The Relationship between Basic Human Needs and Opportunity Based on Social Progress Index

Authors : Ebru Ozgur Guler, Huseyin Guler, Sera Sanli

Abstract : Social Progress Index (SPI) whose fundamentals have been thrown in the World Economy Forum is an index which aims to form a systematic basis for guiding strategy for inclusive growth which requires achieving both economic and social progress. In this research, it has been aimed to determine the relations among "Basic Human Needs" (BHN) (including four variables of 'Nutrition and Basic Medical Care', 'Water and Sanitation', 'Shelter' and 'Personal Safety') and "Opportunity" (OPT) (that is composed of 'Personal Rights', 'Personal Freedom and Choice', 'Tolerance and Inclusion', and 'Access to Advanced Education' components) dimensions of 2016 SPI for 138 countries which take place in the website of Social Progress Imperative by carrying out canonical correlation analysis (CCA) which is a data reduction technique that operates in a way to maximize the correlation between two variable sets. In the interpretation of results, the first pair of canonical variates pointing to the highest canonical correlation has been taken into account. The first canonical correlation coefficient has been found as 0.880 indicating to the high relationship between BHN and OPT variable sets. Wilk's Lambda statistic has revealed that an overall effect of 0.809 is highly large for the full model in order to be counted as statistically significant (with a p-value of 0.000). According to the standardized canonical coefficients, the largest contribution to BHN set of variables has come from 'shelter' variable. The most effective variable in OPT set has been detected to be 'access to advanced education'. Findings based on canonical loadings have also confirmed these results with respect to the contributions to the first canonical variates. When canonical cross loadings (structure coefficients) are examined, for the first pair of canonical variates, the largest contributions have been provided by 'shelter' and 'access to advanced education' variables. Since the signs for structure coefficients have been found to be negative for all variables; all OPT set of variables are positively related to all of the BHN set of variables. In case canonical communality coefficients which are the sum of the squares of structure coefficients across all interpretable functions are taken as the basis; amongst all variables, 'personal rights' and 'tolerance and inclusion' variables can be said not to be useful in the model with 0.318721 and 0.341722 coefficients respectively. On the other hand, while redundancy index for BHN set has been found to be 0.615; OPT set has a lower redundancy index with 0.475. High redundancy implies high ability for predictability. The proportion of the total variation in BHN set of variables that is explained by all of the opposite canonical variates has been calculated as 63% and finally, the proportion of the total variation in OPT set that is explained by all of the canonical variables in BHN set has been determined as 50.4% and a large part of this proportion belongs to the first pair. The results suggest that there is a high and statistically significant relationship between BHN and OPT. This relationship is generally accounted by 'shelter' and 'access to advanced education'.

Keywords : canonical communality coefficient, canonical correlation analysis, redundancy index, social progress index