

PREDICTING THE SUCCESS OF NATIONS IN ASIAN GAMES USING NEURAL NETWORK

Original scientific paper

Abstract

International success especially Asian sporting success has become increasingly important to a growing number of countries. Although an increasing number of nations invest large amounts of money in sport in order to compete against other nations, there is no clear evidence that demonstrates how sports variables can influence international sporting success. In this paper we tried to predict the success of nations in Asian Games Using Neural Network through macro- political, economic, social and cultural variables. we used the information of variables include urban population, Education Expenditures, Age Structure, GDP Real Growth Rate, GDP Per Capita, Unemployment Rate, Population, Inflation Average, current account balance, life expectancy at birth and Merchandise Trade for all of the participating countries in Asian Games from 1970 to 2006 in order to build the model and then this model was tested by the information of variables in 2010. We used WEKA software that is a popular suite of machine learning software written in Java. The prediction is based on the number of golden medals acquired each country. The value of correlation coefficient between the predicted and original ranks is 86%. One of the other results of this research is that the predicted rank of countries include China, South Korea, Iran and Uzbekistan is exactly identical with their original rank and the difference between the original rank of the first ten countries and the predicted rank of them is minimal. We tried to design the pattern that: To give the opportunity to athletes to compare themselves with athletes from the other countries in order to identify their position and plan the necessary training programs and finally, obtain the better records according to the standard templates.

Keywords: Asian Game, Prediction, neural network, Multi-layer perceptron and Macro variable