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Navigating demographic uncertainty: Evaluating the accuracy of population projections in Sweden's major municipalities

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Abstract

Population projections are essential tools for local government planning. This study examines the accuracy of population projections made by 26 municipalities in Sweden from 2010 to 2022. The findings reveal a mean absolute percentage error (MAPE) of 1.79% after 5 years and 3.29% after 10 years. The mean algebraic percentage error (MALPE), reflecting over- and underestimations, is 0.28% after 5 years and -2.17% after 10 years. Projections for 0-year-olds have a notably higher error due to difficulties in predicting births, while older age groups generally show improved accuracy except for the 19–24 age group. Births and deaths tend to be overestimated, whereas in- and out-migration are consistently underestimated. These results are generally consistent with previous studies in other countries. They also provide valuable insights for policymakers on expected error margins in population projections, thereby enhancing their utility for local governance. This study contributes to the literature by evaluating municipal projections based on local assumptions, assessing both total populations and demographic components, and using high-quality register data. Sweden's dual system—where local and central forecasts coexist—also provides a rare opportunity to compare institutional approaches, yielding insights of international relevance for research and policy.

Keywords

Population projections; Forecast accuracy; Mean absolute percentage error (MAPE); Mean algebraic percentage error (MALPE); Swedish municipalities; Demographic components.

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