Global Wealth Inequality and Multinational Classification

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Extensive Summary

Introduction

Wealth is often associated with money, savings, investments, owned houses and cars or other forms of financial capital. The wealth of a person or a household is measured by the assets they own. But one's total wealth (or net wealth) also includes debts at the same time. It differs from the concept of income in this regard. While income is flow variable, wealth is stock variable. Although wealth is more unevenly distributed than income, wealth inequality is directly related to income inequality. Asset types seen as wealth; the land, real estate, agricultural assets, vehicles, cash savings, life insurance accumulations, pension funds and personal property are included (Staunton, 2015, pp. 4).

In this study, inequalities in the distribution of wealth at the global level were put forward and it was attempted to explain that global wealth, like other socioeconomic inequalities, displayed a similar appearance. In the study, it is aimed to identify similar countries with wealth distribution by moving from global wealth inequality and global distribution of household wealth. On the other hand, it is aimed to monitor the differences between the wealth composition of households in underdeveloped, developing and developed countries. In line with these basic objectives; It was aimed to determine the characteristics of countries with similar wealth structures for 171 countries. According to the similarities between the units studied in the study, clustering analysis method was used to collect and classify within certain groups, to reveal the common characteristics of the units and to make general definitions about these classes. In the last part of the study, Discriminant Analysis was applied to determine the significance of the groups obtained by the Cluster Analysis Method and the variables that are effective in group distinctions.

Methodology

Multidimensional statistical methods need to be used to determine the relative situations of the countries' global wealth composition to each other. Hierarchical Cluster

Analysis method was applied to distinguish countries to groups. In addition, Ward technique was applied when the data set was standardized between -1 and +1 in the analysis and the variables were analyzed according to the euclidean square distances. In order to examine the global wealth distribution, 10 different variables were used, compiled from Credit Suisse's 2016 Global Wealth Report. According to the dendrogram results related to cluster membership, it was deemed appropriate to consider the countries in 5 clusters.

To identify the significance of the determined groups Discriminant Analysis method was used. Discriminant Analysis shows how well the set clustering variables achieve the cluster of the countries studied. The main difference that separates the Discriminant Analysis from the Clustering Analysis is that the groups are known in advance in the Discriminant Analysis (Özdamar, 2004, ss. 355–356).

In this study, wealth data of countries are taken into consideration and Ward cluster method which is one of the hierarchical clustering methods is chosen. Classical clustering methods do not give the number of clusters in previously. Dendograms and graphical methods are used to determine the number of clusters. 5 cluster solutions obtained by Ward Clustering analysis are given. (Tekin, 2015, s. 14).

Findings

As a result of the clustering analysis, it can be seen in dendogram 10 variables associated with wealth of 171 countries differentiated in 5 clusters. Looking at the dendogram, it can be said that 5 units are suitable. When the number of clusters was investigated by graphical method, 2 clusters were solved first, then 3 clusters were solved and the other clusters were tested until the integrity was broken and finally 5 clusters solution was decided. In the obtained dendrogram, it was determined that the 3rd and 4th clusters formed a common cluster according to the dendogram in the two cluster solutions. 1st, 2nd and the 5th cluster constituted the other common second cluster. In the three cluster solution, it is seen that the 1st and 5th clusters form a single cluster and the 3rd and 4th clusters form a single cluster. Finally, it is observed that the 2nd cluster form a single cluster.Cluster memberships are seen in the following table 1.

The success of the discriminant analysis depends on the correct classification percentage; the higher the rate, the more successful the analysis is. When the results are examined, it is seen that 165 of the 171 countries (96.5%) are correctly classified. The total correct classification percentage of the discriminant function is highly successful. From the functions obtained as a result of analysis; 38 of the 40 observing units in the first cluster are assigned correctly and 2 are incorrectly classified. All 73 observing units in the 2nd cluster are correctly assigned. 5 of the 6 observing units in the 3rd cluster are incorrect and 1 in the correct cluster. All 19 observations in the 4th cluster are assigned to the correct cluster. Finally, 30 of the 33 countries in the 5th cluster are placed correctly and 3 countries placed incorrectly. 96.5% of the cluster memberships estimated in line with these results are estimated correctly. The second best cluster probabilities of erroneous cluster placements are estimated correctly. Thus, according to the variables used in the study, it can be stated that 171 countries can be expressed significantly in 5 different clusters according to global wealth indicators.

Table 1: Memberships of Clusters

1st Cluster (40 Members)	Albania , Angola, Antigua and Barbuda, Argentina, Azerbaijan, Barbados, Belize, Bosnia and Herzegovina, Brazil, Cape Verde, China, Colombia, Ecuador, El Salvador, Ecuador Ginesi, Gabon, Georgia, Grenada, Indonesia, Jamaica, Jordan, Lebanon, Libya, Malaysia, Mexico, Mongolia, Morocco, Panama, Paraguay, Peru, Philippines, Romania, Saint Vincent and the Grenadines, Seychelles, Solomon Islands , South Africa, Macedonia Cum., Tonga, Tunisia, **Turkey.**
2nd Cluster (73 Members)	Algeria, Armenia, Bangladesh, Belarus, Benin, Bolivia, Botswana, Burkina Faso, Burundi, Cambodia, Cameroon, Mr. Africa Cum., Chad, Comoros, Congo, Ivory Coast, Dem. Congo Cum., Djibouti, Egypt, Eritrea, Ethiopia, Fiji, Gambia, Ghana, Guinea, Guyana, Haiti, India, Iran, Kazakhstan, Kenya, Kyrgyzstan, Lao People's Dem. Cum., Lesotho, Liberia, Madagascar, Malawi, Maldives, Mali, Mauritania, Mozambique, Myanmar (Burma), Namibia, Nepal, Nicaragua, Niger, Nigeria, Pakistan, Papua New Guinea, Moldova, Russian Federation, Rwanda, Sao Tome and Principe, Senegal, Serbia, Sierra Leone, Sri Lanka, Sudan, Suriname, Swaziland, Syria, Tajikistan, Thailand, Togo, Uganda, Ukraine, Tanzania, Vanuatu, Venezuela, Vietnam, Yemen, Zambia, Zimbabwe.
3rd Cluster (6 Members)	Australia, Denmark, Iceland, Luxembourg, Norway, Switzerland.
4th Cluster (19 Members)	Austria, Belgium, Canada, Finland, France, Germany, Ireland, Israel, Italy, Japan, Netherlands, New Zealand, Qatar, Singapore, Sweden, United Arab Emirates, United Kingdom, United States, Taiwan.
5th Cluster (33 Members)	Bahamas, Bahrain, Bulgaria, Chile, Costa Rica, Croatia, Cyprus, Czech Republic, Dominica, Estonia, Greece, Hong Kong, Hungary, Kuwait, Latvia, Lithuania, Malta, Mauritius, Montenegro, Oman, Poland, Portugal, Saint Kitts And Nevis, Saint Lucia, Samoa, Saudi Arabia, Slovakia, Slovenia, Spain, Trinidad and Tobago, Turkmenistan, Uruguay.

Conclusion and Discussion

The results of the Clustering Analysis which conducted with 10 different variables that are indicative of country wealth accumulation according to the Credit Suisse's Global Wealth Report (2016), show that countries can be classified in 5 different clusters according to global wealth components. According to the clustering analysis used by the Ward method, it can be seen that the developed European countries and the United States occupied in the same cluster (4th Cluster) and at the same time the oil rich Qatar and the United Arab Emirates took place in this cluster.

It appears that South America's east is formed by the 2nd cluster, including the Russian Federation and Kyrgyzstan, where African countries are often located. It is seen that Turkey was formed by the 1st cluster in which it was included, and finally Eastern European countries and some Central and South East Asian countries. For these results, it can be said that the clustering results are in parallel with the development level. However, in the results, the answer of the question that "why the 3rd cluster is separated from the 4th cluster" should be revealed by more detailed analyzes.