

Measuring the effect of urban planning changes

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With a population likely to grow 27% by 2031, putting an end to urban sprawl in Greater Montreal appears impossible for the short to medium term. But it is possible to slow the pace of urban sprawl by harnessing the full development potential of central areas, according to forecasts by Guillaume Marois, a recent Ph.D. from INRS who has developed a spatial microsimulation model called Local Demographic Simulations (LDS).

These findings are presented in an article co-authored by Guillaume Marois and Professor Alain Bélanger of INRS Centre Urbanisation Culture Société, recently published in *Population and Environment*. For their study the researchers developed a reference demographic projection scenario based on actual urban planning and compared its results to two other hypothetical scenarios using different sets of local constraints on residential development.

The researchers found that variations in housing availability in the city and the suburbs influence residential mobility of families and where they choose to live. Population movement within Greater Montreal (from suburbs to city centre, city centre to suburbs, and between suburbs) impacts local population size, but the age structure in the central city does not seem to be affected.

"The LDS model is a powerful tool for forecasting how changes to urban development plans can affect future population distribution. Our results show that LDS works especially well for making local demographic



forecasts, an area where traditional methods can't integrate contextual local variables liable to impact <u>population</u> growth," the researchers noted.

Guillaume Marois developed the LDS microsimulation model as part of his Ph.D. in demography. It enables users to forecast populations of the various municipalities of Greater Montreal broken down by age, sex, language, and immigration status. LDS is the first model of its kind to build in demographic factors (fertility, mortality, migration) in a lifecycle perspective and to also control for the impact of local contextual variables (e.g., number of new housing units, presence of a highway).

More information: "Analyzing the impact of urban planning on population distribution in the Montreal metropolitan area using a smallarea microsimulation projection model," DOI: 10.1007/s11111-015-0234-7

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