

# A comparison of different parameter estimation methods in fuzzy linear regression

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## Abstract

Fuzzy logic is the concept that concerns people's thinking with imprecise statements. It is easy to work with accurate data through the classic linear regression analysis. However, it is inevitable to use fuzzy linear regression if the dependent or independent variables or the relation between them are fuzzy. The estimation of the fuzzy linear regression parameters generally are gained by two approaches. The first one includes the methods that are based on linear programming. The second one is based on the methods of the fuzzy least squares. The main object of this paper is to apply and compare the performance of the different fuzzy logic approximation methods using a real world data set (the Ataehir district housing prices).

## Keywords

Fuzzy logic regression, House pricing forecast, Linear programming.

## References

- [1] Diamond, P. (1988). Fuzzy least squares. *Inform. Sci.* 46, 141–157.
- [2] Peters, G. (1994) Fuzzy linear regression with fuzzy intervals. *Fuzzy Sets and Systems* 63, 45–55.
- [3] Hojati, M., C.R. Bector, and K. Simimou (2005). A simple method for computation of fuzzy linear regression. *European J. Oper. Res.* 166, 172–184.
- [4] Kim, B. and R.R. Bishu (1998). Evaluation of fuzzy linear regression models by comparing membership functions. *Fuzzy Set and Systems* 100, 342–352.
- [5] Zadeh, L.A. (1965). Fuzzy Sets. *Information and Control* 8, 338–353.