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Analysis of the Effectiveness the European Regional Development Fund Disbursement for the Selected Tourism Services with the Use of the Counterfactual Method

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Abstract

The aim of the article is to analyse the effectiveness of decision-making in the disbursement of funds from the ERDF for the selected tourism services. In the theoretical part of the article, the model of assessment of the ERDF management system effectiveness has been developed. This model is built on the basis of the Propensity Score Matching method, used to assess the effectiveness of community programs. In the empirical part of the article, the verification of the model on the example of NUTS 2 Podlasie, the tourism sector was carried out. The obtained results allow concluding that the developed deadweight assessment model can be used in practice for the evaluation of the efficiency of the ERDF management system.

1. Introduction

European Regional Development Fund is one of the most active regional policy instruments, including tourism policy. The effects of its implementation are measured in terms of both financial categories and the achieved socio-economic results. Experience shows that the most difficult part of the process is its evaluation. Assessment can be made using the financial outlay indicators, as well as quality indicators [12]. The advantage of qualitative indicators is the ability to capture the socio-economic changes, which are not analysed by the financial measures. With the use

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of qualitative measures research on the ERDF's impact on the local tourism economy and the competitiveness of the tourist enterprise in relation to the selected effect adopted in the political agenda was conducted [1–3, 6, 10–17]. However, the conducted studies have focused on the analysis of the effects experienced by the environment; assessment from the point of view of efficiency of the ERDF management system was not attempted. The basic research problem focuses therefore on the need to answer the following question: Whether, from the point of view of managerial decisions, the allocation was the best possible? Such a situation is best described by the measurement of the effect of the independent event. The effect of the independent event measures the negative, unintended consequences of the made decisions. This indicates the range of changes that would occur without bearing the costs of the realised activity. Loss of alternative possibilities of allocation of funds for other purposes is an undesirable effect [7]. It occurs when the target group has been improperly identified, for which the system of management of the ERDF resources is directly responsible. The aim of the article is to analyse the effectiveness of decision-making in disbursement of the ERDF funds for the selected tourism services. To carry out the measurement of the effect of the independent event and, consequently, the assessment of the efficiency of decision-making the Propensity Score Matching (PSM) method will be used.

2. Assumptions for the methodology of the ERDF resources disbursement efficiency system analysis

2.1. Assumptions of the Propensity Score Matching (PSM) method

The *Propensity Score Matching* (PSM) is a method classified as one of counterfactual methods, largely used to assess the social effects of the public interventions, in particular recommended for carrying out the evaluation of programs and projects implemented under the ERDF (The Programming Period 2014-2020, 2014, p. 6–7.) This method is based on causal inference, which is based on the Neynman-Rubin model [5]. The basic aim of the method is to determine the impact of the measures on the status of the individual or the community after the impact of these instruments (e.g. the impact of training on employment). The hypothetical assumption that the state reached by an individual after the impact would have been impossible to achieve without the impact of the intervention is not possible to determine. Because of this, the individual has been subjected to the impact. Therefore, this method assumes that the two individuals having the same characteristics and performances behave identically in identical conditions. This means that the effect that would arise in the absence of intervention would be the same in the group of individuals subjected to the impact and the control group. This assumption was the basis for the creation of the control group, i.e., counterfactual situation. Counterfactual situation is defined as a situation in which the analysed impact (public intervention) would not be realized. It could therefore be said that the counter-factual situation tells us how many entities subjected to the intervention would have implemented their actions if they had not been affected by it. Such a situation is called the result of the independent event. In statistical terms, the situation can be described with the following formula [5]:

$$X_{ij} = E = D_1 Y_1 + (D-1) \cdot Y_0 \tag{1}$$

where: X is a vector of observed characteristics of an individual, and Y_1 – the effect in the case of implementation of the intervention, Y_0 – the effect in the absence of implementation of the intervention, D – the impact ($D \in \{0,1\}$), $D=1$ means that the unit has been subjected to the intervention, $D=0$ means that it was not subjected to the intervention, i – number of individuals with j – in elemental population only one of the two results of the output variable is possible.

Difficulties with application of this method in social systems result from a strong differentiation and heterogeneity of the study group on the grounds of the characteristics and parameters of the individual. In the case of the ERDF management system, where intervention concerns grants for infrastructural tasks, the situation is less complex. Firstly, the support group is usually homogenous because of the purpose of the action and the assumed results. Secondly, the population can create a control group with the same characteristics and parameters for which the same purpose of action, the business activities and the same area where the business operates are identified. In