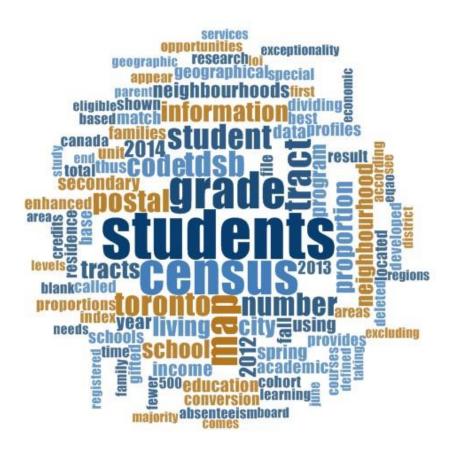
TORONTO DISTRICT SCHOOL BOARD MAPS REPRESENTING DEMOGRAPHICS AND ACHIEVEMENT BY GEOGRAPHIC AREA



Academic, Research & Information Services

Toronto District School Board April 2015 Report No.14/15-11





TITLE: Toronto District School Board Maps Representing Demographics and Achievement by Geographic Area

AUTHOR: Robert S. Brown, George Tam, and Cosmin Marmureanu

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INTRODUCTION AND METHODOLOGY

The maps in this report are intended to geographically illustrate socio-economic, demographic, and achievement characteristics of students in the Toronto District School Board (TDSB). It is an update of a series of maps originally produced in Fall 2002 and a subsequent update in Spring 2005.

The maps use the ArcView GIS software, with data from Academic, Research and Information Services joined to already-existing geographical themes (e.g., locations of TDSB elementary schools, Statistics Canada dissemination areas and census tracts, City of Toronto neighbourhoods).

Unless otherwise indicated, legends of the polygon themes (e.g., census tracts in Map 4) are organized using the "quantiles" method - for the purpose of this report, the variable is divided into five even parts. Thus, for average family income, the first break shows the 20 percent of dissemination areas with the lowest average family income; the fifth break shows the 20 percent of dissemination areas with the highest average family income. ¹

For each of the maps, there is a brief description of how the map was produced.

¹ The 2002 report used the default natural breaks method, also called the "Jenks authorization method", which organizes themes according to a statistical formula into the classes or subsets which mathematically minimizes variation within classes, and maximizes variation between classes. The "quantiles" method was

used rather than the "natural break" method for this report in part because it is easier to explain and understand.

1

FINDINGS

Map 1: Learning Opportunities Index, 2014

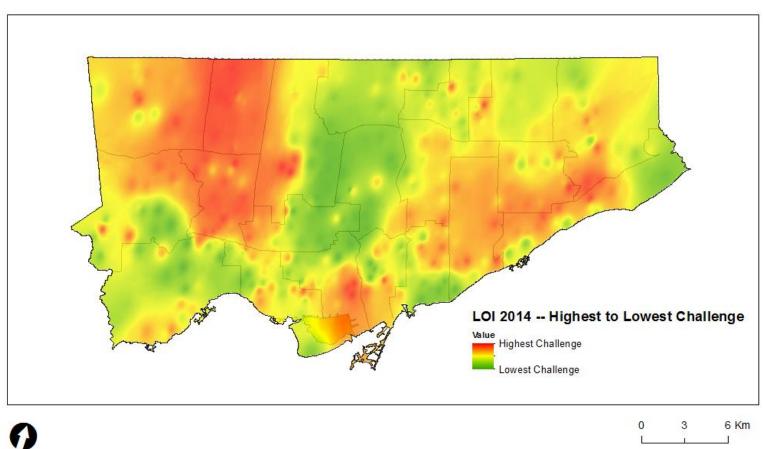
The base information here is all TDSB schools in the 2014 Learning Opportunities Index (LOI), an index of school needs calculated by Academic, Research and Information Services (for more details, see Appendix A). The LOI consists of two indices (one elementary, one secondary) providing a score and ranking for schools according to external challenges. The LOI is calculated from median income, proportion of low-income families, proportion of families receiving social assistance, education of adults, and proportion of lone-parent families.

The areas of greatest need are shaded with the darkest red and the areas of least need are shaded with the darkest green.

Also included are the borders of the Families of Schools.



Map 1: Learning Opportunities Index, 2014



Projection: NAD 1983 UTM Zone 17N Date: October 2014

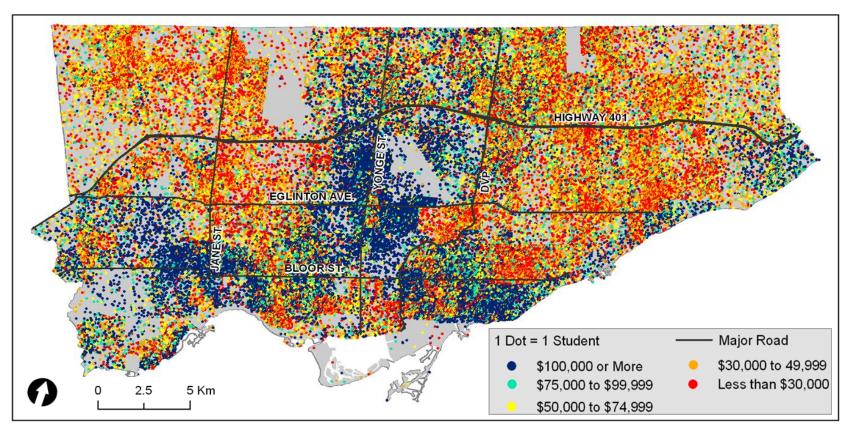
Map 2: Geographic Distribution of the Toronto District School Board Student Population by Family Income

The base information here is the students in Junior Kindergarten (JK)-Grade 6 based on self-identified family income from the TDSB's 2012 Parent Census results. It shows that the higher income families tend to concentrate in the central and southwest areas of the city as well as areas along the lake. Families from the lower income bracket groups spread across the east and west sides of the city with some concentrated pockets in the downtown area.

All the students in JK-Grade 6 are identified as dots and have been randomly distributed within the census tract that they have been matched based on their postal code data.

Also included are the major streets.

Map 2: Geographic Distribution of the Toronto District School Board Student Population by Family Income (JK-Grade 6)



Source: Facts, 2011-12 Student and Parent Census, Issue 1, May 2013. TDSB Students and Families: Demographic Profile

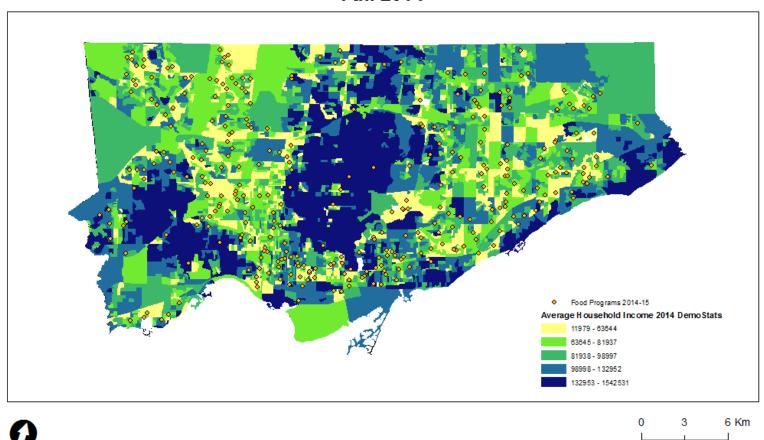
Map 3: Location of School Food Programs, Fall 2014

The base information is the location of school food programs in TDSB locations (Fall 2014). There are nearly 500 of these programs, although in several cases, multiple programs will be located in the same location (e.g., breakfast and lunch programs in the same school). The locations are identified as dots.

In the background is the average household income, according to the 2014 Environics Analytics DemoStats database: the darker the area, the higher the average income. The areas here are dissemination areas (DAs), the 'building blocks' of the 2014 Environics Analytics DemoStats database. Since there are over 3,600 DAs in the City of Toronto, the borders of the areas were removed to avoid confusion (information from the downtown area, for example, would be almost impossible to make out if DA boundaries were included because of the high number of DAs there). Dissemination areas with missing or suppressed income have been left blank.



Map 3: TDSB Food Programs Fall 2014



Projection: NAD 1983 UTM Zone 17N Date: March 2015 Produced by: Academic, Research and Information Services Sources: TDSB; ESRI; StatCan; Environics Analytics

Map 4: Proportion of Grade 12 Year 4 Students Applying to University, Spring 2013

The base information is the number of Grade 12 Year 4 students who applied to universities through the Ontario Universities Applications Centre (OUAC), out of all Grade 12 Year 4 students attending the TDSB in Spring 2013.

In this case, data from OUAC was linked to TDSB information on students in the TDSB in Spring 2013. The linking was done using a process designed by Academic, Research and Information Services, working with the TDSB's Business Analytics staff.

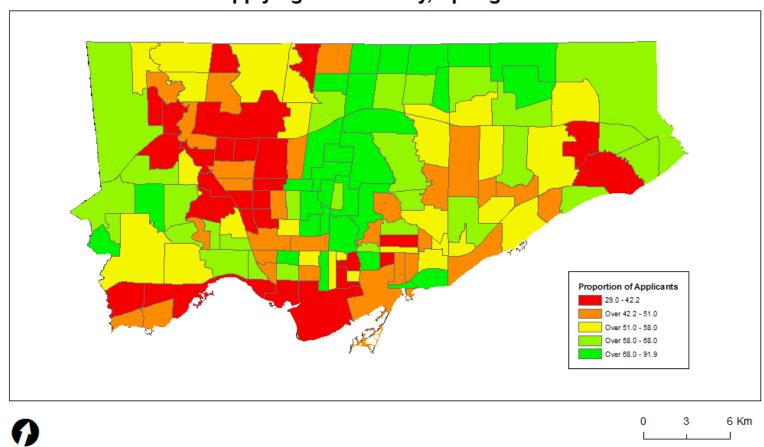
The geographical unit here is neighbourhoods in the City of Toronto. Neighbourhood profiles have been developed by the City of Toronto's Neighbourhoods and Communities Department. The profiles were developed to help government and community agencies with their local planning, by providing socio-economic data at a meaningful geographic area. Not all people define "neighbourhoods" the same way. For the purposes of statistical reporting, however, these neighbourhoods were defined based on Statistics Canada census tracts. There are 140 Toronto neighbourhoods. For more detail, see http://www.city.toronto.on.ca/demographics/neighbourhood profiles.htm

The neighbourhood for each student was located using the postal code of the student's residence (a program called the Enhanced Postal Code Conversion File provides the best match of postal code to census tract, and the census tracts were aggregated to the neighbourhood level).

Thus, the proportions shown in the map are the result of dividing the number of Grade 12 Year 4 applicants to university living in the neighbourhood, by the total number of Grade 12 Year 4 students living in the neighbourhood.



Map 4: Proportion of Grade 12 Year 4 Students Applying to University, Spring 2013



Projection: NAD 1983 UTM Zone 17N Date: November 2014

Map 5: Proportion of Graduates Out of Grade 12 Year 4 Students, 2012-13

The base information is the number of Grade 12 Year 4 students in the TDSB who were registered in secondary schools in Fall 2012, and who had graduated or completed 30 or more credits by Fall 2013.

Under the new Ontario Secondary Schools, Grades 9 to 12: Program and Diploma Requirements (OSS) curriculum, students are more likely to graduate in four years. As well, students who graduate in four years are less likely to return to the TDSB for a fifth year of study (as the majority of them did under the former Ontario Schools: Intermediate and Senior (OS:IS) curriculum). Instead, these graduates are most likely to attend post-secondary institutions, or enter the workforce.

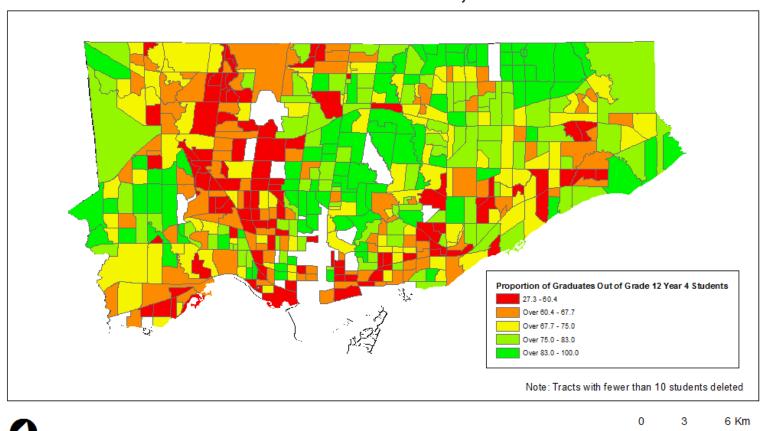
Out of all Grade 12 Year 4 students registered in the TDSB in Fall 2012, 72% had graduated by Fall 2013. ("Graduation" here is defined as achieving a high school diploma, or achieving 30 or more credits, by the end of the 2012-13 school year). Students who did not graduate either returned to the TDSB (19%), transferred to another educational system (3%), or dropped out (6%).

The geographical unit here is census tracts in the City of Toronto (there are over 500 census tracts in Toronto). The census tract for each student was located using the postal code of student residence (a program called the Enhanced Postal Code Conversion File provides the best match of postal code to census tract).

Thus, the proportions shown in the map are the result of dividing the number of Grade 12 Year 4 graduates living in the census tract, by the total number of Grade 12 Year 4 students living in the census tract.



Map 5: Proportion of Graduates Out of Grade 12 Year 4 Students, 2012-13





Projection: NAD 1983 UTM Zone 17N Date: November 2014

Map 6: Proportion of First-time Eligible Students Passing the Ontario Secondary School Literacy Test (Method 1), March 2014

The base information for Map 5 is the number of first-time eligible students in the TDSB who passed the Education Quality and Accountability Office (EQAO) Ontario Secondary School Literacy Test (OSSLT), out of all students registered by EQAO as Grade 10 students. The test was administered in March 2014.

In this case, data from EQAO was linked to TDSB information on students in the TDSB in Spring 2014. The linking was done using a process designed by Academic, Research and Information Services, working with the TDSB's Business Analytics staff.

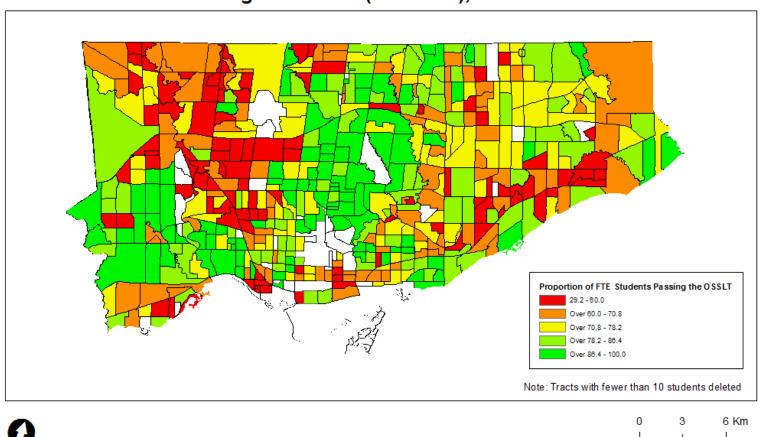
The geographical unit here is census tracts in the City of Toronto (there are over 500 census tracts in Toronto). The census tract for each student was located using the postal code of student residence (a program called the Enhanced Postal Code Conversion File provides the best match of postal code to census tract).

Thus, the proportions shown in the map are the result of dividing the number of students living in the census tract who passed the Grade 10 literacy test, by the total number of first-time eligible students registered by EQAO living in the census tract. A match was successful for nearly all of the 17,236 TDSB students identified as first-time eligible.

Overall, 73% of all first-time eligible students passed both Reading and Writing in the OSSLT (known as Method 1). The proportion of students passing in census tracts varied from 29% to 100%.



Map 6: Proportion of First-time Eligible Students Passing the OSSLT (Method 1), March 2014



Projection: NAD 1983 UTM Zone 17N Date: November 2014

Map 7: Proportion of Students in Grade 6 Achieving Levels 3/4 in Mathematics, 2014

The base information is the number of students in Grade 6, who were given an overall mark of Levels 3 or 4 in Mathematics, according to their EQAO assessments.

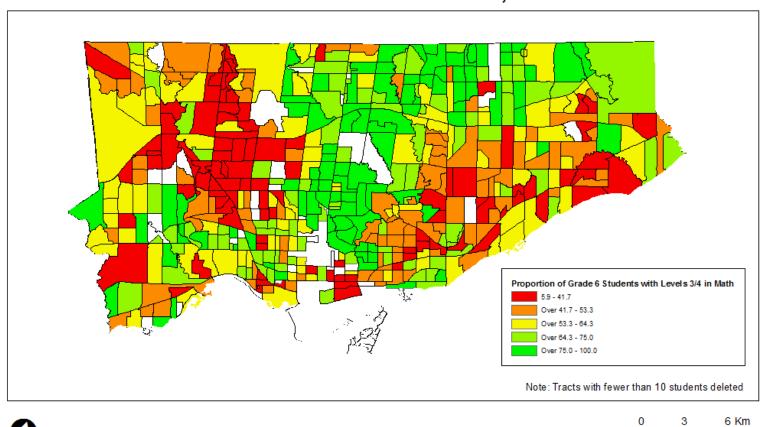
Students are classified as having achieved Levels 3 or 4 if the overall mark was 70% or higher.

The geographical unit here is census tracts in the City of Toronto (there are over 500 census tracts in Toronto). The census tract for each student was located using the postal code of student residence (a program called the Enhanced Postal Code Conversion File provides the best match of postal code to census tract).

Thus, the proportions shown in the map are the result of dividing the number of students in Grade 6 with Levels 3 or 4 in Mathematics, out of the total number students in Grade 6 registered by EQAO living in the census tract.



Map 7: Proportion of Grade 6 Students With Levels 3/4 in Mathematics, 2014





0 3 6 Km

Projection: NAD 1983 UTM Zone 17N Date: November 2014

Map 8: Proportion of Students in Grades 7-8 with Special Education Needs excluding Gifted, June 2014

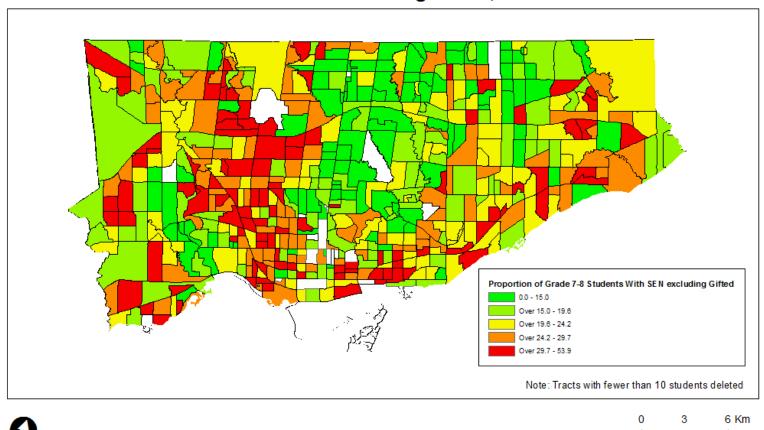
The base information is the number of students in Grades 7-8, who had Special Education Needs excluding Gifted. This includes students in Grades 7-8 who had Special Education Needs excluding Gifted who are in both regular classes and Special Education classes.

The geographical unit here is census tracts in the City of Toronto (there are over 500 census tracts in Toronto). The census tract for each student was located using the postal code of student residence (a program called the Enhanced Postal Code Conversion File provides the best match of postal code to census tract).

Thus, the proportions shown in the map are the result of dividing the number of students in Grades 7-8 students who had Special Education Needs excluding Gifted, out of the total number students in Grades 7-8 students living in the census tract.



Map 8: Proportion of Grade 7-8 Students With Special Education Needs excluding Gifted, June 2014





Projection: NAD 1983 UTM Zone 17N Date: November 2014

Map 9: Proportion of Students in Grades 7-8 with a Gifted Exceptionality, June 2014

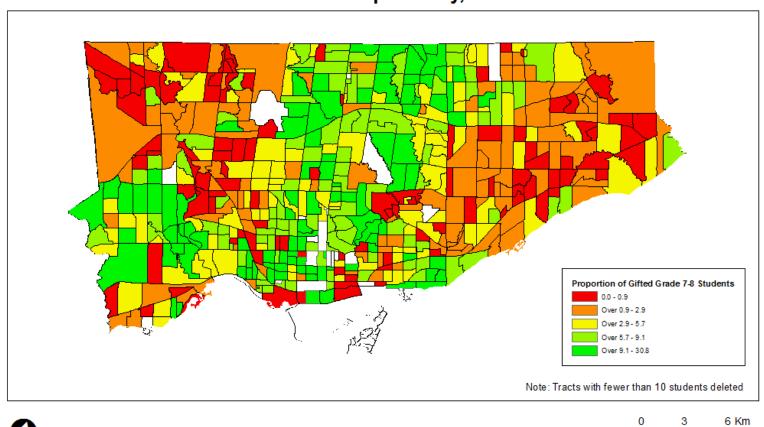
The base information is the number of students in Grades 7-8, who had a Gifted Exceptionality. This includes students in Grades 7-8 who had a Gifted Exceptionality who are in both Regular classes and Special Education classes.

The geographical unit here is census tracts in the City of Toronto (there are over 500 census tracts in Toronto). The census tract for each student was located using the postal code of student residence (a program called the Enhanced Postal Code Conversion File provides the best match of postal code to census tract).

Thus, the proportions shown in the map are the result of dividing the number of students in Grades 7-8 who had a Gifted Exceptionality, out of the total number students in Grades 7-8 living in the census tract.



Map 9: Proportion of Grade 7-8 Students With a Gifted Exceptionality, June 2014





0 3 6 Km

Projection: NAD 1983 UTM Zone 17N Date: November 2014

Map 10: Proportion of Students in Grade 4 with Higher than 10% Absenteeism, 2013-14

Absenteeism refers to the time a student is absent from school for unauthorized reasons (e.g., illness, truancy).

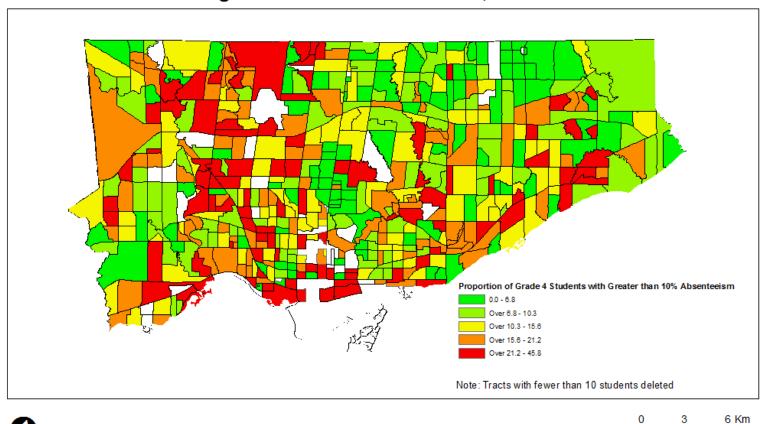
Absenteeism varies according to age and grade. The absenteeism rate is calculated by taking the number of days absent out of the days attended between September 2013 and June 2014. If a student was absent for 19 school days out of 190 school days, he or she would have an absenteeism rate of 10%. This would be equivalent to missing one day of school every two weeks.

The geographical unit here is census tracts in the City of Toronto (there are over 500 census tracts in Toronto). The census tract for each student was located using the postal code of student residence (a program called the Enhanced Postal Code Conversion File provides the best match of postal code to census tract).

Thus, the proportions shown in the map are the result of dividing the number of students in Grade 4 living in the census tract in Fall 2013, who had an absenteeism rate of more than 10%, by the total number of students in Grade 4 living in the census tract in Fall 2013.



Map 10: Proportion of Grade 4 Students with Higher than 10% Absenteeism, 2013-14



1)

0 3 6 Km

Projection: NAD 1983 UTM Zone 17N Date: November 2014

Map 11: Proportion of Students With 8 or more Credits by the End of Grade 9: Grade 9 Cohort of 2012-13

The base information is the number of students in the 2012-13 Grade 9 cohort who had completed 8 or more credits by the end of Grade 9 (August 2013). Students in the Grade 9 cohort were defined as students between 13 and 15 years of age attending TDSB secondary and junior high school (JHS) schools in Fall 2012, who were new to secondary school studies according to available school records.

The Toronto District School Board research has found that Grade 9 and 10 achievement patterns tended to be very powerful predictors of students' subsequent secondary school performance. The probability that students will not graduate from high school within the expected timeframe increases dramatically as students fail to acquire the requisite number of credits in Grade 9. Slightly under one-sixth (15%) of students had completed less than 8 credits by the end of their Grade 9 year, increasing their risk of not graduating on time.

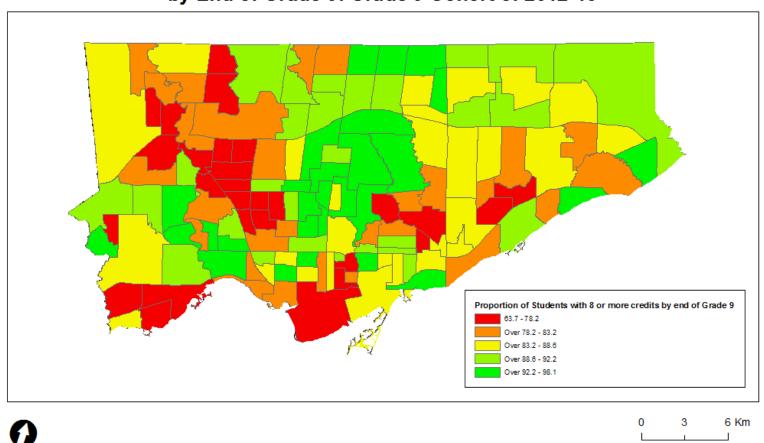
The geographical unit here is neighbourhoods in the City of Toronto. Neighbourhood profiles have been developed by the City of Toronto's Neighbourhoods and Communities Department. The profiles were developed to help government and community agencies with their local planning, by providing socio-economic data at a meaningful geographic area. Not all people define "neighbourhoods" the same way. For the purposes of statistical reporting, however, these neighbourhoods were defined based on Statistics Canada census tracts. There are 140 Toronto neighbourhoods. For more detail, see http://www.city.toronto.on.ca/demographics/neighbourhood profiles.htm

The neighbourhood for each student was located using the postal code of student residence (a program called the Enhanced Postal Code Conversion File provides the best match of postal code to census tract, and the census tracts were aggregated to the neighbourhood level).

Thus, the proportions shown in the map are the result of dividing the number of Grade 9 TDSB secondary and JHS students living in the neighbourhood in Fall 2012, who had 8 or more credits by end of Grade 9, by the total number of students in Grade 9 living in the neighbourhood in Fall 2012.



Map 11: Proportion of Students With 8 or more Credits by End of Grade 9: Grade 9 Cohort of 2012-13



Projection: NAD 1983 UTM Zone 17N Date: November 2014

Map 12: Proportion of Students in Grade 9 in the Academic Program of Study: Grade 9 Cohort of 2012-13

The base information is the number of students in the 2012-13 Grade 9 cohort taking a majority of courses in the Academic Program of Study. Students in the Grade 9 cohort were defined as students between 13 and 15 years of age attending TDSB secondary and JHS schools in Fall 2012, who were new to secondary school studies according to available student records.

Students in Grade 9 were classified into program according to the majority of courses (regardless of subject). For example, if the majority of a student's courses were in the Academic Program of Study, the student was classified as an Academic student.²

Just over three quarters (76%) of the Grade 9 cohort classified this way were students taking primarily Academic courses; 21% were taking primarily Applied courses; while 3% were taking primarily Essentials (Locally-developed) courses. The course preference of slightly less than 1% of students could not be determined.

The geographical unit here is neighbourhoods in the City of Toronto. Neighbourhood profiles have been developed by the City of Toronto's Neighbourhoods and Communities Department. The profiles were developed to help government and community agencies with their local planning, by providing socio-economic data at a meaningful geographic area. Not all people define "neighbourhoods" the same way. For the purposes of statistical reporting, however, these neighbourhoods were defined based on Statistics Canada census tracts. There are 140 Toronto neighbourhoods. For more detail, see http://www.city.toronto.on.ca/demographics/neighbourhood profiles.htm

The neighbourhood for each student was located using the postal code of student residence (a program called the Enhanced Postal Code Conversion File provides the best match of postal code to census tract, and the census tracts were aggregated to the neighbourhood level).

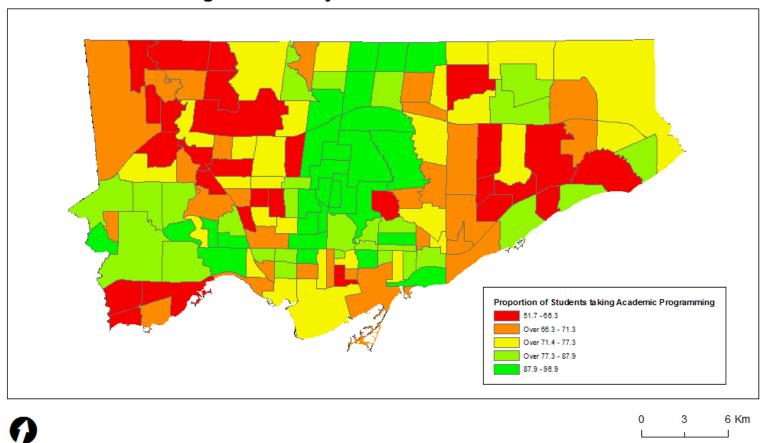
Thus, the proportions shown in the map are the result of dividing the number of the secondary school students in Grade 9 living in the neighbourhood in Fall 2012, who took a majority of their courses in the Academic Program of Study, by the total number of secondary school students in Grade 9 living in the neighbourhood in Fall 2012.

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² Note that a student might be classified as being in one program of study, according to the majority of credits taken, but be taking Math or Science in another program: for example, if a student was taking Applied level Grade 9 Math but a majority of his/her credits were Academic, the student is classified as taking Academic courses.



Map 12: Proportion of Grade 9 Students in the Academic Program of Study: Grade 9 Cohort of 2012-13



Projection: NAD 1983 UTM Zone 17N Date: November 2014

Map 13: Proportion of Recent Immigrants to Canada in the Toronto District School Board: Students Who Arrived 2009-14, Spring 2014

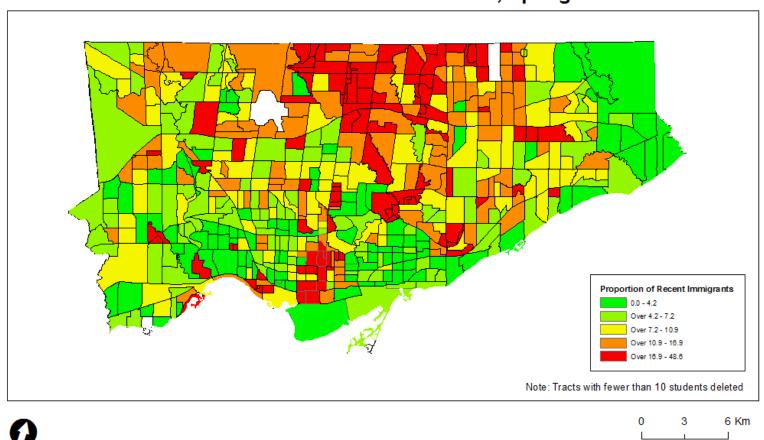
The base information is the number of students in the TDSB registered in Spring 2014, who had been born outside of Canada and emigrated to Canada Fall 2009 or later.

The geographical unit here is census tracts in the City of Toronto (there are over 500 census tracts in Toronto). The census tract for each student was located using the postal code of student residence (a program called the Enhanced Postal Code Conversion File provides the best match of postal code to census tract).

Thus, the proportions shown in the map are the result of dividing the number of TDSB students living in the census tract in Spring 2014, who arrived in Canada from another country in Fall 2009 or later, by the total number of TDSB students living in the census tract in Spring 2014.



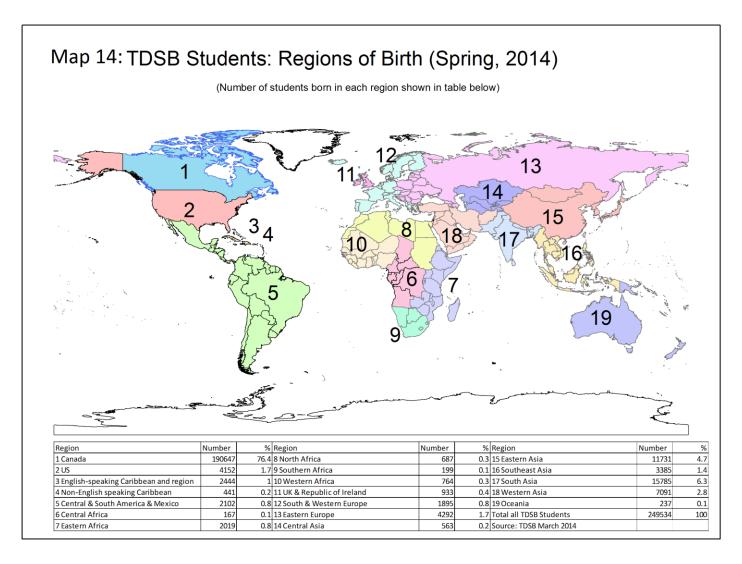
Map 13: Proportion of Recent Immigrants to Canada in the TDSB: Students Who Arrived 2009-14, Spring 2014



Projection: NAD 1983 UTM Zone 17N Date: November 2014

Map 14: Toronto District School Board Students: Regions of Birth, Spring 2014

The base information here is the regions of birth of TDSB elementary and secondary school students as of Spring 2014, superimposed on a map of countries of the world. The regions of birth were designed by Academic, Research and Information Services in 2000, working with the then ESL District-wide Co-ordinator. The regions, with the number of TDSB students born in each region, are in the legend just below the map.



Source: Academic, Research and Information Services, TDSB; ESRI

REFERENCES

City of Toronto, Social Policy Analysis & Research. (2014). *Neighbourhood profiles*. Retrieved from http://www.city.toronto.on.ca/demographics/neighbourhood profiles.htm

The Learning Opportunities Index, 2014

Since the 1960s, the City of Toronto school boards have allocated funding to schools based on social and economic characteristics of their school populations. These processes were referred to by different names including "inner-city", "learning opportunities", "special needs" and "compensatory funding". In each case, an index was developed that ranked schools according to level of need to ensure appropriate allocations could be made.

The Toronto District School Board's (TDSB) Learning Opportunities Index (LOI) was developed in 1999. It is based on variables and methodology that has been identified in research as being reliable and valid. These variables are used nationally and provincially. The index is updated yearly. It combines information from the following variables:

- average and median income of families with school-aged children;
- parental education;
- proportion of lone-parent families;
- recent immigrants;
- housing type (apartment, single detached housing); and
- student mobility.

This information comes from several different sources. Data related to immigration comes from the TDSB's School Information Systems (SIS). Student mobility data comes from mobility calculations derived from the TDSB's School Information Systems. Data related to income comes from the most recent data available from income tax returns. Information related to parental education, lone-parent families, and housing comes from the National Census as well as the TDSB's School Information Systems. Information from tax returns and the National Census are linked to school areas using postal codes for all students in a particular school. In this way, income levels, education and housing types for each school area can be calculated.

The LOI includes three of the four criteria (income, parental education, immigration) used in the Ministry's distribution process of the LOI Grant. The TDSB process incorporates some additional variables (e.g., lone-parent families; student mobility) that are considered to be closely related to student achievement.