Walk score and energy score - a new approach for real estate transaction analysis

Michael Dinkel

Background

Real estate analysis requires reliable data. Data about property characteristics, infrastructure or macroeconomic are most important but often difficult to gather. Another frequent problem is the inconsistent classification of variables e.g. property condition. It would be an improvement for real estate analysis if variables with objective criteria could be applied. The use of scoring models may help to achieve this goal.

Walk Score is an integrated accessibility indicator and thus indicates the pedestrial accessibility to different amenities. But the reliability of German Walk Scores has not been tested yet. In addition, studies show that indicators of energy performance of buildings are riddled with error. The indicator **Energy Score** measures building conditions with regard to energy efficiency.

Both indicators will be included in the analysis of residential properties in Germany.

Research Questions

1) Is Walk Score a reliable indicator for accessibility for non-motorised transport modes on foot in Germany?

2) Do Walk Score or Energy Score influence
- **a) selling prices?**
- **b) the selling price discount?**

3) Is the influence of Walk Score or Energy Score dependent on settlement structures?

4) Is the influence of Walk Score or Energy Score dependent on heterogeneous price classes ?

Next steps

1) reliability of German Walk Score is checked
2) data collection of Walk Score and Energy Score in connection with ask prices and selling prices
3) data analysis (regression, principal component analysis)

- investigated region:	rural and urban regions in West Germany
- investigated properties:	residential properties
- amount of data:	1,000 - 2,000 properties

Completion: 12/2013

Contact

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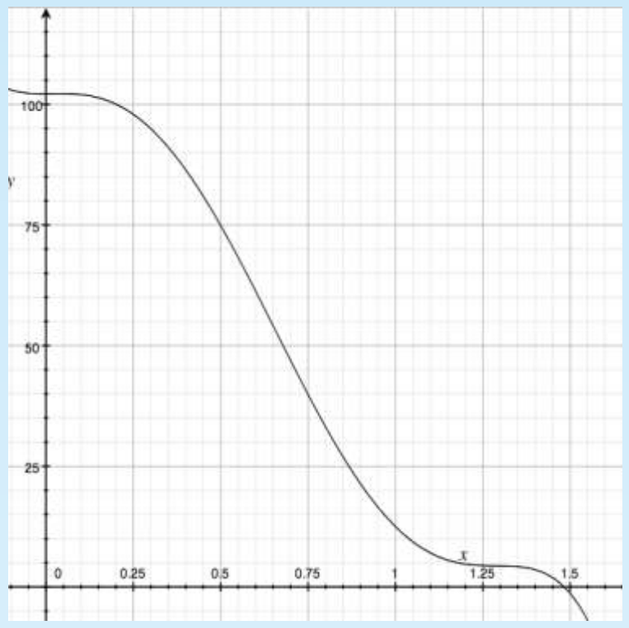
Walk Score

Description
- launched 2007 (Walk Score)
- integrated accessibilty indicator (Score 0 - 100)
- based on GoogleMaps, Localeze, OpenStreetMap, Education.com
- amenities: grocery, restaurants, shopping, coffee, banks, parks, schools, books, entertainment
- widely used in the USA
- reliability not proved yet for other countries

Recent research
- increasing Walk Scores raises selling prices of residential properties (Cortright 2009, Rauterkus & Miller 2011)
- mortgage default probability decreases with higher Walk Scores in high income areas (Rauterkus et al. 2009)

Transferability of the results to Germany:
- limited due to the lack of two important amenities of the local supply (bakery, butcher)
- reliability has not been checked yet

Heatmap from New York (20-minute-radius)
Source: WalkScore



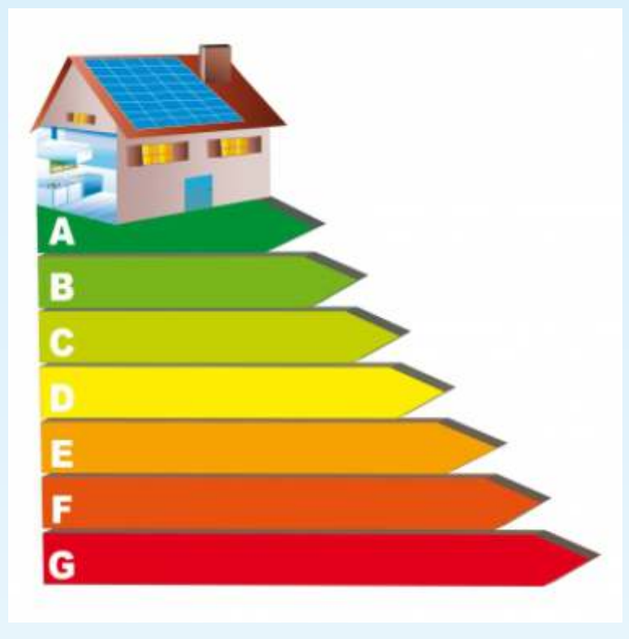
Distance decay function
Source: WalkScore

Energy Score

Description
- launched 2010 (Institut Wohnen und Umwelt GmbH, Darmstadt)
- integrated energy condition indicator for residential properties (Score 0 - 25)
- categories: outer wall, roof, cellar ceiling, window, heating system
- based on the analyses of 1,000 residential properties in regard to their energy condition
- easy to apply and reliable

Recent research
- none, influence of energy score on selling prices is not known yet

Transferability of the results to other countries
- limited because indicator is adjusted to German buildings



Classification of energy condition
Source: http://www.freedigitalphotos.net / xedos4

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