Forecasting of consumer demand with the use of multifactor dynamic models

Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

© 2018, Universidad del Zulia. All rights reserved. In this paper, it is proposed to use a multifactor nonlinear dynamic model to predict consumer demand. For this purpose, a method of varying differences is proposed in order to reduce the autocorrelation of time series. According to the multifactor dynamic model of consumer demand, the authors have proposed a model for forecasting the demand for goods depending on the given values of the total turnover, price indices and the influence of other factors on the formation of consumer demand of the population. The character of dependencies and nonlinear trends was studied, what has allowed qualitative models to obtain.

Keywords

Correlation, Dynamic models, Time series

References

- [1] BEZRUCHKO, B., and SMIRNOV, D. 2006. Contemporary issues in modeling on the basis of time series, Proceedings of Saratov University. New series. Series: Physics, Vol. 6, N 1-2: 3-27. Russia.
- [2] GAZIZOV, D. 2016. Review of time series methods and issues arising during the analysis of non-stationary time series, The Journal of Science, Vol. 3, N 4: 9-14. India.
- [3] GRIGALASHVILI, A., KOKSHAROVA, L., ZUYEVA, I. 2016. On implementation of correlation analysis for exclusion of factors in regression-differential models, Journal of Tambov State Technical University, Vol. 22, N 1: 35-44. Russia.
- [4] ISMAGILOV, I., and KHASANOVA, S. 2015. Short-term fuzz forecasting of Brent oil prices, Asian social science, Vol. 11, N 11: 60-67. Canada.
- [5] ISMAGILOV, I., and KHASANOVA, S. 2017. Algorithms of quasi evaluation of polynomial trend of the digital signals based on oblique discrete walsh transformation, 2nd International Conference on Industrial Engineering, Applications and Manufacturing, ICIEAM. Russia.
- [6] KADOCHNIKOVA, E., POLOVKINA, E., GRIGOREVA, E. 2017. Measurement of growth factors of gross domestic product, Astra Salvensis, N 2, pp. 149-156. Netherlands.
- [7] KONOREVA, A., and GUSEVA, G. 2009. The implementation of mathematical and statistical functions EXCEL in economics, Journal of Omsk University. Series: Economics, No 3, pp. 126-127. Russia.
- [8] MANDRICK, E., and KADOCHNIKOVA, E. 2014. Regression analysis of domestic households' budgets, International research journal, Vol. 4-3, N 23: 36-38. India.
- [9] MEDVEDEVA, O., FYODOROVA, K., CHEREMISINA, N. 2017. The implementation of statistical methods in consumer goods' research in Tambov oblast, Socio-economic phenomena and processes, Vol. 2, N 3: 117-130, 2017. Germany.
- [10] POLOVKINA, E., and GRIGOREVA, E. 2017. Statistical analysis of the organizational factors influence on the labor productivity growth: methodical issues, Journal of fundamental and applied sciences, Vol. 9, N 2: 1108-1120. Algeria. North Africa.

- [11] POTAPOVA, I., and MINYOVA, O. 2004. Theoretical and practical aspects of consumer demand analysis and forecast in food market, Journal of Astrakhan State Technical University, N 3, pp. 52-57. Russia.
- [12] STOLYAROVA, A. 2008. Methodical aspects of cumulative supply and demand forecasting in consumer market, Journal of Russian Academy of Natural Sciences, No 4, pp. 105-109. Russia.
- [13] ZATONSKI, A., and SIROTINA, N.A. 2014. Economic systems forecasting on the basis of regression differential equation, Mathematical methods in economics, Vol. 50, N 1: 91-99. Germany.