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New methods to measure and analyze population crowded of old days

Today we know people live in cities towns or as least villages. But have you ever wondered why we live like that? What kind of factors make people live in groups? Are there too many people sharing too small space in our living environments? What about people of the old time? Did they have same over-crowded problems just like we are facing now? There is a new thesis study which helps us to explore the crowded situation during the last centuries of Nordic country Sweden.

When study on old time cases especially cases of several hundred years, the data accuracy is always a big problem. From the data base of Swedish national demographical agency, some population and geographical data could be used. The whole thesis study could be divided into three parts:

It focused on buildings distribution firstly by using two methods: DBSCAN clustering method and a so called building crowdedness index method. A set of crowdedness value of each house could be computed based on their locations. For the second part, population crowdedness index of each building will be calculated. The study assumed that we know how many people lives in each house, and then based on buildings position and corresponding urban road network systems, some population crowdedness index value of each building could be computed. For the last part of the study, it analyzed the dynamical property of the study area. The whole study town is divided into 20 small areas which called property. The study developed two new methods based on the combinations of property unit's populations, building locations, and road network to compute dynamical results of each unit.

We also developed a set of test experiments to ensure the accuracy of the study. Some conclusions are made based on the study results and test experiments. Those new methods are suitable for most cases. They could give us some satisfactory results, but still need to be developed in the future.