

**From:** [Doug Reycraft](#)  
**To:** [Doug Reycraft](#)  
**Subject:** New Research  
**Date:** January 10, 2022 10:50:06 AM  
**Attachments:** [image.png](#)  
[Final Press Release - CSA - Jan 10, 2022.pdf](#)  
[Briefing Deck - Community Schools Alliance - 20210927.pdf](#)  
[Briefing Memo - Community Schools Alliance - 20210927.pdf](#)

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## **Memo: All members of the Community Schools Alliance**

Attached please find a press release describing the results of recent research commissioned by the Community Schools Alliance and the reports of the consultants who conducted the research.

Municipal staff who are on the mailing list used to circulate this are respectfully asked to forward this to members of your council and to have it placed on a future council agenda.

You are encouraged to share this with your local Member of the Legislative Assembly and with local media.



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## **Community Schools Alliance**

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### **Press Release**

**Monday, January 10, 2020**

### **Schools have social and economic impact for small communities in Ontario**

Schools serve important functions within smaller communities by supporting overall vitality and attractiveness. Research shows that small rural and northern communities with schools tend to have more private amenities and more public services than those without schools. Closing a school in a single-school community threatens the future existence of those amenities and services and the quality of life of the families living there. It also reduces the ability to attract new growth and economic development to the community.

The past two decades of educational policy in Ontario has resulted in the amalgamation of smaller local schools into larger buildings, and often the closure of schools in smaller communities. Instead of attending school within their local community, many students are forced to attend schools in communities further away from home. This trend towards bussing rural and smaller community students into other communities can have wide-ranging impacts on the health, wellbeing, and stability of students, parents, and affected communities. The impacts of these closures may also not be immediately apparent, with potentially longer-term impacts being experienced decades later that affect economic competitiveness and socioeconomic outcomes.

The Community Schools Alliance retained the Human Environments Analysis Lab at Western University to undertake an objective analysis of the connections between a community's vitality and the presence of a school within the community. This analysis revealed that of the 733 communities in Ontario with more than 300 and less than 10,000 people, 303 (41%) had no schools, 232 (32%) only have one school, and 198 (27%) have two or more schools.

Communities with schools, independent of overall population, tended to have more services in the community like banks, grocery stores, emergency services, libraries, and community centres. These communities also tended to have more residents that have moved into the community within the last five years, more affordable and recently constructed housing options, and more school age children compared to the general population. The analysis also found schools in Central Ontario communities to be closer to each other than schools in Northern and Western Ontario

All these factors contribute to a comparative advantage for communities with schools. Given Ontario's population growth patterns, it would appear young families are seeking out communities that have schools, and in turn, better services. Moreover, communities that can gain approval for the construction of a new subdivision may be more attractive given cheaper housing and, most importantly, being able to secure funds and land for the construction of a new school. However, this trend of new construction often results in the closure of an older school somewhere else in the same school board, potentially impacting the economic growth potential of another smaller community.

Unfortunately, under the current governance model, local area municipalities have no influence over school board capital infrastructure decisions. Many smaller municipalities may even be forecasting growth that would support a school with declining enrolment. However, they have no way to prevent a school closure and disposition of land should the school board choose to do so in the short-term to meet new growth elsewhere in the board.

The Community Schools Alliance is a non-profit organization committed to working with the Ontario Ministry of Education, municipalities, and school boards to achieve a collaborative process that results in democratically determined decisions regarding education infrastructure. Such decisions should be based on principles that consider the broad impact, including but not limited to both social and fiscal effects of any changes to school infrastructure on students and their community.

The Community Schools Alliance believes that a better system is needed to address the educational facility needs of Ontario's smaller communities. The Ministry, school boards, and municipalities need to work together to develop policies that address planning for declining enrolments, a predictable Accommodation Review Committee process, a review of funding to rural and small community schools, and improved transparency and accountability in capital infrastructure decision-making by school boards.

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# Exploring the social and economic impact of schools in small Ontario communities

Community Schools Alliance  
August 31, 2021

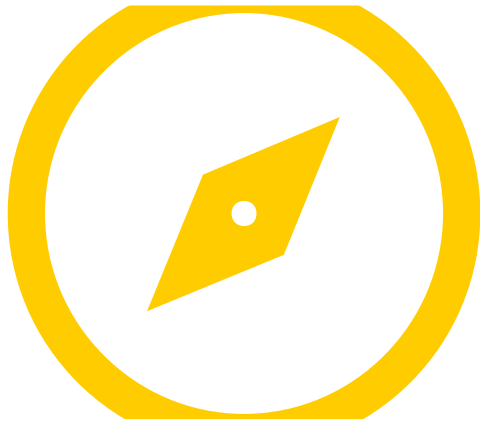




School age children  
does not mean  
there is a school



New dwellings may  
bring schools to  
communities



Northern Ontario  
schools are further  
away than most



Community  
amenities co-locate  
with schools

## Key Points

- The number of school age children in communities is not associated with the presence of a school
- New dwellings may bring new schools, or vice-versa
- Northern Ontario schools are consistently further away
- Community amenities are strongly associated with the presence of a school, reflecting broader attractiveness

# Background

The past two decades of educational policy in Ontario has resulted in the amalgamation of smaller local schools into larger buildings, and often the closure of schools in smaller communities. Instead of attending school within their local community, many students are forced to attend schools in communities further away from home. This trend towards bussing rural and smaller community students into other communities can have wide-ranging impacts on the health, wellbeing, and stability of students, parents, and affected communities. The impacts of these closures may also not manifest immediately, with longer term impacts being experienced decades later in economic competitiveness and socioeconomic outcomes.

The accommodation review procedure used by the Ontario Ministry of Education and local school boards often fails to account for the unique challenges of serving the educational needs of rural Ontario communities. The Community Schools Alliance has made a lobbying priority changing provincial education and infrastructure policy in the delivery and maintenance of school properties. To support this lobbying goal, evidence of the impacts of geographic distribution of schools in Ontario is needed to inform decision-makers of the potential impact from school closures.

The Community Schools Alliance (CSA) has retained the Human Environments Analysis Lab (HEAL) with partner Spatialists Consulting Ltd to conduct a geospatial investigation of the differences in demographics, community structure, and housing values based on school presence.



# Previous Studies

***Lyson, T.A. (2002). What does a school mean to a community? Assessing the social and economic benefits of schools to rural villages in New York. National Science Foundation.***

- The study identified community-level characteristics associated with the presence or absence of a school
- Results indicate that for the smallest rural communities, the presence of a school was associated with many social and economic benefits
- Housing values were considerably higher in small villages with schools, and municipal infrastructure was more developed
- Places with schools had more people employed in more favorable occupational categories and more employment in civic occupations
- Income inequality and welfare dependence was lower in villages with schools
- **This study shows that schools serve as important markers of social and economic viability and vitality, and that the money that might be saved through school consolidation could be forfeited in lost taxes, declining property values, and lost business**

# Previous Studies

***Sipple, J.W., Francis, J.D., & Fiduccia, P.C. (2019). Exploring the gradient: The economic benefits of 'nearby' schools on rural communities. Journal of Rural Studies.***

- The main goal of the paper is to investigate the area outside villages – what is measured as a 5-mile gradient or boundary
- The paper finds strong support for the assumption that schools are important to the economic vitality of rural communities and supports the method of geo-locating community institutions and measuring distance and concentration – the authors term this: School Proximity Index (SPI)
- The paper found that housing values, per-capita income, and household income significantly and positively vary with the SPI above and beyond the effects of age-structure, proportion of households with children, proportion of population that is white, and self-employment rates
- **The paper determines that while the relationship is indeed positive, whether the presence of a school promotes enhanced community vitality or having high community vitality promotes the presence of a school, must be further examined.**



# Our Methodology



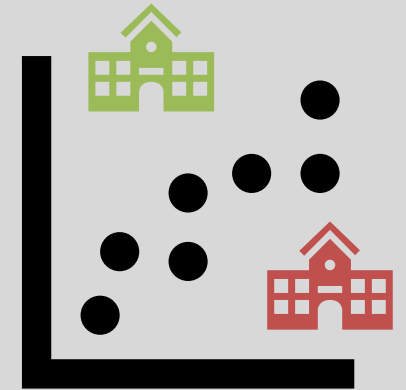
Locate schools and communities outside of major population centres within the Province of Ontario



Determine communities with a school (within 3.2km of the centre of town) & distance to the nearest school



Understand the sociodemographic structure of each community, and amenities in the community



Determine the statistical differences between communities with schools and without schools using regression modelling

# Our Methodology

The study area includes all areas outside of medium to large population centres (30,000 people), as defined by Statistics Canada. Communities in the sample include small population centres (1,000 – 29,999 people) and designated places (< 1000 people) as defined by Statistics Canada. In addition, other smaller communities (300 – 999 people) were manually added to the sample based on their environmental characteristics (i.e., intersection density and block group population). Each community was assigned a point at the centroid of the built-up area. Communities with less than 300 people or more than 10,000 people were removed from the sample.

Amenities such as grocery stores (NAICS 44511), variety stores (44512), pharmacies (44611), doctors (621111) and dental (62121), banks, emergency services (ambulance, fire, police), libraries, community centres, and public parks were also included in the analysis. These locations were all sourced from DMTI Spatial (2016). All other data was sourced from Statistics Canada (2016).

A buffer distance of 3200 metres around the centre of the community was used to determine the presence of a school and/or other amenities within the community. A buffer distance of 1200 metres around the centre of the community was used to select the census dissemination areas (DAs) that comprise the community. Distance from the centre of the community was calculated to the nearest English Public or Catholic elementary (kindergarten to grade 8) and secondary (grade 9 to 12) school. All buffers were generated along the street network, as delineated by the Ontario Ministry of Transportation (2016).

Variable	Communities WITHOUT School, N = 164	Communities WITH School, N = 104
Bank, in community	13 (7.9%)	38 (37%)
Grocery, in community	21 (13%)	39 (38%)
Variety, in community	21 (13%)	23 (22%)
Pharmacy, in community	4 (2.4%)	18 (17%)
Doctor, in community	7 (4.3%)	14 (13%)
Emergency Services, in community	33 (20%)	42 (40%)
Library, in community	25 (15%)	41 (39%)
Community Centre, in community	7 (4.3%)	27 (26%)
Public Park, in community	17 (10%)	17 (16%)
Total Population	994 (746, 1224)	1102 (905, 1310)
# School Age Children	156 (95, 201)	180 (124, 224)
Median housing value	\$250318 (193559, 318222)	\$221141 (159590, 276913)
Median household income	\$64128 (56699, 71936)	\$60341 (53632, 70864)
% Low-income	3.35% (2.25, 4.53)	3.55% (2.75, 4.96)
% Residents	90% (69, 95)	89% (72, 95)
% New Dwellings (2011-16)	2.74% (0, 5.28)	2.70% (0, 5.07)
% Move in last year	7.50% (5.60, 10.50)	8.90% (6.80, 11.30)
% Move in last 5 years	25% (22, 30)	27% (23, 31)

# Profile of Small Communities

2016 population is less than 1500 people  
n (% of total in group)  
(Median Inter-Quartile Range | 0.25, 0.75)

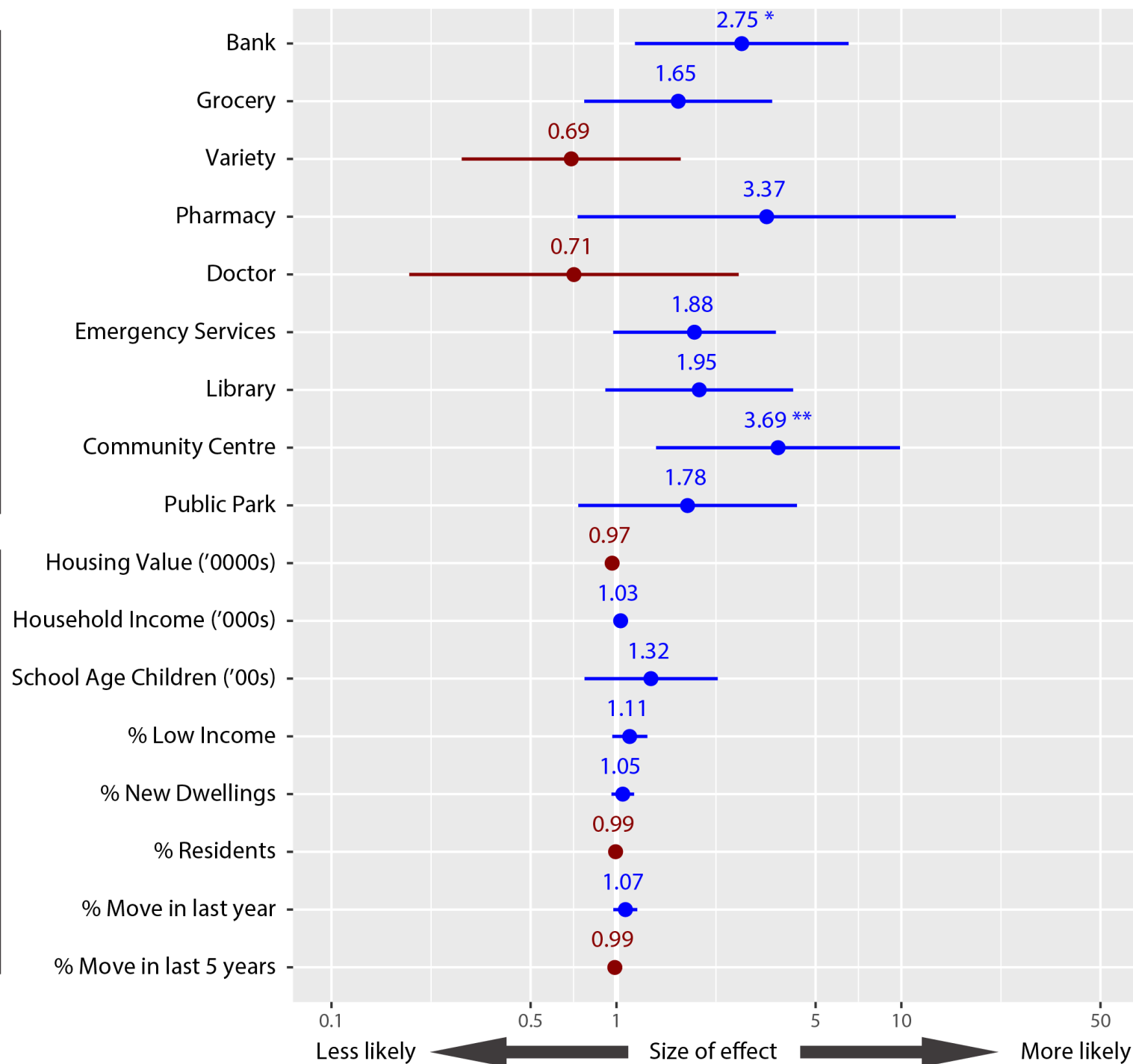
Variable	Communities WITHOUT School, N = 131	Communities WITH School, N = 334
Bank, in community	18 (14%)	243 (73%)
Grocery, in community	24 (18%)	224 (67%)
Variety, in community	23 (18%)	182 (54%)
Pharmacy, in community	5 (3.8%)	158 (47%)
Doctor, in community	10 (7.6%)	206 (62%)
Emergency Services, in community	42 (32%)	253 (76%)
Library, in community	26 (20%)	197 (59%)
Community Centre, in community	21 (16%)	182 (54%)
Public Park, in community	40 (31%)	231 (69%)
Total Population	1978 (1681, 2444)	2930 (2187, 4820)
# School Age Children	340 (282, 444)	512 (366, 778)
Median housing value	\$325353 (266699, 440392)	\$260185 (213764, 333568)
Median household income	\$71760 (61161, 82994)	\$63484 (55912, 75062)
% Low-income	2.97% (2.18, 3.91)	3.83% (2.67, 5.22)
% Residents	94% (81, 97)	95% (91, 97)
% New Dwellings (2011-16)	3.90% (2.00, 5.30)	3.70% (2.00, 5.90)
% Move in last year	8.70% (6.95, 10.83)	10.01% (8.05, 12.04)
% Move in last 5 years	27% (24, 30)	31% (27, 35)

# Profile of Large Communities

2016 population is more than 1500 people  
n (% of total in group)  
(Median Inter-Quartile Range | 0.25, 0.75)

Present in the community

Average of dissemination areas



# Small Community Factors

2016 population is less than 1500 people

**Red** means that factor is associated with a community being **less likely** to have a school, while **blue** means it is associated with a community being **more likely** to have a school. The line indicates the range of possible values for that factor. The closer the value is to 1, the smaller the effect.

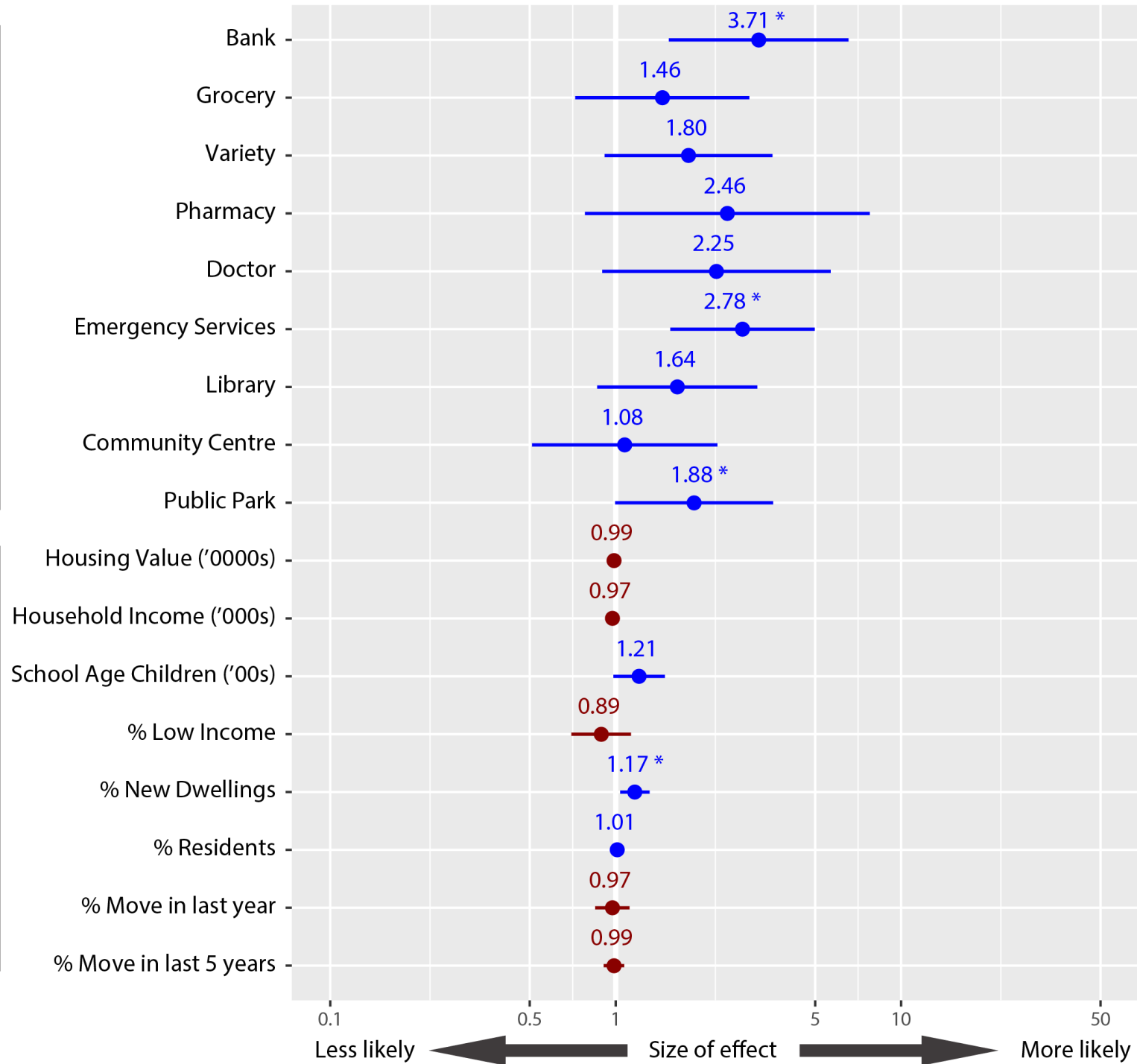
\* Denotes statistical significance (see table for exact values)

## Highlights:

- Having a school in the community means it is 2.75x more likely to have a bank, and 3.69x more likely to have a community centre
- Communities without schools have slightly higher housing values, likely because of young families looking for more affordable housing stock in communities that do have schools

Present in the community

Average of dissemination areas



# Large Community Factors

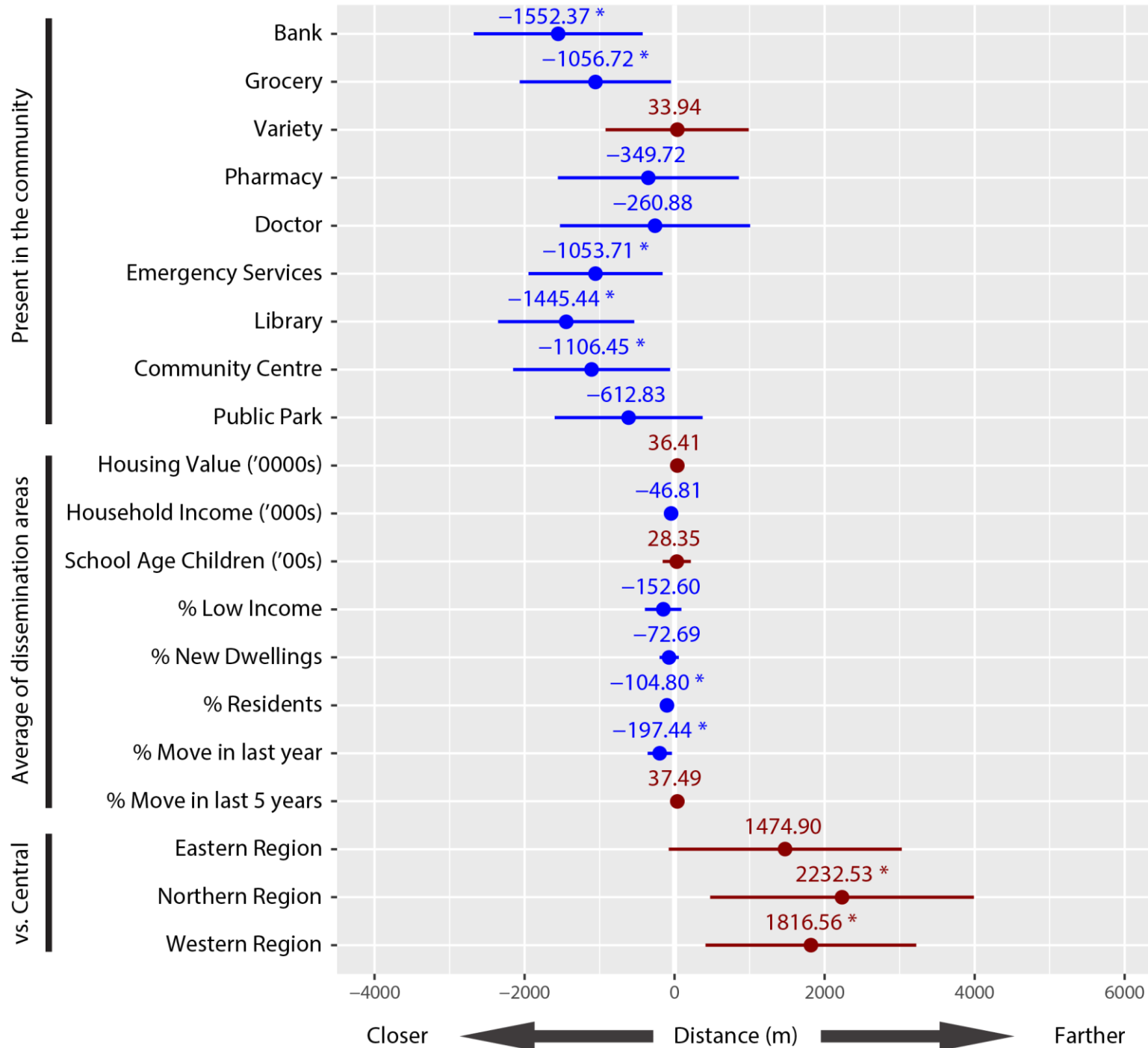
2016 population is more than 1500 people

**Red** means that factor is associated with a community being **less likely** to have a school, while **blue** means it is associated with a community being **more likely** to have a school. The line indicates the range of possible values for that factor. The closer the value is to 1, the smaller the effect.

\* Denotes statistical significance (see table for exact values)

## Highlights:

- Having a school in the community means it is 3.71x as likely to have a bank, 2.78x as likely to have emergency services, and 1.88x as likely to have a public park.
- Communities with a school tend to have a higher percentage of dwellings constructed in the last 5 years.



# Distance to Elementary

Distance to nearest English Public or Catholic Elementary-Level School

**Red** means that factor is associated with a community being **farther from** a school, while **blue** means it is associated with a community being **closer to** a school. The line indicates the range of possible values for that factor. The closer the value is to 1, the smaller the difference in distance.

\* Denotes statistical significance (see table for exact values)

## Highlights:

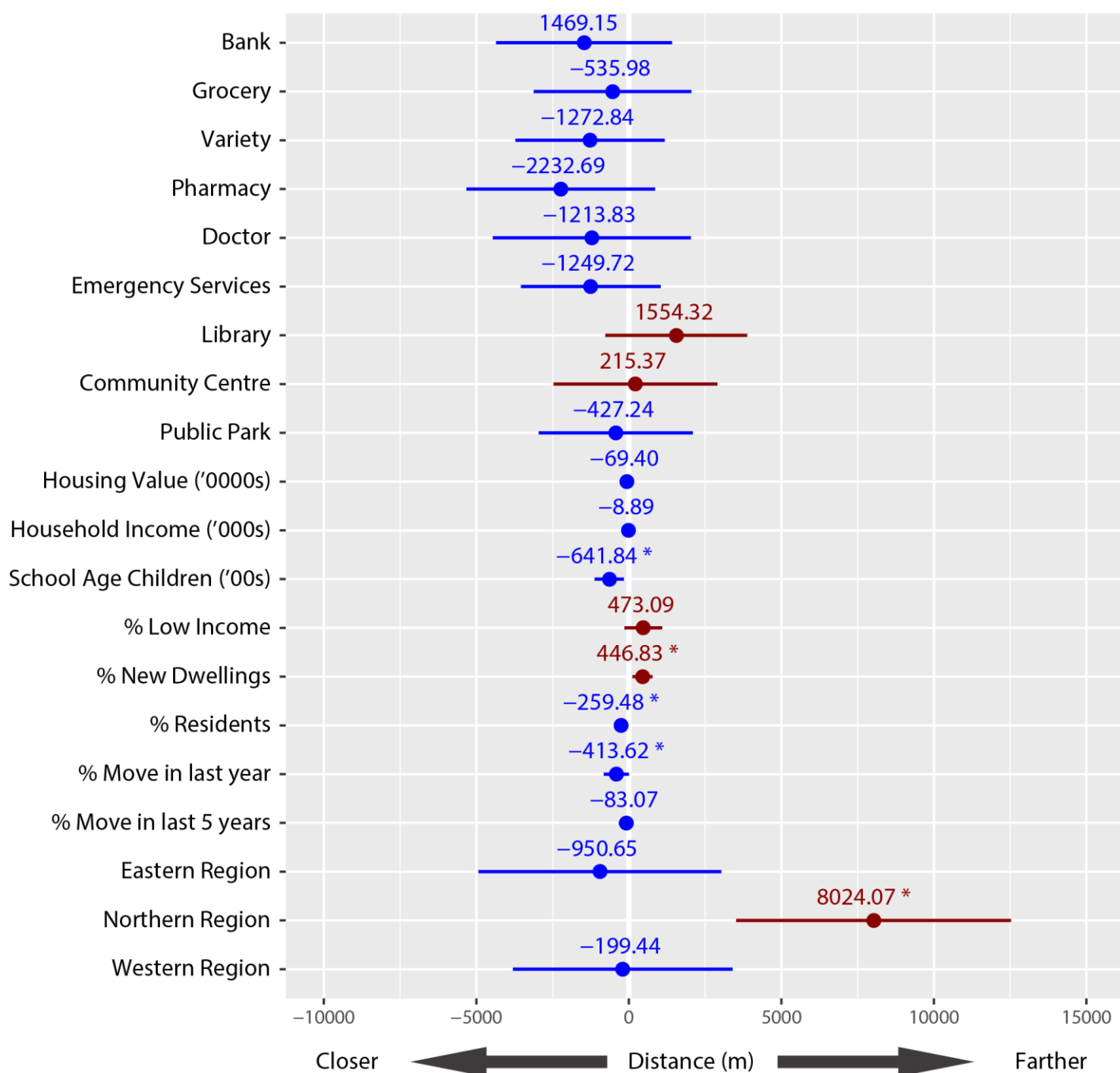
- Having a bank or library in a community means an elementary school is about 1.5km closer on average, while a grocery store, community centre or emergency services means it is about 1 km closer
- Communities with more primary residences and more people that have moved into the community in the last year see a school ~150m closer per %
- Northern and Western Ontario have schools further away than Central Ontario



Present in the community

Average of dissemination areas

vs. Central



# Distance to Secondary

Distance to nearest English Public or Catholic Secondary-Level School

**Red** means that factor is associated with a community being **further from** a school, while **blue** means it is associated with a community being **closer to** a school. The line indicates the range of possible values for that factor. The closer the value is to 1, the smaller the difference in distance.

\* Denotes statistical significance (see table for exact values)

## Highlights:

- For every 100 school age children, schools are 641m closer
- For every % point increase in new dwellings, schools are 446m further away
- For every % point increase in residents and new residents in the last year, schools get slightly closer
- Northern Ontario schools are 8km further away than they are in Central Ontario

Variable	OR	95% CI	p-value
<b>Bank, in community</b>	<b>2.75</b>	<b>1.17, 6.65</b>	<b>0.02</b>
Grocery, in community	1.65	0.77, 3.52	0.20
Variety, in community	0.69	0.28, 1.64	0.40
Pharmacy, in community	3.37	0.80, 17.90	0.12
Doctor, in community	0.71	0.18, 2.68	0.60
Emergency Services, in community	1.88	0.97, 3.63	0.06
Library, in community	1.95	0.91, 4.18	0.08
<b>Community Centre, in community</b>	<b>3.69</b>	<b>1.43, 10.50</b>	<b>&lt; 0.01</b>
Public Park, in community	1.78	0.73, 4.33	0.20
<b>Median housing value ('0000s)</b>	<b>0.97</b>	<b>0.93, 1.00</b>	<b>0.07</b>
Median household income ('000s)	1.03	0.99, 1.08	0.10
# School age children ('00s)	1.32	0.77, 2.28	0.30
% Low-income	1.11	0.97, 1.29	0.13
% New Dwellings (2011-16)	1.05	0.96, 1.15	0.30
% Residents	0.99	0.97, 1.01	0.50
% Move in last year	1.07	0.98, 1.18	0.15
% Move in last 5 years	0.99	0.93, 1.05	0.70

# Small Community Factors

2016 population is less than 1500 people

OR = Odds Ratio

95% CI = 95% Confidence Interval

**Bolded values are statistically significant**

N = 268 communities

Akaike Info. Criteria = 321

Log-Likelihood = -143

Pseudo-R<sup>2</sup> = 0.32

Variable	OR	95% CI	p-value
<b>Bank, in community</b>	<b>3.17</b>	<b>1.55, 6.63</b>	<b>&lt; 0.01</b>
Grocery, in community	1.46	0.72, 2.95	0.30
Variety, in community	1.80	0.92, 3.57	0.09
Pharmacy, in community	2.46	0.82, 8.51	0.12
Doctor, in community	2.25	0.91, 5.83	0.08
<b>Emergency Services, in community</b>	<b>2.78</b>	<b>1.56, 5.01</b>	<b>&lt; 0.01</b>
Library, in community	1.64	0.86, 3.15	0.13
Community Centre, in community	1.08	0.51, 2.27	0.80
<b>Public Park, in community</b>	<b>1.88</b>	<b>1.00, 3.58</b>	<b>0.05</b>
Median housing value ('0000s)	0.99	0.95, 1.03	0.50
Median household income ('000s)	0.97	0.92, 1.03	0.30
# School age children ('00s)	1.21	0.99, 1.51	0.07
% Low-income	0.89	0.70, 1.13	0.30
<b>% New Dwellings (2011-16)</b>	<b>1.17</b>	<b>1.04, 1.32</b>	<b>0.01</b>
% Residents	1.01	0.99, 1.04	0.30
% Move in last year	0.97	0.85, 1.12	0.70
% Move in last 5 years	0.99	0.91, 1.07	0.70

# Large Community Factors

2016 population is more than 1500 people

OR = Odds Ratio

95% CI = 95% Confidence Interval

**Bolded values are statistically significant**

N = 465 communities

Akaike Info. Criteria = 347

Log-Likelihood = -156

Pseudo-R<sup>2</sup> = 0.58

Variable	Beta	95% CI	p-value
<b>Bank, in community</b>	<b>-1,552</b>	<b>-2,675, -429</b>	<b>&lt; 0.01</b>
<b>Grocery, in community</b>	<b>-1,057</b>	<b>-2,063, -50</b>	<b>0.04</b>
Variety, in community	34	-918, 986	> 0.90
Pharmacy, in community	-350	-1,554, 854	0.6
Doctor, in community	-261	-1,525, 1,004	0.7
<b>Emergency Services, in community</b>	<b>-1,054</b>	<b>-1,945, -162</b>	<b>0.02</b>
<b>Library, in community</b>	<b>-1,445</b>	<b>-2,351, -540</b>	<b>&lt; 0.01</b>
<b>Community Centre, in community</b>	<b>-1,106</b>	<b>-2,152, -61</b>	<b>0.04</b>
Public Park, in community	-613	-1,597, 371	0.20
Median housing value ('0000s)	36	-18, 91	0.20
Median household income ('000s)	-47	-106, 12	0.12
# School age children ('00s)	28	-158, 215	0.80
% Low-income	-153	-394, 89	0.20
% New Dwellings (2011-16)	-73	-201, 55	0.30
<b>% Residents</b>	<b>-105</b>	<b>-136, -74</b>	<b>&lt; 0.01</b>
<b>% Move in last year</b>	<b>-197</b>	<b>-358, -74</b>	<b>0.02</b>
% Move in last 5 years	37	-57, 132	0.40
Eastern Region, against Central	1,475	-75, 3,025	0.06
<b>Northern Region, against Central</b>	<b>2,233</b>	<b>479, 3,986</b>	<b>0.01</b>
<b>Western Region, against Central</b>	<b>1,817</b>	<b>414, 3,219</b>	<b>0.01</b>

# Distance to Elementary

Distance to nearest English Public or Catholic Elementary-Level School

Beta = Coefficient of distance (metres)  
95% CI = 95% Confidence Interval

**Bolded values are statistically significant**

N = 733 communities  
Akaike Info. Criteria = 14651  
Log-Likelihood = -7304  
R<sup>2</sup> = 0.32

Variable	Beta	95% CI	p-value
Bank, in community	-1,469	-4,348, 1,410	0.30
Grocery, in community	-536	-3,116, 2,044	0.70
Variety, in community	-1,273	-3,714, 1,168	0.30
Pharmacy, in community	-2,233	-5,319, 854	0.20
Doctor, in community	-1,214	-4,456, 2,028	0.50
Emergency Services, in community	-1,250	-3,535, 1,035	0.30
Library, in community	1,554	-768, 3,877	0.20
Community Centre, in community	215	-2,464, 2,895	0.90
Public Park, in community	-427	-2,950, 2,095	0.70
Median housing value ('0000s)	-69	-210, 71	0.30
Median household income ('000s)	-9	-160, 142	> 0.90
<b># School age children ('00s)</b>	<b>-642</b>	<b>-1,120, -163</b>	<b>&lt; 0.01</b>
% Low-income	473	-146, 1,093	0.13
<b>% New Dwellings (2011-16)</b>	<b>447</b>	<b>119, 775</b>	<b>&lt; 0.01</b>
<b>% Residents</b>	<b>-259</b>	<b>-340, -179</b>	<b>&lt; 0.01</b>
<b>% Move in last year</b>	<b>-414</b>	<b>-825, -2</b>	<b>0.05</b>
% Move in last 5 years	-83	-325, 159	0.50
Eastern Region, against Central	-951	-4,925, 3,024	0.60
<b>Northern Region, against Central</b>	<b>8,024</b>	<b>3,527, 12,521</b>	<b>&lt; 0.01</b>
Western Region, against Central	-199	-3,975, 3,396	> 0.90

# Distance to Secondary

Distance to nearest English Public or Catholic Secondary-Level School

Beta = Coefficient of distance (metres)  
95% CI = 95% Confidence Interval

**Bolded values are statistically significant**

N = 733 communities  
Akaike Info. Criteria = 16032  
Log-Likelihood = -7994  
R<sup>2</sup> = 0.32

# Discussion

- **Housing value and median income**

- Although it would be expected that both housing value and median income would be higher in communities that have a school present, our study has revealed that this is not the case. The most likely reason for higher housing values and median incomes in communities without schools is that there is a higher proportion of retirement age (or near retirement age) individuals in those communities without schools, while families may be seeking out cheaper communities with schools.

- **New dwelling effect**

- This can be summarized as the 'chicken and the egg' effect. Although there are a higher percentage of schools where there are new dwellings (and vice-versa) it is not clear which came first. Ontario's system of capital construction for schools may mean that new development brings the land, and expected population, for a new school.

- **Main differences between communities with schools vs. communities without schools**

- Communities with schools have more private amenities (Bank, Grocery, Variety, Pharmacy, Doctor) and public services (Emergency Services, Library, Community Centre, Public Parks) regardless of population. This indicates that the presence of a school promotes more private (re)investment in the community. In smaller communities and the elementary school level, the number of school age children in a community does not predict having a school.

# Data Sources

- DMTI Spatial. (2016). Enhanced Points of Interest. Retrieved from:  
[http://geo.scholarsportal.info/#r/details/\\_uri@=56448532](http://geo.scholarsportal.info/#r/details/_uri@=56448532)
- Statistics Canada. (2016). Census of Population. Retrieved from Computing in the Humanities and Social Sciences Data Centre at the University of Toronto.
- Statistics Canada. (2016). Designated Places. Catalogue no. 98-301-X



# Exploring the social and economic impact of schools in small Ontario communities

August 31, 2021

Prepared by:

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Human Environments Analysis Lab at Western University

Submitted to:

Doug Reycraft  
Community Schools Alliance



## Quick Facts

- There is no statistically significant relationship between number of school age children in a community and the presence of an elementary school in the community
- New housing construction in a community is associated with a higher chance of having a school. New housing construction may also incentivize the opening, or relocation of a school to the community
- Private and public amenities tend to also be present in communities with schools, potentially signifying the economic development potential of a community that has a school
- Northern Ontario and Western Ontario schools are consistently further away from communities than those in the rest of the province

## Objectives

The Community Schools Alliance (CSA) has retained the Human Environments Analysis Lab (HEAL) with partner Spatialists Consulting Ltd. to conduct a geospatial investigation of the differences in demographics, community structure, and housing values based on the distribution of English Public and Catholic schools across the province.

## Background

The past two decades of educational policy in Ontario has resulted in the amalgamation of smaller local schools into larger buildings, and often the closure of schools in smaller communities. Instead of attending school within their local community, many students are forced to attend schools in communities further away from home. This trend towards bussing rural and smaller community students into other communities can have wide-ranging impacts on the health, wellbeing, and stability of students, parents, and affected communities. The impacts of these closures may also not manifest immediately, with longer term impacts being experienced decades later in economic competitiveness and socioeconomic outcomes. School closures are also not solely a rural community issue. Urban areas have also experienced closures that result in a cycle of disinvestment, depressed property values, and worse access to education across the community.

The accommodation review procedure used by the Ontario Ministry of Education and local school boards often fails to account for the unique challenges of serving the educational needs of rural Ontario communities. The Community Schools Alliance has made changing provincial education and infrastructure policy in the delivery and maintenance of school properties, a priority for their organization. To support this lobbying goal, evidence of the impacts of geographic distribution of schools in Ontario is needed to inform decision-makers of the potential impact from school closures.

The project was proposed by the Community Schools Alliance under the direction of Doug Reycraft, Chair of the Board. The project was completed at the HEAL at Western University with partner Spatialists Consulting Ltd. by Dr. Jason Gilliland, Director and supported by Alexander Wray, Research Associate and Braden Dyce, Research Associate.

## Methods

The HEAL used sophisticated statistical and geographic information science techniques to:

- Locate schools and communities outside of major population centres within the Province of Ontario
- Determine communities with a school (within 3.2km of the centre of town) & distance to the nearest school for those that do not have a school
- Understand the sociodemographic structure of, and amenities in each community
- Examine the statistical differences in the socioeconomic characteristics between communities with schools and without schools using regression modelling

The study area includes all areas outside of medium to large population centres (30,000 people), as defined by Statistics Canada. Communities in the sample include small population centres (1,000 – 29,999 people) and designated places (< 1000 people) as defined by Statistics Canada. In addition, other smaller communities (300 – 999 people) were manually added to the sample based on their intersection density. Each community was assigned a point at the centroid of the built-up area. Communities with less than 300 people or more than 10,000 people were removed from the sample.

Amenities such as grocery stores (NAICS 44511), variety stores (44512), pharmacies (44611), doctors (621111) and dental (62121), banks, emergency services (ambulance, fire, police), libraries, community centres, and public parks were also included in the analysis. These locations were all sourced from DMTI Spatial (2016). All other data was sourced from Statistics Canada (2016).

A buffer distance of 3200 metres around the centre of the community was used to determine the presence of a school and/or other amenities within the community. A buffer distance of 1200 metres around the centre of the community was used to select the census dissemination areas (DAs) that comprise the community. Distance from the centre of the community was calculated to the nearest English Public or Catholic elementary (kindergarten to grade 8) and secondary (grade 9 to 12) school. All buffers were generated along the street network, as delineated by the Ontario Ministry of Transportation (2016).

## Analysis Context

There are four different analyses undertaken to determine the effects of schools on different sized communities, and the proximity to school:

- 1) Small communities – those communities that have less than 1500 people
- 2) Large communities – those communities that have more than 1500 people
- 3) Elementary Schools – distance from the community's centre to the closest elementary school along the road network, regardless of community size
- 4) Secondary Schools – distance from the community's centre to the closest secondary school along the road network, regardless of community size

**Table 1.** Summary of key variables by school presence for communities with less than 1500 people

Variable	Communities WITHOUT School, N = 164	Communities WITH School, N = 104
Bank, in community	13 (7.9%)	38 (37%)
Grocery, in community	21 (13%)	39 (38%)
Variety, in community	21 (13%)	23 (22%)
Pharmacy, in community	4 (2.4%)	18 (17%)
Doctor, in community	7 (4.3%)	14 (13%)
Emergency Services, in community	33 (20%)	42 (40%)
Library, in community	25 (15%)	41 (39%)
Community Centre, in community	7 (4.3%)	27 (26%)
Public Park, in community	17 (10%)	17 (16%)
Total Population	994 (746, 1224)	1102 (905, 1310)
# School Age Children	156 (95, 201)	180 (124, 224)
Median housing value	\$250318 (193559, 318222)	\$221141 (159590, 276913)
Median household income	\$64128 (56699, 71936)	\$60341 (53632, 70864)
% Low-income	3.35% (2.25, 4.53)	3.55% (2.75, 4.96)
% Residents	90% (69, 95)	89% (72, 95)
% New Dwellings (2011-16)	2.74% (0, 5.28)	2.70% (0, 5.07)
% Move in last year	7.50% (5.60, 10.50)	8.90% (6.80, 11.30)
% Move in last 5 years	25% (22, 30)	27% (23, 31)

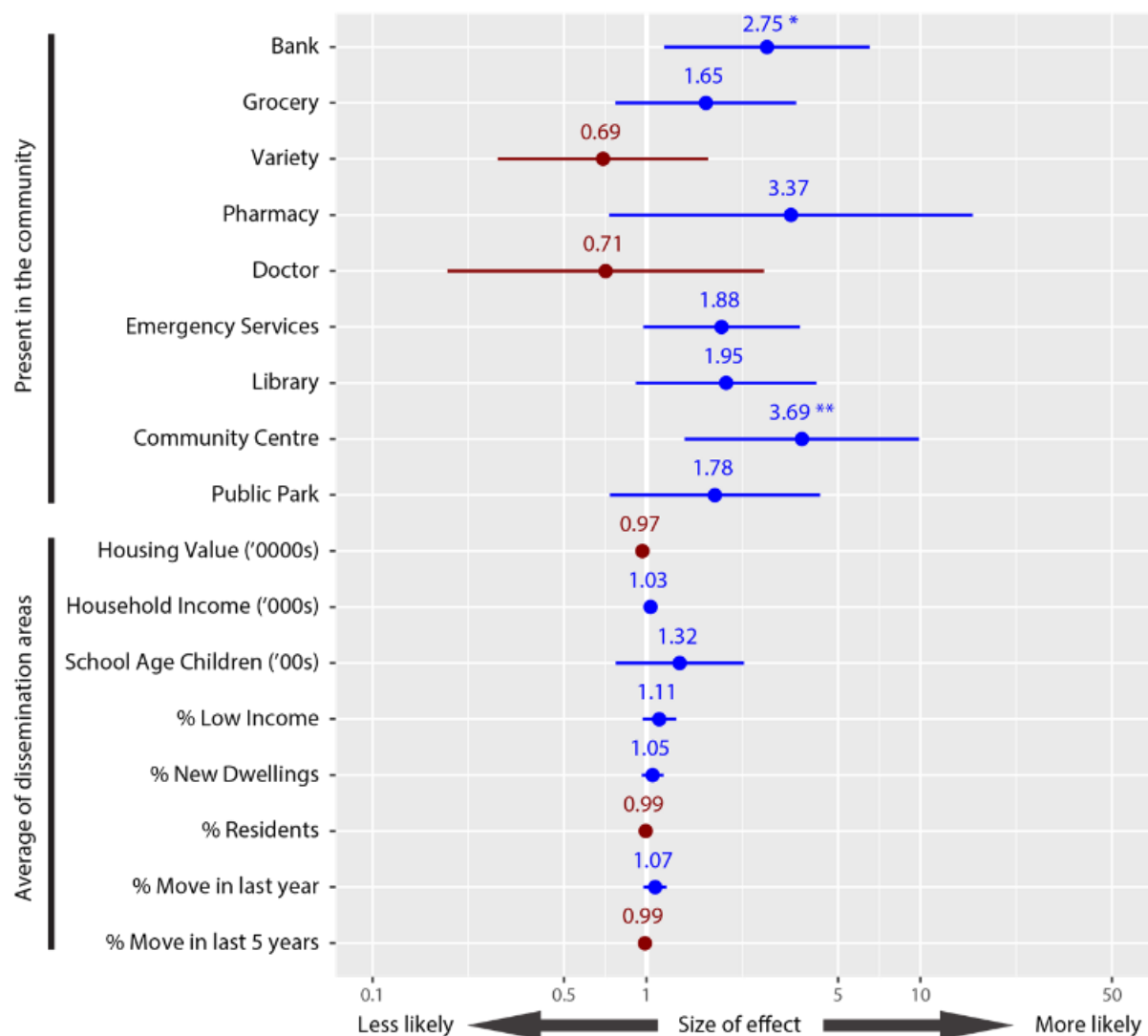
**Table 2.** Summary of key variables by school presence for communities with more than 1500 people

Variable	Communities WITHOUT School, N = 131	Communities WITH School, N = 334
Bank, in community	18 (14%)	243 (73%)
Grocery, in community	24 (18%)	224 (67%)
Variety, in community	23 (18%)	182 (54%)
Pharmacy, in community	5 (3.8%)	158 (47%)
Doctor, in community	10 (7.6%)	206 (62%)
Emergency Services, in community	42 (32%)	253 (76%)
Library, in community	26 (20%)	197 (59%)
Community Centre, in community	21 (16%)	182 (54%)
Public Park, in community	40 (31%)	231 (69%)
Total Population	1978 (1681, 2444)	2930 (2187, 4820)
# School Age Children	340 (282, 444)	512 (366, 778)
Median housing value	\$325353 (266699, 440392)	\$260185 (213764, 333568)
Median household income	\$71760 (61161, 82994)	\$63484 (55912, 75062)
% Low-income	2.97% (2.18, 3.91)	3.83% (2.67, 5.22)
% Residents	94% (81, 97)	95% (91, 97)
% New Dwellings (2011-16)	3.90% (2.00, 5.30)	3.70% (2.00, 5.90)
% Move in last year	8.70% (6.95, 10.83)	10.01% (8.05, 12.04)
% Move in last 5 years	27% (24, 30)	31% (27, 35)

## Results

### Small Communities

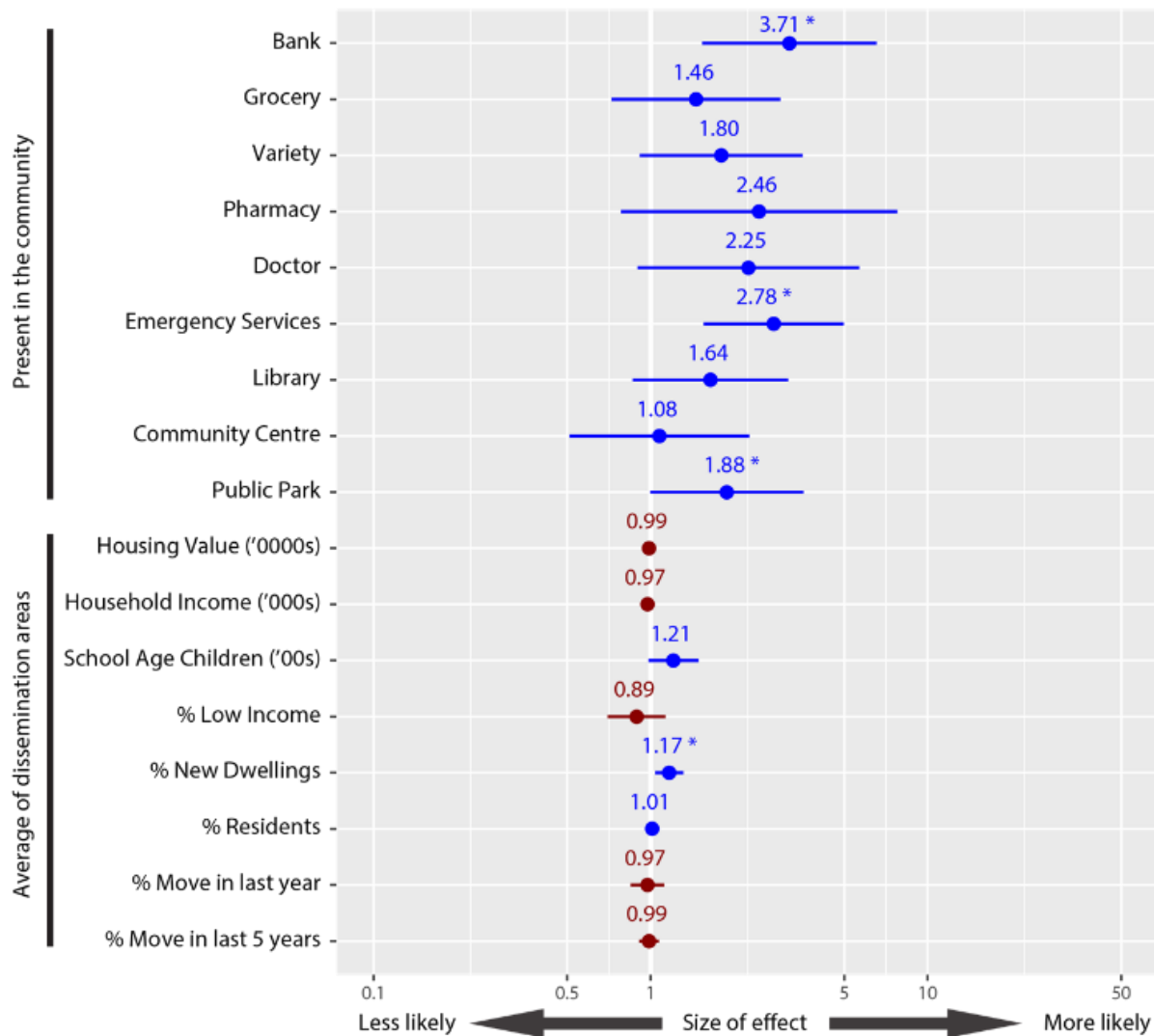
In small communities having a school in the community means the community is 2.75 times more likely to have a bank, and 6.69 times more likely to have a community centre. Small communities without schools have slightly higher housing values likely because young families are looking for more affordable housing stock in communities that do have schools.



**Figure 1.** Summary of regression model results for small communities

## Large Communities

In large communities, having a school in the community means the community is 3.71 times more likely to have a bank, 2.78 times more likely to have emergency service, and 1.88 times more likely to have a public park. Large communities with a school tend to have a higher percentage of dwellings constructed in the last five years.



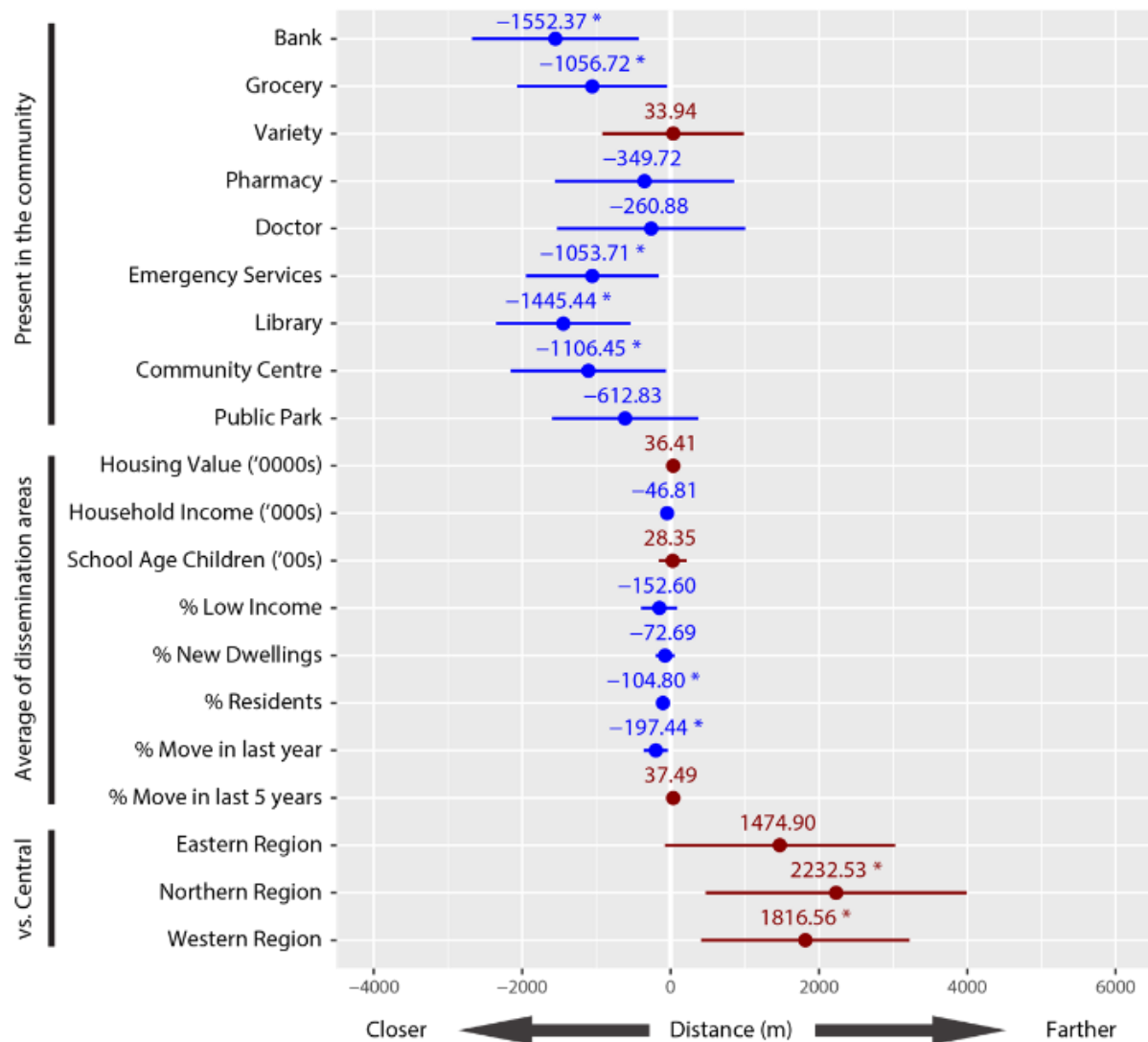
**Figure 2.** Summary of regression model results for large communities

## Elementary Schools

In communities with an elementary school, having a bank or a library means the elementary school is about 1.5 kilometers closer on average, while a grocery store, community centre, or emergency services means the elementary school is about 1 kilometer closer.

Communities with more primary residences and more people that have moved into the community in the last year see a school approximately 150 meters closer per percent.

Northern and Western Ontario have schools further away than those in Central Ontario.

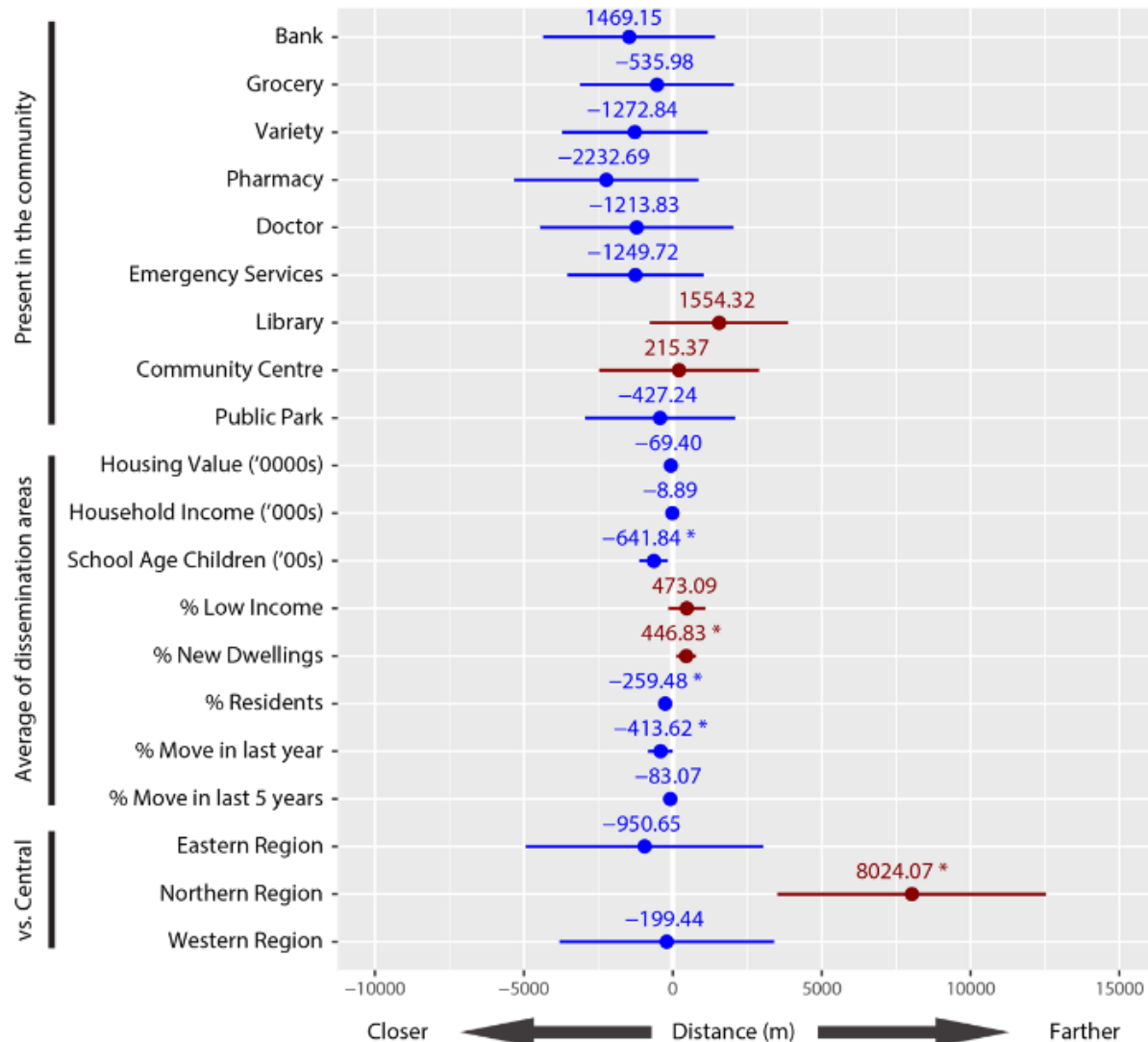


**Figure 3.** Summary of regression model results for distance to elementary schools



## Secondary Schools

In communities with a secondary school, schools are 641 meters closer for every 100 children in the community. Schools are 446 meters further away for every percentage point increase in new dwellings in the community. Schools become slightly closer with every percentage point in residents and new residence within the last year. Northern Ontario schools are 8 kilometers further away than they are in central Ontario.



**Figure 4.** Summary of regression model results for distance to secondary schools

## Discussion

### *Housing value and median income*

Although it would be expected that both housing value and median income would be higher in communities that have a school present, our study has revealed that this is not the case. The most likely reason for higher housing values and median incomes in communities without schools is that there is a higher proportion of retirement age (or near retirement age) individuals in those communities without schools, while young families with school-age children may be seeking out cheaper communities with schools.

### *New dwelling effect*

This can be summarized as the ‘chicken and the egg’ effect. Although there are a higher percentage of schools where there are new dwellings (and vice-versa) it is not clear which came first. Ontario’s system of capital construction for schools may mean that new development brings the land, and expected population, for a new school. Therefore, communities with recent new developments may attract a new school, or the relocation of an older school from another community.

### *Main differences between communities with schools vs. communities without schools*

Communities with schools tend to have more private amenities (Bank, Grocery, Variety, Pharmacy, Doctor) and public services (Emergency Services, Library, Community Centre, Public Park), regardless of their population. This indicates that the presence of a school aligns with both public and private investment in community, creating a possible “lock-in” effect. In smaller communities and at the elementary school level, the number of school age children in a community does not predict having a school which runs counter to the service delivery expectation for education.

## Data Sources

- DMTI Spatial. (2016). Enhanced Points of Interest. Retrieved from: [http://geo.scholarsportal.info/#r/details/\\_uri@=56448532](http://geo.scholarsportal.info/#r/details/_uri@=56448532)
- Statistics Canada. (2016). Census of Population. Retrieved from Computing in the Humanities and Social Sciences Data Centre at the University of Toronto.
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