Calculation the Equity Level of an Internet Service

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Abstract

The method of calculating the level of equity of internet services of several cities or provinces in a country is a statistical measure showing how far the internet service speed distribution being measured is to have similarities with the reference distribution of all elements equal to one, where the determination of the level of equity is done by calculating the Index Haryadi from the relationship between internet service speed distribution as measured by reference distribution. In this case, an equalization index equal to one represents a perfect similarity between the elements of the distribution as measured by the pairs of elements of the reference distribution. Let R be the reference distribution = {0.7 Mbps; 0.8 Mbps; 0.9 Mbps; 1 Mbps; 1.1 Mbps; 1.2 Mbps; 1.3 Mbps; 1.4 Mbps} and Y is the measured internet rate = {1.05 Mbps; 1.2 Mbps; 1.35 Mbps; 2 Mbps; 1.65 Mbps; 1.8 Mbps; 1.95 Mbps; 2.1 Mbps}, then Y has an Internet service equalization index equal to one, through the $Y = 1.5R$ relationship function because all elements of Y are equal to 1.5 times of the pairing elements of R .

1. Internet Calculator

To simplify calculations, an internet calculator has been created, i.e. a website that provides a field of content, where we can fill in the information or data about the speed of service in some cities or provinces to be measured in the level of equity.

Procedure: (1) Fill in the number of cities or number of provinces in a country that will be measured equity of its internet service; (2) Fill in information or data about internet speed in each city or province and fill in referral distribution; (3) Click CALCULATE

The website address is on the "Calculation the Equity Level of an Internet Service" link on my homepage at <http://sigitharyadi.net/>

2. Calculation Explanation

- I. Calculate the share of the internet velocity in the measured cities or provinces, using the formula: $S_i = (\text{internet speed in a city or a province divided by total from internet speed})$.
- II. Then calculates the index of the equity of internet services, using the following formula "Haryadi Index":

$$HI = \frac{1}{[N \{ \sum_{i=1}^N S_i^2 + \sum_{i=1}^N \sum_{j=1}^N (S_i - S_j)^2 \}]}; i > j$$

II. Then determines the level of competition as follows:

- a) The Haryadi index between 0.90 and 1.00 corresponds to an excellent level of Internet service equity.
- b) The Haryadi index between 0.75 and 0.89 corresponds to a good level of Internet service equalization.
- c) The Haryadi index between 0.60 to 0.74 corresponds to an almost poor level of Internet service distribution.
- d) The Haryadi index between 0.50 and 0.59 corresponds to a poor level of Internet service distribution.
- e) The Haryadi index of less than 0.50 is corresponding to the extremely poor level of Internet service distribution.

3. Notes

In order to understand the concept of "Haryadi Index" that became the spirit of this calculator, please read my writings in the following bibliography

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