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Entrepreneurship in rural Canada:

NECESSITY OR OPPORTUNITY DRIVEN?

Ibrahim Bousmah

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Canada

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Abstract

This paper aims to provide new insights into factors contributing to nascent entrepreneurship in rural Canada and analyze whether the motivation to become a nascent entrepreneur in rural Canada is driven by opportunity or necessity. The datasets used for this paper are the Canadian microdata of the 2016, 2017, 2018 and 2019 Global Entrepreneurship Monitor's *Adult Population Survey*.

Results suggest that nascent entrepreneurs in rural Canada are more likely to be driven by opportunity than necessity, but that this positive effect decreases with age level. Results also suggest that nascent entrepreneurs with higher levels of education are more likely to be driven by opportunity than necessity.

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1 Introduction

Supporting economic development in rural areas has become increasingly more important as Canadian regions experience rapid aging of their population and youth outmigration to urban areas. A strategy used to support economic growth in rural areas is to encourage the creation of business. Programs supporting the development of business in remote rural areas have become important policy tools in Organisation for Economic Co-operation and Development (OECD) countries due to their positive impact on economic growth (OECD 2012). Motivation of entrepreneurs to start a business is an important element to consider in the context of firm creation and economic growth that is often ignored. Is the decision to become an entrepreneur a result of necessity or opportunity? Opportunity entrepreneurship can be defined as starting a business to take advantage of a business opportunity. Necessity entrepreneurship, on the other hand, involves starting a business because there are no better choices for work. The literature has generally shown that start-up firms driven by opportunity are expected to have better economic outcomes, such as longer survival rates and a higher impact on economic growth (e.g., Wennekers et al. 2005).

The spatial location of a firm can contribute in different ways to the likelihood of being an opportunity-based or a necessity-based firm. Urban locations tend to have access to a larger market of consumers, and better access to human resources to help start and run the business. There might also be a rural/urban difference in accessing financial resources, although this study is not about proving or disproving that aspect. Statistics Canada's *Survey on Financing and Growth of Small and Medium Enterprises* reveals that approximately 50.7 percent of businesses in rural Canada requested external financing in 2017 in comparison with 46.2 percent in urban Canada. Moreover, the survey also indicates that among those businesses that did not request financing, a higher share in rural Canada reported that applying for financing is too difficult or time consuming. This could suggest that access to financing might be slightly more difficult for rural enterprises than for enterprises in urban areas. On the other hand, rural regions can also experience lower levels of competition and could thereby benefit from a new business opportunity created as a result of local demand. It is important to note, however, that barriers associated with location have decreased over the past decades as technologies evolve. The rise in the use of the Internet and e-commerce, for instance, has helped businesses in rural communities access new markets and customers.

When analyzing the likelihood of becoming an entrepreneur in a rural region in the context of economic development, it is important to discern between entrepreneurship driven by opportunity or by necessity. If it is

more likely that start-up firms in rural regions are driven by necessity, one would expect a lower impact on the level of regional economic development. However, if start-up firms in rural areas are driven by opportunity, the effect on regional growth should be more important and entrepreneurship could be a viable strategy for regional development. This paper aims to provide new insights into factors contributing to entrepreneurship in rural Canada and analyze whether the motivation to become an entrepreneur in rural Canada is driven by opportunity or necessity.

The paper is organized as follows: Section 2 reviews pertinent selected studies on entrepreneurship; Section 3 describes the dataset, and presents some descriptive statistics; Section 4 presents the econometric models; Section 5 discusses the results; Section 6 extends the work with some additional analysis and Section 7 presents the conclusions.

2 Selected review of the literature

2.1 Entrepreneurship and growth

The literature related to entrepreneurship has generally suggested a positive relationship between entrepreneurship and economic growth. This goes back to the work of Schumpeter (1934). In one of the most influential books on economics, “The Theory of Economic Development,” Schumpeter explains that entrepreneurship is the underlying mechanism in the process of economic development. Following Schumpeter, a number of other papers have documented a relationship between economic growth and entrepreneurship. Among them, Baumol (1968) argued that the entrepreneurial function is a vital component in the process of economic growth and that by ignoring entrepreneurship we could fail to account for a substantial proportion of our historic growth.

Samila and Sorenson (2011) explored the relationship between venture capital, entrepreneurship and economic growth. Their results suggest that an increase in the supply of venture capital stimulates the creation of new firms and raises employment and aggregate income within a region. They argue that this could be explained by either of two mechanisms. The first is that latent entrepreneurs in need of capital consider the availability of venture capital when deciding whether to start their firms. The second mechanism is that new firms financed by venture capital serve as an inspiration and training grounds for other future entrepreneurs. Audretsch (2007) demonstrated that the Solow growth framework is useful in explaining the link between entrepreneurship capital and economic growth. He explains that entrepreneurship has emerged as a driving force of economic growth by serving as an important conduit of knowledge spillovers. With knowledge becoming more important as a factor of production, entrepreneurship capital serves as a key mechanism by which new knowledge is transferred from an existing organization to a new enterprise. Van Stel et al. (2005) empirically investigated the relationship between entrepreneurial activity and economic growth at the national level. They looked at whether this effect is similar for developed and less developed countries. As for this paper, their main source of data was the Global Entrepreneurship Monitor (GEM) database.¹ They added data from the Global Competitiveness Report to use the average annual growth over a period of five years (1999–2003) as their dependent variable. Their main independent variable was the Total Entrepreneurial Activity (TEA)² rate obtained from the GEM. Their main finding suggests that the TEA rate has a negative effect in developing countries and a positive effect in developed countries. The authors explained that the observed negative effect in developing countries might be caused by entrepreneurs having lower levels of human capital compared with entrepreneurs in developed countries. The negative effect could also have resulted from the presence of many small entrepreneurs who may be more productive as wage earners in bigger firms. The authors argue, however, that entrepreneurship may still be encouraged in such a context if the alternative is unemployment.

In conclusion, the literature suggests a positive link between entrepreneurship and economic growth, particularly in developed countries. Economic growth in rural communities generally lags behind when compared with economic growth in urban communities and promoting entrepreneurship could be a viable strategy for regional development.

¹ The Global Entrepreneurship Monitor (GEM) includes a number of top academic institutions around the world that carry out surveys on entrepreneurship. The GEM's *Adult Population Survey* provides information on the characteristics, motivations and ambitions of individual entrepreneurs.

² The Total Entrepreneurial Activity rate is the percentage of the population that is either a nascent entrepreneur or an owner–manager of a new business up to 3.5 years old.

2.2 Opportunity versus necessity entrepreneurship

Wennekers et al. (2005) also discussed the U-shaped relationship between a country's rate of entrepreneurial dynamics and its level of economic development. They analyzed the difference between opportunity- and necessity-based nascent entrepreneurship. They found a quadratic (U-shaped) relationship for opportunity-based entrepreneurship with respect to per capita income and a negative relationship for necessity-based entrepreneurship with respect to per capita income. The authors argued that these results are intuitively plausible as new opportunities for entrepreneurship occur at the high end of economic development. In a different context, Poschke (2013) investigated the characteristics of necessity-based entrepreneurs by describing them and their firms. He found that firms run by necessity-based entrepreneurs are, on average, smaller and have lower growth expectations. In terms of the owner's characteristics, the author found that necessity-based entrepreneurs are more likely to have lower levels of education and less likely to be women.

Lavesson (2018) looked at how distance to urban centres influences necessity- and opportunity-based start-up firms. The data used are from Statistics Sweden over the period 2004–2012. He applied ordinary least squares with start-up firms per thousand workers as a dependent variable and distance to the nearest urban centre as the main independent variable. His results are quite interesting, suggesting that places located 100 kilometres away from an urban centre of any size experience 4.62 more start-up firms per thousand workers. The corresponding result for necessity-based start-up firms is 2.24 and a positive, but non-significant, effect for opportunity-based start-up firms. The author concluded that rural municipalities appear to be protected from urban competition and create more start-up firms due to remoteness. After a certain distance, populations from remote areas do not travel to the city to buy goods and services, drawing more upon local suppliers instead. Block and Sandner (2009) used data from the German Socio-Economic Panel study to explore whether there is a difference between necessity- and opportunity-based entrepreneurs in terms of self-employment duration. Their results suggest that opportunity-based entrepreneurs remain self-employed longer than necessity-based entrepreneurs, but that the results are no longer significant after controlling for education in the professional area within which entrepreneurs start their venture. They explained that their results likely suffer from selection bias as their sample captured only individuals who became entrepreneurs. Acs et al. (2004) suggest that necessity-based entrepreneurs are more concentrated within low-income countries and that countries with a low ratio of opportunity-based to necessity-based entrepreneurship will have lower per capita gross domestic product. Their results also suggest that more educated entrepreneurs are more likely to be motivated by opportunity and less educated entrepreneurs are more likely to be motivated by necessity, a result, as will be shown later, that this study also found.

To summarize, the literature referred to above suggests that necessity-based entrepreneurs are generally less desirable, in terms of their economic impacts, relative to opportunity-based entrepreneurs. It also suggests that necessity-based entrepreneurs generally have lower levels of human capital and might be less likely to succeed than opportunity-based entrepreneurs. In the context of this analysis, entrepreneurship might be a good strategy to help with regional economic development, but it is important to discern whether entrepreneurs in rural areas are more likely to be motivated by opportunity or necessity. It is not suggested here that necessity-based entrepreneurs are undesirable in rural Canada, rather it is suggested that government programs related to start-up support for firms in rural areas could be designed differently for opportunity- and necessity-based entrepreneurs to help maximize their efficiency for regional development. In addition, one common issue with the papers cited above is that they do not correct for self-selection in entrepreneurship when comparing opportunity- and necessity-based entrepreneurs. This paper contributes to the literature by addressing the selection bias issue through the use of a Heckman model.

3 Data and descriptive statistics

The datasets used for this paper are the pooled, cross-sectional microdata of the 2016, 2017, 2018 and 2019 GEM's *Adult Population Survey on Canada*.³ GEM's *Adult Population Survey* provides a rich source of information on the economic, demographic and location characteristics of a representative national sample of non-entrepreneurs and entrepreneurs between 18 and 99 years of age. In the dataset, entrepreneurs are divided into three main groups: nascent entrepreneurs, new entrepreneurs and established entrepreneurs.⁴ The GEM survey also provides information on individuals' perceptions of entrepreneurship and detailed information about motivations, attitudes and ambitions of individuals who are willing to start, or have started, a business.

Table 1 presents summary statistics for the sample's main variables. The first column presents statistics for all nascent entrepreneurs,⁵ the second column for nascent entrepreneurs driven by opportunity and the third column for nascent entrepreneurs driven by necessity. Among nascent entrepreneurs, 4.8 percent live in rural Canada and 39.0 percent of nascent entrepreneurs are necessity-based, while 61.0 percent are opportunity-based. Only 2.6 percent of all necessity-based nascent entrepreneurs live in rural Canada compared with 6.2 percent of all opportunity-based nascent entrepreneurs. Opportunity-based nascent entrepreneurs also have a higher level of education, on average, than necessity-based nascent entrepreneurs. In terms of work status,⁶ there is a significant difference between nascent entrepreneurs driven by opportunity and those driven by necessity. There is a significantly higher proportion of opportunity-based nascent entrepreneurs who are working (93.1 percent) than necessity-based nascent entrepreneurs (87.0 percent). There is also a significantly higher proportion of necessity-based nascent entrepreneurs who are not working (10.0 percent) than opportunity-based nascent entrepreneurs (3.4 percent).

³ Refer to the [GEM](#) for further details.

⁴ Nascent entrepreneurs are individuals that were actively involved in start-up activities over the past 12 months preceding the survey, and personally owned all or part of the business. New entrepreneurs are individuals that managed and owned a business that is up to 42 months old. Established entrepreneurs are individuals that managed and owned a business that is older than 42 months.

⁵ The definition of nascent entrepreneurs used in this paper is as follows: individuals that were actively involved in start-up activities over the past 12 months preceding the survey, expect to be a full or part owner, and received no salaries or wages for over three months.

⁶ The survey question for work status is worded as follows: Which of the following describes your current employment status?

Table 1: Descriptive statistics: Entrepreneur by necessity/opportunity

	Nascent entrepreneur Mean (std. dev.)	Nascent entrepreneur driven by opportunity Mean (std. dev.)	Nascent entrepreneur driven by necessity Mean (std. dev.)	Difference (opportunity versus necessity)
Rural Canada	0.048	0.062	0.026	0.036***
Male	0.598	0.586	0.616	-0.030
Age	39.070 (13.394)	39.334 (13.408)	38.678 (13.379)	0.655
Less than secondary education	0.031	0.025	0.040	-0.016
Secondary education	0.141	0.129	0.160	-0.030
Post-secondary education	0.668	0.654	0.688	-0.034
Graduate education	0.160	0.192	0.112	0.080***
Working, full-time or part-time	0.906	0.931	0.870	0.061***
Not working	0.060	0.034	0.100	-0.066***
Retired, student	0.034	0.035	0.031	0.005
Observations	1,086 (100%)	663 (61%)	423 (39%)	-

Notes: * indicates 10 percent level of significance.

** indicates 5 percent level of significance.

*** indicates 1 percent level of significance.

Standard deviations are in parentheses.

Source: Global Entrepreneurship Monitor, *Adult Population Survey*, 2016–2019.

4 Empirical strategy

The necessity/opportunity outcome is only observable for the subsample of individuals who become nascent entrepreneurs; therefore, a sample selection issue may arise (Heckman 1979). If one ignores self-selection of an individual into nascent entrepreneurship, it could result in bias depending upon how nascent entrepreneurs and non-nascent entrepreneurs differ in their necessity/opportunity response to entrepreneurship. For instance, an individual who tries to become an entrepreneur but does not succeed will not be included in the nascent entrepreneur sample and might have different opportunity/necessity motivations toward nascent entrepreneurship. Heckman (1979) and Wooldridge (2010) have pointed out that the presence of selection bias can be viewed as an omitted variable issue in the selected sample.

To address the issue of unobserved factors that affect self-selection into nascent entrepreneurship decisions, a Heckman probit selection model was used, which takes the following form:

$$nascententrep_{i,t}^* = \pi_1 rural_{i,t} + X_{i,t}\delta + Z_{i,t}\phi + \lambda_t + u_{i,t} \quad (1.0)$$

$$nascententrep_{i,t} = \begin{cases} 1 & \text{if } nascententrep_{i,t}^* > 0 \\ 0 & \text{otherwise} \end{cases}$$

$$opportunity_{i,t}^* = \alpha_1 rural_{i,t} + X_{i,t}\theta + \lambda_t + \varepsilon_{i,t} \quad (1.1)$$

$$opportunity_{i,t} = \begin{cases} 1 & \text{if } opportunity_{i,t}^* > 0 \\ 0 & \text{otherwise} \end{cases}$$

$$u_{i,t} \rightarrow N(0,1)$$

$$\varepsilon_{i,t} \rightarrow N(0,1)$$

$$corr(u_{i,t}, \varepsilon_{i,t}) = \rho$$

The first equation (1.0) is the selection equation that takes into account the probability of becoming a nascent entrepreneur and the second equation (1.1) is the principal equation of interest, to be estimated, representing the possibility of becoming an opportunity-based entrepreneur instead of a necessity-based entrepreneur. The dependent variable in the main equation is $opportunity_{i,t}^*$, which is equal to 1 if the decision to start a firm is driven by opportunity and 0 if it is driven by necessity.⁷ The key independent variable is $rural_{i,t}$, equal to 1 if the individual lives in rural Canada and 0 otherwise.⁸ If entrepreneurship in rural Canada is driven more by opportunity than necessity in comparison with urban Canada, the sign of the parameter α_1 is expected to be positive and significant.

⁷ The 2016–2018 GEM database asked directly whether the nascent business was motivated by opportunity or by necessity. In 2019, the question was changed to whether the nascent entrepreneur's motive was to earn a living because jobs were scarce. Nascent entrepreneurs who replied "yes" to this question were classified as nascent entrepreneurs driven by necessity.

⁸ The population centre and rural area classification of Statistics Canada was used here to define rural: A population centre was defined as an area with a population of at least 1,000 and a density of 400 or more people per square kilometre. All areas outside population centres continued to be defined as rural areas. As urban and rural variables are not available in the GEM database, these variables were created by classifying each city in the sample into its respective rural and urban classification based upon the definition above.

The matrix $X_{i,t}$ contains the socio-economic control variables that are assumed to have an effect on becoming an opportunity-driven entrepreneur, which include age, age squared, gender, education and employment status in an augmented specification. The vector λ_t includes fixed-year effects to control for aggregate trends.

Equation (1.0) is the selection equation where $nascent\ ent\ rep_{i,t}^*$ is equal to 1 if the individual is a nascent entrepreneur and 0 otherwise. An exclusion restriction is included in the first-stage equation, denoted by the variable $Z_{i,t}$, that influences the nascent entrepreneurship decision, but is assumed to have no direct influence on whether the motivation is driven by opportunity or necessity. If the exclusion restriction is not included, the identification strategy will rely only upon the bivariate normality assumption and can produce misleading results (Wooldridge 2010). Potential candidates for the variable $Z_{i,t}$ are perception variables. Those variables are expected to have an important effect on the likelihood of starting a firm, but are not expected to have a direct effect on whether the individual starts the firm due to necessity or opportunity. There is important literature that has documented the relationship between perception variables and the decision to become an entrepreneur.⁹ As in the main equation (1.1), the vector λ_t in the selection equation (1.0) includes fixed-year effects to control for aggregate trends.

The main perception variables available in the datasets are an indicator variable showing if individuals knew of a role model that could have influenced their decision to start a firm; another indicator variable revealing if individuals perceived having the knowledge, skill and experience required to start a new business; and a variable indicating whether individuals thought it was easy to start a business. To test the correlation between these variables and both of the dependent variables, the pairwise correlation matrix presented in Table 2 was estimated. As expected, the results suggest that role model and entrepreneurship skill perception variables have a positive correlation with becoming a nascent entrepreneur and the correlation is highly significant at the 0.01 level. However, no significant correlation was found for the “easy to start” perception variable with becoming a nascent entrepreneur, suggesting that it might not be a good candidate to include in the exclusion matrix. In addition, the correlation matrix also confirms that the perception variables are not significantly correlated with the opportunity/necessity motivation behind the decision to become a nascent entrepreneur. Overall, the pairwise correlation matrix confirms that role model and entrepreneurship skill perception variables are good candidates for exclusion restriction by being significantly correlated with nascent entrepreneurship, but not correlated with becoming a nascent entrepreneur by opportunity or necessity.¹⁰

⁹ Minniti (2005), for instance, investigates why entrepreneurship is concentrated in some regions and not others. She argues that this is, in part, because of the social environment. The more important the number of entrepreneurs, the less ambiguity a potential entrepreneur experiences. In regions with large concentrations of entrepreneurs, entrepreneurship is generally promoted as a viable source of employment and a positive influence to become an entrepreneur is created (such as a role-model effect). Minniti explains that such an influence may be modelled as a network externality in which entrepreneurship is assumed to exhibit increasing returns with respect to adoption. As the number of entrepreneurs becomes more important, more information about the requirements, needs, benefit and difficulty of entrepreneurship is available, which contributes to reducing the ambiguity related to becoming an entrepreneur. Lafuente et al. (2007) studied the level of entrepreneurship in rural Catalonia compared with rural areas throughout the rest of Spain. They argued that there is a superior entrepreneurial activity level in rural Catalonia and they investigated whether it can be explained by entrepreneurial role models. Their key result suggests that the difference in entrepreneurial activity in rural Catalonia compared with the rest of rural Spain is mainly due to the presence of informal institutions, which is measured, in part, through the role-model effect. Informal institutions are attitudes, values or the culture of a society, while formal institutions, for example, are political or economic rules that shape a society. Examples of informal institutions used by Lafuente et al., which could impact entrepreneurship, are the lack of positive entrepreneurial examples and limited networks. They further concluded that even in regions with homogeneous formal institutions and policies, the level of entrepreneurship may differ due to varying informal institutions.

¹⁰ The economic magnitude of the role model pairwise correlation coefficient for the opportunity/necessity decision is very small at -0.06. However, it is still statistically significant at the 0.05 level – it could be argued that it should not be used as an exclusion restriction and included in the opportunity/necessity model. A separate analysis with role model included in the second stage of the Heckman model obtained similar results.

Table 2: Pairwise correlation matrix of perception variables: Potential exclusion restriction variables

	Nascent entrepreneur driven by opportunity	Nascent entrepreneur
Role model	-0.062**	0.189***
Skill perception	0.027	0.194***
Easy to start	-0.010	0.013

Notes: * indicates 10 percent level of significance.

** indicates 5 percent level of significance.

*** indicates 1 percent level of significance.

Source: Global Entrepreneurship Monitor, *Adult Population Survey*, 2016–2019.

The two-equation model was solved using the maximum likelihood estimation instead of the two-step Heckman model because the dependent variable in the principal equation (1.1) of this study takes a binary form (Van de Ven and Van Pragg 1981; Freedman and Sekhon 2010). The error terms $u_{i,t}$ and $\varepsilon_{i,t}$ are assumed to be distributed bivariate normal, where ρ denotes the correlation between the error terms. If ρ is statistically different from zero, it confirms the problem of selection bias in this study model and applying the standard probit model to the main equation will yield biased results, while the Heckman probit model would provide consistent and efficient estimates. In comparison with the regular probit model, the log likelihood estimation of the Heckman probit model will include the correlation ρ , if $\rho = 0$ the log likelihood of the probit model will be similar to estimating the Heckman probit model. All of the regressions are weighted, and the weights are normalized to add up to their respective sample size for each year of the GEM *Adult Population Survey*.

5 Results

Table 3 presents the results of the estimated marginal effect evaluated at the means of the explanatory variables. The first stages (equation 1) of the Heckman model are presented in columns 3 and 6, where the role model and skill perception variables are included to implement the exclusion restriction. As expected, those variables are positive and highly statistically significant at the 1 percent level. In the first-stage Heckman selection equation (column 3), the result of the estimated marginal effect suggests that individuals who have a role model are 6.4 percentage points more likely to start a new firm. Results for the perception variables also show that individuals who have reported that they think they have the knowledge, skill and experience required to start a new business are 8.2 percentage points more likely to start a firm.

The p-values of the Wald tests show that estimated coefficients ρ , which measure the correlation between the error terms of the nascent entrepreneurship and the opportunity nascent entrepreneurship equations, are not statistically significant. This result suggests that unobserved factors that affect the likelihood of becoming a nascent entrepreneur and the probability that nascent entrepreneurs are motivated by opportunity relative to necessity are in the same direction. Indeed, as observed in columns (1) and (2), the Heckman probit and probit models give similar results.

**Table 3: Marginal effect results for the probit and Heckman selection models:
Individuals' nascent entrepreneurship decisions**

Variable	(1) Probit marginal effects	(2) Heckman (2) marginal effects	(3) Heckman (1) marginal effects	(4) Probit marginal effects	(5) Heckman (2) marginal effects	(6) Heckman (1) marginal effects
Dependent variable	Nascent entrepreneur driven by opportunity	Nascent entrepreneur driven by opportunity	Nascent entrepreneur	Nascent entrepreneur driven by opportunity	Nascent entrepreneur driven by opportunity	Nascent entrepreneur
Rural	0.251** (0.112)	0.251** (0.113)	-0.017 (0.012)	0.257** (0.111)	0.252** (0.110)	-0.016 (0.011)
Male	-0.020 (0.049)	-0.027 (0.050)	0.013** (0.006)	-0.025 (0.049)	-0.029 (0.049)	0.011* (0.006)
Age	-0.001 (0.010)	-0.001 (0.010)	0.002** (0.001)	-0.0031 (0.010)	-0.003 (0.010)	0.001 (0.001)
Age squared	1.10e-05 (0.0001)	1.26e-05 (0.0001)	-4.96e-05*** (1.37e-05)	2.51e-05 (0.0001)	2.48e-05 (0.0001)	-2.58e-05* (1.43e-05)
Education (reference: less than secondary education)						
Secondary	0.132 (0.165)	0.110 (0.169)	-0.0202 (0.019)	0.123 (0.165)	0.102 (0.163)	-0.020 (0.018)
Post-secondary	0.144 (0.155)	0.125 (0.159)	-0.014 (0.017)	0.142 (0.157)	0.124 (0.156)	-0.016 (0.016)
Graduate	0.315* (0.169)	0.304* (0.172)	-0.009 (0.019)	0.307* (0.172)	0.291* (0.170)	-0.013 (0.018)
Employment status (reference: working)						
Not working	-	-	-	-0.221** (0.103)	-0.209** (0.104)	-0.0019 (0.016)
Retired, student	-	-	-	0.140 (0.121)	0.147 (0.125)	-0.050*** (0.009)
Exclusion restriction						
Role model	-	-	0.064*** (0.007)	-	-	0.058*** (0.006)
Skill perception	-	-	0.082*** (0.007)	-	-	0.076*** (0.007)
Unobserved factors: Chi squared	-	-	1.24	-	-	0.76
Wald test (p-value)	-	-	(0.264)	-	-	(0.384)
Fixed-year effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,086	12,159	12,159	1,086	12,159	12,159

Notes: * indicates 10 percent level of significance.

** indicates 5 percent level of significance.

*** indicates 1 percent level of significance.

Heteroskedasticity – robust standard deviations are in parentheses.

All regressions are weighted using normalized weights.

Source: Global Entrepreneurship Monitor, *Adult Population Survey*, 2016–2019.

Results of the main equation (1.1) in columns 1 and 2 show that living in a rural community has a positive effect on the probability of becoming an opportunity-based nascent entrepreneur. The result is statistically significant at the 5 percent level and economically significant, with a 25.1 percentage point difference when compared with the urban community. At first glance, the opposite result would be expected considering that there might be lower levels of job opportunities and higher levels of unemployment in rural Canada relative to urban Canada. However, the results indicate a different pattern – a potential explanation is that there is higher entrepreneurship opportunity in rural Canada due to lower levels of competition. Rural populations are less likely to be willing to travel to purchase services and products, which can create business opportunities, in part, from the changing needs of the rural population (Lavesson 2018). The other variable that has a significant effect on the probability of becoming nascent entrepreneurs driven by opportunity is the level of education. In comparison with individuals with no secondary education, those with a graduate education are 31.5 percentage points more likely to become an opportunity-based nascent entrepreneur.

The model was extended by adding a control variable for employment status. It was expected that unemployed workers would be more likely to start a business by necessity, and controlling for this effect in the model is important. Results in columns 4 and 5, however, reveal that individuals who are not working are 22.1 percentage points less likely to become opportunity-based entrepreneurs when compared with individuals who are working. This result is statistically significant at the 5 percent level.

6 Extension

A key finding obtained in this study was that entrepreneurs in rural Canada are more likely to be driven by opportunity than necessity. As mentioned earlier, a potential explanation for this finding is that entrepreneurs in rural regions experience lower levels of competition. Rural regions seem to be more protected from urban competitors as their population cannot easily reach large urban centres, creating more opportunities to start a firm locally. If this explanation is valid, it would be expected that small and medium-sized cities, which are generally closer to large cities, would exhibit a negative or non-significant difference compared with large urban centres in terms of opportunities to start a firm as their population would be able to reach larger centres more easily. To test the robustness of these results, the sample was divided into four geographical groups: rural cities, small cities, medium-sized cities and large cities.¹¹ The analysis was then repeated to estimate the difference in opportunity-based entrepreneurship (Table 4).

¹¹ Again, the population centre and rural area classification of Statistics Canada was used here to define rural, small, medium-sized and large cities: small population centres have a population between 1,000 and 29,999; medium-sized population centres have a population between 30,000 and 99,999; and large urban population centres have a population of 100,000 and over. As these variables are not available in the GEM database, they were created by classifying each city using its respective population.

Table 4: Marginal effect results for the probit and Heckman selection models: Individuals' nascent entrepreneurship decisions by rural, small, medium-sized and large cities

Variable	(1) Probit marginal effects	(2) Heckman (2) marginal effects	(3) Heckman (1) marginal effects	(4) Probit marginal effects	(5) Heckman (2) marginal effects	(6) Heckman (1) marginal effects
Dependent variable	Nascent entrepreneur driven by opportunity	Nascent entrepreneur driven by opportunity	Nascent entrepreneur	Nascent entrepreneur driven by opportunity	Nascent entrepreneur driven by opportunity	Nascent entrepreneur
<i>Location (reference: large cities)</i>						
Rural	0.236*** (0.0795)	0.252*** (0.0833)	-0.0153 (0.0104)	0.240*** (0.0780)	0.239*** (0.0802)	-0.0132 (0.00993)
Small cities	0.0202 (0.0701)	0.0213 (0.0717)	-0.00544 (0.00847)	0.0195 (0.0676)	0.0197 (0.0678)	-0.00386 (0.00808)
Medium-sized cities	0.0906 (0.0750)	0.0922 (0.0776)	0.0142 (0.0116)	0.100 (0.0733)	0.0987 (0.0740)	0.0161 (0.0114)
<i>Exclusion restriction</i>						
Role model	-	-	0.0646*** (0.00708)	-	-	0.0590*** (0.00681)
Skill perception	-	-	0.0819*** (0.00753)	-	-	0.0756*** (0.00744)
Unobserved factors: Chi squared	-	-	1.22	-	-	0.67
Wald test (p-value)	-	-	(0.269)	-	-	(0.411)
Fixed-year effects	Yes	Yes	Yes	Yes	Yes	Yes
Socio-economic control	Yes	Yes	Yes	Yes	Yes	Yes
Employment status control	No	No	No	Yes	Yes	Yes
Observations	1,086	12,159	12,159	1,086	12,159	12,159

Notes: * indicates 10 percent level of significance.

** indicates 5 percent level of significance.

*** indicates 1 percent level of significance.

Heteroskedasticity — robust standard deviations are in parentheses.

Socio-economic controls include gender, age, age squared, education and employment status.

All regressions are weighted using normalized weights.

Source: Global Entrepreneurship Monitor, *Adult Population Survey*, 2016–2019.

The estimated marginal effects presented in Table 4 suggest that living in rural regions still has a significant positive effect (ranging from 23.6 to 25.2 percentage points) on the likelihood of becoming a nascent entrepreneur driven by opportunity when compared with the new reference group (large cities). As expected, the estimated marginal effect for small and medium-sized cities is small in magnitude and not statistically significant when compared with large cities. These results give support to the hypothesis that rural cities are more likely to be driven by opportunity-based nascent entrepreneurship due to their remoteness from large cities, which might protect them from large competitors.

The analysis was also extended to look at the joint effect of age and living in rural communities on opportunity-based nascent entrepreneurs. In Canada, it has been reported that rural populations are aging faster than their urban counterparts (Dandy and Bollman 2008). Results of opportunity/necessity regressions from this study have shown that age has a negative, but not significant, effect on the probability of becoming a nascent entrepreneur by opportunity. However, results do not provide information on whether the effect of age is important in rural Canada. To test this, the Heckman model was re-estimated by including an interaction between living in rural Canada and age. Equations (1.0) and (1.1) will now take the following form:

$$nascententrep_{i,t}^* = \gamma_1 rural_{i,t} + \gamma_2 age_{i,t} + \gamma_3 (rural_{i,t} * age_{i,t}) + \bar{X}_{i,t}\omega + Z_{i,t}\tau + \lambda_t + u_{i,t} \quad (2.0)$$

$$nascententrep_{i,t} = \begin{cases} 1 & \text{if } nascententrep_{i,t}^* > 0 \\ 0 & \text{otherwise} \end{cases}$$

$$opportunity_{i,t}^* = \beta_1 rural_{i,t} + \beta_2 age_{i,t} + \beta_3 (rural_{i,t} * age_{i,t}) + \bar{X}_{i,t}\sigma + \lambda_t + \varepsilon_{i,t} \quad (2.1)$$

$$opportunity_{i,t} = \begin{cases} 1 & \text{if } opportunity_{i,t}^* > 0 \\ 0 & \text{otherwise} \end{cases}$$

Results from the regressions are presented in Table 5. β_3 is the estimated coefficient of interest, the joint effect (i.e., interaction effect) of age and living in rural Canada for opportunity-based entrepreneurs. Again, both the probit and Heckman models provide similar results, suggesting that the joint effect of age and living in rural Canada is negative and statistically significant (- 1.3 percentage points). This result indicates that the effect of living in rural Canada in comparison with urban Canada on becoming an opportunity-based entrepreneur decreases as age increases. For a better understanding of this significant effect, the predicted probabilities are illustrated in Figure 1. The figure shows an important negative relationship between age and opportunity-based nascent entrepreneurship in rural Canada and a more moderate negative relationship for urban Canada. It also reveals that people living in rural communities who are less than 65 years of age have a much higher probability of becoming a nascent entrepreneur driven by opportunity than those of the same age living in urban Canada. After 65 years of age, however, the effect of living in rural versus urban communities on becoming a nascent entrepreneur driven by opportunity disappears.

Table 5: Marginal effect results for the probit and Heckman selection models: Individuals' nascent entrepreneurship decisions – rural and age interaction

Variable	(1) Probit marginal effects	(2) Heckman (2) marginal effects	(3) Heckman (1) marginal effects
Dependent variable	Nascent entrepreneur driven by opportunity	Nascent entrepreneur driven by opportunity	Nascent entrepreneur
Rural	0.887*** (0.321)	0.877*** (0.317)	-0.0182 (0.038)
Age	-0.005 (0.010)	-0.005 (0.010)	0.001 (0.001)
Rural × age	-0.013** (0.006)	-0.013** (0.006)	4.52e-05 (0.0007)
Exclusion restriction			
Role model	-	-	0.058*** (0.006)
Skill perception	-	-	0.076*** (0.007)
Unobserved factors: Chi squared	-	-	0.75
Wald test (p-value)	-	-	0.38
Fixed-year effects	Yes	Yes	Yes
Socio-economic control	Yes	Yes	Yes
Employment status control	Yes	Yes	Yes
Observations	1,086	12,159	12,159

Notes: * indicates 10 percent level of significance.

** indicates 5 percent level of significance.

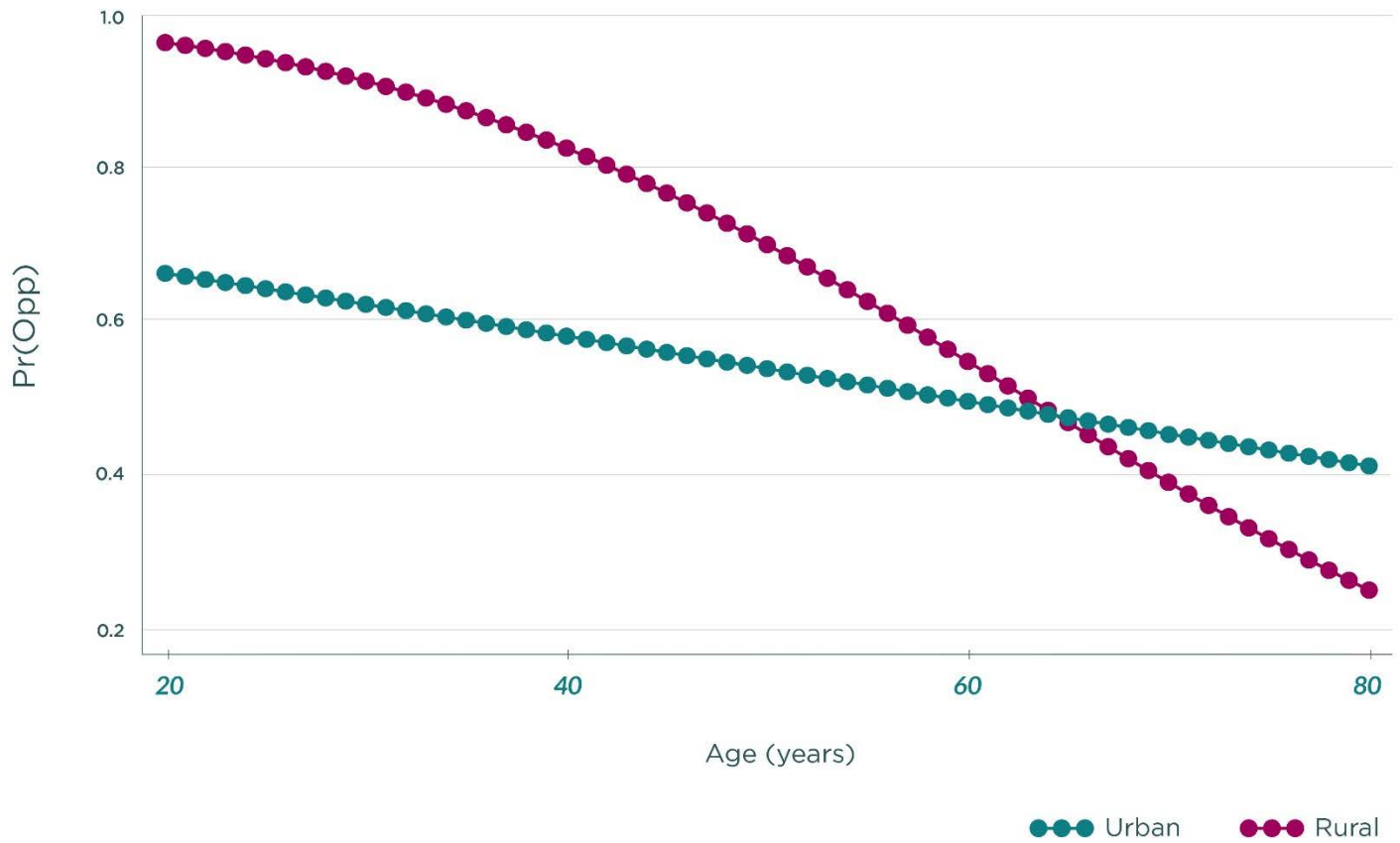
*** indicates 1 percent level of significance.

Heteroskedasticity – robust standard deviations are in parentheses.

Socio-economic controls include gender, age, age squared, education and employment status.

Source: Global Entrepreneurship Monitor, *Adult Population Survey*, 2016–2019.

Figure 1: Predicted probabilities of becoming an opportunity-based nascent entrepreneur by geography and age



Source: Global Entrepreneurship Monitor, *Adult Population Survey*, 2016–2019.

7 Conclusions

As rural Canada faces a number of challenges, encouraging entrepreneurship could be a viable strategy for rural development. Entrepreneurship can be an attractive economic strategy in rural communities and whether entrepreneurs are motivated by necessity or opportunity is expected to play an important role in this context. The literature has generally shown that entrepreneurs driven by opportunity tend to realize better economic outcomes than entrepreneurs driven by necessity (e.g., Wennekers et al. 2005; Poschke 2013). However, it has also been suggested that entrepreneurship driven by necessity is preferable to an unemployment alternative. In both cases, if encouraging entrepreneurship is used as a strategy for sustaining rural communities, it is important to understand entrepreneurs' motivations and if they are more likely to be driven by opportunity or necessity as well as other factors that may have an impact on their choice.

Using data drawn from the 2016, 2017, 2018 and 2019 Global Entrepreneurship Monitor's (GEM's) *Adult Population Survey*, whether the motivation to become an entrepreneur in rural communities is driven by opportunity or necessity has been investigated. Results reveal that rural communities are approximately 25 percentage points more likely to have opportunity-based nascent entrepreneurs than urban communities. The result is robust to different models and specifications. This is, in part, a surprising result as one would expect that urban communities have better start-up opportunities due to easier access to resources. A channel that could drive this result is that rural communities might benefit from a lower level of competition and rural consumers might be less willing to travel to purchase services and products, thus relying on local markets. It was also found that as age increases, the rural opportunity effect gradually decreases until it eventually cancels out at approximately 65 years of age. The level of education was also observed to have a significantly positive relationship with becoming a nascent entrepreneur by opportunity. In comparison with individuals with no secondary education, those with a graduate education are 31.5 percentage points more likely to become an opportunity-based nascent entrepreneur.

To conclude, this research has shown that opportunity-based nascent entrepreneurship is more prevalent in rural regions, which provides support for entrepreneurship as a strategy for regional development. In terms of policy implications, it is important to help with having an entrepreneur-friendly environment. Entrepreneurs in rural regions seem to be able to recognize market opportunities and to take advantage of them, but it is important to have an environment that facilitates the process for them. Another challenge is access to human capital. Rural communities have been experiencing more rapid aging of their population and youth outmigration to urban areas. As the younger population often relocates to urban communities for better work opportunities, entrepreneurship could be promoted as a strategy to retain part of this population. Another strategy could be to attract and retain new immigrants to rural regions, which could provide a bigger pool of new entrepreneurs, more labour for existing businesses and an increase in potential consumers. Finally, the results have shown that perception variables have an important effect on becoming a nascent entrepreneur. As the literature has shown, informal institutions could also be used to promote on the benefit and the process of nascent entrepreneurship in rural communities.

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