# How does the City of Hamilton Attract and Retain the Next Generation of Residents?

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Abstract

The Conference Board of Canada (CBOC) ranked Hamilton 15th out of 27 Census Metropolitan Areas (CMAs) in Canada. A model is developed and calibrated to evaluate Hamilton's rank from 2006 to 2013 based of CBOC rankings and migration patterns between the most recent census years. The model identifies future rankings for Hamilton and the areas of focus required for Hamilton to improve its position among Canada's CMAs.

## 1.0 Introduction

The Hamilton Convention Center on May 1, 2008 saw the first gathering of leaders, politicians, and academics in the City of Hamilton under the banner of the 'Hamilton Economic Summit 2008' (HES 2008). The focus on Hamilton's future was strongly correlated to an improvement in the city's attractiveness as determined by the Conference Board of Canada (CBOC) City Magnets. [1] The CBOC City Magnets report, published in 2007 ranked Hamilton 15th out of the 27 CMAs in Canada. [5] The metric for Hamilton has become a top ten ranking in the CBOC Report. [16] The direction and ideas are clearly outlined by the Hamilton Chamber of Commerce, the organizer of the Hamilton Economic Summits; however, the tools are not in place to evaluate how the direction and ideas will affect the metric.

Improving the attractiveness of a city is a challenging undertaking. Logically, an attractive city does not have such a dilemma – if a city has done well to attract a vibrant population it has inevitably grown economically and socially as a result of that vibrant population and more people become interested of being part of such a city – subsequently maintaining its attractiveness. With that, the city must have had some initial attractiveness to bring the initial flock of residents. As with any problem, policy or otherwise, the most energy is exerted on accelerating from a standstill. Once in motion (or attractive) remaining in that state requires significantly less energy.

As with any evaluation, there are limitations to the CBOC criteria. The CBOC rankings are not discriminatory in the type of people that a city attracts. This is not to say that a city should be discriminatory of its immigrants, however, this needs to be made clear as it does not evaluate whether these individuals will represent a specific group that a city is trying to attract. The CBOC rankings are compared directly to the migration statistics without evaluation of whether the influx or efflux of individuals has improved the city for the residents. In general, attractiveness is directly correlated to the number of people, relative to the base population, that migrated to the city. As an example, if Hamilton's goal is to develop a first-class arts community as a format for addressing urban renewal challenges – such a program, if successful in attracting the intended number of artists, will be reflected in the attractiveness ranking. As stated, the ranking does not discriminate the socio-economic class, profession, or any other qualifier of the individuals migrating to the city so only the number of artists attracted will influence the ranking. More specific measures developed by Richard Florida of the Martin Prosperity Institute or Rebecca Ryan of Next Generation Consulting can be used in combination with the CBOC ranking to validate Hamilton's success for any given migration incentive program. [22, 34] For the purposes of evaluating attractiveness of Hamilton to all people and measuring the success of the goal set out by the Hamilton Chamber of Commerce of a top ten ranking, the CBOC ranking is a valid measure of success.

Although a valid metric, the CBOC publication was the first one of its kind and has not been updated since the original 2007 publication. The direct migration statistics will not be available until Statistics Canada has conducted and published the 2011 Census. The task of setting a goal is complete but until the CBOC rankings are updated or the Census publication for 2011 is ready – the City of Hamilton is no better position of achieving this goal then it was prior to setting it. This is not a negative remark towards the work being done by Hamilton politicians, public servants, philanthropists, residents, and business but simply an observation on the fact that time was not taken to understand how the CBOC rankings are calculated and what influence activities and policy initiatives will have on bringing the city closer to its goal.

For this reason, the work of developing a model to evaluate the influence of each CBOC criterion was undertaken. Information was collected for the criteria of the CBOC Report including the year of report, updates available since the 2006 data year at the time of the model development (2009), and any future projections available. The model also takes the correlation of each criterion to the next step. Rather than evaluating categories as defined by the CBOC (that may consist of up to 13 criteria) – each criterion was evaluated for correlation to migration patterns and the influence of each criterion on the overall attractiveness of Canada's CMA. The criteria breakout allows for an evaluation of the most influential criterion and the priorities that Hamilton must have in every aspect of the cities growth and development. The model created is a powerful tool as it allows for instantaneous updates to any program or policy initiative.

Hamilton can evaluate its success one of two distinct ways. Wait for an updated CBOC publication with the hope that the activities and policy initiatives are improving the attractiveness of the city or alternatively, and the reason for this work, systematically address the calculated shortfalls and model potential impacts of any initiative.

## 2.0 Developing the Model

With 7 categories comprising a total of 46 indicators, nearly 12,000 pieces of data were collected to develop the model. Unlike the original work by CBOC, the model was expanded to include updates since the publication and projections were available to 2013 which accounts for a significant increase in the database size.

The model development was done in three stages:

1. *Influence of the category as determined by the CBOC;*
2. *Availability and discretion of data; and*
3. *Statistical correlation of the data to actual migration patterns.*

*Stage 1: Influence of the category as determined by the CBOC*

The categories and indicators used for the model were identical to those used by the CBOC. However, using the information already developed by the CBOC certain categories were not included as these categories represented little correlation to the migration patterns. This was based on the category weights assigned by the CBOC. The two categories that were not included in the model were Education and Innovation as each represented only a 1 percent weight for the correlation analysis completed by the CBOC.

The remaining categories for the model were:

- ✓ Economy (33 percent CBOC weight)
- ✓ Health (25 percent CBOC weight)
- ✓ Society (24 percent CBOC weight)
- ✓ Environment (10 percent CBOC weight)
- ✓ Housing (6 percent CBOC weight)

*Stage 2: Availability of data and municipal influence*

The availability of data was generally not an issue in developing the model. The availability of data for the Environment category was not readily available for two of the four criteria – namely, domestic water use and household access to recycling. Air quality advisory days and Maximum Average Temperate (1971-2000), the remaining Environment criterion, were not included as a municipality has little direct influence on these criteria. The category as a whole was included in the model and evaluated based on the ranking presented by the CBOC using a random number generator to establish each city's score.

Two criteria were also excluded from the Society category. Success of Foreign-Born Population, which measures the income of university educated immigrants versus their Canadian-born counterparts, was not available. Voter Turnout, a measurement of the percentage of eligible voters who voted in the federal election, should be included as a proxy of civil engagement but must be expanded to include municipal and provincial voter turnout. As this information was not readily available, the criterion was excluded but it is recommended that all criteria in the Society category be included in any model updates if available.

*Stage 3: Statistical correlation of the data to actual migration patterns*

As a final measure of influence to evaluate whether a category should be included in the model, a Kendall tau coefficients was calculated for the remaining 27 criteria. Any criterion with a negative score, representing an inverse correlation to the actual migration patterns, was removed.

The following criteria were removed based on the associated Kendall tau score:

| Criterion | Kendall tau |
|---|---|
| **Non-residential building permit growth** | -0.07692308 |
| **Infant death per 1,000 births** | -0.43019943 |
| **Commuting Time** | -0.5954416 |
| **Crime Rate - Drug Crimes** | -0.1261538 |
| **Percentage of Household Income Spent on Mortgage** | -0.54415954 |
| **Percentage of Household Income Spent on Rent** | -0.36182336 |
| **Residential Building Permit Growth** | -0.12820513 |

*Table 1: Criteria with a negative Kendall tau coefficient*

Following the elimination of any criteria with a negative Kendall tau coefficient, the remaining criteria were evaluated based on the strength of correlation with the migration patterns. Weights for each criterion were developed for the base year of 2006 and maintained for all projection years. Table 2 presents the Kendall tau coefficients for the 27 criteria used and the corresponding criteria weight.

This methodology varies slightly from the CBOC approach since each criterion, rather than the each category, is given a weight. As criteria now carried different weight it was also necessary to change the calculated scores from averages to sums in order to maintain the influence of the weights on the final score.

The Kendall tau coefficient for the developed model of 0.698 is identical to that calculated by the CBOC. In order to evaluate opportunity to improve on the correlation, additional low correlation values were removed.

### *2.1 Methodology for Overall Scoring*

The methodology used to score each criterion is identical to the CBOC approach. The highest ranking city for each criterion was given a value of 1 with the lowest ranked city receiving a value of 0. All other cities were given a value between 0 and 1 based on the normalized score.

| Economy | Model Coefficient | Kendall tau coefficient |
|---|---|---|
| Per capita GDP | 0.0458 | 0.35043 |
| GDP growth | 0.0659 | 0.50427 |
| Productivity | 0.0384 | 0.29345 |
| Productivity growth | 0.0115 | 0.08832 |
| After-tax income per capita | 0.0413 | 0.31624 |
| After-tax income growth | 0.0145 | 0.11111 |
| Unit labour cost | 0.0361 | 0.27635 |
| Unit labour cost growth | 0.0019 | 0.01425 |
| Employment rate | 0.0294 | 0.22507 |
| Employment growth | 0.0823 | 0.62963 |
| **Health** | | |
| Average Life Expectancy | 0.0786 | 0.60114 |
| Body Mass Index | 0.0510 | 0.39031 |
| Cancers, circulatory, and respiratory disease | 0.0689 | 0.52707 |
| Suicides and self-inflicted injuries | 0.0145 | 0.11111 |
| General Physicians (GPs) | 0.0130 | 0.09972 |
| Specialist Physicians | 0.0175 | 0.1339 |
| **Society** | | |
| Population aged 25-34 | 0.0480 | 0.36752 |
| Growth in population aged 25-34 | 0.0063 | 0.04843 |
| Immigrant population | 0.0540 | 0.41311 |
| Immigrant Population Growth | 0.0458 | 0.35043 |
| Cultural Occupations | 0.0354 | 0.27066 |
| Income Equality | 0.0048 | 0.03704 |
| Population Density | 0.0689 | 0.52707 |
| Travel to work: transit, walking and other non-auto | 0.0384 | 0.29345 |
| Crime Rate - Criminal Code Violations | 0.0101 | 0.07692 |
| **Housing** | | |
| Percentage of homes in need of major repair | 0.0644 | 0.49288 |
| **Environment** | | |
| Overall (using CBOC ranking) | 0.0131 | 0.1 |

*Table 2: Criterion and individual influence of overall score*

For example, Toronto has the highest population density of 866.1 people per square kilometer while Saint John is ranked last with a value of 36.43 people per square kilometer. Toronto is given a score of 1 while Saint John receives a score of 0. Hamilton, at **505.08** people per square kilometer is given a score of 0.5649 based on the normalized score calculated as follows:

Normalized score = (**505.08**-36.43)/(866.1-36.43)

It can be seen that by substituting Toronto and Saint John values instead of **Hamilton** in the above equation would give a score of 1 and 0, respectively.

The scores are than multiplied by the model coefficient as presented in Table 2. Continuing from the earlier example, Hamilton would have a score of 0.5649 multiplied by the model coefficient for Population Density of 0.0203 to give Hamilton a criterion score of 0.0115. The overall city score is equal to the sum of all its criterion scores of the 27 criteria.

The city rankings are based on the overall city scores. For example, Hamilton is ranked 15th in 2006 with a overall city score of 0.4568 which is 65% lower than Calgary's top score 0.8042 and 60% ahead of last ranked Thunder Bay. It is important to note that the final score of any city is irrelevant as a stand alone value. The importance of the value is only as it compared to other cities and presented with a ranking. For Hamilton's case, the gap between it and cities with higher ranking is also calculated and presented as a percentage gap. All model results are presented in such fashion.

In keeping with the CBOC format, a grade is also presented for each criterion, category, and overall rank. The grade represents which quartile Hamilton scored in with grades of A (top quartile), B (second highest quartile), C (second lower quartile), or D (lower quartile). When using the detailed model, the grades are a good proxy to establish if one city is significantly better than all its counterparts and a step change in that criterion is very difficult. For example, Calgary is ranked first in After-tax income per capita and is the only A in that criterion. Edmonton has the only B, with the remaining cities being graded C or D. For this criterion, the grading is helpful to understand that the Alberta CMAs are significantly ahead of the other CMAs throughout Canada and improving the overall score of Hamilton by trying to score higher in that specific criterion is a misguided approach.

### *2.2 Projections*

The annual projections to 2013 are based on information obtained and calculated from the CBOC publication. Of the 27 criteria, only 11 criteria are changes in the projection represented. Some additional information was available for 2007 allowing 15 criteria to be changed. Health criteria which used 2001 values for the 2006 analysis (Table 3)

| Criterion Included in Projection as Unchanged |
|---|
| **Average Life Expectancy** |
| **Cancers, circulatory, and respiratory disease** |
| **Suicides and self-inflicted injuries** |

*Table 3: Health criteria not in projections*

were not considered to change quickly enough to warrant influence on the overall score for projections.

The strength of the model's projections should not be underestimated. The correlation of the model to the actual migration patterns is identical for the 15 criteria available for 2007 and the 11 criteria available for 2008 to 2013 as it is for the full 27 criteria presented in Table 2[1].

## 3.0 Model Results

The goal of Hamilton, as set by the Hamilton Chamber of Commerce, is to be one of the ten most attractive census metropolitan areas (CMAs) in Canada. The model is based on the migration pattern rankings derived in the Conference Board of Canada City Magnets Report (CBOC Report) based on actual migration patterns. The correlation coefficients (Kendall tau coefficients) for the CBOC ranking and model results are identical when compared to actual migration patterns.

| *Rank* | *2006* | *2007* |
|---|---|---|
| 1 | 65.28% | 63.17% |
| 2 | 53.88% | 51.06% |
| 3 | 50.59% | 50.83% |
| 4 | 35.35% | 34.17% |
| 5 | 26.51% | 29.46% |
| 6 | 25.25% | 25.42% |
| 7 | 24.87% | 17.70% |
| 8 | 19.22% | 16.11% |
| 9 | 15.65% | 14.31% |
| 10 | 11.82% | 13.28% |
| 11 | 7.58% | 10.99% |
| 12 | 3.48% | 3.38% |
| 13 | 1.71% | 0.00% |
| 14 | 0.00% | |

*Table 4: Percentage improvement to reach specified rank*

The base year for the CBOC Report and the model was 2006. Of the 46 criteria in the CBOC report, 27 were

[1] Includes criteria from Table 3 that are carried through with the same values for all future years.

retained as described in 'Developing the Model', 15 criteria were used for 2007 updates, and 11 for 2008 to 2013 updated. Full year data was available for 2006 through 2008. Data for 2009 through 2013 is based on projections available from the Conference Board of Canada Metropolitan Outlook Winter 2009.

The results for Hamilton are consistent for 2006 and 2007 with rankings of 14 and 13, respectively. This is partially attributable to a ranking improvement in Employment Growth, the most influencing criteria. However, the major factor is the drop of Quebec City from an overall rank of 12 to 15 from 2006 to 2007 while Hamilton manages to maintain a consistent score and remain in the same position relative to the 12 cities ranked higher. The position of a CMA is not a linear relationship with its Canadian counterparts. CMAs are clustered based on the scores each achieves. Ranking the cities is an appropriate format for an annual assessment. However, in order to understand if Hamilton is actually closer or further from achieving its goal, a percentage improvement requirement is calculated for each year relative to every rank change. The ranking improvement from 2006 to 2007 may be misconstrued as a step in the right direction in achieving the top ten goal. However, as Table 3.1 shows, Hamilton is actually further from the goal than it was in 2006. Hamilton, in 2007, is 13.28% from 10th place – an increased gap from 11.82% in 2006.

Both 2008 and 2009 are declining years for Hamilton mainly due to the sharp drop in Employment Growth. If all other rankings remain constant, Employment Growth can be seen as a good proxy for the direction that the overall ranking will take. In 2009, Hamilton is predicted to have its slowest economic year showing the lowest scores between 2006 and 2013 for the most influential economic criteria. Figure 3.2 shows Per Capita GDP, GDP Growth, After-Tax Income Per Capita, and Employment Growth versus the overall ranking. The correlation is strong as these four criteria represent a 23.5% influence on the overall score.

2009 is also the only year that Hamilton has negative Employment Growth, predicted to reach a value of -0.5. As Employment Growth is a five-year average, the low value of 2009 represents the end of a negative trend with subsequent years showing positive Employment Growth. Although the trends starting in 2010 are positive, the employment related criteria are not projected to achieve the levels seen in 2008 for the years modeled. This is trend for most Canadian CMAs with 2009 as the worst year within the range evaluated for both unemployment rates and Employment Growth.

Hamilton's employment situation improves in 2010 and maintains at that level for 2011. Employment Growth is shown to drop by ranking while the Economy and overall ranking actually improves from 2010 to 2011. This is due to a projected reduction in Employment Growth in Western Canada. Although Western Canada maintains a strong lead in employment criteria for 2011, the CMAs are much more clustered creating a tighter scoring range which ultimately reduces the correlation between individual ranking and overall score.

With respect to a top ten ranking, Hamilton is hard hit in 2009 dropping down to 18th place and 18.8% out of 10th place – the largest gap for all years evaluated. The gap doesn't close until 2012 with Hamilton returning to a 14th place ranking and significantly narrowing the gap to 9.25%. In 2013, Hamilton makes a leap by 8 spots in GDP Growth and 6 spots in Employment Growth in one year to reach a 10th place ranking and achieving the goal set out in 2008.

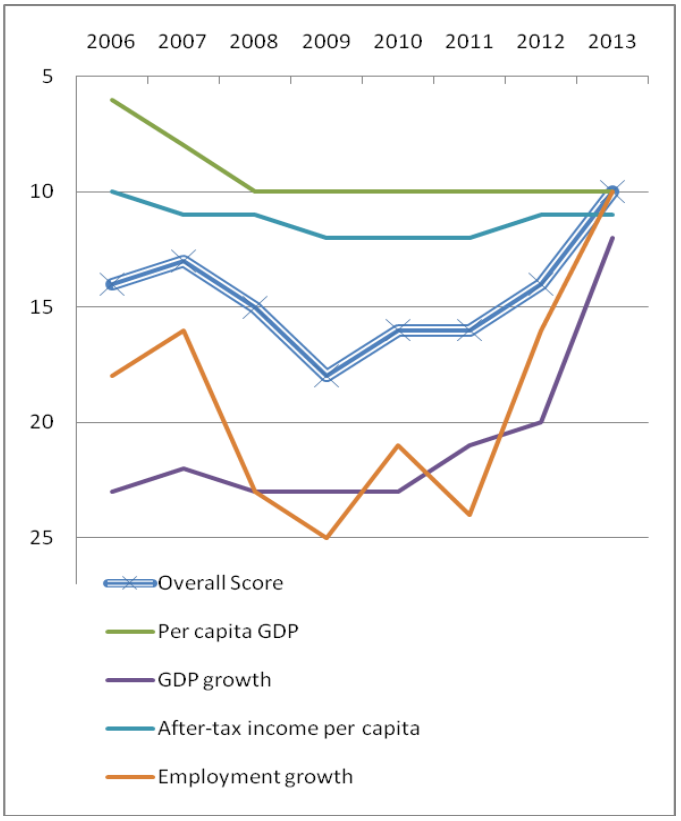


*Figure 1: Comparison of correlation for specific economic criteria ranking and overall ranking*

## 4.0 Interpretation

The focus on the four criteria in Figure 1 (including Employment Growth) specifically stems from the close relation that these criteria have with the overall migration patterns. These criteria, however, do not necessarily represent the focus that Hamilton must have to achieve the goal of improving its attractiveness. Employment Growth, for example, will always be closely correlated to a city's population influx. Employment growth results from strong, specific, and timely strategy to allow sectors of private or public businesses to engage in Hamilton, in turn creating employment and economic growth.

Hamilton's success in projection years is attributed to a rebound in the manufacturing sector as well as a large economic benefit of $290 million invested in revamping Hamilton's hospitals between 2007 and 2012. [8] The

improvements seen in 2010 through 2013 are based on the traditional industries in Hamilton, namely health care and manufacturing. The influence of these industries on migration patterns is quite significant – both are incredible influencers of migration patterns as a result of high employment numbers associated with large capital assets that are the main components of these industries. Heavy manufacturing also support a substantial spin-off job rate. A modern steel plant, as an example, creates approximately three spin-off jobs for every job at the facility. [2] When there is economic growth, these industries, which have an exceptionally long and high entrance threshold, tend to create a significant economic boom within a city. A significantly negative impact is observed when economic times are tough with a sharp decline in Hamilton's ranking. Hamilton is extremely dependent on its economy to validate its attractiveness and Hamilton's economy is extremely dependent on the manufacturing sector. The effects of the current health care infrastructure investments in place and the projected rebound of the manufacturing sector will bring Hamilton to its goal.

## 5.0 Sustainable Attractiveness

By 2013, Hamilton will reach its highest ranking in the Economy category. With drastic improvement in Employment Growth and GDP Growth – Hamilton is in good position to maintain a strong economic force. Given that, Hamilton must shift its focus on addressing its performance in Society and Health. Focusing on the health, youth, and diversity of employment are key to maintaining Hamilton's attractiveness. The rankings associated with these themes are presented in Table 5 with associate criterion influence.

| | Hamilton's Rank | Weight for Criteria Shown |
|---|---|---|
| ***Health*** | ***16*** | ***24.36%*** |
| **Average Life Expectancy** | 18 | 7.86% |
| **Body Mass Index** | 18 | 5.10% |
| **Cancers, circulatory, and respiratory disease** | 14 | 6.89% |
| **Suicides and self-inflicted injuries** | 3 | 1.45% |
| **General Physicians (GPs)** | 21 | 1.30% |
| **Specialist Physicians** | 9 | 1.75% |
| ***Society*** | ***8*** | ***19.44%*** |
| **Population aged 25-34** | 21 | 4.80% |
| **Growth in population aged 25-34** | 16 | 0.63% |
| **Immigrant population** | 3 | 5.40% |
| **Immigrant Population Growth** | 8 | 4.58% |
| **Cultural Occupations** | 14 | 3.54% |
| **Income Equality** | 20 | 0.48% |

*Table 5: Criteria of focus for Hamilton*

Attracting the next generation of residents to Hamilton require, literally, the attraction of the next generation. Attracting the 25 to 34 year old demographic can be seen to have a valid influence on Hamilton's ranking for most of the categories in Table 5. Hamilton's overall rank is about the same in the Marten Prosperity Institute Index as it is in the modeled results. Although ranked in the middle of its peer group overall, Hamilton is ranked quite highly in the Mosaic Index - a measure of foreign-born population. [19] This correlates again to the modeled results.

## 6.0 The Real Problem

The message conveyed by Richard Florida, Rebecca Ryan, and other economists that understands the challenges of Canadian cities is 'Get young people to your city and all good things will follow.' It's a straight forward solution that will make Hamilton sustainably attractive – with one problem; there are no young people to attract. Canada, in total, has seen a steady decline in the 25-34 year old population. Figure 2 demonstrates the disturbing trend in Canada's population.

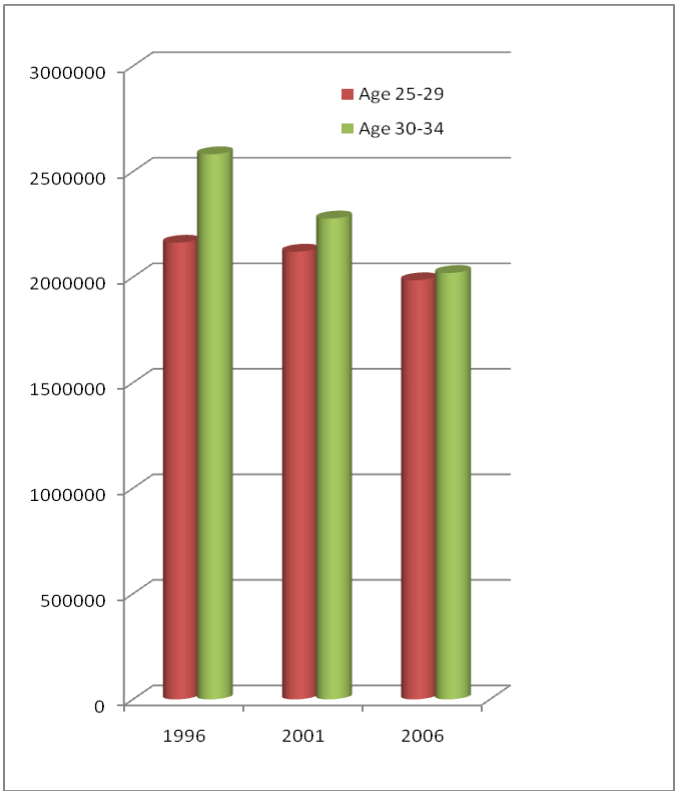


*Figure 2: Youth population in Canada for Census years (1996-2006)*

The criterion *Growth in population aged 25-34* is anything but growth. No city saw a population increase in this demographic relative to its overall population growth from 2002-2006. In fact, Saguenay has the only positive value but this is misleading since this is due to the fact that Saguenay total population emigration exceeded the emigration of youth from the city. Figure 2 shows that, as a

country, Canada as a whole is headed in the wrong direction in this criterion.

| Rank | City | Value |
|---|---|---|
| 1 | Saguenay | 0.001971 |
| 2 | Trois-Rivieres | -0.00342 |
| 3 | Greater Sudbury | -0.00681 |
| 4 | Edmonton | -0.00745 |
| 5 | Oshawa | -0.00874 |
| 6 | Abbotsford | -0.00941 |
| 7 | Montreal | -0.00951 |
| 8 | Sherbrooke | -0.0097 |
| 9 | Regina | -0.00984 |
| 10 | Kitchener | -0.01095 |
| 11 | Calgary | -0.01104 |
| 12 | Quebec City | -0.0139 |
| 13 | Kingston | -0.01431 |
| 14 | London | -0.01534 |
| 15 | Winnipeg | -0.01536 |
| 16 | Hamilton | -0.01555 |
| 17 | Saskatoon | -0.01569 |
| 18 | St. Catherines-Niagara | -0.01749 |
| 19 | St. John's | -0.01775 |
| 20 | Victoria | -0.0184 |
| 21 | Saint John | -0.02199 |
| 22 | Ottawa-Gatineau | -0.0224 |
| 23 | Thunder Bay | -0.02322 |
| 24 | Toronto | -0.0241 |
| 25 | Halifax | -0.02429 |
| 26 | Vancouver | -0.02498 |
| 27 | Windsor | -0.03105 |

*Table 6: Growth in Population age 25-34 (2006 values)*

Hamilton, as all Canadian CMAs, needs to focus on retaining the next generation of its residents and attracting more international immigrants. Hamilton fairs better than the Canadian average for increasing its 25-34 year old population if the city is able to retain 100% of the demographic younger than 25 currently living in the city (Figure 3). [29, 30, 32] In fact, Hamilton has substantially higher number of people ages 14-24 as can derived from Figure 3 due to the percentage increase in people ages 25-34 from 2006 to 2011 and subsequently to 2016. Focusing strictly on retention is not an effective policy; however, ensuring that the young people currently living in Hamilton are part of the fabric and planning of the city is crucial. Hamilton's policies on education, community involvement, and economic development must focus strongly on this demographic to ensure that the young people of this city establish roots in Hamilton.

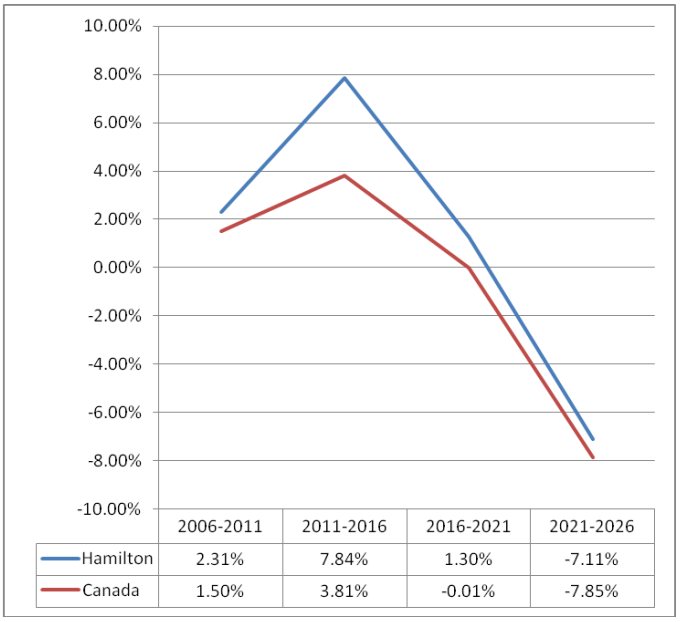


*Figure 3: Projection age 25-34 population changes based on 100% retention (5-year periods)*

Hamilton also needs to focus on attracting youth from other parts of the province, country, continent, and the world. Hamilton needs to establish what it does well – what it does better than any other city in Canada, North America, and the World. Hamilton needs to establish what opportunity a young person between the ages of 25-34 can have in Hamilton that he or she cannot have in any other city.

Hamilton also needs to establish a stronger connection for college and university students. McMaster University and Mohawk College have a combined full-time enrollment of nearly 30,000 people. [20, 21] It can assumed that a majority of the 20,269 undergraduate full-time students at McMaster in the 2006-2007 school year were in the 18-24 year old demographic. [20] Hamilton must focus on policy to create the proper opportunities for this highly educated demographic to establish roots in the city.

## 7.0 Conclusion and Recommendations

Hamilton, like all other Canadian CMAs, must address the concerns related to declining numbers for the 25-34 year old demographic. Some recommendations are made in Section 6 as to the general focus the City of Hamilton must have in order to address this problem and become sustainably attractive. Each policy that is developed to attract those individuals and the effects that such policies will have on other factors in important to understand prior to engaging in any policy direction.

For that, the model developed in this research can be a valuable tool. With an understanding of the influence of each criterion – policy decisions can be calculated and entered into the model to evaluate whether the policy will bring the desired results.

The model can be used in one of two formats:

1. The model can be used to evaluate the effects of any given policy initiative on the attractiveness of Hamilton. Policy analysis needs to be completed including all model criteria. The resulting model output will provide an evaluation of the policy initiative as it relates to the attractiveness of Hamilton; or

2. The model can be manipulated systematically to create the desired results with respect to ranking. The modification made to individual criterion can then be evaluated to develop appropriate policy to achieve such results.

It is recommended that Hamilton approach policy development in the city with such a tool. This may seem an unconventional format for policy development but it can be very effective by applying a holistic approach to policy development that is systematically tested before it is implemented. This tool should not be mistaken for anything but a tool. The creativity and drive of individuals that work to make Hamilton a better place to live and work cannot be substituted by any tool. The tool, however, can help to set metrics for policy initiatives and drive towards specific results.

## 8.0 Final Notes

The focus of this work was to establish a model that could effectively assist the decision-making process in bringing Hamilton to the goal of a top ten ranking among the most attractive CMAs in Canada. The model was successfully developed and calibrated so that it can be used as such a decision-making tool.

Further to this, the question of "How does Hamilton attract and retain its next generation of residents?" was posed. The answer to this question came in the form of a calibrated model and the general trend seen as Canada's youth demographic. Focus on the most influencing criteria and ancillary influence of these criteria, as presented in Table 2, is the key to attracting the next generation of residents. Hamilton must focus strongly on the retention of its youth and the continued attraction of immigrants. Hamilton must develop policies that focus of sectors outside its core of heavy manufacturing and health care in strong economic times which should help the city make it through tougher economic times when heavy manufacturing is not at its economic peak resulting in declining employment rates.

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