	31	0.17 (32)
Halifax	390	0.64	32	-30.4%	33	38,477	21	0.16 (33)
Gatineau	315	0.64	31	-20.3%	31	35,352	27	0.13 (34)

Author Bio

Scott Pennington is a Research Associate at the Martin Prosperity Institute. Scott joined the MPI after graduating with a Master's degree in Planning from the University of Toronto. In previous work, Scott has researched the MaRS Discovery District in downtown Toronto and was involved in a detailed study of health technology clusters across Ontario, supported by the Program on Globalization and Regional Innovation Systems (PROGRIS) and the Health Technology Exchange. Scott's current research at the MPI is focused on the role of entrepreneurship and innovation in regional economic development, particularly institutional practices and governance, and effective ways to measure and analyze this activity across regions.

Working Paper Series

This working paper is part of the *Ontario in the Creative Age* series, a project we are conducting for the Ontario Government. The project was first announced in the 2008 Ontario Budget Speech, and its purpose is to understand the changing composition of Ontario's economy and workforce, examine historical changes and projected future trends affecting Ontario, and provide recommendations to the Province for ensuring that Ontario's economy and people remain globally competitive and prosperous.

The purpose of the working papers in this series is to engage selected issues related to our report: *Ontario in the Creative Age*. The series will involve a number of releases over the course of the coming months. Each paper has been reviewed for content and edited for clarity by Martin Prosperity Institute staff and affiliates. As working papers, they have not undergone rigorous academic peer review.

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