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Research Article

Application of the Area Approach in Financial Analysis

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ABSTRACT

Purpose: Explanation of alternative estimation method of function's determinants.

Methodology: This method based on new meter under concept of area through geometric theorems. The explanation of the new approach is based on alternative solution of assumed case in the article.

Obtained result: Justification of accuracy of the new metric through alternative solution of assumed case.

Key words: meter, concept of area, autocorrelation of factors, alternative solution

INTRODUCTION

This article is about new method (or mew meter) in alternative measuring of function's determinants estimation. This method allows more precise estimation poly deterministic functions with complex interrelations between the factors. From this point of view, the new meter is useful for economic cases.

METHODOLOGY

Two methods have been used in the paper: *traditional* – linear average method and *new meter* – geometrical area method.

CONTENT OF CONDITIONAL EXERCISE

Suppose that, for estimation of social well-being level in the economy have determined five factors with equal significance. The maximum point is 5. The result of conducted survey is:

	Maximum points	Actual points
Development of family institutions and gender equality	5	4
Income level and income distribution	5	4
Social services and accessibility	5	3

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Human rights protection and development of public institutions	5	2
Political regime	5	2

Let's, estimate the social well-being level:

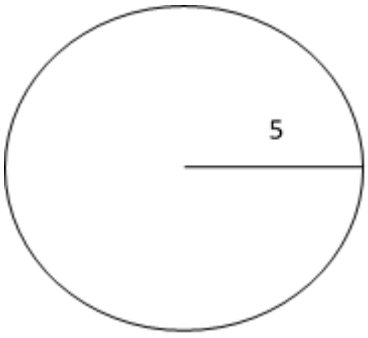
First (traditional variant):

- maximum 25 points
- actual = (4+4+3+2+2) = 15
- result = 15/25= 60%

Second variant (new approach):

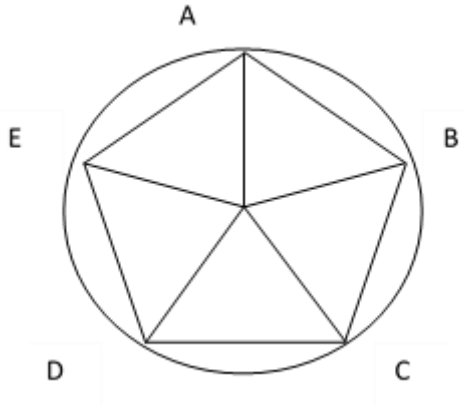
- In reality the social well-being level in economy consist *n* number factors. At the same time, if the maximum point of each factor is 5, so absolute maximum is equals to area of circle with radius of 5 (Scheme 1). The middle point of that circle is absolute minimum level of social well-being.

Scheme 1



- Because of n=5 in this case, the maximum level of social well being equals to the area of pentagon (ABCDE) (Scheme 2).

Scheme 2



- After adding the actual points on the ABCDE we get new pentagon of $A_1B_1C_1D_1E_1$ (Scheme 3):

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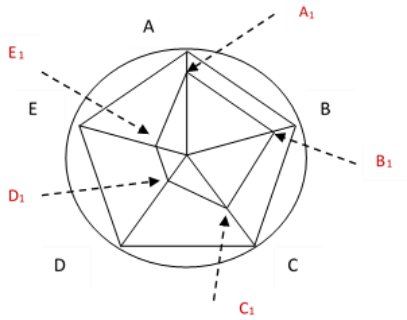
Scheme 3



- So, the actual social well-being level in economy equals to the area of $A_1B_1C_1D_1E_1$
- In reality, the actual social well-being level in percentage term equals to comparison of area of $A_1B_1C_1D_1E_1$ to the area of ABCDE.
- By using of "Theorem of Pifagor" [1] comparison of area of $A_1B_1C_1D_1E_1$ to the area of ABCDE equals to 36%.

So, by new meter, the social well-being level equals to 36%.

Generally, the calculation formula of the new meter is:

Content:

	Maximum point of the factor	Significance of the factor ($\sum = 1$)	Actual point
Factor - 1	a	w_1	b_1
Factor - 2	a	w_2	b_2
Factor - 3	a	w_3	b_3
Factor - *(n-1)*	a	w_{n-1}	b_{n-1}
Factor - *n*	a	w_n	b_n

The result by actual points (b) [2] :

$$b = \frac{b_1w_1{}^* b_2w_2 + b_2w_2{}^* b_3w_3 + \ldots + b_{n-1}w_{n-1}{}^* b_nw_n + b_nw_n{}^* b_1w_1}{a^2 (w_1w_2 + w_2w_3 + \ldots + w_{n-1}w_n + w_nw_1)}$$

If the significance of the factors are equal :

$$b = \frac{b_1b_2 + b_2b_3 + \ldots + b_{n-1}b_n + b_nb_1}{n^*a^2}$$

The formula shows that, the result directly depends on arrangement of factors (determinants). Because, there are only adjacent factors are multiplied. This does not allow the autocorrelation between all factors (determinants). To avoid this problem we may include sum of factors whish actually related or we may include sum of all factors:

$$b = \frac{2(b_1w_1{}^* b_2w_2 + b_1w_1{}^* b_3w_3 + \ldots + b_1w_1{}^* b_nw_n + b_2w_2{}^* b_3w_3 + \ldots + b_2w_2{}^* b_nw_n + \ldots + b_{n-1}w_{n-1}{}^* b_nw_n)}{a^2 (n^2\text{-}n) (w_1w_2 + w_1w_3 + \ldots + w_1w_n + w_2w_3 + \ldots + w_2w_n + \ldots + w_{n-1}w_n)}$$

Including of only related factors are useful especially in economic and financial cases.

REFRENCES

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