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ALTERNATIVE FUZZY OPERATIONS: A CRITICAL APPROACH AND APPLICATIONS IN SOCIAL AND ECONOMIC SCIENCES

Abstract: *The applications of fuzzy numbers to Social Sciences, Economy, and Natural Sciences request, in various cases that the spreads, i.e. the region of indeterminateness, of the results of the operations between fuzzy numbers be less than the ones expected by the Zadeh's extension principle. Moreover, it appears to be necessary to consider operations that save the shapes of fuzzy numbers. To this aim fuzzy operations are dealt with, alternatives to the operations induced by the extension principle. Critical analyses of logical principles which support the various operations are carried out. Some application to Social Sciences and Economy are considered.*

Key words: *Modelling impreciseness, fuzzy numbers, fuzzy structures, applications to Social Sciences and Economy.*

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1. Introduction and motivation

Starting from the paper (Zadeh, 1965), Zadeh imposed the idea that a suitable tool to deal with the impreciseness, in the descriptions made in terms of natural language, are *fuzzy numbers*.

A major aim in developing modelling in fuzzy set context is just to obtain a “*satisfying*” *algebraic structure* for fuzzy numbers. The operations in the set of fuzzy numbers are usually obtained by the Zadeh extension principle (Zadeh, 1965, 1968, 1973, 1975a, 1975b, 1975c; Yager, 1986; Klir, Yuan, 1995).

The extension principle based operations present some drawbacks for the applications, e. g. to Social Sciences, Economy, Geology, both by an *algebraic* point of view and *logical* and *practical* aspects (Ban, Bede, 2003; Bede, Fodor, 2006; Grzegorzewski, Mrowska, 2005; Mares, 1997, 2001; Maturo, 2004, 2006, 2009a, 2009b), e.g.:

- the spreads of the sum is *fast increasing* with the repeated additions;
- the Zadeh's multiplication is *not distributive* with respect to the addition;
- the shape of fuzzy numbers is *not preserved* by multiplication.

Then, for the applications in the Natural, Social and Economic Sciences it is important to individuate some suitable variants of the classical fuzzy numbers

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operations that may interpret how the inexactness makes for greater efficiency, for producing significant meanings and comprehension. To this aim suitable alternative operations are here introduced.

2. The classical operations and order relations between compact intervals

Let C be the set of the compact intervals of R . For every intervals $[a, b]$ and $[c, d]$ in C , we assume the following operations:

$$[a, b] + [c, d] = [a + c, b + d]; \quad (2.1)$$

$$[a, b] \cdot [c, d] = [\min\{ac, ad, bc, bd\}, \max\{ac, ad, bc, bd\}]. \quad (2.2)$$

The subtraction and division are also defined on C by the formulae:

$$[a, b] - [c, d] = [a, b] + [-b, -a]; \quad (2.3)$$

$$\text{if } 0 \notin [c, d], [a, b] / [c, d] = [a, b] \cdot [1/d, 1/c]. \quad (2.4)$$

The main algebraic properties of operations between compact intervals are the following (Klir, Yuan, 1995:103):

- The addition $+$ defined by (2.1) is commutative, associative, having $0 = [0, 0]$ as neuter element.
- The multiplication defined by (2.2) is commutative, associative, having $1 = [1, 1]$ as neuter element.
- For every compact intervals $[a, b]$, $[c, d]$, $[e, f]$ the following sub-distributive property holds:

$$([a, b] + [c, d]) [e, f] \subseteq [a, b] [e, f] + [c, d] [e, f]. \quad (2.5)$$

- The distributivity, i.e. the equality

$$([a, b] + [c, d]) [e, f] = [a, b] [e, f] + [c, d] [e, f], \quad (2.6)$$

holds iff $[a, b] \cdot [c, d] \geq 0$ or $[e, f]$ is a degenerate interval.

The principal order relations on C are:

- The *main* order relation:

$$[a, b] \leq_M [c, d] \text{ if and only if } a \leq c \text{ and } b \leq d. \quad (2.7)$$

- The *strict* order relation:

$$[a, b] \leq_S [c, d] \text{ if and only if } b \leq c. \quad (2.8)$$

Both these relations are partial order relations, the second is contained in the first.

3. Fuzzy numbers: definitions and notations

The concept of fuzzy number borrows as a generalization of the compact interval of R .

We consider compact intervals in \mathbb{R} in which not all elements are equally important.

Definition 3.1 (Fuzzy number) Let $[a, b]$ be a compact interval of \mathbb{R} . A *fuzzy number* with base $[a, b]$ is a function $u: \mathbb{R} \rightarrow [0, 1]$, having as domain the set of real numbers and with values in $[0, 1]$, such that:

(FN1) (*bounded support*) $u(x) = 0$ for $x \notin [a, b]$, and $u(x) > 0$ for x belonging to the open interval (a, b) ;

(FN2) (*compactness and normality*) for every $r \in (0, 1]$ the set $[u]^r = \{x \in \mathbb{R} : u(x) \geq r\}$ is a nonempty *compact* interval.

The numbers a, b , are called respectively, the *left* and the *right endpoint* of u , and the set $\{x \in [a, b] : u(x) > 0\}$ is said to be the *support* of u , denoted $S(u)$. Moreover, u is said to be *degenerate* if $a = b$, that is $S(u)$ is a singleton.

Definition 3.2 (r-cuts) For every r such that $0 \leq r \leq 1$ the set $[u]^r = \{x \in [a, b] : u(x) \geq r\}$ is said to be the *r-cut* of u . The left and right endpoints of $[u]^r$ are denoted, respectively, u_λ^r and u_ρ^r . The fuzzy number u is said to be *simple* if $c = d$, that is $C(u)$ is a singleton.

In particular, for $r = 0$, $[u]^0 = [a, b]$, and, for $r = 1$, $[u]^1$ is a compact interval $[c, d]$, called the *core* (or *central part*) of u , and denoted with $C(u)$. The numbers c, d , are the *left* and the *right endpoint* of $C(u)$.

Definition 3.3 (Spreads) The intervals $[a, c]$ and $(d, b]$ are, respectively, the *left part* and the *right part* of u . The real numbers $L(u) = c - a$, $M(u) = d - c$, and $R(u) = b - d$ are, the *left*, *middle*, and *right spreads* of u . Their sum $T(u) = b - a$ is the *total spread*.

Definition 3.4 (Relation \subseteq) Let $u: \mathbb{R} \rightarrow [0, 1]$ and $v: \mathbb{R} \rightarrow [0, 1]$ two fuzzy numbers. We say that u is contained in v , we write $u \subseteq v$, if $u(x) \leq v(x)$, $\forall x \in \mathbb{R}$.

Proposition 3.5 The relation \subseteq is a partial order relation in the set of fuzzy numbers. A compact interval $[a, b]$ is interpreted as a fuzzy set $w: \mathbb{R} \rightarrow [0, 1]$ with base $[a, b]$ and such that $w(x) = 1$, $\forall x \in [a, b]$. Then it is the maximum fuzzy number with base $[a, b]$ with respect to the order relation \subseteq .

Notations 3.6 We assume the following notations:

- (*endpoints notation*) $u \sim (a, c, d, b)$ stands u is a fuzzy number with endpoints a, b and core $[c, d]$; $u \sim (a, c, b)$ for simple u ;
- (*spreads notation*) $u \sim [c, d, L, R]$ denotes that u is a fuzzy number with core $[c, d]$ and left and right spreads L and R , respectively; $u \sim [c, L, R]$ denotes simple u ;
- (*r-cut spreads notation*) the numbers $L^r(u) = (c - u_\lambda^r)$ and $R^r(u) = (u_\rho^r - d)$ are called the *r-cut left spread* and the *r-cut right spread* of u , we write $[u]^r = [c, d, L^r(u), R^r(u)]$, and, if u is simple, we write also $[u]^r = [c, L^r(u), R^r(u)]$;
- (*sign*) the fuzzy number $u \sim (a, c, d, b)$ is said to be *positive*, *strictly positive*, *negative*, or *strictly negative*, if $a \geq 0$, $a > 0$, $b \leq 0$, or $b < 0$, respectively;
- (*c-sign*) the fuzzy number $u \sim (a, c, d, b)$ is said to be *c-positive*, *strictly c-positive*, *c-negative*, or *strictly c-negative*, if $c \geq 0$, $c > 0$, $d \leq 0$, or $d < 0$, respectively.

Definition 3.7 We say that the fuzzy number $u \sim (a, c, d, b)$ is a *trapezoidal fuzzy number*, let us write $u = (a, c, d, b)$, if:

$$\forall x \in [a, c], \quad a < c \Rightarrow u(x) = (x - a)/(c - a), \quad (3.1)$$

$$\forall x \in (d, b], \quad d < b \Rightarrow u(x) = (b - x) / (b - d). \quad (3.2)$$

A simple trapezoidal fuzzy number $u = (a, c, c, b)$ is said to be a *triangular fuzzy number* and we write $u = (a, c, b)$. A trapezoidal fuzzy number $u = (c, c, d, d)$, with support equal to the core is said to be a *rectangular fuzzy number* and is identified with the compact interval $[c, d]$ of \mathbb{R} .

Proposition 3.8 In terms of r -cut left and right spreads $u \sim [c, d, L, R]$ is a trapezoidal fuzzy number, we write $u = [c, c', L, R]$, iff:

$$L^r(u) = (1 - r)(c - a) = (1 - r)L, \quad R^r(u) = (1 - r)(b - d) = (1 - r)R. \quad (3.3)$$

In particular, $u \sim [c, L, R]$ is a triangular fuzzy number, we write $u = [c, L, R]$, iff:

$$L^r(u) = (1 - r)(c - a) = (1 - r)L, \quad R^r(u) = (1 - r)(b - c) = (1 - r)R. \quad (3.4)$$

Several ordering can be defined in the set of fuzzy numbers (Klir, Yuan, 1995; Dubois, Prade, 1980, 1988; Mares, 1997, 2001; Maturo, 2009a, 2009b). We focus our attention on some fundamental orderings that play an important role when choices among social or economic actions are involved.

Let Φ be the set of all the fuzzy numbers.

Proposition 3.9 (Main order) The relation \lesssim_M on Φ such that:

$$\forall u, v \in \Phi, u \lesssim_M v \Leftrightarrow \forall r \in [0, 1], [u]^r \leq [v]^r, \quad (3.5)$$

is a *partial order relation* on Φ , called the *main order*.

The main order is the basic ordering in the set of fuzzy numbers whatever the shape.

Proposition 3.10 (Trapezoidal order) The relation \lesssim_T on Φ such that:

$$\forall u, v \in \Phi, u \lesssim_T v \Leftrightarrow [u]^0 \leq [v]^0, [u]^1 \leq [v]^1 \quad (3.6)$$

is a *partial preorder relation* on Φ , called the *trapezoidal order*.

Such a relation is mainly useful if the trapezoidal shape is preferred, because of the relative simplicity in handling these numbers. The restriction of \lesssim_T to the set \mathbf{T} of the trapezoidal fuzzy numbers is a *partial order relation*.

Proposition 3.11 (Crisp order) The relation \lesssim_C such that:

$$\forall u, v \in \Phi, u \lesssim_C v \Leftrightarrow [u]^1 \leq [v]^1 \quad (3.7)$$

is a *partial preorder relation* on Φ , called the *core order* or *crisp order*.

The relation \lesssim_C is useful when peripheral spreads are considered of marginal importance with respect to the central ones. The restriction of \lesssim_C to the set \mathbf{C} of the rectangular fuzzy numbers is the *order relation* (2.7). Moreover the restriction of \lesssim_C to the set of simple fuzzy numbers is a *total preorder relation*.

Proposition 3.12 (Strict order) The relation \lesssim_S such that:

$$\forall u, v \in \Phi, u \lesssim_C v \Leftrightarrow (x \in S(u), y \in S(v)) \Rightarrow x \leq y \quad (3.8)$$

is a *partial preorder relation* on Φ , called the *strict order*. The restriction of \lesssim_C to the set C of the rectangular fuzzy numbers is the *order* relation (2.8).

4. The extension principle operations

Definition 4.1 (Zadeh's extension principle operations) Let Ψ be the set of the fuzzy sets with domain R . If $*$ is an operation in R , then the extension of $*$ to Ψ with the *Zadeh's extension principle* is defined as follows. For every $u, v \in \Psi, z \in R$, let $(u * v)^{-1}(z) = \{(x, y) \in R \times R : x * y = z\}$. We define $u * v$ as the function

$$u * v : z \in R \rightarrow \begin{cases} 0 & \text{if } (u * v)^{-1}(z) = \emptyset \\ \sup_{(x,y) \in (u*v)^{-1}(z)} \{\min\{u(x), v(y)\}\} & \text{if } (u * v)^{-1}(z) \neq \emptyset \end{cases} \quad (4.1)$$

Remark 4.2 In general, if u and v are fuzzy numbers, we cannot conclude that $u * v$ is a fuzzy numbers. However, this occurs if $*$ is one of the usual arithmetic operations $+$, $-$, \cdot , $/$ (for the division, there must be the condition $0 \notin S(v)$).

If $u, v, u * v$ are fuzzy number, by (4.1) it follows:

$$\forall r \in [0, 1], [u * v]^r = [u]^r * [v]^r. \quad (4.2)$$

Then, (4.2) applied to the addition gives:

$$\forall r \in [0, 1], [u + v]^r = [u]^r + [v]^r = [u_\lambda^r + v_\lambda^r, u_\rho^r + v_\rho^r]. \quad (4.3)$$

The (4.2) for the multiplication becomes, $\forall r \in [0, 1]$,

$$[u \cdot v]^r = [\min\{u_\lambda^r v_\lambda^r, u_\lambda^r v_\rho^r, u_\rho^r v_\lambda^r, u_\rho^r v_\rho^r\}, \max\{u_\lambda^r v_\lambda^r, u_\lambda^r v_\rho^r, u_\rho^r v_\lambda^r, u_\rho^r v_\rho^r\}]. \quad (4.4)$$

If u and v are positive then formula (4.4) reduces to:

$$\forall r \in [0, 1], [u \cdot v]^r = [u]^r \cdot [v]^r = [u_\lambda^r v_\lambda^r, u_\rho^r v_\rho^r]. \quad (4.5)$$

By (4.2), (4.3), (4.4), and by the properties of addition and multiplications in the set C of compact intervals of R , it follows:

Proposition 4.3 The addition $+$ defined by (4.3) is commutative, associative, having $0 = [0, 0]$ as neuter element; the multiplication defined by (4.4) is commutative, associative, having $1 = [1, 1]$ as neuter element. Moreover the multiplication is subdistributive with respect to the addition, i.e. for every fuzzy numbers u, v, w :

$$(u + v) w \subseteq u w + v w, \quad (\text{subdistributivity}) \quad (4.6)$$

where \subseteq denotes inclusion between fuzzy sets; the distributivity holds iff u and v are both positive or both negative fuzzy numbers or w is a degenerate fuzzy number.

In terms of spread notation the addition is defined by formulae:

$$C(u + v) = C(u) + C(v); \quad (4.7)$$

$$\forall r \in [0, 1), L^r(u + v) = L^r(u) + L^r(v), \quad R^r(u + v) = R^r(u) + R^r(v). \quad (4.8)$$

If u and v are positive, in terms of spread notation the multiplication is defined by:

$$C(u \cdot v) = C(u) \cdot C(v); \quad (4.9)$$

$$\forall r \in [0, 1), L^r(u \cdot v) = u_\lambda^{-1} v_\lambda^{-1} - u_\lambda^r v_\lambda^r = u_\lambda^{-1} L^r(v) + v_\lambda^{-1} L^r(u) - L^r(u)L^r(v); \quad (4.10)$$

$$\forall r \in [0, 1), R^r(u \cdot v) = u_\rho^r v_\rho^r - u_\rho^{-1} v_\rho^{-1} = u_\rho^{-1} R^r(v) + v_\rho^{-1} R^r(u) + R^r(u) R^r(v). \quad (4.11)$$

Remark 4.4 (Case of trapezoidal numbers). For addition of trapezoidal (in particular triangular) fuzzy numbers, (4.8) is equivalent to the simpler formula:

$$L^0(u + v) = L^0(u) + L^0(v), \quad R^0(u + v) = R^0(u) + R^0(v). \quad (4.12)$$

For multiplication of trapezoidal fuzzy numbers, formulae (4.10) and (4.11) can be written:

$$\forall r \in [0, 1), L^r(u \cdot v) = (1 - r) u_\lambda^{-1} L(v) + (1 - r) v_\lambda^{-1} L(u) - (1 - r)^2 L(u) L(v); \quad (4.13)$$

$$\forall r \in [0, 1), R^r(u \cdot v) = (1 - r) u_\rho^{-1} R(v) + (1 - r) v_\rho^{-1} R(u) + (1 - r)^2 R(u) R(v). \quad (4.14)$$

Remark 4.5. Let $u \cdot_a v$ be the trapezoidal fuzzy number having the same core and the same support of the product $u \cdot v$. By (3.3), (4.10) and (4.11) for $r = 0$, it follows:

$$\forall r \in [0, 1), L^r(u \cdot_a v) = (1 - r) u_\lambda^{-1} L(v) + (1 - r) v_\lambda^{-1} L(u) - (1 - r) L(u) L(v); \quad (4.15)$$

$$\forall r \in [0, 1), R^r(u \cdot_a v) = (1 - r) u_\rho^{-1} R(v) + (1 - r) v_\rho^{-1} R(u) + (1 - r) R(u) R(v). \quad (4.16)$$

So, by comparing (4.13), (4.14) with (4.15), (4.16), respectively, it follows that, in general, $u \cdot v$ is not a trapezoidal fuzzy number since, for every $r \in (0, 1)$,

$$L^r(u \cdot v) \geq L^r(u \cdot_a v), \quad \text{the equality holds iff } L(u)L(v) = 0; \quad (4.17)$$

$$R^r(u \cdot v) \leq R^r(u \cdot_a v), \quad \text{the equality holds iff } R(u)R(v) = 0. \quad (4.18)$$

The Zadeh operations are compatible with the orders \lesssim_M , \lesssim_T , and \lesssim_C . Precisely, from the definitions in Sec. 3, and formulae (4.3), and (4.5) it follows:

Proposition 4.6 (Compatibility theorem). Let u , v , and w be fuzzy numbers. Then, for every $J \in \{M, T, C\}$, we have:

$$(CA) \quad u \lesssim_J v \Rightarrow u + w \lesssim_J v + w \quad (\text{compatibility of } \lesssim_J \text{ w. r. to the addition});$$

$$(CM) \quad 0 \lesssim_J u, 0 \lesssim_J v \Rightarrow 0 \lesssim_J u \cdot v \quad (\text{compatibility of } \lesssim_J \text{ w. r. to the multiplication}).$$

5. A critical analysis of the Zadeh's operations and alternative proposals

The definitions given by (4.1) or the equivalent ones obtained by (4.2) have some "drawbacks" for the practical applications in Social and Economic ambit.

(D1) The multiplication *is not distributive* with respect to the addition;

(D2) If we wish to consider special classes of fuzzy numbers as the trapezoidal or the triangular ones, they *are not closed with respect to the multiplication*, because the product of two trapezoidal fuzzy numbers in general is not trapezoidal.

(D3) The spread of the sum of two fuzzy numbers is the sum of the spreads, then by aggregating as “sum” fuzzy numbers we have *fast increasing spreads*. This is often in contradiction with the intuitive idea and the experience that many uncertainties can compensate each other.

(D4) The spreads of the product of two fuzzy numbers u and v are functions increasing of the extremes of the cores and the correspondent spreads of u and v . Then, if fuzzy numbers are aggregated by the “product”, *too increasing indeterminateness* can result.

An important research work is thus to identify possible alternatives to the operations based on the extension principle. Below we analyse some variants of the classical addition and multiplication of fuzzy numbers. We call also “addition” and “multiplication”, respectively, these variants, that have the most part of the properties of the corresponding classical operations, but not all the previous disadvantages.

(A1) *Approximate multiplication* (Grzegorzewski, Mrowka, 2005; Bede, Fodor 2006). If we wish consider only trapezoidal fuzzy numbers, then we can replace the Zadeh’s product $u \cdot v$ with the trapezoidal fuzzy number $u \cdot_a v$ having the same support and the same core of $u \cdot v$.

(A2) *Cross multiplication* (Ban, Bede, 2003; Bede, Fodor 2006). Let u and v be two c -positive fuzzy numbers. The cross product $u \bullet v$ is the fuzzy number defined by formulae:

$$C(u \bullet v) = C(u) \cdot C(v); \quad (5.1)$$

$$\forall r \in [0, 1), L^r(u \bullet v) = u_\lambda^{-1} L^r(v) + v_\lambda^{-1} L^r(u); \quad (5.2)$$

$$\forall r \in [0, 1), R^r(u \bullet v) = u_\rho^{-1} R^r(v) + v_\rho^{-1} R^r(u). \quad (5.3)$$

Remark 5.1 The cross multiplication can be extended to the set Φ^* of all the fuzzy numbers that have not 0 as interior point of the core by utilizing the “signs rules”

$$(-u) \bullet v = u \bullet (-v) = -(u \bullet v).$$

In particular the cross multiplication can be extended to all the triangular fuzzy numbers.

Remark 5.2 The cross multiplication satisfies many important algebraic properties, in particular the *distributive property* $(u + v) \bullet w = u \bullet w + v \bullet w$ holds iff u and v are both c -positive or both c -negative or w is a degenerate fuzzy number, then in a stronger form with respect to the Zadeh multiplication.

(A3) *Bounded operations*. An addition $+_b$, and a multiplication \cdot_b , called b -addition and b -multiplication, respectively, are introduced, in such a way that the left, and right spreads of the sum $u +_b v$ and the product $u \cdot_b v$ are the maximum of the corresponding spreads of u and v .

Remark 5.3 The maximum property imply that the bounded operations are very appropriate operations when we have to deal with mathematical problems of convergence of sequences of fuzzy numbers.

In terms of spread notation the b-addition is defined by formulae:

$$C(u \cdot_b v) = C(u) + C(v); \quad (5.4)$$

$$\forall r \in [0, 1), L^r(u \cdot_b v) = \max\{L^r(u), L^r(v)\}; \quad R^r(u \cdot_b v) = \max\{R^r(u), R^r(v)\}. \quad (5.5)$$

Moreover the b-multiplication is defined by formulae:

$$C(u \cdot_b v) = C(u) \cdot C(v); \quad (5.6)$$

$$\forall r \in [0, 1), L^r(u \cdot_b v) = \max\{L^r(u), L^r(v)\}; \quad R^r(u \cdot_b v) = \max\{R^r(u), R^r(v)\}. \quad (5.7)$$

Let us compare the Zadeh, approximate, and cross products of two c-positive trapezoidal fuzzy numbers u and v . They have the same core. The left r -spreads are:

$$\forall r \in [0, 1), L^r(u \cdot v) = u_\lambda^{-1} L^r(v) + v_\lambda^{-1} L^r(u) - L^r(u) L^r(v); \quad (\text{Zadeh product}) \quad (5.8)$$

$$\forall r \in [0, 1), L^r(u \cdot_a v) = u_\lambda^{-1} L^r(v) + v_\lambda^{-1} L^r(u) - L^r(u) L^r(v)/(1-r); \quad (\text{approx product}) \quad (5.9)$$

$$\forall r \in [0, 1), L^r(u \bullet v) = u_\lambda^{-1} L^r(v) + v_\lambda^{-1} L^r(u). \quad (\text{cross product}) \quad (5.10)$$

Then, for $r \in (0, 1)$ and $L^r(u) L^r(v) \neq 0$, the left r -spread of the approximate product is less than the one of the Zadeh product, while the left r -spread of the cross product is greater than the one of the Zadeh product.

The right r -spreads are:

$$\forall r \in [0, 1), R^r(u \cdot v) = u_\rho^{-1} R^r(v) + v_\rho^{-1} R^r(u) + R^r(u) R^r(v); \quad (\text{Zadeh product}) \quad (5.11)$$

$$\forall r \in [0, 1), R^r(u \cdot_a v) = u_\rho^{-1} R^r(v) + v_\rho^{-1} R^r(u) + R^r(u) R^r(v) / (1-r); \quad (\text{approx product}) \quad (5.12)$$

$$\forall r \in [0, 1), R^r(u \bullet v) = u_\rho^{-1} R^r(v) + v_\rho^{-1} R^r(u). \quad (\text{cross product}) \quad (5.13)$$

Then, for $r \in (0, 1)$ and $R^r(u)R^r(v) \neq 0$, the right r -spread of the approximate product is greater than the one of the Zadeh product, while the left r -spread of the cross product is less than the one of the Zadeh product.

Remark 5.4 (Cross product properties) An advantage of the cross product is that the cross product of two trapezoidal fuzzy numbers is a trapezoidal fuzzy number; moreover the cross product of two triangular fuzzy numbers is a triangular fuzzy number. A disadvantage of the cross product is that the cross product of positive fuzzy numbers is not necessary a positive fuzzy number. As for compatibility with the order / preorder relations we have the following:

Proposition 5.5 Let u, v , and w be fuzzy numbers. Then, for every $J \in \{M, T, C\}$, we have:

(CMA) $0 \lesssim_J u, 0 \lesssim_J v \Rightarrow 0 \lesssim_J u \cdot_a v$ (compatibility of \lesssim_J w. r. to the approximate multiplication);

(CMC) $0 \lesssim_C u, 0 \lesssim_C v \Rightarrow 0 \lesssim_C u \bullet v$ (compatibility of \lesssim_C w. r. to the cross multiplication).

Remark 5.6 (Bounded operations properties) The main algebraic properties of the bounded operations are:

(B1) *Shape preserving property.* The b-sum and the b-product of two trapezoidal fuzzy numbers are trapezoidal fuzzy numbers. Moreover b-sum and the b-product of simple fuzzy numbers are simple fuzzy numbers.

(B2) *Semigroup property.* The b-addition and b-multiplication are associative, commutative, and having neuter elements 0 and 1, respectively.

(B3) *Distributivity property.* The b-addition is subdistributive with respect to the b-addition. That is, for every fuzzy numbers u, v, w , we have $(u +_b v) \cdot_b w \subseteq u \cdot_b w +_b v \cdot_b w$. The distributivity holds iff $C(u) C(v) \geq 0$ or $C(w)$ is a real number.

(B4) *Distributivity in the set of triangular fuzzy number.* The set Δ of triangular fuzzy number is closed with respect to the b-addition and the b-multiplication. Moreover, in Δ , the b-addition is distributive with respect to the b-addition.

(B5) *Spread limited.* Let $\{u_i\}_{i \in I}$ is a family of fuzzy numbers and m is a positive real number such that $\max\{L(u_i), R(u_i)\} \leq m, \forall i \in I$. If the fuzzy number u is a finite or countable b-sum or b-product of elements of $\{u_i\}_{i \in I}$, then $\max\{L(u), R(u)\} \leq m$.

(B6) *Compatibility with orders.* The b-addition is compatible with the orders \lesssim_M, \lesssim_T , and \lesssim_C , and the b-multiplication is compatible with \lesssim_C . Let u, v , and w be fuzzy numbers. For every $J \in \{M, T, C\}$, we have:

(BCA) $u \lesssim_J v \Rightarrow u +_b w \lesssim_J v +_b w$ (*compatibility of \lesssim_J w. r. to the b-addition*);

(BCM) $0 \lesssim_C u, 0 \lesssim_C v \Rightarrow 0 \lesssim_C u \cdot_b v$ (*compatibility of \lesssim_C w. r. to the b-multiplication*).

The properties of the b-addition and b-multiplication are useful for their utilization in modelling many social systems whenever we recognize that the indeterminateness should not be too increasing by aggregating fuzzy numbers.

Remark 5.7 A critical analysis of previous operations individuate the following drawbacks:

- The spreads of the b-product $u \cdot_b v$ don't consider the size and the sign of the fuzzy numbers u and v .
- Every spread of the cross multiplication $u \bullet v$ is a sum of two product of a size by a spread. Especially with repeated cross multiplications, we can have spreads very high.
- The b-product and the cross product of two positive fuzzy numbers is c-positive but not necessary positive.

Then we proposed in (Maturò, 2009a, 2009b), the following new alternative multiplication, that we called *cross maximum multiplication*. It can be a palatable compromise between the b-multiplication and the cross multiplication.

Definition 5.8 (Cross maximum multiplication). Let u and v be two c-positive fuzzy numbers. Let us define the "cross maximum" product $u \bullet_m v$ as the fuzzy number defined by formulae:

$$C(u \bullet_m v) = C(u) \cdot C(v); \quad (5.14)$$

$$\forall r \in [0, 1), L^r(u \bullet_m v) = \max\{u_\lambda^{-1} L^r(v), v_\lambda^{-1} L^r(u)\}; \quad (5.15)$$

$$\forall r \in [0, 1), R^r(u \bullet_m v) = \max\{u_\rho^{-1} R^r(v), v_\rho^{-1} R^r(u)\}. \quad (5.16)$$

The cross maximum multiplication permits to outweigh the disadvantages (D2) and (D4). As the cross multiplication, also the cross maximum multiplication can be extended to the set Φ^* of all the fuzzy numbers that have not 0 as interior point of the core by utilizing the “signs rules”.

The cross maximum multiplication is preserving the trapezoidal or triangular shape. In fact, (5.14), (5.15), and (5.16) imply the following:

Proposition 5.9 (Preserving shape theorem) The cross maximum product of two trapezoidal fuzzy numbers is a trapezoidal fuzzy number. Moreover the cross maximum product of two simple fuzzy numbers is a simple fuzzy number.

If u and v are positive trapezoidal fuzzy numbers, then, for every $r \in [0, 1)$, $u_\lambda^{-1} \geq L^r(u)$, and $v_\lambda^{-1} \geq L^r(v)$, and so, by (4.10), $L^r(u \bullet_m v) \leq L^r(u \cdot v)$.

Then, by proposition 4.4 it follows.

Proposition 5.10 (Compatibility with orders) Let u and v fuzzy numbers. Then, for every $J \in \{M, T, C\}$, we have the following property of *compatibility of* \lesssim_J w. r. to the cross maximum multiplication:

$$(CMM) 0 \lesssim_J u, 0 \lesssim_J v \Rightarrow 0 \lesssim_J u \bullet_m v.$$

6 Alternative operations based on t-norms and t-conorms

We propose two possible procedures for alternative operations based on t-norms and t-conorms. The first is to use a suitable t-norm instead of the operation of the minimum in the formula of the extension principle; the second is to calculate the spreads of a sum or a product of two fuzzy numbers using a t-conorm.

First procedure. Let \otimes be a t-norm, i.e. an operation in $[0, 1]$ associative, commutative, increasing with respect to every variable, and having 1 as neutral element. Particular cases are (Klir, Yuan, 1995:63):

- (1) *Standard intersection* \otimes_s : $x \otimes_s y = \min\{x, y\}$;
- (2) *Algebraic product* \otimes_a : $x \otimes_a y = x \cdot y$;
- (3) *Bounded difference* \otimes_b : $x \otimes_b y = \max\{0, x + y - 1\}$;
- (4) *Drastic intersection* \otimes_d : $x \otimes_d y = \min\{x, y\}$ if at least one between x, y is 1, and $x \otimes_d y = 0$ otherwise.

We have the following proposition:

Proposition 6.1 For every t-norm \otimes and for every $x, y \in [0, 1]$,

$$x \otimes_d y \leq x \otimes y \leq x \otimes_s y; \quad x \otimes_b y \leq x \otimes_a y. \quad (6.1)$$

Then, if in formula (4.1) of the extension principle operation, we replace $\min\{u(x), v(u)\}$ with $x \otimes y$, where \otimes is a t-norm different from the standard intersection, we can reduce the spreads.

Second procedure. Let \oplus be a t-conorm, i.e. an operation in $[0, 1]$ associative, commutative, increasing with respect to every variable, and having 0 as neutral element (Sugeno, 1974; Weber, 1984; Klir, Yuan, 1995; Squillante, Ventre, 1998).

Particular cases are:

(1) *Standard union* \oplus_s : $x \oplus_s y = \max\{x, y\}$;

(2) *Algebraic sum* \oplus_a : $x \oplus_a y = x + y - x \cdot y$;

(3) *Bounded sum* \oplus_b : $x \oplus_b y = \min\{1, x + y\}$;

(4) *Drastic union* \oplus_d : $x \oplus_d y = \max\{x, y\}$ if at least one between x, y is 0, and $x \oplus_d y = 1$ otherwise.

Proposition 6.2 For every t-conorm \oplus and for every $x, y \in [0,1]$,

$$x \oplus_s y \leq x \oplus y \leq x \oplus_d y; \quad x \oplus_a y \leq x \oplus_b y \quad (6.2)$$

We assume there exist two positive real numbers L_{\max} and R_{\max} that are the maximum left and right indeterminateness, respectively. Let S be the set of fuzzy numbers such that, for every $u \in S$, $L(u) \leq L_{\max}$, and $R(u) \leq R_{\max}$. Moreover let \oplus be a t-conorm. Then we introduce an addition $+_{\oplus}$ and a multiplication \cdot_{\oplus} on S , called \oplus -addition and \oplus -multiplication, respectively, in such a way the left and right indeterminateness of the sum $u +_{\oplus} v$ and the product $u \cdot_{\oplus} v$ are not greater than L_{\max} and R_{\max} respectively.

Definition 6.3 (Operations based on a t-conorm \oplus). We define the \oplus -addition on S by formulae:

$$C(u +_{\oplus} v) = C(u) + C(v); \quad (6.3)$$

$$\forall r \in [0, 1), L^r(u +_{\oplus} v) = [(L^r(u) / L_{\max}) \oplus (L^r(v) / L_{\max})] L_{\max}; \quad (6.4)$$

$$\forall r \in [0, 1), R^r(u +_{\oplus} v) = [(R^r(u) / R_{\max}) \oplus (R^r(v) / R_{\max})] R_{\max}. \quad (6.5)$$

Analogous formulae are introduced for multiplication:

$$C(u \cdot_{\oplus} v) = C(u) \cdot C(v); \quad (6.6)$$

$$\forall r \in [0, 1), L^r(u \cdot_{\oplus} v) = [(L^r(u) / L_{\max}) \oplus (L^r(v) / L_{\max})] L_{\max}; \quad (6.7)$$

$$\forall r \in [0, 1), R^r(u \cdot_{\oplus} v) = [(R^r(u) / R_{\max}) \oplus (R^r(v) / R_{\max})] R_{\max}. \quad (6.8)$$

By previous formulae it follows:

Proposition 6.4 (Semigroup properties). The \oplus -addition and \oplus -multiplication are associative, commutative, having neuter elements 0 and 1, respectively.

Remark 6.5. If \oplus is the *standard union* then the \oplus -addition and the \oplus -multiplication reduce to the bounded operations. Moreover, if \oplus is the *bounded sum*, i.e. $a \oplus b = \min\{1, a + b\}$, and the left and right spreads of the fuzzy numbers considered are very smaller than L_{\max} and R_{\max} , respectively, then the \oplus -addition and the \oplus -multiplication reduce to the Zadeh operations.

Proposition 6.6 (Compatibility property). Let \oplus be a t-conorm such that, for every $h, a, b \in [0, 1]$ with $h + a \leq 1$, we have $(h + a) \oplus b \leq h + (a \oplus b)$. Then, for every $J \in \{M, T, C\}$, and for every fuzzy numbers u, v , and w belonging to S , we have:

$$(CCA) \quad u \lesssim_J v \Rightarrow u +_{\oplus} w \lesssim_J v +_{\oplus} w \quad (\text{compatibility of } \lesssim_J \text{ w. r. to the } \oplus\text{-addition});$$

Remark 6.7. The condition $\forall h, a, b \in [0, 1]: (h + a \leq 1) \Rightarrow (h + a) \oplus b \leq h + (a \oplus b)$ is satisfied if $a \oplus b = \min\{1, a + b\}$ (*bounded sum*) or $a \oplus b = \max\{a, b\}$ (*standard union*).

Then, if \oplus is the *bounded sum* or the *standard union* then the compatibility property (CCA) holds.

7. Some applications to Social and Economic Sciences

The most recent trends of research on Social and Economic Sciences is based on the idea that individuals make social choices with personal interpretations of their social roles (Boudon, 1967; 1969). Then the capability of every individual to interpret a social role and the valuation of the global effect of the actions of a group of persons is a very fundamental problem. In particular there is the problem that “perverse effects” can happen as a sum of rational, but not coordinate, behaviours of the individuals belonging to the group. The mathematical tools to evaluate the interaction of decisions of many individuals are decision theory and game theory (Boudon, 1967; 1969; Lindley, 1971; Mark 1994; Maturo, Tofan, Ventre, 2004; Mares, 2001).

The uncertainty on the occurrence of the events that constitute the states of nature is controlled by the subjective probability (de Finetti, 1970; Dubins, 1975; Lindley, 1971) and the uncertainty semantics from the theory of fuzzy sets, in particular by fuzzy numbers (Zadeh, 1965; Goguen, 1974; Bellman, Giertz, 1973; Bouchon-Meunier, 1993; Maturo, Ventre, 2008).

A model of social appropriateness.

We consider the problem to evaluate the appropriateness of the individuals belonging to a set U to make a certain social action or to have a particular social role.

We assume that such appropriateness is defined by:

- a set $\mathbf{X} = \{X_1, X_2, \dots, X_n\}$ of characteristics;
- a set of weights $\lambda = \{\lambda_1, \lambda_2, \dots, \lambda_n\}$, where λ_j measures the importance of X_j for the social action or the social role considered,

with the following normalization conditions:

(C1) every λ_j is a trapezoidal fuzzy number (in particular a triangular one) with support $S(\lambda_j)$ contained in the interval $[0, 1]$;

(C2) the sum of the cores of the fuzzy numbers λ_j contains 1, i.e.

$$C(\lambda_1) + C(\lambda_2) + \dots + C(\lambda_n) \supseteq 1. \quad (7.1)$$

In particular, if the λ_j are triangular fuzzy numbers then the conditions (C1) and (C2) reduces to:

(C1T) every λ_j is a triangular fuzzy number with support $S(\lambda_j) \subseteq [0, 1]$;

(C2T) the sum of the cores of the fuzzy numbers λ_j is equal to 1, that is

$$C(\lambda_1) + C(\lambda_2) + \dots + C(\lambda_n) = 1. \quad (7.2)$$

We can assume two different points of view:

- (1) **the objective evaluation:** an *expert* or a *committee of experts* associates to every pair $(x \in U, X_j \in \mathbf{X})$ a trapezoidal fuzzy number $\alpha_j(x) \subseteq [0, 1]$ that measures the degree in which x *satisfies* the characteristic X_j ;
- (2) **the subjective evaluation:** each individual x associates to every characteristic X_j a trapezoidal fuzzy number $\alpha_j(x) \subseteq [0, 1]$ that measures the degree in which x *believes* himself satisfies the characteristic X_j .

The individual evaluation. The *objective evaluation* is necessary if a committee has the task to select individuals to do a job, the *subjective evaluation* can be important for a decision of a purchase, assuming a model in which the X_j are the functional characters of an object that x can buy and $\alpha_j(x)$ is the degree in which the individual x believes to need of X_j .

In order to evaluate the objective suitability or the subjective sense of appropriateness of the elements of U , we have to obtain, for every individual x , a global score $\gamma(x)$. At this aim a “multiplication” \otimes and an “addition” \oplus on the interval $[0, 1]$ must be introduced such that:

- the product $\beta_j(x) = \lambda_j \otimes \alpha_j(x)$ is the *weighed measure* of the degree in which x satisfies to the characteristic X_j ;
- the sum $\gamma(x) = \beta_1(x) \oplus \beta_2(x) \oplus \dots \oplus \beta_n(x)$ is the *global score* of the individual x .

The multiplication \otimes cannot be the Zadeh’s extension principle one, because, in general, the Zadeh product of trapezoidal fuzzy numbers is not a trapezoidal fuzzy number. We have to assume a variant of the Zadeh multiplication that preserves the trapezoidal shape and such that every product $\beta_j(x) = \lambda_j \otimes \alpha_j(x)$ is contained in $[0, 1]$. For instance, we can assume \otimes be the approximate, or the cross, or the cross maximum multiplication, considered in previous Sec. 5.

The addition can be the usual Zadeh addition, but, if we have to consider many characteristics X_j , it is preferable to have a global score with moderate spreads and then we have to consider an alternative addition, e. g. the b-addition or an addition based on a t-conorm \oplus .

Team evaluation. We can wish to give a global evaluation of a subset S of U , e. g. a subset that individuates a team for a job, in which every individual has a definite responsibility.

Let $S = \{x_1, x_2, \dots, x_m\}$ and let μ_i be a positive trapezoidal fuzzy number that defines the amount of the tasks of x_i . The team S can be evaluate with the formula

$$v(S) = \mu_1 \otimes \gamma(x_1) \oplus \mu_2 \otimes \gamma(x_2) + \dots + \mu_m \otimes \gamma(x_m), \quad (7.3)$$

where \otimes and \oplus are suitable alternative multiplication and addition, respectively.

8. Operations defined up to equivalence relations

Let S be a set of fuzzy numbers, and let \sim be an equivalence relation \sim on S . For every $u \in S$, let $[u]$ denote the equivalence class of u .

Let $+$ be an operation defined on S . The relation \sim is compatible with the operation $+$ if, for every $u, u', v, v' \in S$, the following implication holds:

$$([u] = [u'], [v] = [v']) \Rightarrow [u + v] = [u' + v']. \quad (8.1)$$

Let $*$ be a scalar multiplication on S , that is a function $*$: $\mathbb{R} \times S \rightarrow S$. The relation \sim is compatible with $*$ if, for every $\lambda \in \mathbb{R}$, $u, u' \in S$,

$$([u] = [u']) \Rightarrow ([\lambda * u] = [\lambda * u']). \quad (8.2)$$

If \sim is compatible with $+$ and $*$, we can consider the induced operations $+$ and $*$ on S/\sim , defined as:

$$\begin{aligned} \forall [u], [v] \in S/\sim, [u] + [v] &= [u + v]; \\ \forall \lambda \in \mathbb{R}, [u] \in S/\sim, \lambda * [u] &= [\lambda * u]. \end{aligned}$$

Spread compensation. A particular important case is the equivalence \sim_{sc} in the set Φ of all the fuzzy numbers, defined as:

$$u \sim_{sc} v \text{ iff } (C(u) = C(v) \text{ and } \forall r \in [0, 1), L^r(u) - R^r(u) = L^r(v) - R^r(v)). \quad (8.3)$$

We call this relation *spread compensation*. Some properties are the following.

Proposition 8.1 (Compatibility with the Zadeh's operations). The spread compensation \sim_{sc} is compatible with the Zadeh's addition and the scalar multiplication of a fuzzy number by a real number.

Proposition 8.2 (Case of trapezoidal fuzzy numbers). The relation \sim is the restriction of \sim_{sc} to the set \mathbf{T} of trapezoidal fuzzy numbers if and only if, for every $u, v \in \mathbf{T}$,

$$u \sim v \text{ iff } (C(u) = C(v) \text{ and } L^0(u) - R^0(u) = L^0(v) - R^0(v)). \quad (8.4)$$

Proposition 8.3 (Minimum property). If $u \in \Phi$ is such that $f(r) = L^r(u) - R^r(u)$ is a function decreasing of r , then the fuzzy number u^* defined as:

$$C(u^*) = C(u), L^r(u^*) = L^r(u) - R^r(u), R^r(u^*) = 0$$

is the minimum of $[u]$ with respect the inclusion \subseteq , i.e. $u^* \subseteq v$, for every $v \in [u]$.

If $u \in \Phi$ is such that $f(r) = L^r(u) - R^r(u)$ is a function increasing of r , then the fuzzy number u^* defined as:

$$C(u^*) = C(u), L^r(u^*) = 0, R^r(u^*) = R^r(u) - L^r(u)$$

is the minimum of $[u]$ with respect the inclusion \subseteq .

From previous propositions, it follows:

Proposition 8.4 (Case of trapezoidal fuzzy numbers). If u is a trapezoidal fuzzy number, then there exists a trapezoidal fuzzy number $u^* \in [u]$ such that $u^* \subseteq v$, for every $v \in [u]$.

Proposition 8.5 (Main algebraic properties). If Δ is the set of triangular fuzzy numbers then the quotient set Δ/\sim_{sc} , with the addition $+$ induced by the Zadeh's addition, is a *group*. If $*$ is the operation induced by the scalar

multiplication of a trapezoidal fuzzy number by a real number, then $(\Delta/\sim_{sc}, +, *)$ is a *vector space*.

Critical remarks 8.8 For every equivalence relation \sim , all the fuzzy numbers belonging to an equivalence class represent the same concept by a suitable point of view. It can happen that, for every equivalence class $[u]$, we have a particular meaningful fuzzy number u^* belonging to the class, called *the normal form* of $[u]$, obtained, e.g. by a minimization condition. For instance, if \sim is the spread compensation, and S is the set of trapezoidal fuzzy numbers, then the normal form of $[u]$ is the minimal element of $[u]$.

The consideration of the previous *up to equivalence operations* in the set of triangular fuzzy numbers, together with the *approximate multiplication*, attains the aims to avoid the disadvantages (D2) and (D3) and to get good algebraic structures in the set of triangular of fuzzy numbers.

The necessity to obtain a vector space in order to extend to triangular fuzzy random numbers the probabilistic concept of coherence is emphasised in (Maturò, 2004; Maturò, Ventre, 2008). A fuzzy extension of the subjective probability is considered in (Maturò, 2000, 2006).

9. Hyperstructures of fuzzy numbers and conclusions

A totally different and unifying point of view is to replacing the Zadeh or the alternative operations with particular hyperoperations. For the concept of hyperoperations, see, e.g., (Corsini, 1993; Maturò, 2001; Corsini, Leoreanu, 2003).

By utilizing the concept of hyperoperation we can unify the Zadeh's addition and all the introduced alternative additions. Each of these additions can be considered as a restriction of a particular hyperaddition \bullet . Moreover Φ , T , and some other subsets of Φ , are commutative hypergroups with respect to \bullet .

In particular this permits to have many interesting applications for the fuzzy extensions of the concept of probability (Maturò, 2000; 2001).

Two hyperoperations in the set Δ of triangular fuzzy numbers, and associated to the set of possible addition, are the following:

(H1) **hyperoperation σ** . If u and v are two triangular fuzzy numbers, then $u \sigma v$ is the set of all the triangular fuzzy numbers w such that $C(w) = C(u) + C(v)$ and:

$$L(w) \in [\max\{L(u), L(v)\}, L(u) + L(v)]; R(w) \in [\max\{R(u), R(v)\}, R(u) + R(v)]. \quad (9.1)$$

(H2) **hyperoperation δ** . If u and v are two triangular fuzzy numbers, then $u \delta v$ is the set of all the triangular fuzzy numbers w such that $C(w) = C(u) + C(v)$ and:

$$L(w) \in [\min\{L(u), L(v)\}, L(u) + L(v)]; R(w) \in [\min\{R(u), R(v)\}, R(u) + R(v)]. \quad (9.2)$$

Remark 9.1. The set $u \sigma v$ contains all the results of the Zadeh or alternative operation with spreads non superior to the Zadeh ones. But, for every $u, v \in \Delta$,

there exists $x \in \Delta$ such that $v \in u \sigma x$ if and only if $L(u) \leq L(v)$ and $R(u) \leq R(v)$. Then (Δ, σ) is not a quasihypergroup.

Remark 9.2. For every $u, v \in \Delta$, there exists $x \in \Delta$ such that $v \in u \delta x$. It is sufficient to assume $x = [C(x), L(x), R(x)]$, with $C(x) = C(v) - C(u)$, $L(x) \in [\min\{L(u), L(v)\}, L(v)]$, $R(x) \in [\min\{R(u), R(v)\}, R(v)]$.

Then we have the following theorem.

Theorem 9.3 (Δ, σ) and (Δ, δ) are two commutative semihypergroups, with (Δ, δ) an extension of (Δ, σ) . Moreover

- (Δ, δ) is a hypergroup;
- (Δ, σ) is not a hypergroup.

Conclusions. We believe that the point of view based on hyperoperations can be the starting point for fruitful research. Indeed, it takes account of a dual type of uncertainty, the one on the numeric data, considering fuzzy numbers, and the other on the uncertainty of the result of an operation between fuzzy numbers, taken into account by hyperoperations.

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SOCIAL RESEARCH AND FUZZY LOGIC. THE ANALYSIS OF INDUSTRIAL DISTRICT

***Abstract:** The aim of this work is to analyze the social and economic development in Italy and the role of industrial districts. This work describes the Italian model of industrial districts and the method to locate the presence of an industrial district in the region. The presence of small and medium-sized firms in the area often give rise to complex organizations based on cooperation and competition between them. In this work, Fuzzy logic is used as a methodological instrument to offer a view over Italian industrial districts.*

Given that Fuzzy logic recognizes more than simple true and false values, propositions can be represented with degrees of truth and falsehood. Fuzzy logic can be considered as an equivalent of the fuzzy set theory: we can define social phenomena in terms of degrees of belonging to a homogeneous set of phenomena.

This paper presents a method to identify clusters according to a Fuzzy logic; the perspective is sociological. Furthermore, In this paper, a method of study is proposed in practical terms with the sociological aspects of interpretation.

Key words: Fuzzy logic, economic development, industrial districts.

1. Fuzzy logic and social research. Introductory aspects

Social research can be both quantitative and qualitative. In the first case, the phenomena are described on the basis of the correlation between variables and the construction of interpretative models able to explain and predict behaviour and social change. In the second case, the study is focused on the description of the interaction and social relations between individuals and social groups.

Quantitative methods assume that social phenomena can be measured; this assertion requires as a condition that social facts and individuals themselves can be described in their qualitative variables through quantitatively measurable criteria, which can translate the variables into indicators and indices. Through this step methodological social phenomena are measured and quantified.

In social research, most surveys are made with quantitative methods based on statistical techniques: they produce data directly, whether the survey studies different territorial units or different moments in the same area.

As part of sociological research, the description of social phenomena is realized through indicators, because the logic followed in empirical studies presupposes an exact measurement of social phenomena through indicators. As a consequence,

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quantitative methods of social research require precision in measurements and classifications of social phenomena. The logic followed combines precision and specificity.

The methods employed allow to represent effectively a condition of social phenomena in which the inaccuracy is an intrinsic characteristic of the data. It is possible, in fact, to assign to each observation units different degrees of belonging to a group.

«While it might appear to most social scientists that a fuzzy set is merely the transformation of a binary variable into a continuous variable, this understanding is not correct. Indeed, this common misperception of fuzzy sets may explain why social scientists have been so slow to grasp their analytic power of significance. A fuzzy set is much more than a “continuous” variable because it is much more heavily infused with theoretical and substantive knowledge. Despite the adjective “fuzzy”, compared with the conventional variable, a fuzzy set is more empirically grounded and more precise» (Ragin 2000: 6).

The fuzzy methods permit effective dealing with the situation of the study of social phenomena in which the imprecision is often present in the data, because they imply the possibility of assigning to each unit a different level of participation within a group. «Fuzzy analysis is based on set theorem of pure mathematics. For social research, usually we use basic statistical tools, scales, indices both for cross-sectional and longitudinal study. The basic difference between crisp set and fuzzy set might generate a new thinking for using fuzzy tools for sociological analysis» (Uddin 2012: 8).

Gradual transition from the traditional view to such an alternative view has clear advantages for the sociological analysis of some social phenomena: «Among the various paradigmatic changes in sciences and mathematics in this century, one such change concerns the concept of *uncertainty*. In science, this change has been manifested by a gradual transition from the traditional view, which insists that uncertainty is undesirable in science and should be avoided by all possible means, to an alternative view, which is tolerant of uncertainty and insists that science cannot avoid it” (Uddin 2012: 9).

Uncertainty is considered to be essential to science: «According to the traditional view, science should strive for certainty in all its manifestations (precision, specificity, sharpness, consistence etc.); hence uncertainty (impression, nonspecificity, vagueness, inconsistency, etc.) is regarded as unscientific. According to the alternative (or current) view, uncertainty is considered essential to science; it is only an unavoidable vague, but it has, in fact, a great utility» (Uddin 2012: 9).

Fuzzy logic recognizes more than simple true and false values in as much as propositions can be represented with degrees of truth and falsehood. We can define social phenomena in terms of degrees of belonging to a homogeneous set of phenomena.

In symbolic logic we are dealing with statements which can assume exclusively one out of two truth values: true or false. It is important to consider that this kind of formal-logical tools are essential, in sociological studies, for the elaboration of a theory and the construction of models. The ability to operate with sociological structure and the operative knowledge of the concepts of symbolic logic are both essential to the research. (Garzia, Ravelli 185: 77).

«A conventional (or “crisp”) set is dichotomous: An objet (e.g., a survey respondent) is either “in” or “out” of set, for example, the set of Protestants. Thus, a conventional set is comparable to a binary variable with two values, 1 (“in”, i.e., Protestant) and 0 (“out”, i.e., non-Protestant). A Fuzzy set, by contrast, permits membership in interval between 0 and 1 while retaining the two qualitative states of full membership and full nonmembership. Thus, the fuzzy set of Protestants could include individuals who are “fully in” the set (membership = .90), some who are neither “more in” nor “more out” of the set (membership = .5, also known as “crossover point”), some who are “barely more out than in “ the set (membership = .45), and so on down to those who are “fully out” of the set (membership = 0)» (Ragin, 2000: 6).

This aspect of the method can be applied also to the analysis of social phenomena. An example can be given by the industrial development based on industrial districts. The fuzzy logic is definitely helpful when it is necessary to proceed to the analysis of a social reality in several variables: a complex and fluid situation (Massaro, 2005: 73). Our case study lends itself well to this type of analysis.

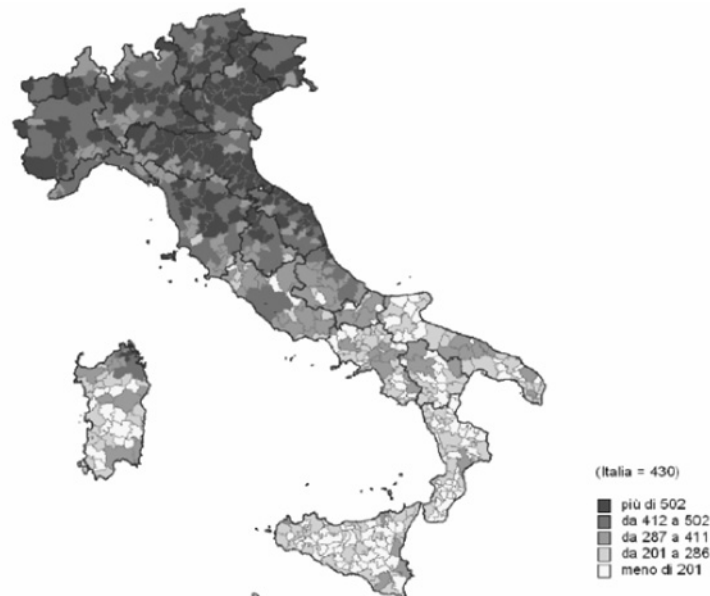
2. Industrial districts in Italy

In this study I offer an analysis of industrial districts using a model aimed at the identification of their presence in an area. I use the data given by Istat (Italian National Institute for Statistics). The study of industrial districts regards the analysis of the socioeconomic development of the area from the point of view of the presence and growth of small and medium-sized firms.

The concept of an industrial district is owed to Alfred Marshall: “When one talks of an industrial district one refers to a socioeconomic entity composed of a conglomeration of businesses, actors generally part of a single sector of production, situated in a specified area, between which one finds collaboration but also competition” (Marshall 1919, 283).

The industrial districts are identified in the context of the local systems of work, of which they constitute a subsection. The current local systems of work were defined by the Istat based on the data collected during the general census of the population, with reference to the movement of the population from region to region due to work. To each local system of work Istat has applied the data relevant to the local units, to economic activities and the employees identified by the

general census of industry and services. This aspect of methodological structure opens the way for a study of the Italian socioeconomic structure from a local perspective (chart 1).



Source: Istat 2001. 8° *Censimento generale dell'industria e dei servizi. Distretti industriali e sistemi locali del lavoro 2001*. Roma: Istat.

Chart 1 – Employees of the individual units of the businesses active within the local system of work. Year 2004 (Figures per thousand residents of working age 15-64 yrs).

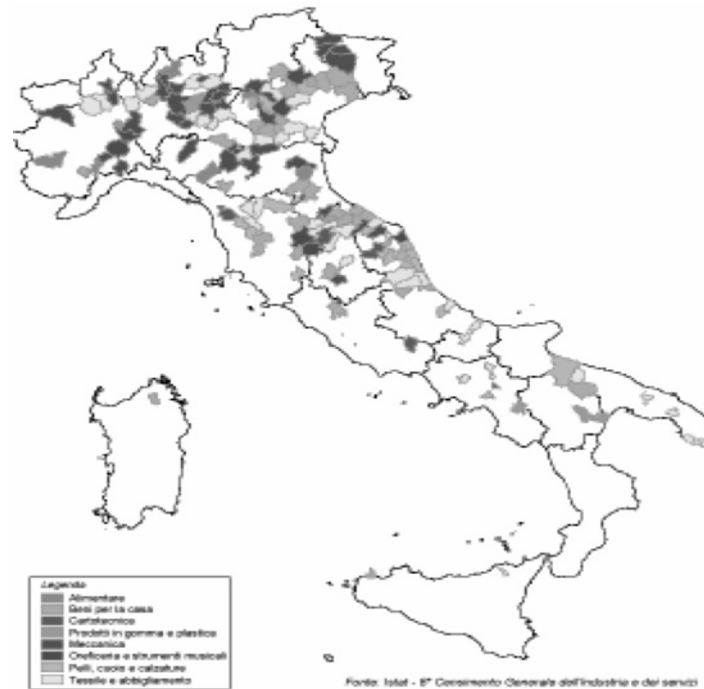
The social characteristics of the districts are given as being the “socio-geographical entities in which a community of people and a presence of industrial firms are reciprocally integrated. The firms of the district belong predominantly to a single industrial sector, which thus constitutes the primary industry. Each firm is specialized in products, parts of products, or phases of the production process typical of the region. The firms of the district are therefore characterized by being numerous and of modest dimensions” (Istat 2001, 9).

Such aspects confirm the sociological characterization of social and economic development of Italian society in the context of a clearly Fordist matrix, but with a strong presence of small and medium-sized firms rooted in society and with reference to local culture (Becattini, 1989).

The industrial districts have a primarily manufacturing tendency, and are characterized by the presence of a unit of small and medium-sized firms, which express their type of production.

The industrialization by industrial district is a model of social and economic development typical of the geographical area of North East and of Central Italy

(Fuà 1983, 22; Bagnasco A. 1977; Bagnasco 1985). It extends to other areas of the peninsula according to a model powered by systems of a great variety of production: from textiles and clothing to leather and shoe-making, from machinery to household goods, from paper-production to foodstuffs, from metalwork to musical instruments (Chart 2).



Source: Istat 2001. *8° Censimento generale dell'industria e dei servizi. Distretti industriali e sistemi locali del lavoro 2001*. Roma: Istat.

Chart 2 – Industrial districts of the 8th general census of industry and services 2001 by type of production.

The types of local industrial production are manifested in terms of primarily monocultural firms activity, engaged in specific sectors or products. The firms generate between themselves networks of interdependence, cooperative or competitive, which contribute to the economic growth of the district. These interdependences have been created but at the same time create other networks and other interdependences, which distinguish between economic activities, local cultures, local public and political institutions, creating network relations that encourage forms of exchange between the factors, public and private, institutional or informal, of material or immaterial goods, favourable to the social and economic growth of the community.

There are four main variables that permit the identification of an industrial district in a concentration of firms:

- a) the existence of a reality of production which has either economic or social relevance;
- b) the specialization of production for a predominant type of product;
- c) the concentration of firms in a determined geographical area;
- d) the existence of mutual relations of collaboration or competition between the firms that make up the district.

These variables are shown to be related, they are either socioeconomic or sociocultural, and they turn the industrial district into a reality of local development of firms and of economic and social growth of the area.

In Italy, industrial districts have represented over the years a strong point within the industrial system, and amongst other sequences, they continue to occupy roles involved in the economic growth of the country. The diffusion of small and medium-sized firms, from which the development for districts originates, has wide roots that are based on agricultural tradition of the various regions, the presence of the extended family understood as a community of production and work which determines a functional relationship between family and industrialization, and a long tradition of artisan craftsmanship.

In Italy there is great presence of industrial clusters with the following characteristics:

- Small and medium-sized firms;
- Reduced capital intensity;
- Low degree of vertical integration;
- Strong spatial density of local units.

In the analysis I propose to use the Brusco and Paba (1997) model which can be found in the following work: Presidenza del Consiglio Dei Ministri. Commissione per la garanzia dell'informazione statistica. *Le metodologie di misurazione dei distretti industriali. Rapporto di Ricerca* – 05.02 Febbraio 2005 pp. 33-35.

To identify industrial districts we need the following assumptions fulfilled:

- The territory is divided into “n” areas;
- “Zip” is the number of employees in the “p” (sector “p”) in “i” (area “i”);
- “Zp” the total number of employees in the same sector;
- “Zm” total manufacturing employment;
- “Z” the total employment in all economic sectors.

From algorithm Sforzi².

1[^] condition:

$$(Z_{im} / Z_i) / (Z_m / Z) > 1$$

It indicates that the first location “i” is specialized in manufacturing.

² In this work, I used the work present in Presidenza del Consiglio dei Ministri – Commissione per la garanzia dell'informazione statistica, *Le metodologie di misurazione dei distretti industriali. Rapporto di Ricerca* – 05.02 Febbraio 2005 p. 33-35. The responsibility of this adaptation is only mine.

- “Zim” – total employment in the manufacturing sector “i” (area “i”);
- “Zi” – total employment of all economic sectors in the “i” (area “i”);
- “Zm” – total manufacturing employment;
- “Z” – total employment of all sectors of the economy.

2[^] condition:

$$(Z_{im, small} / Z_{im}) / (Z_{m, small} / Z_m) > 1$$

The second condition requires that the share of small manufacturing enterprises in the area is higher than the national average.

- “Zim” – total employment in the manufacturing sector “i” (area “i”);
- “Zm” (total manufacturing employment).
- “Small” (indicating the use in small firms)

3[^] condition:

The third condition requires that in the area there is a sector of production “p” in which the area is specialized

- “Zip” – the number of employees in the “p” in the area “i”);
- “Zim” – is the total employment in the manufacturing sector “i” (area “i”);
- “Zp” – this is the total number of employees in the same sector;
- “Zm” – is the total manufacturing employment;

4[^] condition:

$$(Z_{ip, small} / Z_{ip}) / (Z_{p, small} / Z_p) > 1$$

The fourth condition requires that the share of small firms in this sector “i” is greater than the national average.

- “Zip” – the number of employees in the “p” in the sector “i” (area “i”);
- “Zp” (this is the total number of employees in the same sector);
- “Small” (indicating the use in small firms).

3. Conclusion

Only when there is in the “i” an industry that meets all four conditions, then “i” will be referred to as industrial district (based on the algorithm of Sforzi). If only one of the four indices is even slightly less than the unit (the situation often occurs for indexes 2³ and 4⁴) the zone “i” is not referred to as industrial district (Presidenza del Consiglio Dei Ministri, Commissione per la garanzia dell’informazione statistica 2005: 33-35).

Proposal of Brusco and Paba: If one of the four indices is slightly less than the unit, we can compensate with a better performance in one of the other indicators. According to a compensation process and collaboration among the various indices

³ The second condition requires that the share of small manufacturing enterprises in the area is higher than the national average.

⁴ The fourth condition requires that the share of small firms in this sector “i” is greater than the national average.

you can obtain a synthetic indicator and continuous district intensity area that replaces the dichotomous variable of efforts.

In this case, Fuzzy logic is an opportunity to obtain a different view of the social reality where the manifestation of social phenomenological reality is intrinsically characterized by the fuzzy effect.

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IOAN SURDU²
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SEMIOTIC FORAY INTO THE MOUNTAIN RURAL TOURISM

***Abstract:** Rural mountain tourism development occurs on the bases of skyrocketing complexity: tenderers increase competition, increase consumer requirement, intensify investment, increase professionalism, promotion is more aggressive and ingenious, etc.*

It becomes increasingly obvious that the cultural development equation of a mountainous areas occupy extensive and consistent elements waiting to be harnessed.

Studies related to the creation of concepts and measurement and interpretation of their relevance and impact must generate new solutions and new forms of approach that includes all stakeholders. If we consider communication support between them, we find that the scope of the problem of rapidly expanding fields including cultural, commercial, educational, mobility, health, etc.

Justification attribute “smart” associated to tourism area include necessarily its integration and framing into semiotic area. It is what we propose in this paper: to draw attention and to provoke a debate on rural mountain tourism semiotics for a more complete interpretation of verbal and nonverbal language used between stakeholders and decision makers.

The topic opens new horizons that turns into new opportunities and new approaches to strategic and tactical considerations which will be finalized in cash and noncash balances in particular and overall balances.

Key words: semiotics, rural tourism, mountain tourism, communication in tourism, culture.

JEL: M210.

1. Introduction

Ensuring emerging tourism attributes mobilizes us to explore new solutions that meet customer demands/exigencies. Cultural support for tourism is a very delicate issue because contradictions arise as a result of the intensification of competitive approaches. The profit-driven move urges entrepreneurs and business model makers to innovative associations that go out of traditional patterns. These changes lead to manifestations of resistance but also to the activation of more or less aggressive attitudes regarding the “demolition” of myths.

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There is a fierce discussion about the division of Pricewaterhouse Coopers (PwC), economic activities into 7 categories that better cover today's area of scientific, educational, environmental concerns (PricewaterhouseCoopers, 2011). Regional Biotechnology, (PwC) Luxembourg;

1. Creative industries;
2. Organic industries;
3. Experiences industries;
4. Maritime industries;
5. Mobile industries;
6. Mobility industries;
7. Personalized medicine;

Tourism falls in groups 3 and 6 for accommodation and food services and in groups 1 and 3 for entertainment, artistic creation and interpretation.

The main resistance is manifested by the coordinates of the transfer of science and culture from the cathedral type to the bazaar model (Eric S. Raymond, 1999).

It is clear that mountain rural tourism "is stuffed" of culture. Almost all elements of attraction are based on traditions, nostalgia, association with cultural services, generally on emotions. Under these circumstances, it would be expected that the mountain rural tourism would become thriving and take advantage of all the opportunities. This is not the case, and disappointments and frustrations are demanded by solid studies and interpretations that lead to viable solutions of social and economic recovery.

The topic addressed is a reorientation of the psycho-social and communication mechanisms, whereby the valorization of the tourism relates to the elements of reporting to the individual, group, community and the identification of the significance of the signals that bind the field of communication. There is a desire to interact with other communities either by welcoming guests to their home or community, or by visiting other homes and communities in learning, adopting and adapting lifestyles, defining comfort elements and status good.

All of this prepares the interference of semiotics with culture and the acquisition of benefits (both material and immaterial) on both sides in order to enrich and develop the working tools.

The association of semiotics with tourism takes place on the support of communication, the consistency of which is based on a complex process of attribution of meanings, so useful for combining emotions and predisposition to mental constructions generating well-being.

Tourism requires communication, knowledge, culture from which the body develops "bricks" for interior (psychological) and exterior (sociological) construction to delimit an environment of proximity in which to feel good and to have security secured.

2. Semiotic debate favoring the integration of tourism

Semiotics is an invasive science with imperialist ambitions that tends to capture the space of human activity and communication (Eco, Umberto, 1982). This trend is not new and is in line with previous manifestations of natural and then social sciences.

The development of the field began with Ferdinand de Saussure (1857-1913) (Ferdinand de Saussure, 1998) and Charles Sanders Peirce (1939-1914) (Charles Sanders Peirce, 1990). Subsequently, other authors who have developed the subject and areas of application have been added.

For tourism, in the interest of the subject, we mention a series of studies that have led to a diversity of approaches that, however, are far from exhausting the subject.

Thus, a series of works are based on categories of destinations and on the way of representation and characterization by inks, indices and symbols. Both static and dynamic aspects of the tourism phenomenon are taken into account (Jody W. Pennington & Robert C. Thomsen, 2010). In the cited paper, there is a review of some semiotic applications for a variety of applications: market research (Bitoun, 2006, Kessous & Elyette, 2008, Pinson, 1988, Valentine, 2002), advertising (Langrehr & 1995; Warlaumont, 1998), brand (Valentine, 2003), consumer behavior (Cherrier & Murray, 2004); Tourism research (Smith, 2005), etc.

Tourism takes place in a sign empire. Tourists consume signs and signifiers from the cultures they visit (Barthes, Roland, 1982). Those from urban agglomerations are looking for exotic, quiet places. Those who come in less crowded areas are looking for places with tumultuous life.

A semiotic tourism approach to postmodern society brings into discussion both techniques of approach (simulations, approaches to hyperreality) and highlighting the elements of authenticity and places tourism within consumer culture (Arthur Asa Berger, 2011). Investigational tools (Echtner, C., 1999) or iconographic (Sternberg, E., 1997) were used to research the tourism phenomenon.

Tourism does not have a favorable media support and has few defenders. Tourists are often accompanied by bad emotions and are considered deprived, docile, boring and ignorant. (Michal Kolcun, Sebastian Kot, Iwona Grabara, 2014).

In general, the destination is chosen based on pre-existing images available on the communication channels (media, internet, flyers, panels, sites, etc.). (Pearce, P., 1991). But this pre-experience is of intangible nature and can induce a false attitude due to deficiencies in the interpretation and understanding of tourism-related signs.

On the other hand, it is necessary to discern if the way of presentation of a tourist destination is to create an exaggerated image of the place in favor of the tourist, or if this is a reflection of the opinions of the previous tourists (MacCannell, D., 1999). This can cause confusion for both tourists and hosts. (Krippendorff, J., 1987).

Tourism has to highlight contrasts with everyday life (Boorstin, Daniel J. 1975).

Sensitivity to the impact of tourism on fragile host communities or tourist attractions is highlighted and the issue of tourism needs to be addressed so that its authenticity is not affected. The visitor of the post-modern society does not necessarily look authentic. Sometimes they prefer something ludic for pleasure or aesthetic joy (Wang, Ning, 2000).

Shopping made by tourists is not intended to make individual choices because it faces a lot of choices. A predominantly rational tourist is orientated by type of relationship with the cultural image of the society he is visiting. (Douglas, Mary, 1997). It seems that individual psychology of consumption and shopping is not decisive, but rather the intent to follow what differentiates it from other cultures.

The tourist interacts with the new places they visit on the basis of a negotiation. In fact, the behavior in everyday life is a permanent negotiation, but he created habit and entered the subconscious. That is why it is necessary to implement a set of negotiating repertoires for the places to be visited: re-review, re-learning, improvisation / Gottdiener, Mark. 1995).

A review of the tourism and semiotics tourism literature was highlighted, highlighting strengths, weaknesses, and loopholes in this area of research, and finally put forward a series of research questions worthy of attention In the future, for both scientists and practitioners. (Ribeiro, N.F., 2009).

It is necessary to develop a semiotic world to highlight not only the tourist attractions, but also the tourists. The structured approach to these complex semiotic processes can lead to spectacular results in the tourism industry. The correct use of signs and markers in the tourism industry may be the difference between a dream holiday and a tourist nightmare (Michal Kolcun, Sebastian Kot, Iwona Grabara, 2014).

Tourism is a practice of considerable cultural and economic importance. But it did not enjoy the theoreticians' attention to ground a performance-oriented practice.

There are a multitude of types of tourists, which produces segregation between distinct classes and creates a field for denigrating. (Jonathan Culler, 1989).

3. Elaboration of the concept

We have proposed a semiotic tourism approach to a few elements that seemed relevant to us. We have taken into account the three fundamental semiotic coordinates and have gone through a series of steps in compatibility with mountain rural tourism. Thus, on the basis of previous experiences and own exploits, a syntactic picture was built as complex and complete as possible. The diagram in Figure 1, which delineated a square location on the coordinates of "material / immaterial", the "public / private"

action, the diagonal “culture / history” with the inclusion of a favorable place and for “nature”.

Included are the most representative of the specific human activities (individual, group and community) able to “bring the news” and attract a wide range of witnesses / viewers / actors to confirm the value of mobility and consumption of cultural act. We see how entrepreneurship and governance are separated. This leads to the identification of the direct and indirect benefits that result in the end. But the most important element is found in the perpetuation of manifestations through which cultural continuity is desired and succeeded.

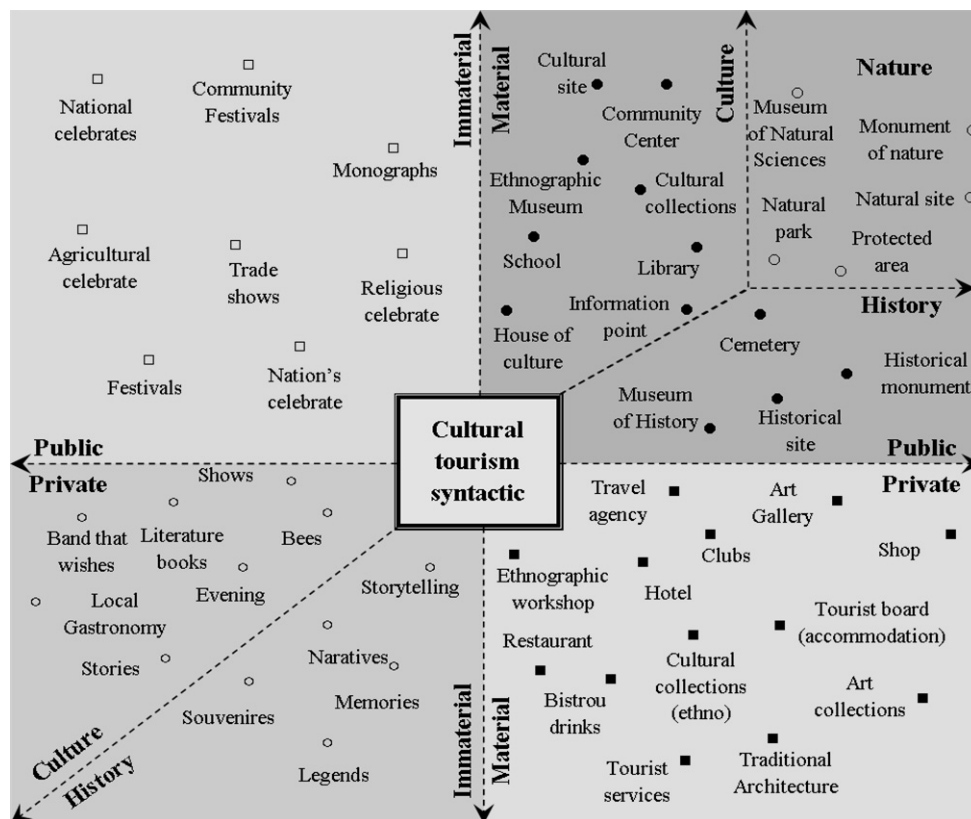


Fig. 1. The syntactic picture of the semiotics of mountain rural tourism (original, the authors).

All these manifestations transmit signals and claim to be received and distributed over a broad spectrum with a significant degree of subtlety. Thus, a complex semantic array is constructed because each of the elements in the syntactic array acquires several meanings. To these are added combined (branched) or

chained meanings. For simplicity, we have proposed to assign only one meaning to each syntactic element and to construct the simplified semantic pannel of Figure 2

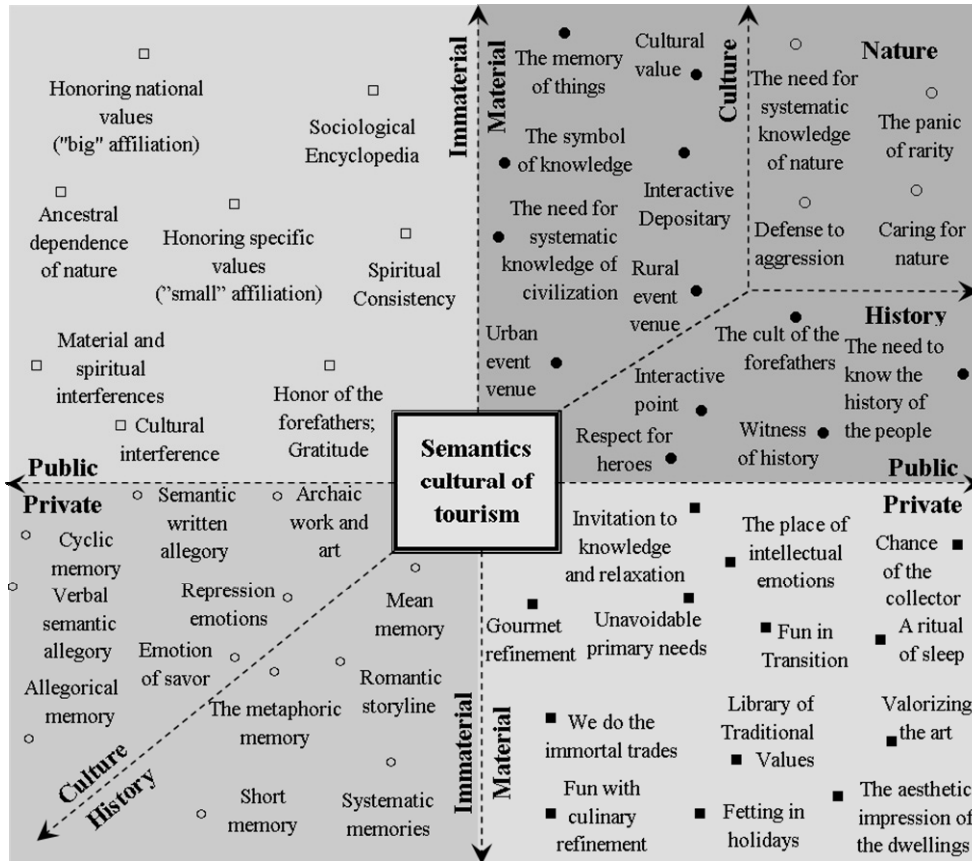


Fig. 2. The semantic map of semiotics of mountain rural tourism (original, the authors) (Read in correlation to Figure 1).

In this table, the relevance of added value generated by tourism becomes more concrete as it expresses messages that involve both hosts and guests. Investing policy is relevant to this picture. Add specific elements to attract tourists on specific human topics: curiosity, information and images promoted with high specificity targets, emotional and attractive messages, brands, logos, etc. All this will be remembered by the actors and the figures of the tourist painting. The mode of assigning messages in the shift from syntactic to semantics is in the semiotic processes themselves.

Based on the representations of Umberto Eco (Eco, Umberto, 1982), we constructed a kind of semiotic algorithm applicable to mountain rural tourism as a support for the transmission of cultural messages (Figure 3).

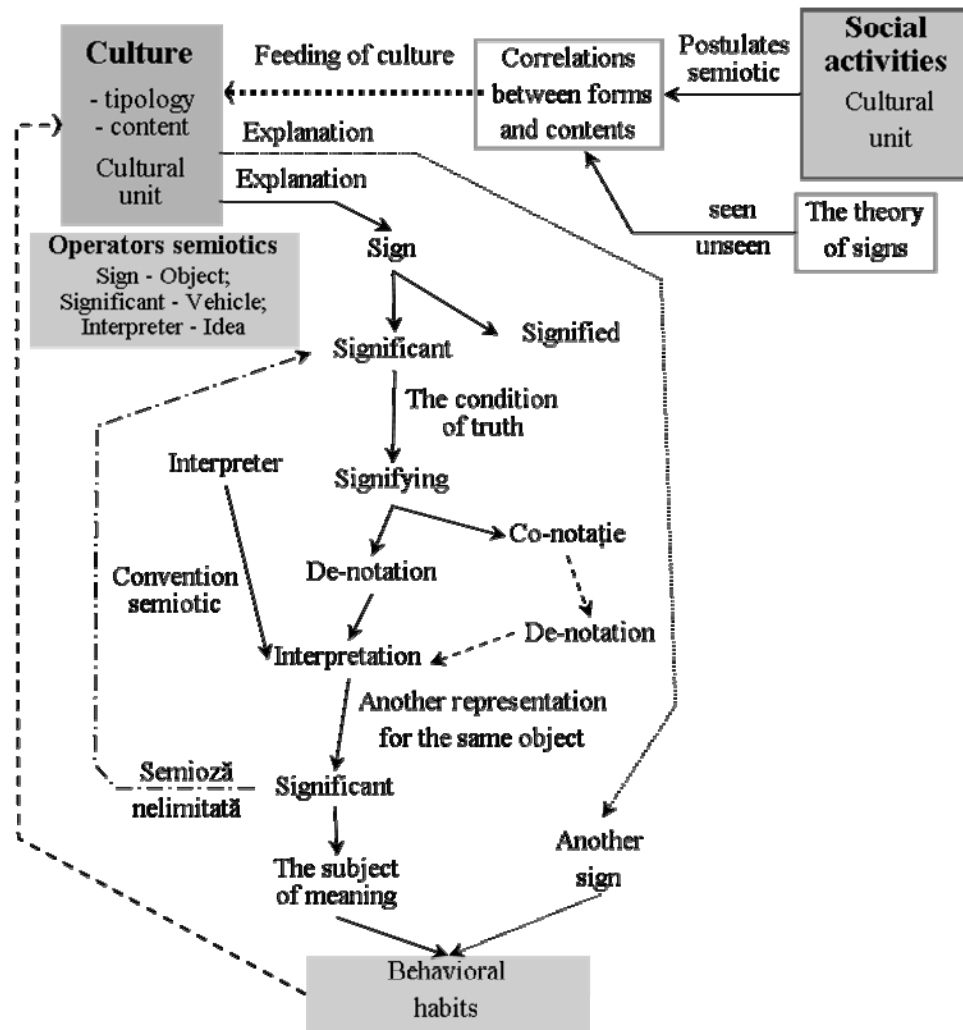


Fig. 3. Semiotic mechanisms of cultural semantics favorable to mountainous rural tourism (originals, the authors).

Culture is a depository of social experiences that have been refined by semiotic postulates or correlated with signs theory (seen and unseen). From these correlations between forms and content a complex of typologies emerges. Significant operators are of three ways: “the sign” is the object (it is the place for something), the meaning is the vehicle (the concept, the representation), and the “interpreter” is the generated idea (the mental, visual, auditory image). The process can go through several iterations resulting in semantic diversity. Its role is not to complicate our lives, but to express in various ways the impact of interactions. In fact, passing these iterations leads to behavioral habits, intellectual knowledge, experiences, etc.

The second correspondence in the semiotic process is the transition to pragmatics. For authors it was a challenge to signify the process. The bell model was used as a way of ordering the elements and their meaningful and interpretive role of resonance amplification for the enrichment of the values (Figure 4). At the top were the material elements with the role of anchoring in real life. Production for meeting needs (materials) is based on experience and know-how accumulation. At the lower end there is imaterial amplification involving intellectual effort and generating knowledge transfer for cultural, spiritual, intellectual benefit. The whole ensemble relates to the procedural mode of spatial-temporal integration of continuity by transmission from one generation to another of dowry and inheritance.

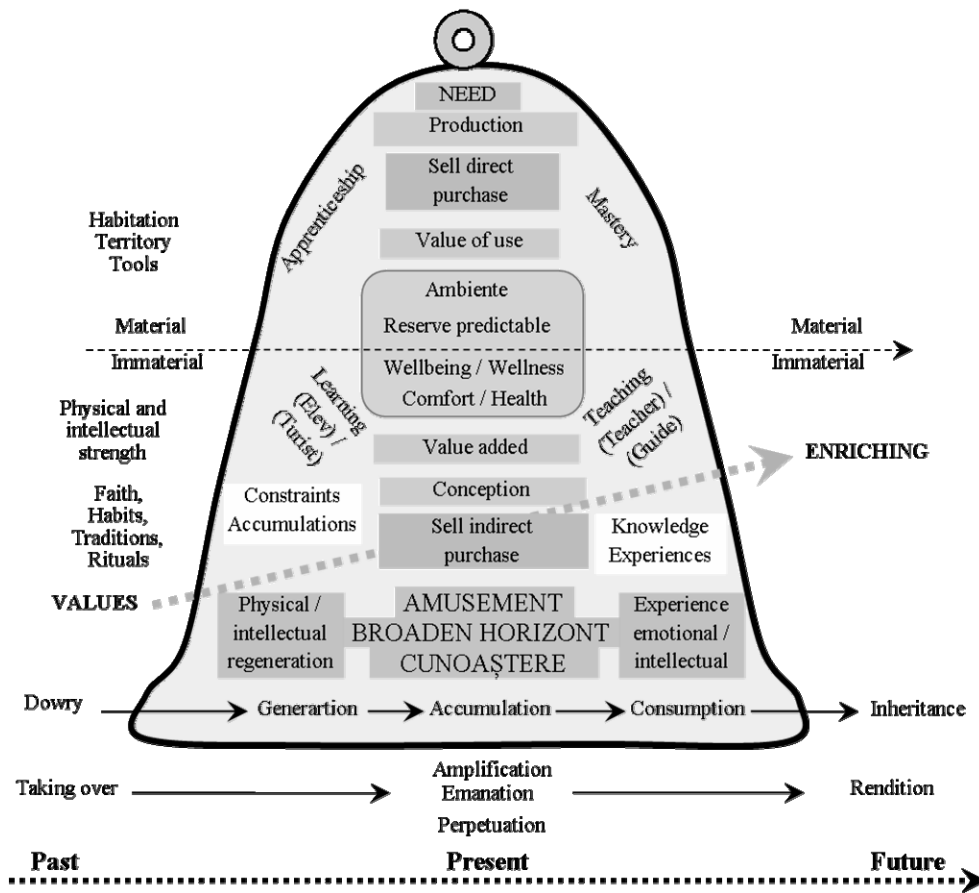


Fig. 4. The pragmatic bell in the context of semiotics of mountainous rural tourism (original, the authors).

In fact, from the complex and complete approach it follows that tourism acquires the significance of a tool / vehicle of cultural continuity in the post-modern

society. This sophisticated form of exchange (material / immaterial) is manifested by the presence of the two categories of actors (hosts and visitors) on social, economic flows on motivational and emotional support of fun / knowledge.

4. Valorisation of the concept

The development of conceptual elements of application of semiotics in tourism provides a flow of solutions capable of satisfying a wide range of exigencies of visitors and hosts. Indeed, many elements of tourism in general are subject to pressure from the flow of communication between the two categories and their semantic content. They are manifested in 3 plans:

- The host role implies an initiation and investment in hospitality science. There is a certain kind of pride of the hosts to get the best out of the guests. This is inferior to visits occasionally made in a household: family members who live far away, relatives, family members, weds, other occasions. The upper mark is given by hosting a consecrated hostel where the host role is supported by a graduate education. Among other things, there is a standard in facilities and investments that mobilizes the host to declare himself fit to receive guests.

Host status requires the use of a code of manners at reception, departure and during the stay. The host must have knowledge of the surroundings and have a “bag of stories” about the region they are in.

- The role of a visitor is also important because it involves an initiation in the consumption of the hospitality service. Prior information requires verification of the compatibility between the potential service offered and the attributes of its personality. This avoids many animosities that can arise in reciprocal messages.

And visitor status requires using a code of manners throughout the stay, appreciating the host and his efforts. It is important for the atmosphere of temporary coexistence and for the well-being that motivated tourism.

- The host – visitor relationship highlights the empire of signs (Barthes, Roland, 1982) and has the ultimate satisfaction of doing well for both sides. Of course, if the visit is repeated, it turns out that the visitor left his first visit. But it forces the host to add extra effort to that novelty element that will still surprise the visitor.

There is a threshold of sensitivity in the host’s status, related to the visitor’s appreciation of the effort made. On the other hand, even if the saying “our client-our master” is enshrined in no way does not force the limits of protecting the dignity of the host who is very emotionally exposed (the hosted host remains in its receiving space, while the rude visitor can Just walk away).

In the public space, the host status is professionalized (organizing cultural events, museums, fairs, festivals, etc.) (Figure 1). The visitor is also aware of more accessible prior documentation.

Forms of communication between the host and the visitor are reported in the pragmatic plan to the forms of consumption that generate satisfaction. Here we identify:

- Physiological consumption: gastro, sleep;
- Psychic consumption: experiences, emotions;
- Cultural (intellectual, spiritual) consumption: information, knowledge, “storytelling”;
- Physical consumption: trips, hiking, sports, laziness;

All of this turns into messages on a wide range of emotional reactions. This is why a discussion about mountain rural tourism in a semiotic context is important.

- What values exist: cultural, historical, community, group, individual;
- What form of presentation they have: materials (sites, objects, artifacts), immaterial (customs, customs, rituals, messages);
- How they are received by the client: curiosity, satisfaction, respect, participation, invitation to be emotionally lived and shared;
- How we build the “story”: it is the most complex message because it involves both the host (the user) and the visitor (naive, cult, documented, initiated ...);
- What we communicate: ancestral messages, symbols, old and / or recent events, parables that need to be deciphered;
- How we communicate: verbal, nonverbal, addressing to the senses, intellect, spirit, general culture;

Perhaps the most complex element in this semiotics on cultural background is empathy. The tourism act is a specific human concern (addressing Maslow’s (Maslow, web) Maslow’s top stepping stones.) The main concern in preparing for the work is the successful completion. The thoughts of the two actors focus on the following questions:

- a. The ratio between supply and demand at primary level:
 - Host: What do I provide / What do I think of what I offer / How do I adjust the offer (minimize costs, maximize benefits);
 - Guest: What do I expect / What do I think about host services / What realistic variants can accept (delight, pleasant surprises);
- b. The ratio between semiotic demand and demand:
 - Host: What kind of personality is the guest / How do I build the offer to surprise him / What would I expect if I were a client / What alternatives do I have to compensate for any shortcomings (anticipation of expectations, self-sufficiency); Will he return (was he pleased)?
 - Guest: What kind of man is the host / What do I think about the host’s efforts to please / How will I behave towards her to reward her effort (expectations, exigencies); I have to say that I am delighted, even if it was not perfect;

On the part of public actors, the most important semiotic elements come from organizing events (celebrations, celebrations, fairs, festivals, special days, fairs)

or setting up special areas: museums, sites, protected areas. The message is a universe of cultural, spiritual, economic values, represented and / or displayed;

We would like to point out that one of the major deficiencies of cultural tourism activities in our area is the lack of pride of the locals. Pride is one of the most important ways of manifesting national affiliation (Kati Dlaske, 2014). Cultural values are permanent. They do not manifest themselves only on occasion or in a festive setting. This involves a belief, a conviction, an enthusiastic participation and, above all, a message full of emotional content to the guests. It is a condition of maintaining an active workout for moments when the host qualities are manifested.

5. Model validation

Validation elements are found in semiotic pragmatism. The following practical and applicative aspects are considered:

1. Success model must have dynamic attributes; The concern for novelty becomes an obligation for the host and a pleasant surprise for the guest. Also, the enrichment in significance increases the value of the host itself (whether public or private) and through the specific iterations in Figure 2, leads to the habit of attendance and thus to the sustainability of the cultural approach;
2. Building the hospitality package can turn into a semiotic performance-generating challenge:
 - The hard part (the support material) and the soft part (the intellectual support) are combined to support the associated signs;
 - The fixed part and the flexible part reflect the adaptation characteristics of the package of tourist services that can be personalized;
 - Consumption: goods and services, translates into the emotion of the first contact and emergence components;
 - Knowledge: information and “stories” form the part of knowledge;
 - Culture: traditions and history, form the part that leads to the awareness of belonging and identity;
3. The study of the guest (consumer) turns into an appropriate attitude and package compatible with cohabitation duration. Differ:
 - Current tastes resulting from the need for occasional “plunging” into the mountainous rural universe;
 - Traditional tastes that turn into permanent forms of “mountain rural tourism”;
4. Accessibility is determined by the capacity to consume mountain rural tourism in authenticated forms (Soica, Simona, 2016). It is, in fact, the place where the reality of places and objectives is confronted with the

image induced by means of promotion at the time of the decision. Various events are organized in which the sequences of the offered packages are accessed:

- Exhibition of samples and photos that include consumer attractions;
 - Tasting ceremonies for gourmet cuisine, drinks, vegetables or preserved fruits, honey etc .;
5. Building “stories” (combinations of elements). These may be about:
- Places (geographically): Surroundings; Landscapes, geography, history, traditions;
 - People: personalities, honesty, trust, earnestness, worthiness;
 - Family: genealogy, history, traditions, worthiness, continuity mission;
 - Society (community): village, monographic information, history, traditions, spirituality, cohesion, strengths;
 - Products with local specifics: wealth, history, emotion, work value, value of the intelligence invested;
6. The book of hospitality: this is a very complex tool to confirm the semiotic pragmatics. Invites you to appreciation and scoring. It is a mirror of the host’s position: institutional, functional, representative, messenger, bearer of traditions, brand, image among consumers, confirming the impact of services, etc.

6. Conclusions

The paper is intended to be a tool of analysis and useful first of all for the small mountain rural tourism providers as well as for the marketing of the tourist products by the established operators.

Mountain rural tourism can fully benefit from the semiotic approach to strengthen emerging characteristics;

The most significant impact element is the dynamic attribute of permanent diversification of the package to maintain customer interest;

The public/private partnership puts forward a single semiotic one that confirms the complementarity of actions and the convergence of benefits;

Tourism marketing mechanisms are supported by solid arguments from the semiotic approach;

Semiotic processes that go through the “syntactic – semantic – pragmatic” stages detail the picture of the substantiation of consistent strategies of tourism initiatives both on the coordinates of private initiatives and public support policies.

Tourism development strategies take into account the conclusions of the semiotic approach, but the implementation plan can be fragmented and diversified progressively to quantify the impact translates into benefits and profitability.

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EDUCATIONAL STRUCTURE OF LABOUR MARKET IN THE REPUBLIC OF MOLDOVA

Abstract: *The principal aim of this article is the analysis of qualitative changes of labour market in the Republic of Moldova. The study includes the analysis of education level of employed labour force and unemployed for the period 2000-2015, the change in labour force as the national level, and in the main age groups, by education level, including professional education and without. The conclusion about the improving the quality of labour force due to the increasing the education level that will contribute the competitiveness of labour force and minimize the negative effects of an ageing labour force in labour market.*

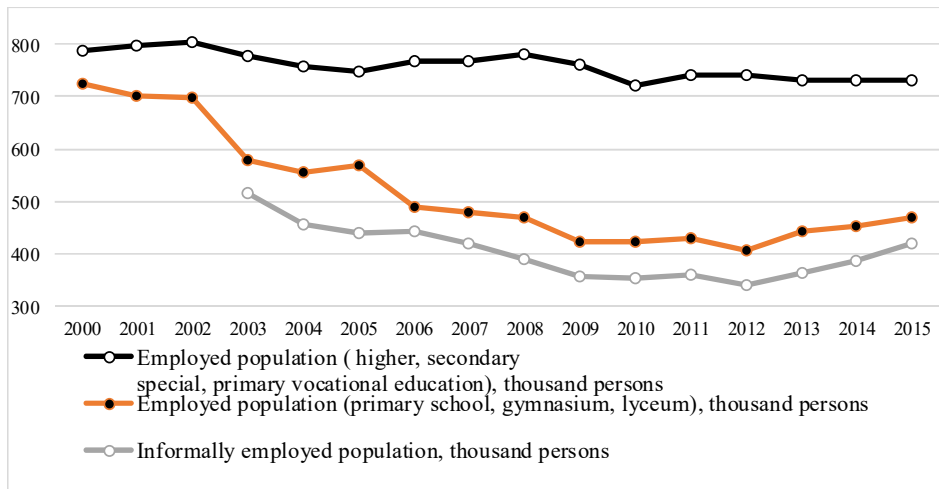
Key words: *labour market, labour force, education.*

JEL: *J21, J24.*

The education level of the structure of labour force has changed in conditions of ageing population and the reducing of working age population in the Republic of Moldova, which naturally has impact on its quality. The reduction of number of employed graduates of primary school, gymnasium and lyceum was the basic tendency in labour market until 2012 (Fig. 1, Annex, Table 1). The tendency of reduction of employed workers with low education level takes place in the global practice that is noted in the works of such scientists as Wisniewski A. [7], Kapelyushnikov R.I. [11, p. 17-18], and others. At the same time, the growth of the number of employees with primary school level of education, the gymnasium and lyceum was registered in 2013-2015, and as a result, led to an increase of the unemployed with a low education level as the labour market needs in labour force, which has a speciality and work experience.

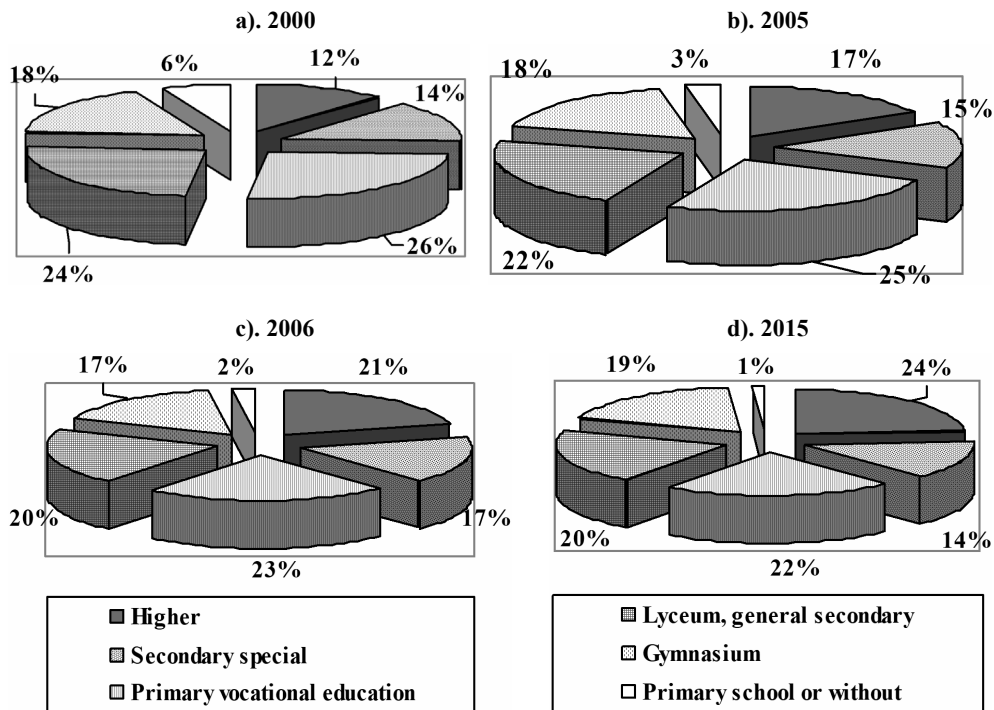
Analysis of the quality of labour force by level of education, including the unemployed realized on the basis of the Labour Force Survey data of the National Bureau of Statistics of the Republic of Moldova. Dynamics in the number of employed people by level of education is reflected in Fig. 1 [720.2; 805.5], including the tendency in informal employment [4, c. 202].

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Source: elaborated by the author based on NBS RM data, www.statistica.md.

Figure 1. Dynamics of total number of employees by education level and the number of informal employment, 2000-2015, thousand persons.



Source: Elaborated by the author based on its own calculations based on NBS RM data, www.statistica.md.

Figure 2. Characteristics of the employed population by education level, 2000, 2005, 2006, 2015, %.

Table 1

The ratio between the total number of employees with higher, secondary special, primary vocational education and educational level of primary school, gymnasium, lyceum, by age groups, 2000-2015, %

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Total	1.09	1.13	1.15	1.34	1.36	1.32	1.57	1.60	1.66	1.80	1.70	1.72	1.82	1.65	1.62	1.56
15-24	0.48	0.48	0.48	0.60	0.66	0.61	0.65	0.74	0.77	0.83	0.82	0.94	0.97	0.94	0.92	0.85
25-34	1.68	1.64	1.57	1.58	1.68	1.67	1.98	1.80	1.74	1.71	1.50	1.52	1.69	1.57	1.62	1.68
35-44	1.60	1.63	1.70	2.02	1.95	1.91	2.26	2.26	2.20	2.25	2.14	2.07	2.17	1.84	1.56	1.60
45-54	1.32	1.38	1.45	1.50	1.50	1.46	1.81	1.87	1.96	2.12	2.13	2.05	2.10	1.95	1.94	2.04
55-64	0.59	0.70	0.77	1.00	1.03	1.02	1.31	1.33	1.63	2.02	1.87	2.00	2.02	1.80	1.86	1.72
65 and over	0.12	0.13	0.16	0.25	0.27	0.30	0.42	0.45	0.52	0.83	0.92	1.08	1.08	0.87	1.03	0.89

Source: Elaborated by the author based on its own calculations based on NBS RM data, www.statistica.md.

The dynamics of the ratio of employed population with two levels of education mentioned above by main age groups is shown in Table 1. For example, an analysis of data shows that in 2015, as compared with 2000, the elder age groups 45-54 and 55-64 are largest ratio. Research shows that the difference between the age groups, which is characteristic for the Republic of Moldova, and takes place in the EU [10, p. 27].

Table 2

Employment rate by education level, by age groups, 2007, 2015, %

Education level	Total		15-24		25-34		35-44		45-54		55-64		65+	
	2007	2015	2007	2015	2007	2015	2007	2015	2007	2015	2007	2015	2007	2015
Total	42.5	40.3	17.7	18.2	51.4	45.0	61.7	58.6	64.4	60.6	49.9	41.4	11.9	10.0
Higher	66.5	57.0	48.3	39.0	70.2	55.9	77.5	74.4	78.8	79.0	62.8	52.1	18.7	16.8
Secondary special	56.9	45.7	37.1	28.4	55.6	47.9	66.4	63.9	69.0	62.0	49.6	41.1	13.4	10.6
Primary vocational education	54.9	46.9	45.0	35.3	52.4	43.9	59.2	56.8	63.2	57.8	55.6	44.7	15.7	9.2
Lyceum; general secondary	37.3	36.8	12.4	13.0	41.2	38.1	55.3	53.2	58.8	55.0	49.6	38.8	13.6	11.8
Gymnasium	29.8	30.3	14.3	15.0	41.6	39.3	54.9	51.9	57.3	53.1	42.7	32.4	14.9	10.5
Primary school or without	8.1	5.1	4.6	3.9	24.2	13.8	20.9	23.0	25.7	12.4	21.6	11.0	11.9	3.5

Source: Elaborated by the author based on NBS RM data, www.statistica.md.

The share of employees with higher, secondary special and basic vocational education increased in 2015 as compared to 2000, from 52% to 60% or 8 percentage points (Fig. 2). For during the analyzed period, the share of persons with primary vocational education has declined by 4 pp, including as a result of reducing the number of people employed in industry and agriculture. The proportion of employees with primary vocational education in the age groups 25-34 and 35-44 years has decline (Annex, Table 1). The share of employees with lyceum education has decreased.

Table 3

Unemployment rate by education level, by age groups, 2007, 2015, %

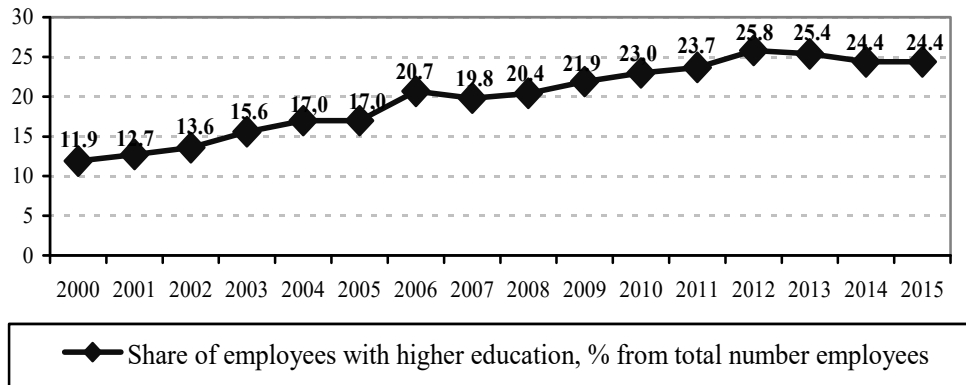
Education level	Total		15-24		25-34		35-44		45-54		55-64		65+	
	2007	2015	2007	2015	2007	2015	2007	2015	2007	2015	2007	2015	2007	2015
Total	5.1	4.9	14.4	12.8	5.8	6.4	4.2	4.6	3.4	2.9	2.7	2.4	0.2	0.5
Higher	4.8	4.8	20.1	15.4	5.3	6.2	2.9	4.9	2.7	1.8	3.4	1.2	0.4	2.3
Secondary special	3.9	4.1	11.6	15.4	4.3	4.9	3.8	3.8	3.1	3.4	3.6	1.9	..	..
Primary vocational education	5.1	4.8	13.2	13.1	5.7	5.6	5.0	4.3	3.4	3.9	2.6	2.9	1.6	..
Lyceum; general secondary	5.6	4.1	12.8	9.8	6.5	5.4	4.8	4.6	4.2	2.4	3.3	2.5	..	..
Gymnasium	6.0	6.6	15.0	12.8	7.1	8.4	4.0	5.3	3.5	2.4	1.4	3.7	..	..
Primary school or without	2.9	4.3	11.1	3.1	11.7	15.7	..	..	2.2	..	..	..	..	..

Source: Elaborated by the author based on NBS RM data, www.statistica.md.

Considering the level of education of employed population, it may be noted that the existing education system for the last 20 years does not account for the real labour market demand for training specialists at all levels, from primary vocational education and specialists with higher education. Can be noted the trend of increasing the share of employees with gymnasium education compared to the lyceum, including those age groups 25-34 and 35-44 years (Annex, Table 1), as well as the reduction of employees with primary education up to 1% in 2015. Increasing the level of education of the employed population creates opportunities to satisfy the demand for qualified personnel of national economy.

The modern labour market is increasing in both the number of employed persons with higher education, as well as their share in the total employed population (Fig. 3) in almost all age groups of working age. However, the highest growth was registered in the age group 25-34 years, 22.3 pp (Annex, Table 1), and the share of age group 25-34 years increased to 37.1% in 2015 (Annex, Table 2). Therefore,

we can think that in the future the personnel with higher education in the elder ages will have composed a largest share in conditions of ageing workforce.



Source: elaborated by the author based on its own calculations based on NBS RM data, www.statistica.md.

Figure 3. Dynamics of the share of employees with higher education, 2000-2015, %

The level of education of labour force affects both the employment of labour force and unemployment. The employment rate analysis shows that the highest employment rate has the population with a higher education in all age groups (57.0% compared to 40.3% – total employment rate in 2015, Table 3). The availability of higher education is one of reduction risk opportunities of job loss for the working population, as well as increasing the chances of getting a job for the unemployed. The employment rate of working age population with lyceum, gymnasium or primary school education is lower than with higher, secondary special and primary vocational education. Moreover, the availability of professional education makes it possible the increase of the labour force competitiveness in the labour market.

The lower unemployment rate of working age population with higher, secondary special and primary vocational education has registered (Table 4). At the same time, it should be noted, that labour migration, especially in rural area, is a factor of unemployment decrease, otherwise, its level would be higher.

The **age group 15-24 years** is one of more small groups of working age population in labour market with lowest employment rate (Table 3). Firstly, this is connected with the low education level of young people, lack of profession. However, the share of employed population in this age group with a lyceum education remains high, despite a decline from 67.4% in 2000 to 53.9% in 2015 (Annex, Table 1). Second, this is connected with the extension of opportunities for young people get higher education and its accessibility, which is noted as one of the most important global tendency [1, 7, 11]. For example, scientific researcher Rosnick D. [3] points out that economic activity in age group 16-24 years has

fallen almost doubled in the period from 1980 to 2010 in labour market in the United States of America, and a reduction in economic activity rate in younger groups of working age population (till 20 years) was observed in Russia from 1992 to 2008 (Vasin S. et al. [6]). The financial resources can be directed at improving the quality of training of young people, taking into account the availability of new jobs in conditions of population ageing and reducing the inflow of young people into labour market, as well as it should be noted the interest of the families themselves to investing in education [10, 12]. In addition, in accordance with the current legislation in the Republic of Moldova [2, Article 2, Article 30], students and pupils of working age 15-24 years with no work experience, are busy mainly looking for temporary work and can not to receive the official status of the unemployed and apply for unemployment benefits.

You can not ignore the potential of the **age group 55-64 years** in labour market. From the analysis of changes in the education level in the age group of 55-64 years, it follows that the number of employed people in this age group has increased, mainly due to the groups with higher, secondary special and primary vocational education (Annex, Table 1). This age group with lower employment rate compared to the previous age group has a reserve to increase the employment rate in the long term.

The growth of the educational level of this age group is possible through lifelong learning (lifetime education), continuing education, training and retraining education programs, including and on-the-job training. In this age of the return on investments in human capital for developed countries reaches a maximum (Vasiliev V.N. et al. [5, p. 82]).

One of the problems associated with an increase in the education level of labour force, is the loss of employers' interest in education personnel (Galbraith D.A. [8, p. 289], Roik V.V. [13], ILO [10, p. 49]). The restructuring of social criteria and the mentality of entrepreneurs, as well as the reaction of the society is lagging. In its turn, the reduction in the number of young people in the labour market and the future of an ageing labour force will contribute to gradual change in the mentality of employer and society in relation to elder workers in labour market.

Increasing the education level of labour force or its quality is an important reserve of labour market development in conditions of population ageing and provision its competitiveness as a national labour market and improve the competitiveness of national economy.

The importance of raising the education level, and on this basis, the quality of the labour force for the country's economic development, the introduction of new innovative specialties, balancing the demand and supply of labour force one of the most important objectives of the Strategy "Moldova-2020", National Strategy for employment of labour force and Forecast labour market 2016².

² Labour Market Forecast 2016, National Employment Agency (NEA).

Conclusion

The following conclusions can be made based on labour market analysis by education level of employed population in the Republic of Moldova:

1. Important reserve of Moldovan labour market development in the context of demographic ageing is to increase the quality of the labour force by improving the education level, this makes it possible the labour force to be in demand in labour market. For this purpose, it is proposed to introduce training and retraining education programs, including for the age group 55-64 years for extension of possibilities of their economic participation in labour market.

2. Increase the proportion of employees with higher, secondary special and primary vocational education from 52% to 60% (by 8 pp) in 2015 compared to 2000. Increasing the share of employees with higher education were registered practically in all age groups of working age, including the highest growth was 22,3 pp in the age group 25-34 years, and the share of this age group to 37.1% in 2015 among the employees with higher education. Moreover, the proportion of employed population with primary vocational education tended to reduce, and with higher – to increase.

3. The education level has an impact on the quality of labour market, including the employment rate increases with increasing of educational level and its maximum value observed in labour force with higher education: 57.0% vs. 40.3% total in 2015, and the unemployment rate is also lower for employees with higher education.

Consequently, raising the education level enhances competitive opportunities of labour force in labour market, reduce the risk of unemployment, expands access to attractive jobs and is one of the factors increasing the productivity of labour and effective use of innovation. Increasing the quality of the labour force will contribute to adapt a labour force to new professions, promote an innovative economy, professional competence, employee readiness to constantly improve their skills a lifelong in the process of economic activity.

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ANNEXES

Table 1

Structure of employed population by education level, by age groups, 2000, 2015, %

	15-24		25-34		35-44		45-54		55-64		65+	
	2000	2015	2000	2015	2000	2015	2000	2015	2000	2015	2000	2015
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Higher	3.7	15.5	14.0	36.3	13.6	22.2	14.5	20.8	11.4	19.3	4.5	22.6
Secondary special	8.3	10.5	16.7	8.1	17.9	14.0	16.1	19.2	8.8	18.1	1.6	14.4
Primary vocational education	20.6	20.0	32.0	16.2	30.1	23.7	26.3	27.1	16.8	25.8	4.9	10.2
Lyceum; general secondary	30.1	19.1	26.7	15.9	27.3	19.7	22.5	22.8	12.2	23.4	3.7	13.6
Gymnasium	35.2	33.0	10.4	23.0	10.6	20.1	19.0	10.0	32.4	13.2	21.0	32.4
Primary school or without	2.1	1.9	0.2	0.5	0.5	0.3	1.6	0.1	18.4	0.2	64.3	6.8

Source: Elaborated by the author based on its own calculations based on NBS RM data, www.statistica.md.

Table 2

Distribution of employed population by education level, by age group, 2000 2015, %

	Higher	Secondary special	Primary vocational education	Lyceum; general secondary	Gymnasium	Primary school or without
2000						
Total	100.0	100.0	100.0	100.0	100.0	100.0
15-24	4.0	7.5	10.4	16.4	25.0	4.8
25-34	23.2	23.2	24.6	22.2	11.3	0.8
35-44	33.3	36.4	34.0	33.5	16.9	2.5
45-54	28.6	26.6	24.0	22.3	24.4	6.5
55-64	9.0	5.8	6.1	4.8	16.7	29.9
65 and over	1.9	0.5	0.9	0.8	5.7	55.5
2015						
Total	100.0	100.0	100.0	100.0	100.0	100.0
15-24	4.9	5.7	7.0	7.5	13.7	25.3
25-34	37.1	14.3	18.2	19.9	30.7	19.7
35-44	22.1	24.2	25.9	24.2	26.2	12.6
45-54	20.5	32.6	29.4	27.7	12.9	2.8
55-64	12.6	20.1	18.2	18.6	11.2	4.2
65 and over	2.8	3.1	1.3	2.1	5.3	35.4

Source: Elaborated by the author based on its own calculations based on NBS RM data, www.statistica.md.

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SUSTAINABLE TOURISM DEVELOPMENT IN “SIRET–PRUT–NISTRU” EUROREGION

***Abstract:** The wine tourism, as part of cultural tourism, directly contributes to the development of world tourism. The development of a sustainable tourism which harmoniously combines the natural tourism potential with the anthropic tourism, may be, under bio-eco-economic conditions, an opportunity to Romanian-Moldavian cross-border cooperation. The study aimed to identify the heritage of wine tourism in the two countries, with the main aim of elaborating development strategies for the wine tourism potential in order to intensify cross-border cooperation and ensuring a sustainable development of “Siret-Prut-Nistru” Euroregion tourism.*

***Key words:** wine tourism, sustainable development, bio-eco-economy, smart sustainable development, touristic patrimony*

***JEL:** Z32, Q56.*

1. Introduction

Addressing such a topic comes at a time in which appears the increasingly obvious need to diversify tourism products, offered to a category of tourists who want more than just a leisure trip. Tourists' preferences have diversified and wine tourism is a niche for both Romania and Moldova, in the context of sustainable development.

Cultural tourism is an important sector in the development of global tourism, and wine tourism segment is a small, but important part of this type of tourism. Wine tourism is the one that covers all viticultural activities.

An important aspect of viticultural tourism is the winery's “cellar” door service and the effect of this work on the consumer's expectations, brand loyalty and long-term cooperation intention. Attention to this issue has created a great responsibility among producers and consumers interested in the quality of kind of service. If the success of a winery was once determined only by the quality of the wine, the development and the importance of a “cellar door” service now also means the quality of service received during a visit to the winery in question, which is as important as the wine itself, for future sales.

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Worldwide, viticultural tourism is a form of special interest tourism, with a growing role, an important component of tourism for many wine producing regions. The top 10 countries with the highest wine production currently known for the quality of their products but also for its versatility of worldwide exported wines includes France, Italy, Spain, Germany, Portugal (Europe); California (United States); Argentina, Chile (Latin America); Australia; South Africa (Africa).

The purpose of this paper is to determine the potential of viticultural tourism to the Siret-Prut-Dniester and set a strategy to capitalize it.

2. Viticultural tourism in specialized literature

Viticultural tourism, also known under the names of oenological tourism, enoturism or wine tourism is more than simply visiting a winery; it means the wine's process from grapes in the vineyard to when it is poured into the glass, presenting technological processes, secrets behind a high quality wine, guided wine tastings. It is a state of mind, it is happiness, work, success.

The wine tourism has seen a continuous development since its emergence, which is why, today, in specialized literature, can be found several definitions related to it. One of the most accepted definitions, by the international scientific world, assigns *viticultural tourism the purpose of visiting the vineyards, the plantations, the wineries and the cellars and also participating in festivals and events, with the main purpose to experience specific attributes of a wine region*. A second definition, reveals that *viticultural tourism is a form of niche tourism based on the desire to visit wine-producing regions or where the tourists are determined to visit the wine-producing regions, especially wine cellars and wineries, while traveling for other reasons*.

The Australian Oenological Institute, in the viticultural tourism National Strategy, since 1998, defines oenological tourism as *visiting wine cellars, wineries and wine regions to experience the unique qualities of Australian contemporary lifestyle, associated with wine tasting at provenance source, including enjoying the wine, the food, the landscapes and all the cultural activities*.

Currently, specialty literature seeks to solve the problem of global viticultural tourism capitalization.

3. The viticultural tourist potential of the Region of Moldova–Romania

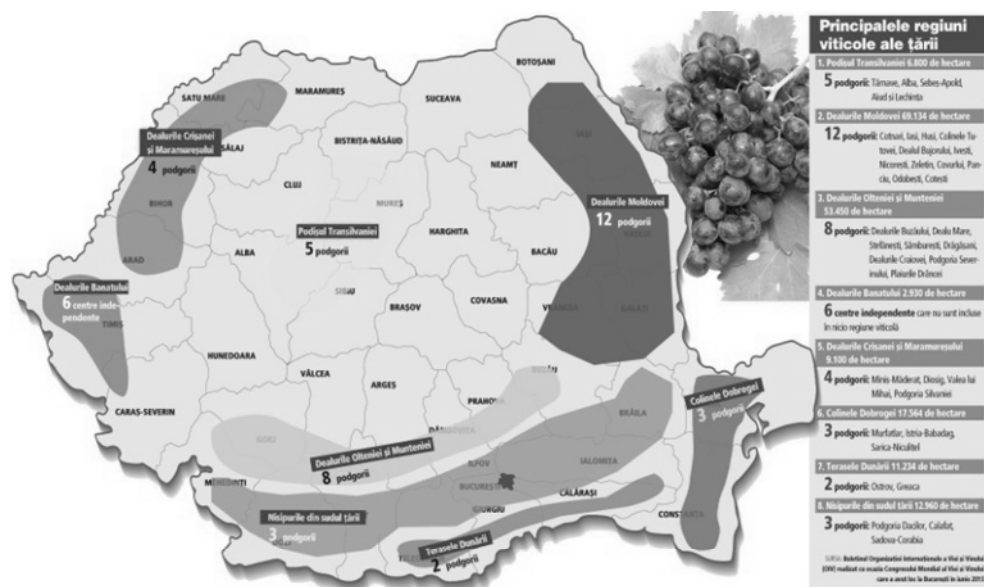
Romania has been for centuries one of the major viticultural countries. Eight wine regions, 37 vineyards and more than 200,000 hectares of vineyards, Romania ranks 13th among the largest wine producers in the world and sixth in Europe, according to preliminary data recently published by the International Organisation of Vine and Wine (IOV). Altogether Romania registered more than 250 wineries,

of which only 140 producing and selling bottled wine, and of these about a quarter can support wine tourism.

The charm of Romanian vineyards gives it native varieties: Grasa de Cotnari, Busuioaca de Bohotin, Zghihara de Huși, Braghina, Tămâioasa românească, Galbena de Odobești.

The viticultural region of Moldavian Hills is the most famous wine region, with the highest production of wine and comprises about one third of the total area of vines cultivated in Romania.

It includes numerous plantations predominantly hilly area, between Moldavian Subcarpathians, Curvature Carpathians, Prut river and the inferior Siret river valley.



Source: [1].

Figure. 1. The main wine regions in Romania.

Wine region of Moldavian Hills comprises a total of 12 vineyards namely: Cotnari Vineyard, Iasi Vineyard, Napa Vineyard, Tutova Hills Vineyard, Peony Hill Vineyard, Nicorești Vineyard, Ivesti Vineyard, Covurlui Vineyard, Zeletin Vineyard, Panciu vineyard, Odobești Vineyard and Cotesti vineyard.

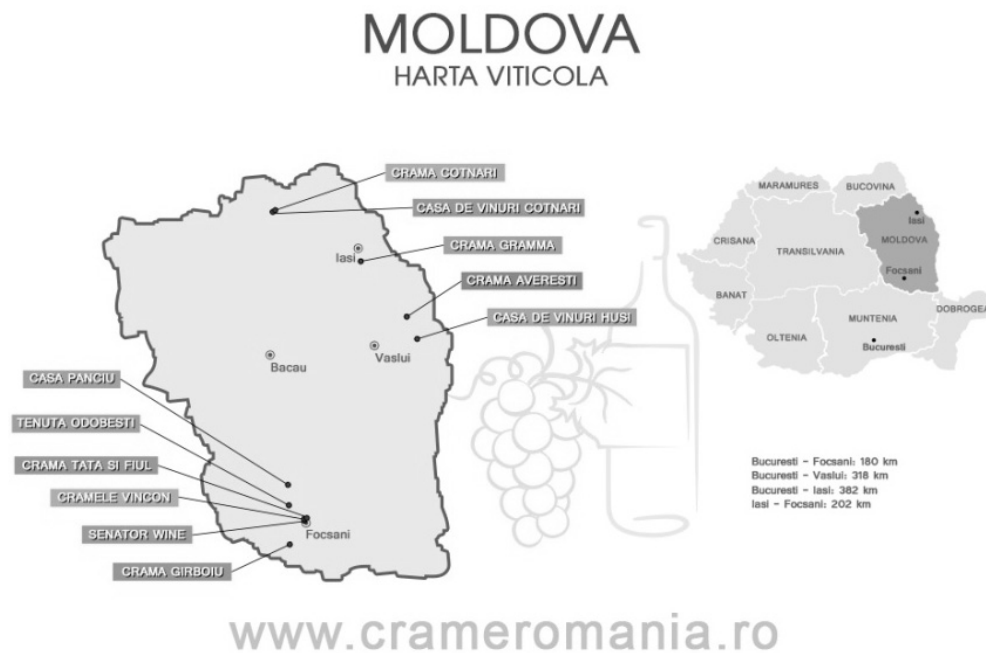
Framed in these vineyards are a number of 44 wine centers and 8 independent centers: Hlipiceni, Plugari and Probotă in the north, Vaslui in the center, Namolova and Grivita in the south, Bozieni and Racaciuni in the western region. The region is specialized in the production of wines and, to a lesser extent, of table grapes. The wines, mostly white, are in a wide range, from the everyday consumer to the high quality, naturally sweet, which can stand alongside the best wines in the world (Sauternes, Tear Cristi) [2].

In this regard it should be noted that the Cotnari wine is entered in the catalog of the best wines in the world and is one of the most sold potions of Bacchus and the secret lies in the special varieties that are grown in the vineyard near Iasi. The famous epigram, and oenologist, pastor Teodoreanu best praised the Cotnari wine:

*“If the water in my well
Would turn into Cotnari wine,
I would leave romanian language
And become a well-sinker”*

Dry wines are mainly made in the Odobeşti, Coteşti and Panciu vineyards. The red wine production has insularity.

The national statistics in September 2015, show that Vrancea county has the largest vine area and also with most people employed in this area. There are 22,000 cultivated hectares with noble vines, which means more than 10% of the vineyard area of the country, 80,000 of the Vrancea sectory people working here. The only problem that vineyard have is that they have no marketplace as they are working on small, grinded areas. [3].



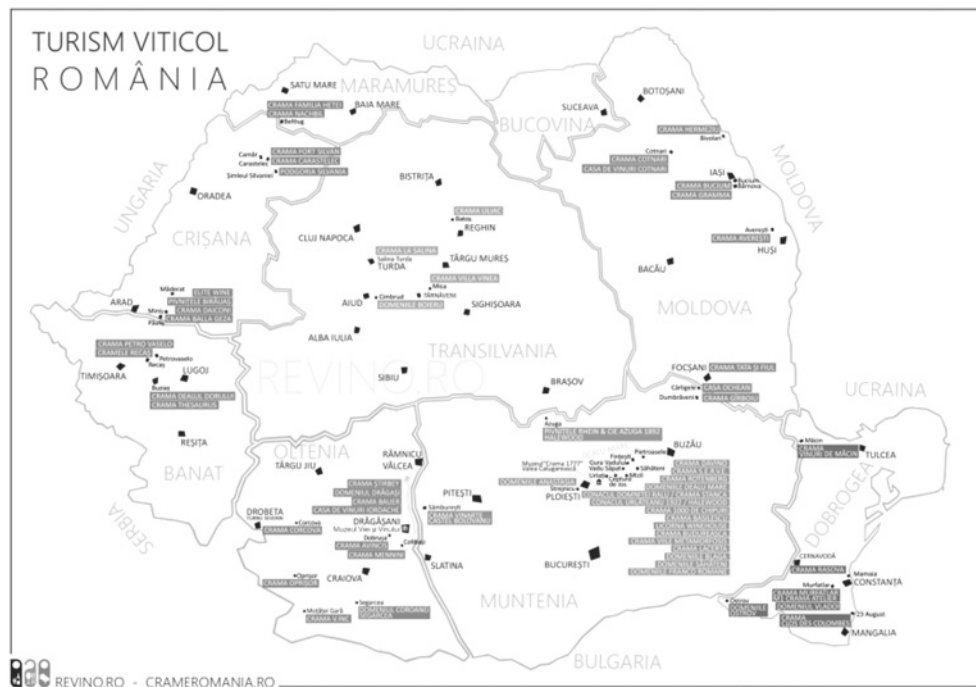
Source: [4].

Figure. 2. Viticultural map of Moldavia Region.

The vineyards in Moldova enjoy great landscapes and the wines produced here express the particularities of the places through flavors, colors and personality.

In Romania, viticultural tourism has a significant development, helped by investments made by wineries and the demand from customers for this type of personalized travel, geared to new experiences, the wine lovers being attracted by the visits to vineyards and wineries, the attendance to harvesting grapes and the wine-making process, the discussions with winemakers, acquiring more knowledge about wine etc., night stays at wineries or old mansions, near vineyards that have been refurbished and converted into accommodation that attract tourists with their stories.

Idyllic rural and cultural experience and contact with another lifestyle, traditions, customs and history of the places are a good opportunity for escape and relaxation. Geographical location, diversity of landscapes, native grape varieties and traditional local cuisine are clear advantages for owners of wineries which they can use to attract Romanian and foreign tourists in the nearby vineyards. Cellars can be visited all year round, but the most attractive landscapes can be seen in the period from April to October.



Source: [5].

Figure 3. Wine tourism in Romania.

In this way, wine and gastronomic tourism attraction can find potential customers, especially among foreign tourists but also among Romanian tourists who want to know the benefits of Bacchus drink in Romania and to associate Romanian

traditional food with famous wines of the region. The price that a tourist must pay for a weekend, tasting of 3-7 wines, their meals and accommodation is approximately 100 euros plus shipping costs.

Studies on how people spend their leisure time and recreate suggest by extension, that those who are involved in aspects of wine, who consider that wine even occupies a central part in their way of living, behave as such: they join specialized clubs, they produce wine (as a hobby), they read about it, they collect and store their favorite wines. According to this research, few of the consumers remain tied to one brand of wine, but they like to try new brands, unknown for them, but from known regions [6].



Source: [4].

Figure. 4. Viticultural tourism in Moldova Region.

Visiting wine festivals is an important component for promoting “wine tourism”. What might motivate participants to visit such events has become of major importance for the destinations where the wine is produced, as winemakers tried to use festivals to promote wine cellars and wine regions.

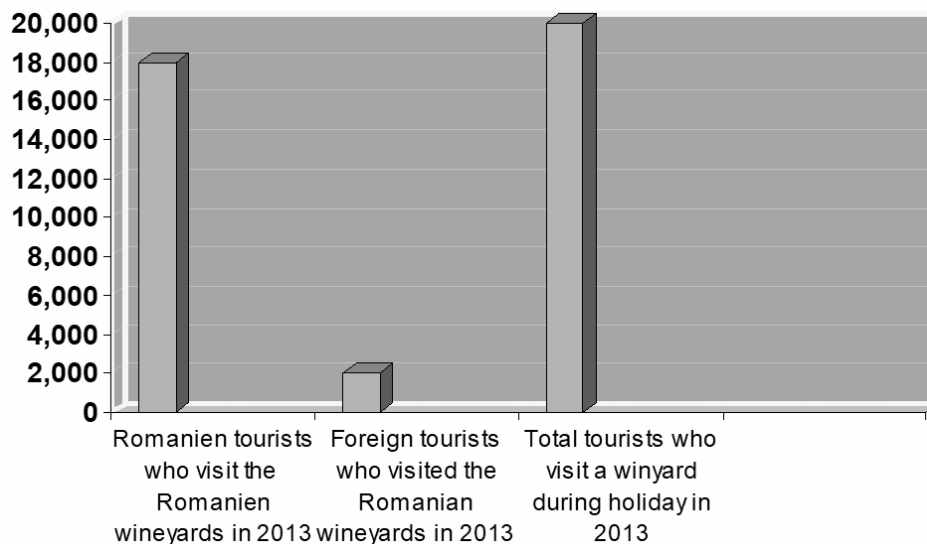
Therefore, supporting and investing in the sector called “wine tourism” is now regarded as an essential regional economic development strategy by the government and the wine and tourism industries.

To promote wine tourism in Romania there have been developed CrameRomania.ro projects (the only bilingual database – Romanian and English –

of the wineries of Romania), Revino.ro (Trip Advisor aggregator of wine cellars and wine specialized shops, wineries and restaurants Romania) and Return Show – Discover wines of Romania.

Wine tourism development, its integration into the structure of modern economies, the the sphere of needs, is reflected in a continuous enrichment of its content and the diversification of forms of expression. Also, participation in tourism movement of increasingly larger social groups, associated with the variety of motives of application, have favoured the appearance and development of this type of tourism.

Diversification and development of tourist traffic have resulted in more viticultural tourists who also to visit Romanian vineyards which is a large number of Romanians and foreign tourists. In this regard, in 2013 a number of 20,000 Romanians and foreign tourists visited the Romanian vineyards.



Source: Annual report of ANTREC

Figure 5. Romanian and foreign tourists who visited the Romanian vineyards in 2013.

Cellars in Vrancea annually attract nearly 10,000 visitors, which is up to 80% foreign tourists, generally wine knowing, most of them learning about the manufacturer's offer s from international tourism operators. These wineries offer tasting packages, visits to vineyards, food and folklore performances and the tasting offers various types of wine. Those who come on pilgrimage to the Romanian wineries often stay overnight in the county seats where the visited vineyards are located, because the cellar do not have enough rooms.

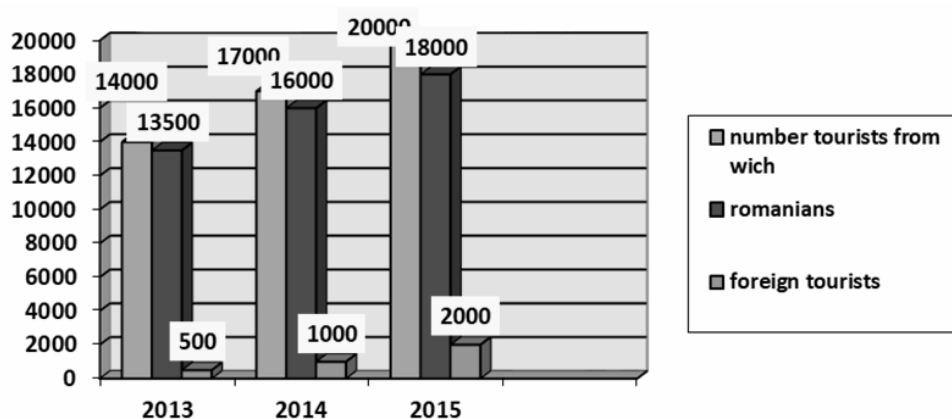
According to a study by market research MEMRB, the varietal wine market was dominated in 2013 by semisweet wines (41% of the market, growth) followed

by semidry (21% growth), dry wines (19% decrease), the sweet wines (14%, decrease) and liqueur wines (1.1% increase). Although a slight decrease, white wines continue to hold supremacy in the market, nearly 70%, the rest of 30% being held by red wines.

The viticultural tourism has been growing in recent years. In 2013 the total number of tourists who practiced win tourism was 14,000, and most of the tourists were registered in 2015 (20,000 tourists), 3000 more tourists than in 2014 due to the growth, in the first place, of the number of accommodation spaces and, secondly, of the increase of tourists interest for the travel program “wine Route”. It can be seen that most tourists were Romanian, respecting the growth of total number of tourists.

The service quality has increased, so that foreign tourists were more numerous, from 500 in 2013, their number increased to 1,000 in 2014 and to 2,000 in 2015.

Regarding the number of days-tourist, the share of Romanian tourists is much higher than that of foreign tourists in 2015 Romanian tourists accounting 19,500 days compared to that of foreign tourists, which was 2,500 days.



Source: INSSE processing.

Figure 5. Evolution of the index “number of tourists” in 2013-2015.

4. Moldova’s viticultural tourism potential

Viticulture has been and will remain the business card of Moldova. Moldova is conventionally divided into 4 natural agricultural areas: North – Balti, Center – Forest Area, South – Cahul and South-East – Nisreana or Purcari. In all these areas, except North, the viticulture and winemaking have industrial importance. Currently, Moldova has 19 wine centers, of which the most famous are: Cahul, Taraclia, Cricova, Comrat, Codru, Romanesti, Ciumai, Purcari, Hancesti etc. [7].

Moldova is at the northern border of viticulture industry, but the conditions of its climate are similar to the best wine regions of France, which influences the quality and assortment of its wines (light table wines, wines with consistent color, dessert and sparkling wines). Moldova’s climate and its hilly relief creates perfect conditions for the cultivating vines in the so-called buckets, ground depressions, oriented towards the sun. The buckets accumulate the heat and protect the vines against cold winds and hot rays, helping the vines to become mature.

Moldova as a tourist destination, with all its parts, has a rich natural and human potential, traditions, history and culture, activities and services that form the essential component of the country’s tourism image in domestic and international market.

Every year, thousands of tourists visit Moldova to get acquainted with the legendary wine cellars. Cellars of Cricova, The Mileștii Mici, Branesti and the 142 wineries including the following Purcari, Asconi, Ciumai, Cojusna, Romanesti, have a special significance in the development of wine tourism in Moldova.

Moldova is a true “Mecca” on the world’s wine map, for it has the largest area of vineyards, 112,000 ha, reported to the country’s surface and four wine regions with 180 wineries:

- Southern: Purcari, Etcetera and Mezalimpe;
- Center: Cricova and the Small Milesti, then Asconi and Poiana;
- Northern: White Stork (distilled drinks);
- Chișinău, Carpe Diem – an authentic wine bar.

Viticulture and winemaking in Moldova recorded history of many centuries and is an inseparable part of life and culture of the people. Climatic conditions, topography and soil structure allow people to cultivate the different varieties of vines and produce table wines in the richest assortment.

Currently, winemaking is one of the most relevant sectors of national economy. It represents about 9% of the agricultural production structure recorded in 2013, with a variation from 12.8% in 2005 with a trend of decreasing until 2011, when it reaches the minimum threshold in the last 20 years – 6.1% – thereafter, returning with a dramatic increase in 2012 of 10.4%. Every tenth employee in national economy is engaged in winemaking. About 30% of the income from exports is due to wine production; 90% of wines and 75% of sparkling wines are exported [8].

Viticultural tourism in Moldova has been growing steadily in recent years, which represents a development opportunity for the country. The way in which the tourism in the wine-growing areas of the country works is actually the Moldavian hospitality. Here, tourists can experience and learn about wine production, bottling track and of course, taste the final product. Moldova, as a wine-growing country, offers its visitors the chance to choose their preferred routes: underground cellars and towns, wineries, wine primary processing companies, producing sparkling wine etc. But the number of visitors is relatively small compared to the capacity of the wineries [9].

Wineries, overall, with their vineyards, that are part of the tourist route “*Wine Road in Moldova*” are a crucial motivation to visit the country. They are a good way of promoting the best tourism product.

Quality Wines “Mileștii Mici” cellar is one of the biggest tourist attractions in Moldova since it entered the Guinness Book of Records as the largest cellar in the world. First documentary attestation year – 1655. Located at 20 km south of Chișinău, Mileștii Mici underground galleries have emerged due to the limestone exploitation. They are located at a depth of 40-85 meters and a length of about 200 km. Tourist visits inside are made using auto transport. The wines which are kept here are from the harvests made between 1968 to 1991. The temperature is constant at 12-14°C, as well as humidity, both optimal for long-term storage and preservation of the various wines. Mileștii Mici cellars are stocked with wines from all over Moldova. The “Golden Collection” includes about two million bottles: Pinot, Traminer, Muscat, Riesling, Feteasca, Dnestrovscoie, Milestskoie, Codru, Black Purcari, Moldova Rose, Golden, Cahor-Ciumai. Tourists have excellent wine tasting rooms and the “Winery” restaurant. Wines bearing the trademark “Mileștii Mici” were honored over the years with dozens of international medals.

The “Cricova” winery was founded in 1952 and is an analogue, smaller in size, of the Mileștii Mici. Cricova was famous in the party elite in Moscow, and not only for old wines of exceptional quality kept here, but also for its vast underground galleries with a length of over 60 km. Located at 10 km north of Chișinău, Cricova is a true underground city with streets and avenues bearing the names of wines: Cabernet, Pinot, Feteasca, Aligoté etc. Its deposits contain about 30 million liters of red and white wines of quality, including 15 brands of champagne and sparkling wines. The winery has over one million bottles of various wines. Here is also preserved the heritage collection of Moldova consisting of French, Italian, Spanish wines. The oldest are from 1902. The factory of Cricova produces French champagne by the classical method of fermentation, with maturity of up to three years. Since 2003 Cricova winery was legally declared as an object of Moldova’s national cultural heritage.

The wines from the famous Purcari area is the most striking insight into Moldova. Purcari winery was founded in 1827 and has continued to develop until today. French acknowledged the splendor and quality of the local wines Purcari at the World Exhibition in Paris in 1878 and have awarded it the gold medal; Russian Tsar family bought them for consumption; already in the twentieth century, they were delivered to the English royal court.

Moldavian wines not only are not inferior to famous wines of Bordeaux, but they are also distinguished by their originality. In the 1960-1980’s, the Purcari Winery was the only factory in the Soviet Union which labeled bottles with labels printed in English for “Black Purcari” for Britain’s royal court. In the cellar of Purcari there have preserved several collection bottles for this purpose. The biggest tourist attraction is the old mansion of the factory.

Cojusna winery has a history of almost a hundred years, and in recent years, there have been built underground cellars, the winemaking sections were repaired, which introduced the winery into the tourist circuit.

In 2004 the “The Wine Road in Moldova” National Program has been approved in tourism in order to internationally promote Moldova as a viticultural and wine tourist destination, to establish the link between tourism and the wine sector, to enhance economic potential and harness the human potential in rural areas and to protect, preserve and develop the heritage tourism value and harness the competitive level [10].

Under this program we have developed 7 trails, 4 of which are the most requested, namely:

- Route I “Open sky museums. Museums – in the underground”,
- Route II “A divine divine” in the north,
- Route III “The dew of Moldova’s forests” and
- Route IV “Grain Gold” in the south.

All routes start from the capital, Chişinău, and include approx. 20% of wineries, 6.8% of protected natural areas, 25% of monasteries and 15.9% of museums in Moldova.

The four representative routes within the “Wine Road in Moldova” offer both sightseeing in the famous wine-growing touristic objectives in the country and visiting other sights of the national heritage.

Today, these routes are included in the tourism offerd in partial form and separately, depending on customer preferences [12].



Figure 6. Route 1.



Figure 7. Route 2.



Figure 8. Route 3.



Figure 9. Route 4.

Across the whole program “Wine Road in Moldova”, the route structure is shown in Table 1.

Table 1

Route structure in the “Wine Road in Moldova” Program

Route	Wineries	Protected natural areas	Monasteries	Handicraft Museums Strongholds, historical monuments	Handicraft centers	Asphalt road %	Season days
Orheiul Vechi	5	1	10	11	–	100	365
Codrii Moldivei	5	5	7	1	3	90	200
Lăpușna	5	2	4	5	–	90	200
Ștepa Bugeacului	6	3	6	6	–	90	200
Purcari	6	1	6	8	1	95	365
Chișinău-Bălți	5	8	8	7	2	100	365
Dunărea de Jos	5	2	4	4	2	90	200
Total	36	21	37	40	8	–	–

Source: [12].

According to the information taken from wineries in Moldova on wine tourism, the income is dynamic, but disproportionate, which requires achieving a more effective strategy for harnessing this particularly valuable potential.

To be mentioned that there is no statistical basis of official data regarding the indicators of tourist traffic: Moldavian and foreign tourists who practice wine tourism and days-tourist number.

It has highlighted the role that the travel agencies have on promoting wine tourism, which are those that provide approx. 18% of tourists. Most tourists practice wine tourism for the tastings in wine cellars, so that in 2015, 19.7% of the total foreign tourists visiting Moldova were there for tasting.

5. Harnessing strategies for the wine tourist potential of Siret-Prut-Nistru Euroregion

In Romania, respectively Moldova’s wine area, even if there are wine producing units with stretched vineyards, harnessing this wealth in terms of tourism, is poor. Most often, individual tours are made for specialists, avoiding the development of a specialized segment on wine tourism.

The functionality of the “Wine Route” has not reached the desires for which it was created up until now. Unfortunately, there are still timid steps in this regard, small wineries belonging to small producers, trying to boost this type of tourism.

Nowadays, at the level of wine tourism in Moldova, there is a number of shortcomings, materialized in the lack of logistics needed for the management of the “Wine Road in Moldova” program, the lack of legislative consistency regarding the implementation and execution of this program, lack of vision and clear strategy to attract national and international tourism flows, reduced flexibility, scheduling tastings to wineries, failing to put in circuit of farms which produce grapes, which have great tourism potential, abandoning the “City of wine” and, not least, the low qualification tourism personnel.

It is necessary to create a database of statistical data regarding Moldavian and foreign tourists flows in Moldova, tourists that practice wine tourism and days-tourist number.

All these shortcomings lead us to believe that it is absolutely necessary to establish a viable common strategy to exploit the tourism potential.

Simple outline of a strategy is not sufficient and requires the active involvement of all wineries in the Euroregion, local and national administration and also small producers’s involvement.

The need for the development of active partnerships, aiming from ensuring the logistics needed for developing a performant wine tourism, to providing training for the tourism personnel in this segment, is a priority.

Also – promoting the Siret-Prut-Nistru Euroregion as a viticultural tourist destination and ensuring adequate informational support will directly contribute to viticultural tourism development.

6. Conclusions

Viticultural tourism has a great potential in Siret-Prut-Nistru Euroregion, which ensures the development of the region and the sustainable cross-border tourism.

The infrastructure development in the Siret-Prut-Dniester Euroregion will ensure the attraction of tourists from Europe, America, Asia because there is a growing demand for wine tourism and the prices for travel packages are accessible, the offer is diverse and of high quality.

Implementing a real strategy to harness the wine tourism potential will open a viable development of the Siret-Prut-Nistru Euroregion.

Public-private partnerships come as a solution to these strategies and the creation of a common wine road which create a link between the two countries.

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RURAL TOURISM IN TURKEY

***Abstract:** The paper deals with the description of Turkey as a rural tourism destination. The country is briefly presented from several perspectives: history; geography; demography; ethnography, folk culture, and tradition; economy; society; services; tourism and rural tourism.*

***Key words:** Turkey, tourism, rural tourism.*

1. Historical aspects

Turkey has been acting as a bridge between Asia and Europe for centuries and it is founded on the Anatolia and Thracian lands that include major part of historical Silk Road. Turkey Republic is a continuation of Ottoman Empire. Ottoman Empire came to collapse with Armistice of Mundos and started to be invaded by imperialist countries. British, French, Italian, Greek and Armenian who lived on the rule of Ottoman desired to share country and took the rule of many regions. Mustafa Kemal Atatürk and his friends who understood that Ottoman Dynasty would not overcome these difficulties founded Turkish Grand National Assembly and national forces, which were loyal to it, conducted Independence War and saved the nation from enemies between 1919-1922.

Turkish Republic which is democratic, secular, judicial state was founded after winning of the war by abolishing Ottoman Empire to make the country have a new, modern management system. The reason why Turkish Republic was accepted as continuation of Ottoman Empire was not only limited with founders and citizens of republic were Ottoman Turks and officers. Founded republic accepted debts of Ottoman Empire and paying this debt for years is a proof that Republic managers personally accepted themselves as a continuation of Ottoman Empire.

Why Turkish Republic is being continuation of Ottoman Empire stressed topic? What can be the relation with rural tourism? It is possible to summarize answers of such kind of questions as below:

Firstly, inherit from Ottoman Empire to Turkish Republic is not limited with lands of nation and debts. Ottoman Empire nearly spent last 120 years in many fronts by making war, for this reason it left a tired and exhausted society.

Second important topic, it is remarkable that Ottoman Empire was underdeveloped industrially. Major part of population made a living by agriculture and livestock, in

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other words with rural economic activities. Agriculture and were being done by infertile methods that were even primitive in that time. So the majority of the population was poor and needy.



Wrong belief that trade was a sin religiously caused this area to be controlled by non-Muslims. The trade of products that were produced in rural areas supported rural population.

The solution of poverty and needy is to beat illiteracy. Literacy rate of Turkey at that period is extremely low. Alphabet Reform was done to overcome this problem and Latin alphabet was used instead of Arabic Alphabet. Literacy rate started to increase rapidly.

New policies which were for the development of industry and economic activities' in rural areas being done more conscious and modern were done after the foundation of Republic. So that it was aimed that Turkey would develop and advance with industry and agriculture. This policy made deterioration against agriculture zone in following years. Over time agriculture was ignored and industry and construction was paid more attention. In summary, Turkey which has been a sufficient country for itself in agriculture production for years, has reached the

condition of importing agriculture products. Indicator that shows that rural people are in difficult condition economically is importing agriculture products.

Important reason of deterioration of rural population's life standards is splintering of agriculture lands by heritage and breaking into small pieces gradually. Modern and fertile agricultural activities are only possible with enough big lands according to scale economy principles. In fact, agricultural lands split into small pieces by breaking for decades and they are not enough to support one family.

Along with negative scene in agriculture area, Turkey has not developed enough industrially. Plane factory which was founded in the first years of republic and which started to take orders from abroad faced with closing suddenly. Auto projects which were fully produced by Turkish engineers and masters abolished with easy reasons. So the country dragged into industrialization that was under the control of foreign capital and partner's profits.

With the announcement of republic in 1923, it was aimed to restructure Turkish Republic's all institutions and organization and modernize all social life with Turkish's rooted social transformation Project. Without doubt, tourism sector received its share from this modernization attempts. Tourism activities, which were tried to be carried out individually before republic, started to be organizational after the announcement of republic. (Çoşkun; 2010)

It can be said that there was no significant development in tourism area before planned term until 1950's. The most important reason of this is that 1923-1950 period showed a rough situation both in terms of political conjecture and international size and also tourism movements being low in the world because of the war around the world, also Turkish Republic had internal and external economic, political and social problems and this caused country not to deal with the studies about the tourism. (Çoşkun; 2010).

Tourism appeared as a new opportunity in 1980's for Turkey which had not good report in industry and agriculture sectors. Tourism became a new hope bridge for the ones who could not find a place for themselves in industry also who were not happy about income of rural activities. The state encouraged to use opportunities in tourism area and succeeded to direct private sector's attention. Applications such as land allocation, grants depended on the usage of equity capital and long term credits with low interest loan and attention of tour operators drew many investors here. In fact, it is an exaggeration that high capacity and the most quality hotels have concentrated in Turkey.

Turkey could not spread tourism activities around the country although it has important success about foreign currency inflow, the number of beds, the number of coming tourist, the development of substructure from 1980's. This problem is especially about rural population. The ones who do not face up to leaving and saturating opportunities are lack of tourism pastry. In fact, one of the basic duties of state managers is create environments which will provide everybody to take equal share. In this content, tourism's being separated from the areas where there is

sea-sand-sun axis and where archaeological site concreted and tourism's being directed to rural areas come to fore as an important problem.

2. Geographical aspects

Turkey provides opportunity to mast tourism products thanks to its geographical situation. Some of these opportunities are still being used intensely, some of them are being used in low percentage or some of them have not been activated yet.

Tourism data and rural tourism potentials should be analysed separately in Turkey which is separated into seven regions geographically. Because topography, weather, cultural data of each region is different from each other. Turkey is separated into seven regions as Marmara, Aegean, Central Anatolia, Black Sea, East Anatolia, South East Anatolia, and Mediterranean.



□ Mediterranean Region, □ East Anatolia Region, □ Aegean Region, □ South East Region, □ Central Anatolia Region, □ Black Sea Region, □ Marmara Region

Marmara Region: Marmara Region which has seaside with Marmara Sea, Aegean Sea, Black Sea is a unique geography that has three cities which were capital cities of Ottoman Empire and has a city where Gallipoli War took place. Istanbul is a city which was capital city of Byzantine and Ottoman Empires for centuries, and a city which powerful cultural attractions and a city which is called capital of the world. Edirne, on the other hand, is a city which was capital city of Ottoman for a long time and is a remarkable city with cultural data in the field of tourism. Bursa is another Ottoman capital city and the city where Ottoman Empire was built. Bursa is in central point of highland and ski tourism along with its cultural riches. Kartepe Ski Center in Kocaeli attracts many tourists every year. Gallipoli peninsula in Çanakkale is visited by many local tourists along with Anzacs who come to join special rites every year. Trojan ancient city is another

touristic value which is subject to heroic films and is accompanied by influx of tourists.

Agricultural activities' being intense is another basic character of region thanks to its fertile lands. Second houses near many seaside settlements witness intense domestic tourism movements especially in summer season. They are Polenzeköy, Şarköy, Saroz Gulf, islands in Marmara Sea, Imbros and Tenedos in Aegean are primary places that are in demand.

Aegean Region: It owns many places that are called paradise in the world. It is not a coincidence that many civilizations settled down in Aegean for centuries and many cities were built. Region's natural resources and weather conditions provided the region to be focus of interest in every term. Two of the Seven Wonders of the World is in Aegean-Artemisia Temple and Mausoleum of Halicarnassus. Ephesus, Pergamum, Aphrodisias, Hierapolis, Tralles, Sardes, Miletus, Priene, Magnesia are ancient cities that stays from B.C. The place near Ephesus where the Virgin spent her last years and died is an important touristic centre for believers.

It is known that sejour tourism is intense with cultural attractiveness varieties and power along with sejour tourism which consists of sea-sand-sun triangle. Kuşadası which is a seaside town and which was opened to tourism after Istanbul is also in this region.

Tourism activities diversity in rural area and fauna richness is important in terms of tourism and potential for a lot of tourism activates. National Parks, Highlands and rivers are not opened for tourism enough. Kitchen culture of Region is another dimension to be focused. Mediterranean Kitchen which is olive oil that is coherent with human body, vegetable and herbs, sea products- weighted is dominant to kitchen. Dionysus who is called "the God of wine" lived in Nyssa ancient city, too.

Geothermal resources in the region are used for the production of energy, greenhouse activities and also for health tourism. However health tourism is seen as a field that has an underdeveloped potential yet. Bozdağ Ski Center was built in Izmir.

It is the easiest way to express Aegean saying that "Aegean is a geography that will not finish by telling."

Mediterranean: Mediterranean is a remarkable region with its particular conditions. State's mainly having properties in seaside (the lands did not attract anybody's attention as they were infertile in the past) let the state plan long sea sides to develop sea-sand-sun triangle. Turkey's and world's most beautiful, the biggest and the most qualified hotels and holiday villages are here. Although it is not luck as Aegean in terms of cultural and natural data, it is planned by the state effort tourism and its substructure was developed and it is an advantage for the region.

It has an important rural tourism potential with having Toros Mountains. Trekking, highland tourism, hunting tourism, ski tourism comes to mind first to be developed. Davraz Ski Center is in Isparta and Saklıkent ski Center is in Antalya.

Central Anatolia Region: It benefits little from tourism activates as it has no connection with sea. Culture tours include cities that are thousand years old and centres which are important for history of religions. Underground cities in Nevşehir are used to hide in the first terms of Christianity. Geomorphologic structures which are called as Fairy Chimneys attracts attention as they were used for living. Balloon flights there provide to see supernatural beauties and attract attention.

Central Anatolia Region has a lot of potentials that need to be developed. Development of ski centres with its qualitative and quantitative dimensions is point to be spoken in recent years. Especially Erciyes Ski Center in Kayseri is developing fast. It has different potentials to be developed in terms of highland and hunting tourism

Black Sea: Rural areas which gives immigrations most are in Black Sea. Agricultural opportunities are limited because of its hilly structure. Tea and hazelnut creates widespread agricultural texture. Fishing is one of the most important economic activities. Industry is scarcely any. Natural data is sufficient for rural tourism. Its highlands and rivers have been opened for tourism recently. Although it has a long sea side, it does not give opportunity to sea-sand-sun triangle to refresh because of sea season's being limited due to weather conditions. Pangaea, Agia Sophia is among the places which attract tourists much. It has 40 highlands including Anzer, Ayder, Uzan Göl, Kaçkar. Interest of local tourists' especially Arabs' increase every year. Kartalkaya Ski Center which is in the central point of western Black Sea region is one of the oldest ski center of Turkey. Esentepe Ski Center is in Bolu. Ilgaz Ski Center is small in terms of capacity, but attracts attention with its natural beauty. Çambası Ski Center is Ordu. Baybut Kop Ski Centre is founded in interior part of East-Black Sea Region

East Anatolia: Historical Artefacts and natural beauties constitute tourism resources of East Anatolia Region. Lack of transportation, unsuitability of weather interrupted the development of tourism. Ishak Pasha Palace in Doğu Beyazıt, Ararat Mountain, Nemrut Mount which has ruins of Kommagene Kingdom, Muradiye and Gürlevik Waterfall, Akdamar Church in Van Lake attracts tourist's attention in East Anatolia Region.

Munzur Valley National park in Tunceli, 40 fountains and its natural beauties are examples of tourism potentials that have not been used enough. Islands which were free and really swims in Aksakal Lake in Bingöl city arouse astonishment by moving like a float. Number of visitors increase every year. Çoruh River provides unique opportunities for the ones who want to live rafting excitement. There are a lot of suitable areas for climbing, camping and trekking activates along with Çoruh River.

Güneykaya Ski Center in Ağrı has a potential to develop. Palandöken Ski Center in Erzurum which is in 3125 meter is one of the most developed centres. Konak Ski Center which is accepted as second ski Center of Erzurum attracts more attention. Third ski Center of Erzurum is Kadilli Ski Center. Sarıkamış and Cıbiltepe

Ski Centres in Kars are other attractions. Ergen Ski Center is in Erzincan. Merkez and Tatvan Ski Centres are in Bitlis. Merkez Ski Center in Van, Bingöl Ski Center, Bubi Mountain Ski Center, and Muş Merkez Ski Center add richness to region.

South East Anatolia Region: In spite of cultural data in cities, it is a region that takes little from tourism pastry because of weaknesses in security. Its cultural richness's are rare. It can be an alternative to ski centres in terms of rural tourism. However rural populations' being few affects development of substructure negatively.

Zeugma which is 10 km east to Nizip district in Gaziantep is a wonderful beauty near Birecik Dam Lake. There are a lot of historical structures, churches, castles, ruins and 11 museums.

Ararat Mountain which is 2150 meter high in Kahta region in Adıyaman is a ruin because of National Parks and mausoleums. Mausoleum which was built for Kommagene King I. Antiochus created a tumulus with pebble stones and fire altar on terrace around the tumulus, Greco-Persian giant statue and emboss stell were done. Arsemia ruins, Women Mausoleum which was done for Isas by Kommagene King II. Mithridates Bestepeler Kumulus Tombs, Havradan Rock Tombs, Turuş Rock Tombs are important archaeological data in rural area. Dolmenler, Zey, Göksu, Palanlı, Kitap, Gümüşkaya caves adds to richness to the region.

Two lakes which are near Balıklıgöl Mosque in Sanlıurfa, which is known as a place where Prophet Abraham fell into fire after he was thrown into fire and historical artefacts nearby are places which attracts tourists. Karacadağ which is the most powerful ski Center of the region is in this city. Siirt Merkez Ski Center is second ski Center.

3. Demographic aspects

Populating of Turkey has increases fast in Republic Era and still continues to increase. Populating which is 13.6 million according to 1927 census, reached 20.9 million in 1950, 66.8 in 2000, 77.7 million in 2014. Projections say that population will reach 93.4 million in 2050 (TUIK; 2015)

In the process between now and the day republic was announced, Turkey's population turned into urban population from rural population. The population in which 8 of 10 people lived in rural areas in 1920 turned into a population in which 8 of 10 people lived in urban place in contrast (Turkey Economy; 2015)

With 1950 years, intense domestic immigrations started from rural places to urban places because of the factors that push people from rural areas to urban areas and because of the factors that pulls people to urban places from rural areas. Percentage of population living in urban areas where there is shanty house fact due to conurbation as cities were not ready for a major immigration movement and the percentage increased up to 48% at the beginning of 1970's.

Immigration tendency from villages to cities fastened after 1980's. The major reason of this change is workforce need for manufacturing industry and service

industry which came together in cities as a result of “industrialization strategy towards export”

This new economic structure needed more workforces for service industry which was organized in settlement areas and for industry sector which was organized in rural of urban settlements. Workforce migration from rural areas to urban areas fastened more. As a result of this process, the population of people living in urban areas increased up to 59% in 1990's, 65% at the beginning of 2000's and 87.2% nowadays. Urbanization in Turkey is a result of domestic immigration from rural areas to urban areas, not a result of natural increase of population.

The reason of intense immigration from rural areas to urban areas can be sorted as bellows (Turkey Economy; 2015);

- Factors such as firstly economic reasons, population exchange, location policies, individual and family factors
- Security reasons from the middle of 1990's
- Widespread poverty in villages
- Not having adequate possibilities except than agriculture areas in rural areas.
- Irrigated farming's being limited
- Agriculture lands' being separate and small
- Lack of physical and social substructure in the villages
- Not accessing basic public service regularly.

When population structure change is examined, 49% of population was male and 51% of population was female in 1935 and 50% of population was male and 50% of population was female in 2014 and there is only 1% shift. The population of women and men is equal and the importance of woman for workforce is high. (TUIK; 2015).

When population's distribution according to age zones is examined, 38.6% was under 14 in 1935, 56.7% were between 15-65 ages, 4.2% was above 65 years, in contrast, 23.7% was under 14 in 2014, 67.3% was between 15-65 ages, 59 was above 65 ages(TUIK,2015). This statistics show that Turkish population was intense in workable zone and the population started to get old. Looking after old population problem will gain with job finding problem in short and medium term.

Classification on ethnic origin is not done in census in Turkey. However it is known that Muslim is dominant and members of Christianity and Jewish and other belief systems are low in percentage as a result of belief system.

Official language is Turkish in Turkey. Kurdish people living in east and south east can also speak Kurdish. Governmental education institutions have been creating opportunities to protect and develop Kurdish language recent years. However everybody regardless of his/her ethic origin knows Turkish and speaks. It can be said that there is an interest to western languages such as English, German, French, Spanish and Italian with Russian, Chinese, and Japanese which are important for tourism sector.

4. Ethnographic, folkloric, cultural aspects and any other aspects related to tradition

Anatolia is a geography that hosted many civilizations during the history. A lot of artefacts which belongs to Ottoman and Seljuk Empires before Turkish Republic flash Turkish history in Anatolia. Cultural ruins which belong to civilization before thousand years Turks came to Anatolia are also very rich. Civilizations that were founded in Anatolia are respectively:

- 1) Hittite, Phrygians, Lydia's, Ionia, Urartians (between 2000 B.C and 600 A.C)
- 2) Persians (B.C 543-333)
- 3) Alexander Empire
- 4) Roman Empire
- 5) Byzantines (395-1071)
- 6) Turks (1071-.....)

With the excavations in recent term, findings and settlement which proves that civilization history goes back B.C 6000 is detected. For example, structures and works from 8000 years before were detected in excavations both in İstanbul and in Anaia ancient city near Kuşadası.

Anatolia hosted different cultures and different belief systems for thousand years. There are many monumental ruins (mosque, church and temple) which belong to Christianity and ancient periods along with Turkish and Islamic ruins. These structures and artefacts which reached today from rich lands were opened for visit in 190 museums and 138 archaeological sites depended on Minister of Culture and Tourism for the usage of people.

There are good examples of private museums which are done by some non-governmental organizations, local authorities to transfer local cultural values, reflect history in the area of industry, to spirit life styles' and production ways in addition to governmental and archaeological sites. Museums which Rahmi Koç founded with his name reflect the history of industry. Rahmi Koç founded four private museums, one is in Ankara and two of them are Cunda, Ayvalık. Two examples are in Kuşadası and near places which are important cruise and sejour tourism in terms of ethnography. Model village was born as a result of a village miss of a teacher who was born in his village and left it for education in Central Anatolia. People's interest to his works enabled him to develop a special museum which reflects his childhood in his village. Another example is Oleatrium special museum which is about olive and olive oil that is the basic agricultural products of Aegean and Mediterranean for all historical centuries. Oleatrium is a Professional investment done by a company who deals with travel agency, hotels, and food & beverage services and organize agriculture. Istanbul toy museum which was founded by poet, writer Sunay Akin, Locomotive Museum in İzmir Çamlık are other specific examples. It is possible to mention about applications which reflect life style of term such as about local dresses, house and kitchen equipments, jewellery, furniture, agriculture equipments.

Although governmental museums and archaeological sites and museums which belongs to private sector and non-governmental organizations are mostly in big cities, majority of them are in rural areas or in rural areas which have no connection with settlement areas. There are still many ruins which can be opened for visit after excavation. Different sponsors support excavations which were carried out by local and international universities.

Majority of Turkish population are Muslim. A suitable social structure appeared in Turkey where Islam is understood and lived in the most beautiful way after this approach united with human based approaches that came from Turkish traditions. "Guest of God" is a term which belongs to Turks. There are still village houses which are only to host guests for free. Strangers who come to villages are hosted in these houses and hosted by worthy people in village. Hosting a guest has a special place in Turkish Culture. It is believed that accepting a guest will increase fruitfulness of that table. Turks have a sense in which they become happy as a result of happiness of one's whom they host. These features are important social substructures that can develop tourism in rural areas.

5. Specific economic aspects

Turkish Republic has followed the developments in international conjectures to reach modern civilization's level closely from the beginning and an active member of international organizations such as OECD, NATO. In this way, Turkey applied for the partnership to European Economic Community (EEC) which was named the biggest peace Project of humankind after a short time in 31 July 1959 it was founded in 1957. Minister Councils of EEC accepted the application that Turkey did and suggested a partnership agreement until Turkey fulfilled terms of memberships. This agreement was signed in 12 September 1963 and put into action on 1 December 1964. ECEE agreement constitutes legal base of Turkey and European Union relations. At the 2. Article of this agreement, the aim of this agreement is expressed: "Sides encourage commercial and economic relations equally and without stop by taking concern into consideration that Turkey's economy will develop fast and level of employment of Turkish people will increase."

Turkey's nominee for full membership was enrolled in a summit in Helsinki in December 1999. In Brussels summit in 2004, it was said that Turkey did not indulge political criteria's and it was suggested that negotiations will start in September 2005. Negotiations started to suggest date and adaptation studies to acquire continue.

Although Turkey was not a full member to EU, it was involved into Customs Union after 1996. So free circulation of industry and agricultural products was provided and these sectors faced up to restructure to union regulations before Turkey was a member. On the other hand, Turkish tourism professionals became ready to European Union by wishes of European tour operators who have major share among the countries who send tourists to Turkey.

Ongoing membership process of Turkey is evaluated in progress report every year. Political developments, economic developments and abilities to fulfil membership obligations are handled in detail in progress reports which are prepared taking both Maastricht Criteria's and Copenhagen Criteria's in to commiseration. Information which was given in progress report of November 2015 in economic criteria's section are as below in summary (European Commission; 2015);

- Turkish economy is developed economy and it is an active market economy.
- Economic growth follows a positive course.
- Turkey continues to face internal and external imbalance which needs to fasten widespread structural reforms and to harmonize money and finance policies.
- High current account deficit continues to make Turkish economy more fragile against the changes in global money conditions and risk perception.
- Inflation inside continues to go high in a way that it can create a problem about macro economical stability, resource allocation, sharing. Inflation came up to formal expectations.
- Public debt has reached accessible level, but government budget structural balance is negative in great extent.
- Unemployment rate reached to annual average 9.9% rates by increasing a little in percentage.
- Turkey is ready to deal with competitive pressure and market forces in EU in a great extent.
- Turkey need to effort to provide transparency in state supports and effort to remove restriction and limitations in public acquisition.

Turkey has sixth biggest economy is Europe. Turkey has also intense commercial and economic relations with union. EU countries are the biggest commercial and investment partner of Turkey. 40% of foreign trade of Turkey is 2014 was carried out with EU member countries. This percentage reached up to 42% in 2015' first three months. 64% of foreign investment between January-November 2014 term is associated with EU countries (Minister of Foreign Affairs; 2015).

In terms of tourism, Europe is the biggest tourism geography of the world. It has tourism movements in terms of both destination and market. Turkey is remarkable country being more destination country than market country. Europe is biggest tourism market of Turkish tourism. According to 2014 data, 52% of tourists who came to Turkey came from Europe.

6. Social aspects

It is known that Turkey is behind EU countries in terms of civil society organizations. Only 12% of total populating is a member of civil organization. 93 people fall out for a civil organization in Croatia, 161 people fall out for a civil

organization in Macedonia, 714 people fall out for a civil organization in Turkey (TÜSEV; 2016) When the structure of civil organization is examined, it is seen that women percentage is 5.5%. 43.5% of organization are effort education, 28.9% is for social help. It can be said that there are some sensitive organizations about tourism and environment locally. It is known that environment is an important topic for City Councils which is founded as a result of local management law. Local civil organizations tries to interrupt hydroelectric power plants that are being built in black sea region as they blocks the water of so many small and big water resources and it will deteriorate natural structure and will affect rural economy negatively. Also, there are some organizations which try to prevent practices that are to get unearned income from many tourism areas.

It must be seen as important that local people are sensitive to environment and they move organized fort his topic to protect and develop sensitive touristic practices in terms of rural tourism.

7. Specific services

It is known that there is a high correlation between the development of communication and other sub structural possibilities with the development of tourism. Capacity and food & beverage services and amusement facilities of hotels will attract tourists easily. However these substructures and excessive development of tourism could cause capacity exceed. State develops road, water, communication substructure of places where it plans to develop tourism, also state pay attention to special substructures which is for rural tourism. For example, ski tracks and teleseyij in ski centres, thermal facilities in thermal centres, different sportive structures etc.

Turkey is generally an easy destination point to be reached all over the world. Istanbul, Ankara, Antalya and Izmir are intense cities in terms of air transportation. It is possible to reach many cities with connecting flights. It is known that development level rail transportation is inadequate for tourism and general purposes. Highway net is an important factor for rural tourism.

It is possible to say that there is no real sub structural problem about rural tourism and there are abilities to eliminate deficiencies in needed areas.

8. Tourism activity and its specific importance

Turkey's tourism did not develop in the first years of Republic as they were bigger problems to focus after the war and confusion were ongoing around the world. After the world war second, the more countries economies developed, the more attendance to tourism started to increase. Data is given below which will give chance to compare the point where Turkish tourism has reached with the past terms healthier:

Table 1

Statistics of Turkish Tourism

Years	Number of Foreign (000) Tours.	Tourism inc. (000) \$
1960	124	–
1970	725	52.000
1980	1.057.364	326.654
1990	5.389.308	3.225.000
2000	10.428.153	7.636.000
2010	33.027.943	24.930.997
2014	41.415.070	34.405.000

Source: Minister of Culture and Tourism, <http://yigm.kulturturizm.gov.tr/TR,9854/sinir-giris-cikis-istatistikleri.html>

When the data is examined, the number of tourist is 164 thousand in 1960, 1 million in 1980, and 10 million in 2000 and exceeds 41 million in 2014. With increasing number of tourists, tourism income has reached to 52 million in 1970, 7.6 billion dollars in 2000, 34, 4 billion dollars in 2014. According to spastics about world tourism organization, Turkey is 6th among the countries which attracts tourist. This shows the point where Turkey has reached by growing fast.

Table 2

Order of first ten countries which attracts tourists most in the world (2014)

Order of countries	Number of coming tourists (Million)
1. France	83,7
2. USA	74,8
3. Spain	65,0
4. China	55,6
5. Italy	48,6
6. Turkey	39,8
7. Germany	33,0
8. United Kingdom	32,6
9. Russia Federation	29,8
10. Mexico	29,1

Source: WTO, <http://www.e-unwto.org/doi/pdf/10.18111/9789284416899>

9% (1/11) employment of the world is directly or indirectly related with tourism sector (WTO). The percentage of employment that was created by tourism is determined as 7.81% in 2014 in all employment (AKTOP). Tourism is third biggest sector that creates employment in Turkey. According to data of another research done about tourism in Turkey and employment, tourism's percentage is about 12.76% in total employment rate with direct and indirect employment effects (Boz; 2006).

When agricultural activities' effect on employment is examined in rural areas, percentage decrease that is 35% in 2002, 23% in 2008 and 25.5% in 2011

(TOBB, 2013). This floating structure can be interpreted as people in rural areas are not happy about the situation and they are ready to move other sectors. Thus, there is no statics' data; observations say that transition from agriculture sector to tourism sector is intense. People who do not have any education and who have worked in agriculture sector have a chance to work low level of tourism. Young people who are high school graduates and who have university education in the area of tourism have chance to go higher positions. Vocational education institutions', being widespread in the area of tourism, make young people from rural areas to work in tourism easily.

In the light of all these information's and data, it should be accepted that rural tourism activities' development and dissemination is among the solutions of economic and social problems in rural areas in Turkey. In other words, tourism should be directed to inner places from seaside.

It is seen that tourism sectors employment percentage in all over the worlds is equal with tourism sectors' share in global economy. It can be thought that effect of tourism employment in one country is nearly equal with tourism's share in that country's economy. Tourism share in national of Turkey is 4.3% in 2014 year.

9. Specific model of rural tourism for the country under study

There are some activities to develop rural tourism in Turkey and some promotions are applied.

Rural tourism concept is though as recreational activities such as trekking, nature sports, buying of local products in village visits and tasting of village meals. Such kind of rural tourism activities can be seen in Bursa and Safranbolu where cultural richness are intense, in Muğla and Antalya where there is intense tourism or in near big cities like Istanbul and Izmir. Rural tourism has gained importance recently thanks to projects that are supported by local and foreigner resources (Soykan; 2002).

State who knows that supporting the investor is important to develop the country support rural tourism area which is an important tool to develop rural areas in a great extent. IPARD rural tourism support is important practice. As known, IPARD Grant program is worthless credit which aims to support nominee and potential nominee of EU countries and it aims to increase community standards to European Union Accounting Standards before membership. IPARD support includes 2007-2013 term and it was being applied as a part of "Rural Development Program". Program was renewed by European Commission with the name of "2014-2020 IPARD program period" and its applications were approved. Among the topics that will be supported with IPARD, there are rural tourism activities. The aims of grants aimed to rural tourism are (Erdağ; 2015);

- Pensions that will be founded by small/micro investors and farmers,
- The development of restaurant and "bed and breakfast" accommodation.

- Foundation of farm tourism facilities and development of them.
- Supporting the development of facilities (sport activities, nature travel, historical travel etc) which were built for touristic activities.

In this Grant program, projects which started in mountain areas, projects which were governed by the responsibilities of woman were given priorities. “Suitable spending” is important in calculating to support that will be given. Total spending value of each Project can be lower than 15.000 Euro and more than 500,000 Euro. 50% of spending value that is announced to investor is done by state support (EU and Turkish Republic support). Grant program is applied two times a year and it includes 42 cities which are thought have rural tourism potential.

Some rural tourism projects that are applied in Turkey can be summarized as below:

- Küre Mountains and Zümrüt village
- Development of eco tourism in Kastamonu Azdavay
- Rural tourism applications as a part of North Anatolia development program and North Anatolia Tourism Development Project
- Rural tourism practices in Şirince Village in Selçuk district in İzmir
- Tekelioğlu Village rural tourism development project in Manisa
- Some practices in Buldan, Göreme and Beypazarı

TaTuTa is one of the unique rural tourism practice’s examples which is a system based on agriculture tourism in eco farms and sharing the information and experiences of volunteers. It is supported by Wheat Organization to support ecological life that is supported by United Nations Development Program Global Environment Capital. In the webpage of this program, there detailed information about 69 farms which are in 32 different areas. Volunteers can learn the place of ecological farms from the website and can work in heavy joins in the farm while staying in natural and peaceful environment (Aydın; 2012).

Dadalı Village in Akçakoca, Düzce presents tourists a real village life. Guests milk the cows in the morning, collect the eggs in chicken houses and feed the animals. They can wear local dresses can join traditional amusements such as betrothal, fiancé and wedding ceremonies (Elmas; 2012).

There is a similar enterprise in Fethiye. Agriculture tourism is supported by private sector enterprises in Fethiye. There are accommodation and food & beverage services in the farms. Fresh products that are collected in production areas and nearby places are served to guests (Zurnacı; 2012).

Perspectives of rural tourism

Rural tourism supports the refreshment and modernization of rural environment. Short, medium, long term objectives should be described openly before application of dynamic policies about rural tourism development. Short and medium term objectives can be summarized as below according to Sağcan (1986):

- Presentation of free time and amusement activities and creating a real touristic area.
- Development of local accommodation possibilities.
- Effort to create a tourist environment that will add value to rural areas.

Long term objectives are as below:

- Development of the idea that opens recreational activities and rural tourism should be opened
- Supporting the development of local enterprises
- Advertising the rural tourism and support the market.

Although efforts differ from other in the name of rural tourism policies, legal regulations about rural development is very important and many in numbers. ‘442 number Village Law’ which goes back to 1924 is one of the oldest regulations. Other laws followed legal regulations that started with this law. There are also regulations about management of organizations and special regulation about the projects other than the legal regulations which aims to develop rural tourism in Turkey. The aims of rural development projects are increase the development level by increasing the agricultural activities and incomes (Kiper, 2006). Rural development existed in Five-year-Development Plans are continued its importance. For example, it is written in 8. Five-year-Development Plan that tourism should be separated into kinds including eco tourism and there should be some steps for his policies (DPT; 2000).

Institution of Support for Agricultural Development founded Management Authority of Rural Development Program with Ministry of Food, Agriculture and Livestock and requested for proposal. The topics mentioned in the program are as below (ipard.tarim.gov.tr; 2011):

- The development of bed and breakfast, restaurant and pension services that will be done by small enterprises and farmers.
- Creating tourism facilities and development.
- Development of recreational possibilities

Rural tourism is mentioned often in tourism strategy-2023 which was published by Ministry of Culture and Tourism in 2007. Firstly, the principle in the vision is that: ‘to increase awareness of eco tourism, rural tourism and agricultural tourism within the frame of sustainable tourism in state, private sector and civil organizations. One topic that is covered in 2023 goals is:’ development of regional promotions according to kinds of tourism and development levels. It is mentioned to give efforts about increasing local and regional capacity among the strategies to develop domestic tourism. Another strategy mentioned is Turkey Tourism Strategy-2023 is brand topic. Shining the local values is making touristic centres brand are among the aimed goals. In the strategy of diversifying tourism, there are health, thermal, winter, golf, sea, eco tourism, highland tourism, conference, meeting and fair activities. Supporting nature based tourism kinds such as eco tourism, highland tourism, increasing the touristic substructure and service quality are among the goals. The most important goals are as follows:

- Local people will be educated about tourist product, making of souvenir, service, and quality and management topic
- People will be supported about turning their houses into Hotel.
- Detailed Maps will be created about different travel routes and rest areas.
- Local people will be educated about guest house management “Field Management Plan” will be planned for eco-tourism fields.

There is another heading in Turkey tourism Strategy-2023 about local and regional development “Tourism Development Areas”. Strategy is “tourism will use as powerful tool of local and regional development is tourism development areas which includes one more cities and destinations.

It can be seen that rural tourism is one of the most important topics in Turkey Tourism Strategy-2023. After rural tourism are included into this strategy, Ministry of Food, Agriculture and Livestock started to step for support program of European Union. IPARD program which was activated in 2007 as rural development tool before membership was separated into two stages (Can and Esengün; 2007). In first stage (2007-2009), Amasya, Çorum, Diyarbakır, Erzurum, Hatay, Kahramanmaraş, Kars, Konya, Samsun, Sivas, Şanlıurfa, Tokat and Trabzon cities were supported. At the second stage (2011-2013), Afyon, Ağrı, Burdur, Çankırı, Erzincan, Giresun, Isparta, Kastamonu, Kütahya, Mardin, Nevşehir, Ordu, Uşak, Van and Yozgat cities were supported within this program (Şerefoğlu; 2009).

In the light of data above, it can be seen that Turkey support rural tourism in great extent as a tool for rural development. It can be understood that Turkey has steps in the harmony with the help of union grants as a member of European Union. Development of rural tourism is seen as a tool to spread domestic tourism movements, shifting foreign tourism movements from seaside to highlands in central points.

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RURAL TOURISM IN POLAND

***Abstract:** The authors present the specific model of Polish rural tourism and discuss the perspectives of this type of tourism in Poland. The paper provides background data on the country, from various fields: history; geography; demography; ethnography; economy; society; services; tourism.*

***Key words:** Poland, tourism, rural tourism.*

1. Introduction

In Poland, the tradition of recreation in the countryside goes back to the 1870s, while currently this form of spending leisure time seems to be flourishing again. The changes which took place in Poland in the 1990s gave completely new quality to tourism in rural areas, showing first of all in its transformation into a form of farmers' non-agricultural activity. In this way, rural tourism became an important element of stimulating local development as well as diversifying economic activity, also in other European countries – it stimulates rural economy, creates employment opportunities for many inhabitants of rural areas, and in contrast to mass tourism offered by the tourist industry – it enables people to directly experience nature, discover local culture, customs, eat healthy food, etc. Therefore, it is undeniably worth developing.

Rural tourism is playing an increasing role, not only in Poland, but in many other European countries as well. However, despite many similarities, especially between neighbouring countries, each of them is different, at least in some aspects, such as natural environment, religion, traditions, customs and rituals, cuisine, languages, as well as the socio-economic situation, which is also reflected in the specificity of the developing rural tourism.

Obviously, just possessing assets is not enough – they must be “prepared” in a proper way. Sometimes an attraction must be created from scratch. In order to do that, however, one should be aware of the potential of a given country, region, so called “small motherland”, which means starting from an analysis of the advantages in order to choose those which are unique for a given country. Exceptionality is particularly important because tourists wish to experience something new and different.

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In Poland, rural areas constitute about 90% of the country's territory. This fact alone shows how huge their potential used for tourism development for many years is. However, what is the situation like in detail?

2. Historical aspects³

The contemporary geopolitical situation of Poland is the result of transformations which have been taking place over centuries. The beginnings of the Polish state are connected with the Christianization of the country and the baptism of Mieszko I, the Polish ruler from the Piast dynasty, in 966. By being baptized and by marrying the Czech princess Dobrawa, Mieszko included Poland in the west European cultural circle. It is worth mentioning that the period of the Piasts' rule left its mark on the contemporary map of tourist attractions in Poland, which is best exemplified by the Roman tourist trail, presenting mainly sacral architecture. The Middle Ages were also a time when people often went on pilgrimages to St. Adalbert's grave, to Gniezno, and the richer ones used the medicinal properties of the first Polish spas.

The king who greatly contributed to the political and economic development of the Polish state was the last Piast, Casimir the Great, who normalized the relations with the Czechs and the Teutonic Order. He introduced a new system of management, codified the law and contributed to the ethnic integration of individual regions of Poland, divided into districts for almost 200 years. He introduced tax and educational reforms (founded the first Polish university – the Jagiellonian University in Krakow), took care of the development of settlement. It is a common saying that he found Poland built of wood and left it built of brick. There are still many fortresses (mostly) which were erected at the time of his rule, which are currently popular tourist attractions. A remainder of the conflict between Poland and the Teutonic Order is a trail of gothic castles.

The time of the reign of the next dynasty – the Jagiellons (14-16th c.) is a time of great social, economic and cultural transformations. Over that period, the Nobility class was established, which on the strength of royal privileges often decided about the country's fate. It was the time when a strong, democratic state was formed – the Republic of Both Nations, formally known as the Kingdom of Poland and the Great Duchy of Lithuania, which was an effect of a union between Poland and Lithuania. The Jagiellonians developed agriculture and trade, and as a consequence cities which are still famous today flourished (Gdańsk, Toruń, Krakow). At that time, science was developing rapidly and the Jagiellonian University was one of the leading universities in Europe, which encouraged international cognitive

³ Based on: Jurek T., Kizik E., 2013, *Historia Polski do 1572*, Wydawnictwo Naukowe PWN, Warszawa; Roszkowski W., *Historia Polski 1914-2005*, 2007, Wydawnictwo Naukowe PWN, Warszawa; Samsonowicz H., Wyczański A., Tazbir J., 2009, *Polska na przestrzeni wieków*, Wydawnictwo Naukowe PWN, Warszawa; <http://encyklopedia.pwn.pl/>, <http://www.historia.azv.pl/>, <http://polskiedzieje.pl/>.

journeys and an exchange of opinions. Many touristically attractive examples of Renaissance architecture come from the period when the last Jagiellonians reigned. Representatives of the Nobility class traveled for cognitive purposes more willingly, due to their wealth and better education than that of the rest of the society.

The last king from the Jagiellonian dynasty did not leave an heir and as a consequence of that, in 1572 so called free election was introduced, which meant that the sovereign was chosen during an Election *Sejm* session by representatives of the Nobility.

During the period of the election kings' rule, counter-reformation was developing as well as wars with Sweden, Turkey and Russia were waged. At the same time, Cossak uprisings took place. However, those events did not prevent development in culture and architecture. As a result of the popularity of the baroque philosophy, numerous sacral buildings as well as noblemen's residences (palaces and courts) were erected.

Among the major historical events affecting further development of the Polish state were the partitions of the country in 1772-1795. Taking advantage of the weak political and military position of the Republic of Both Nations as well as internal conflicts among the Nobility class, the rulers of Russia, Prussia and Austria divided the territory of Poland amongst them, depriving the country of statehood for 123 years (until 1918). For several generations, it was a very dynamic period as regarded developing patriotism and love of traveling. It was proved not only by resurrections, but also by dynamically developing social activity, especially within the borders of the Prussian and Austrian section. This activity often developed under the pretext of sports and tourist activity.

Poland regained independence on 1st November 1918, having supported the coalition of the Triple Entente during World War I.

The interwar period was a time of rebuilding the country, recreating its economic, social and cultural life. As a result of the partitions and belonging to different countries, parts of the Polish land differed immensely as regarded economy. It is estimated that 65% of Poles were farmers and the level of agriculture was the highest on the lands that used to belong to Prussia (Greater Poland / Wielkopolska). There, industry practically did not exist. As an additional factor hampering the revival of Poland was the global crisis, the effects of which were felt nearly until World War II. The breakthrough came when the investment plans of the country were launched in 1936.

It is worth noticing that even at that economically difficult period the need for the development of domestic tourism was not ignored. Right after World War I ended, the first governmental organization was founded which was responsible for starting the first Cable and Rail Car system in Poland and for speeding up the development of cheap tourist accommodation, available first of all to children and youth. During the interwar period, many organizations of different types were established, which took care of proper recreation of various social groups,

including factory workers and farmers. At that time, the first travel agency appeared.

A phenomenon which gained in popularity in the interwar period concerned summer holidays – city inhabitants rested in the countryside in farmers' houses, and the more affluent ones bought themselves second houses in rural areas, usually close to where they lived permanently (Drzewiecki 2002). It was the beginning of recreation in rural areas organized on a larger scale.

The process of rebuilding the country was stopped by the outbreak of the Second World War, and the next rebirth of Poland in the 1950s was strongly limited due to the introduction of the communist rule under the pressure of the Soviet Union. The effects of the cold war and the iron curtain (the post-Yalta order) were visible in every domain of life, also in tourism and recreation. Before 1956, foreign tourism had been practically non-existent, and visiting relatives living in Western Europe was forbidden. In the 1970s, traveling abroad became more popular, but tourist destinations of that time were situated in the countries dependent on the Soviet Union.

Domestic tourism became nationalized and took the form of social tourism. Recreation was planned top-down by the works councils, schools and other tourist establishments. Tourist accommodation facilities were largely seasonal (with a focus on using them in summer) and represented a low standard of service. It was not until the 1970s that attempts were made to introduce categories of accommodation facilities and maintaining basic standards. The sector of private tourist enterprises (travel agencies, tourist accommodation facilities) practically did not exist.

As regards rural tourism, the second half of the 1950s marked the beginning of recreation at individual farmers' homes. In tourist regions, a kind of summer holiday villages started to be organized (Drzewiecki 2002), which was supported by the "Gromada" Tourism Cooperative, promoting the advantages of the Polish countryside.

Radical changes in the political and socio-economic life took place at the turn of the 1980s and 1990s; they were a consequence of the activity of the Polish trade union "Solidarity", established in 1980.

The transition from centrally planned to free market economy brought many changes in the model of life of the Polish family. Tourism economy also underwent transformation. However, in the first years of the transformation and social pauperization, tourist activity was not a common phenomenon – nearly half of Polish citizens did not participate in any forms of tourist travel.

Services were commercialized and many state enterprises were privatized, as a result of which about 3000 small travel agencies were set up and tourist accommodation facilities were modernized (fewer seasonal facilities of a lower standard) (http://www.lotur.eu/UploadFiles/524/178/1265187566-Historia_turystyki_w_Polsce_DOT_IT.pdf 11.01.2016). A new national organizational structure was

designed, which dealt with the promotion and popularization of tourism. In 2000, the Polish Tourism Organization was founded – a government agency supported by 16 regional and 124 local tourist organizations (<http://www.pot.gov.pl/o-polskiej-organizacji-turystycznej/p/wspolpraca/lokalne-organizacje-turystyczne> 17.12.2015). A new law concerning tourist services was constructed – the Act on Tourist Services, based on its predecessor from 1997. In the same year, the first *Development Strategy for the domestic tourist product*, adjusted to the new market conditions was created, which assumed creating five brand products of Polish tourism, including rural tourism (Stasiak, Rochmińska, 2010).

Abolishing the iron curtain in 1989 opened the borders between Poland and West European countries, as well as generated spontaneous and very dynamic tourist traffic, both as regarded incoming and outgoing tourism (particularly noticeable in 1995-2000). As regards the number of foreign visitors/tourists, it was the largest in 1997, when Poland came seventh on the list of the world's most popular destinations (Poland was visited by 3.2% of all tourists) (UNWTO Tourism Highlights, 2000 Edition, http://tourlib.net/wto/WTO_highlights_2000.pdf 13.01.2016). It was the consequence of an increased interest in Poland internationally and lower prices of tourist services for foreign visitors. Currently, Poland is outside the first fifteen most frequently visited countries (UNWTO Tourism Highlights, 2015 Edition, <http://www.e-unwto.org/doi/pdf/10.18111/9789284416899> 13.01.2016). This, however, is not a reason to resign from foreign tourism. Quite on the contrary – it encourages organizations on various levels (national and regional) to search for new segments of customers, representing different nationalities, often very distant culturally (e.g. the Chinese, Hindus or Japanese).

3. Geographical aspects

Poland with its variety of natural landscapes, natural habitats and the animal and plant species living in them is in the lead of those European countries which have managed to preserve some of the primeval nature. These valuable spaces are usually found in rural areas, where there are also quite many elements of precious cultural heritage, which additionally increases the tourist potential of these areas.

Poland is a typically lowland country (91% of its total area) (Zajac 1995), which Poles perceive rather as touristically unattractive. It is generally known that what we have in abundance every day seems boring and unnoticeable to us. However, if we look at it through the eyes of an Italian or a Swedish person, even this landscape may be very interesting. Besides, despite the fact that the average altitude in Poland is 173 m above sea level (Szlajfer 1999), there are also the Carpathian Mountains with the Tatras range and the highest Polish peak – Rysy (2499 m above sea level). Geographical regions in Poland stretch latitudinally, going from lowland areas in the north and in the central zone to uplands and mountains in the south (Kondracki 2002).

The most touristically attractive areas are those situated in the north (on the Baltic coast) and in the very south, with a typically mountainous landscape, rare in Poland.

The coastal region – a plain or curvy lowland – is strongly predisposed to the development of rural tourism. There are not many large cities here; there are various forms of protected areas and, of course, agriculture. Although due to the special history of Poland its western periphery and the coast had been the land of state farms until 1989, only a small percentage of the arable areas were private property. Hence, at present, there are large agricultural monocultures here, which do not offer very favourable conditions of resting in the countryside. However, in the middle section of the Polish coast, a traditional division of lands has been preserved – for generations, they have been forming a picturesque chessboard of fields, balks, ponds and groups of trees growing among the fields. An additional advantage is the Baltic coast – wide and sandy, but also with high cliffs, forming picturesque scarps (protected as a part of the Woliński National Park), as well as the rare phenomenon of shifting sand dunes (a part of the Slowiński National Park) (Batorowicz, Nalewajko, Suliborski 1994). However, there is the problem of the very large numbers of mass tourists, “invading” the beaches, though it must be said that they are usually those belonging to given localities, while the places which are slightly more difficult to reach, devoid of abundant tourist infrastructure, remain empty, especially outside the holiday season. Thus, generally, the Polish coast is certainly predisposed to the development of coastal rural tourism. An addition to the very interesting natural conditions is the rich cultural heritage, including for instance the remains of the already non-existent ethnic group of Slovicians, traces of the Mennonite settlers in Żuławy, who came from the Netherlands, or the Kashubians, who are still inhabiting the area (Licińska 1998).

In the southern regions, on the other hand, there are mountainous landscapes formed by the older Sudetes, shared with the Czech Republic and Germany, as well as the younger and higher Carpathians, the second largest European mountain range stretching across seven countries (Kondracki 2002). Both mountain chains, covering about 9% of the country, offer very well developed tourist infrastructure, although as the natural conditions and cultural heritage are concerned, non-urbanized areas are strongly predominant. The height of the Tatras, the highest Carpathian chain in Poland, reaches nearly 2500 m above sea level, and Śnieżka in the Karkonosze Mountains is slightly over 1600 m high (Ressel 2002). A characteristic land relief makes this area suitable for practicing active rural tourism, e.g. skiing or mountain climbing. Other popular activities include rafting and kayaking on the rivers, which form picturesque gorges (Figiel, Krakowiak, Dygała, Żywczak 2004; Grocholski, Grocholski 2007).

As for the upland areas, they cover a small percentage of the country's total area, but are extremely varied as regards landscape. This is due to the geological landforms creating exceptionally picturesque scenery – rocks of fancy shapes and

deep caves. In addition, because of the existing relics of the old mining industry, e.g. places where bog iron was smelted at the turn of the eras, or an even older striped flint mine in the Świętokrzyskie Mountains, or the traces of dinosaurs (focalized footprints), these areas are particularly predisposed to the development of rural geotourism (Migoń 2012).

Particularly suitable for the development of water tourism in rural areas are the lake districts, with their very varied land relief due to four glaciations which left numerous lakes and forms of post-glacial accumulation behind them, such as moraine hills, drumlins, eskers, outwash plains or kames. The very presence of a water reservoir is a great attraction for tourists. It does not really have to be specially prepared – it is enough that there is water and the tourists may spend their time doing a variety of things, depending on the weather. That is how it has been since the beginning of tourism. Water has always attracted people who wanted to relax; even in antiquity tourists traveled to spas. This phenomenon still exists nowadays and concerns rural tourism as well – sites situated on water attract the largest numbers of customers.

Finally, there is the type of area which is found in Poland most frequently – the lowlands. It must be stressed, however, that there are few areas which are completely flat – the predominant form is the undulating plain. Their main function is agriculture – that is why this region is particularly predisposed to developing classical rural tourism. Of course there are crops grown over vast areas, including monocultures, which are absolutely unsuitable to develop any tourist function. However, there are also areas, such as e.g. the Dezydery Chłapowski Agri-Ecological Landscape Park, where next to the fields, meadows and pastures exploited by farmers, there are 19th c. complexes of mid-field trees and ponds, which keep the whole ecosystem in balance. This picturesque chessboard of fields, bulks and purely natural elements makes it possible to successfully practice educational rural tourism. It should be remembered that not only traveling people benefit from doing it – it also has an influence on prolonging the tourist season or even extending it beyond holiday months.

Finally, we should stress the uniqueness of nature in Poland on the European scale. The resources include, among other things, a forest resembling the former European complex – Białowieża Forest, the largest European complex of marshes (Biebrza marshes), one of the longest rivers – still unregulated, flowing on the natural riverbed of the Vistula River. All this makes the country ideal to develop rural nature tourism there (Wędrychowska 2005).

4. Demographic and social aspects

The present population of Poland is about 38.5 million people, which gives it the ninth position among all European countries <http://ec.europa.eu/eurostat/tgm/>

table.do?tab=table&init=1&language=en&pcode=tps00001&plugin=1_29.12.2015). 52% of the inhabitants of Poland are women.

World War II brought population losses of about 30%. Returning to about 35 million citizens was not possible until the 1980s. This dramatic decrease in the number of population was caused not only by direct warfare but also by the changes in the country's borders and territory.

By the 1990s, an increase in the number of the population of Poland had depended first of all on the population growth rate, which was exceptionally high then (up to 20 % annually in the years immediately following the war). At the turn of the century, for the first time in the post-war history of Poland, this index oscillated around 0; unfortunately, in recent years the phenomenon has recurred – in 2013, the recorded value was –0.5 %. Figures from 2014, however, show the value of about 0 (0.1 %) again (<http://stat.gov.pl/statystyka-regionalna/rankingi-statystyczne/przyrost-naturalny-na-1000-ludnosci-wedlug-wojewodztw/> 29.12.2015).

The population growth rate decreased as a result of the political process in the 1980s, which resulted in economic restructuring and, regrettably, worse financial situation of the society. In addition, Poles realized that it was possible to live according to the western model – the professional activity of women increased, which caused a trend of setting up families and having children later in life.

Considering the situation above, we should not be surprised by the advancing process of the aging of Polish society. Naturally, this is also caused by the longer life expectancy (currently, about 77 years). The percentage of the population at the pre-productive and productive age (18% and 63%, respectively) is decreasing percentage for the benefit of the citizens at the post-productive age (19%). Generally, a statistical inhabitant of Poland is about 39 years old, the average age for women being 41 and for men – 37.

Demographic structure is connected with migrations, both internal and external, which are due to various reasons. In the past, an important factor in Poland was history, particularly the following events:

- the loss of independence at the end of the 18th c.;
- national uprisings and the following persecutions;
- poverty and overpopulation in rural areas after regaining independence between the wars (c. 1.5 million);
- World War II (voluntary emigration and enforced deportations – about 2.2 million);
- Growing anti-Jewish atmosphere in 1945-1970 (c. 150 000 Jews).

Moreover, after World War II, Poles emigrated for economic and political reasons. The last wave of emigration, after Poland joined the European Union, was related to the opening of Western labour markets; an estimated number of two million people left the country, especially young, very well educated people and specialists. In 2007-2009, the number of emigrants fell, but recently it has been on the rise again.

In Poland, immigration occurs on a relatively small scale and includes mainly the citizens of the neighbouring countries.

As for internal migrations, they concern first of all women at the production age, moving from rural areas to large cities, mostly from the eastern part of Poland; the migration balance for Poland has been negative since World War II.

The population density in Poland comes at 123 persons per 1 km², which gives Poland a middle position among other European countries. In urbanized areas, this parameter naturally increases to 1078 people, on average. In the countryside, it is only 52 persons, but there are areas, where population density is about 2 persons per 1 km², e.g. the rural area of the Nowe Warpno *gmina*.

Since the 2000s, the number of urban population has been slowly falling – over the past 15 years it has decreased by about 15%, to 60%, which is new for Poland, because since the 1940s it has increased by nearly 100% (!). It is the effect of depopulation, especially in the centres of large cities whose inhabitants move to suburban areas.

World War II had a huge impact not only on the number of the population of Poland, but also on its ethnic composition. As a result of warfare and spatial changes of the country, the percentage of people of other nationalities (mainly Ukrainians, Belarussians, Jews and Germans) decreased from 30% nearly ten times. Currently, Poland is an ethnically homogenous country. However, some minorities exist and they are very important. The Act of 6th January 2005 on national and ethnic minorities and on the regional language refers to four such groups. The most numerous are Gypsies – about 17 000 citizens, who belong to five different sub-groups. Their origins on Polish land date back to the early 15th c.; they first arrived from the south and a little later from the west of Europe. Polish Gypsies continue to communicate in Romani – their own language; they organize many events, and the District Museum in Tarnów shows the only collection of Gypsy artifacts in Poland.

Another ethnic minority are Lemkos (about 10 000). Today, they inhabit the north-western periphery of Poland as a result of the “Vistula” campaign, conducted in 1947-1950, relocating them from the south-east of Poland. They speak their own language, have their museum in Zydranova and organize numerous events.

About 2000 Poles declare that they belong to the Tatar ethnic minority. They are Polish Muslims who live on the north-east periphery of the country and do not speak their own language any more. They arrived in Podlasie in the 14th c. and still cultivate their customs. In two villages, there are historical mosques and historical cemeteries, which are still in use.

The least numerous minority are the Karaims – they form a group of merely 300 Polish citizens whose predecessors arrived from Crimea in the 13th c. They are adherents of Karaism – a monotheistic religion, derived from Judaism; they use their native language only during liturgy.

Apart from the languages spoken by the main national and the abovementioned ethnic minorities, also regional languages are used in Poland. The most popular is

the Kashubian language, which is the only one to have this status, according to the Polish law (<http://www.mniejszosci.narodowe.mac.gov.pl/mne/prawo/ustawa-o-mniejszosciac/6492,Ustawa-o-mniejszosciach-narodowych-i-etnicznych-oraz-o-jezyku-regionalnym.html> 29.12.2015). According to the European Charter for Regional or Minority Languages (<http://www.coe.int/pl/web/conventions/full-list/-/conventions/treaty/148> 29.12.2015), a regional language is one which is traditionally used on the territory of a state by a group which is less numerous than the group of the remaining citizens. It cannot be a dialect of the official language or the language of national minorities. The Kashubian language is the only remnant of extinct Pomeranian languages, used every day by over 100 000 people. It is worth mentioning that attempts are being made to include the language spoken by Silesians in this category ([http://orka.sejm.gov.pl/Druki6ka.nsf/0/53D98A50C193B814C125782A0046A5A0/\\$file/3835.pdf](http://orka.sejm.gov.pl/Druki6ka.nsf/0/53D98A50C193B814C125782A0046A5A0/$file/3835.pdf) 29.12.2015).

Territorial local dialects are also very interesting, e.g. *kmına ochweśnicka* – a jargon which developed in the first half of the 19th c. in the borderline area between the Russian and the Prussian occupation zones in Wielkopolska (Greater Poland). Initially, it was used by traders of holy pictures (*ochweśnik* means the maker of such a reproduction) (Reinfuss 1962), and then by geese and feathers sellers – smuggling flourished on an enormous scale in that area (Januszkiewicz, Pleskaczyński 2006). Nowadays *kmına* is spoken only by the oldest inhabitants.

An even more interesting history is that of *wymysiöeryś* – a dialect spoken by the inhabitants of Wilamowice, situated in the south of Poland, whose 13th c. predecessors came from the territories of today's Netherlands, Scotland and Germany. Nowadays, it is spoken only by about 70 persons, but more and more young people are beginning to appreciate the exceptionality of *wymysiöeryś* as their heritage and are learning it. Language workshops may be an attraction for tourists – even one lecture from which they will learn that *comb* and *starve* in *wymysiöeryś* sound the same as in English (*comb* – *komp* and *starving* – *starwa*) may be the most memorable fact from the whole trip (<http://inne-jezyki.amu.edu.pl/Editor/files/AZak%20wymysioerys.pdf> 12.01.2016).

The A. Mickiewicz University in Poznań runs a project entitled “Language heritage of the Polish Republic”, which is to record the dying languages, protect or even revitalize them. At present, there are 22 languages, dialects and jargons, including seemingly exotic ones, such as the *kipezacki* language used by Polish Armenians, or a variety of Yiddish spoken once by Polish Jews (<http://www.inne-jezyki.amu.edu.pl/Frontend/> 12.01.2016).

5. Ethnographic, folkloric, cultural aspects and any other aspects related to tradition

Traditional or folk culture means “activities taking place according to adopted social models, in all areas of human life, as well as the products and

objects of such activities” (Bukraba-Rylska 2002). Taking this definition into account, folk culture consists of: the sphere of production, exchange and material consumption (e.g. handicraft and crafts, construction, outfits, food), the social life in the country (e.g. local groups, relationships and family ties), folk beliefs and knowledge (e.g. traditions and rituality, aspects of religiousness, social customs), as well as artistic culture (art, music, dance, verbal folklore).

Poles come from west Slavonic tribes, inhabiting the catchment basins of the Vistula and Odra Rivers at the time when the Polish statehood was being born. The regional division of the country connected with the tribal past and differences in the economic and cultural development was preserved at least till the end of the 18th c. They are the following sections of the country, preserving their own culture for a long time:

- Wielkopolska – in the Warta River catchment basin; the first territory inhabited by the Poles;
- Silesia – the Upper Odra catchment basin; inhabited by small tribes living in the area of the Polish state;
- Małopolska – mostly in the upland belt in the Upper Vistula catchment basin;
- Masovia – in the middle section of the Vistula River
- Pomerania – in the wide belt of the south coast of the Baltic Sea (Gieysztorowa 1976).

This spatial mosaic together with the population inhabiting it were undergoing a transformation along with the changes of the country’s borders and the inflow of immigrants, e.g. from Germany, the Netherlands, the Carpathians, Crimea, Armenia, etc. Another extremely important factor were the political differences during the period of the partitions of Poland, especially as regarded the legal, technological and temporal aspects of the abolition of serfdom, granting equal rights to townspeople, industrialization, development of education, etc.. All those phenomena caused regional differences in the cultural landscape of Poland, which are still observed today (!). This is visible, e.g., in the results of contemporary elections of central or local authorities (Ogrodowska 2011).

At present, it is hard to talk about homogenous ethnographic regions, with few exceptions (the Kashubia or Podhale) (Szymanderska 2003).

As regards individual components of folk culture, one of the most distinctive elements is the manufacturing activity by the country inhabitants, which can be most generally divided into handicraft, i.e. production for the needs of one’s own farm, and crafts – producing things for trading purposes. Both activities were changing over the centuries, being most popular in the pre-industrial era. In some areas, they were continued until the 1950s and at some places they are still thriving, almost unchanged (e.g. making straw baskets or ropes for private use or sale). Many skills were developed all over Poland, but other ones, like constructing wooden shingle roofs, could be found only in the south of Poland; on the other

hand, characteristic raw materials, models, ornaments or names contributed to regional distinctiveness (Chwalba 2008).

In Poland, there are many facilities presenting old crafts and handicraft; in addition to this, the majority of them are “living museums”, where you can not only see tools and furniture, but also touch them, or even take part in demonstration workshops. A classical example is the Regional and Natural Education Centre in Mniszki (www.mniszki.pl 22.12.2015), or the trail of disappearing professions in Kudowa-Zdrój (<http://www.szlakginacychzawodow.com.pl> 22.12.2015).

As regards traditional Polish construction, the most popular building material in rural areas was wood, even in the times documented with the earliest archeological discoveries. This trend continued until the mid 20th century. Apart from wood, locals also used what was available in the vicinity, i.e. straw, reed, clay, stone, lime, and other natural materials, which linked the buildings with the surroundings (Fryś-Pietraszkowa, Kunczyńska-Iracka, Pokropek 1988).

In present times, Polish wooden architecture is disappearing, first of all as a result of the natural degradation of this building material, fires, but also due to the lack of continuation (Uruszczak 2013). The last 30 years of the 20th c. in particular caused real havoc – nowadays, there are only remains, usually displayed in open air museums. The areas with a relatively large amount of historical wooden architecture are Małopolska (in the south) and Podlasie (north-eastern periphery of the country). Many localities in Podlasie, especially those situated near the eastern border even preserved the special layout from the 16th c. – there are terraced houses, built along the main street and the ornamentation of the residential houses is very rich and colourful. This in a way resulted from the distinctiveness of the local population, who have Belarussian and Ukrainian roots. The house ornamentation, which particularly developed in the south-eastern parts of the region, inhabited by people of that origin, is enhanced by the variety of colours of individual elements. The most popular were geometrical and floral motifs, but even today it is possible to see silhouettes of animals and people, or even religious or patriotic symbols, used to decorate the corners and eaves of the huts, especially in the gable section, as well as shutters, window heads and interior and exterior window ledges. Those characteristic features were used when creating the rural tourism product called “The Land of Open Shutters” (Fig. 2).

A characteristic element of architecture in Małopolska is the artificially created Zakopane style, which for most Poles is traditional and indigenously Polish while it was created at the end of the 19th c. by S. Witkiewicz, who patterned it on the traditional building style of Podhale, enriching it with numerous secession details. Another element that is worth mentioning is wooden sacral architecture, whose representatives (both churches and *tserkovs*) have been placed on the UNESCO World Cultural and Natural Heritage List. Apart from that, there is the Wooden Architecture Trail, crossing the southern voivodeships of Poland.

It should also be mentioned that in Poland there are over 30 open-air museums, presenting Polish folk culture, including first of all traditional wooden construction (<http://www.muzeum-radom.pl/muzea-skansenowskie/skanseny-w-polsce/spis-muzeow-na-wolnym-powietrzu-w-polsce/1004> 23.12.2015).

The changing borders, inflow of immigrants, as well as the openness and tolerance of old Poland influence the native culinary tradition as well – it is possible to find traces of the Russian, German, Austrian, Jewish, Lithuanian, French and Italian cuisine (the latter two were introduced by the wives of Polish kings – Queen Maria Kazimiera Sobieska and Queen Bona Sforza). That is why it is often difficult to clearly define the degree of “Polishness” of a given dish. Very typical Polish dishes and drinks include *flaki* (triples), *czernina* (duck blood soup), *bigos* (a cabbage dish), *pierogi* (dumplings), cucumber in brine, sauerkraut, sour milk, buttermilk, kephir (Librowska 1982), while the Polish List of Traditional Products consists of 1499 entries (<http://www.minrol.gov.pl/Jakosc-zywnosci/Produkty-regionalne-i-tradycyjne/Lista-produktow-tradycyjnych> of 27 December 2015).

The next element of folk culture is rituality. In Poland, nearly all holidays and rites still have a familial character. Most rituals that are still observed today are those related to agriculture, and their typical feature is the strongly Christian character, despite frequent pagan provenience – a combination of magical thinking and attempts of Christian interpretation of incomprehensible prohibitions and magical procedures. The factors conducive to preserving some rituals are certainly their spectacular character and the accompanying gift collecting and traditional treats. On the other hand, some rituals disappeared because they were negatively evaluated by contemporary communities or there was no need for them (once boisterous celebrations of St Nicholas Day – the patron saint of shepherds) (Szymanderska 2003). Among the most interesting holidays of this kind in Poland are Christmas, All Saints Day and Corpus Christi (connected with the liturgical calendar) as well as the drowning of Marzanna and Sobótka as remnants of pagan beliefs.

Folk art comprises painting and sculpture, followed by music and dance. The history of creating paintings is strictly connected with the cult of saints, popular in the 17th c., and pilgrimages, which used to have an immense influence on the life of villages and small towns. Portraits were painted on boards, canvas, tin foil, paper and were supposed to protect the household from all misfortunes, disease and natural disasters. It was only later that painting became secular and typically decorative. Currently, folk artists present scenes of country life, landscapes, as well as biblical scenes.

An exceptional art on the global scale is painting on glass, involving painting on the inside of a glass pane, using the reversed cycle, without backgrounds or foregrounds (www.kulturaludowa.pl 05.01.2016).

Sculpture also occupies an exceptional position in Polish folk art. It was initially connected with religious cult and expressed spiritual needs of the Polish country population. Up till the 19th c. it had been taking the form of embellishments

of the by-the-road shrines. After the Second World War, sculpture lost its practical character and the wooden figures in the shrines were replaced with plaster ones. Contemporary folk sculpture has completely lost its original character, but preserved the theme – the most popular are still the figures of the Pensive Christ, angels and patron saints. However, they are not bought for cult purposes but merely for aesthetic reasons. The basic sculpting material is wood, mainly linden, sometimes also stone.

Polish folk music shows many similarities to that created in other Slavonic countries. The composers and artists were ordinary amateurs – singers and instrumentalists, performing in bands at wedding parties, during other ritual situations, at parties or during livestock grazing (e.g. trumpet sounds were used as a way of communicating) (Sobieska 2006). Many folk musicians can still play traditional instruments, some of which can be found only in Poland (e.g. the devil's violin). As for the folk dances, the most popular ones include *mazurek*, *oberek* and *polonez*. However, they are usually performed by folk ensembles, like “Mazowsze”.

In Poland, there are a number of events, including international ones, which refer to traditional folk art.

Polish folk art is very rich and, most importantly, it is still alive in many domains of life. Polish rural tourists' interest in folk art is considerable – 78% declare that the presence of the folk culture element in an offer is crucial to their choice and purchase. Unfortunately, the response to such high demand is very modest, as only 34% of agritourist farms introduce such components into their offer (they are usually: handicraft – shows, workshops and an opportunity to buy products, regional cuisine, interior décor) (Wyrwicz 2010). Thus, the service providers of Polish rural tourism face a very large challenge, but the potential of the Polish countryside – and in this case traditional culture in particular – is really impressive.

6. Specific economic aspects

Despite a difficult global economic situation as a result of the world crisis, Poland managed to remain economically balanced. In 2014, the increase in economic activity, noticeable for the last previous years, could still be observed. The gross national product (GNP) increased by 3.4% and was higher than in previous years, as well as in relation to the mean value for Europe, which was 1.3%. The main factor generating the growth of GNP was the domestic demand, which was strengthened by practically no inflation – it had been the lowest for the previous 25 years. The last two years had been the time of improved conditions on the work market – the employment rate (for people aged 15-74) increased by 1.7% to reach 61.7%, and the unemployment rate fell to 9.0% (it was lower than the mean value for the EU, which was 20.2%). At the same time, the percentage of persons

working on a fixed-time contract increased. A consequence of that was the increase of an average salary by 3.4%.

It should be stressed that in the context of external flexibility, the Polish labour market is one of the most flexible ones in the EU. The percentage of employees working for a fixed term in 2014 was about 28.3% (for comparison, in the EU – 14.0%). The result of the improved situation on the labour market is an increase in the real income of households by, on average, 3.2% (the mean rate for EU countries was 0.8%). The gross national product is created by the following sectors: services (64%), industry (25.1% – which is higher than the mean value for EU countries – 18.2-20.1%), construction (7.5%) and other sectors (*Sytuacja makroekonomiczna w Polsce na tle procesów w gospodarce światowej w 2014 roku* 2015). Let us add that nearly 60% of Poles are satisfied with their professional situation (*Jakość życia w Polsce. Edycja 2015* 2015).

Specific services

To satisfy tourists' needs, it is necessary to have properly developed tourist infrastructure. The accommodation resources consist now of nearly 10 000 registered facilities of various types. Since the mid-1990s, the percentage of seasonal accommodation facilities belonging to enterprises has been gradually decreasing (e.g. holiday centres, summer holiday centres for kids, artists' homes, etc.).

The ratio of beds in hotel facilities per 1000 persons has the value of 7.6, which is much lower than the mean values for Europe. Year after year, the number of hotels (mostly 3-star facilities), motels and guest houses is growing. The most numerous are hotels (23%) and holiday centres (10.3%), which are mainly seasonal facilities, affordable for medium affluent Poles. It must be noticed, however, that over the last few years the number of hostels has also grown – they are facilities of relatively high standard and reasonable price. In 2009, only several of them were registered while in 2014 – already 114. The mean occupancy rate of accommodation facilities is about 35%, and the highest one is recorded in spas – 77% (2% of all facilities), followed by hostels – 45% and hotels – 37% (*Turystyka w 2014 r.* 2015). It should be added that spa centres in Poland are gaining in significance among foreign guests, especially from Germany (due to the favourable ratio of the price and the quality of services) (*Lecznictwo uzdrowiskowe w Polsce w latach 2000-2010 2011*). The status of a spa is held by less than 50 localities.

The gastronomic infrastructure resources in Poland are made up by nearly 70 000 establishments, with the highest percentage of bars (38%) and gastronomic outlets (32%), most of them seasonal (*Raport o stanie gospodarki turystycznej w latach 2007-2011* 2013). The catering infrastructure connected with the functioning of accommodation facilities consists of about 7600 establishments, 48% of which are connected with hotels. Nearly a half of this infrastructure are restaurants, and further 1/3 – cafes.

An important element of infrastructure is transport. In passenger traffic, the main means of transport is the car, used in 79.6% of all journeys. It is followed by the bus – 14.1% (what is interesting, it is higher by a few percent than in the European Union). The third place is taken by rail transport – 6.2%. Air transport serving passenger traffic is rather insignificant – 1.0%. The mean number of cars per 1000 inhabitants is in fact the same as the European mean (Poland – 486 vehicles, EU – 487). However, the system of Polish roads is much worse – in Poland there are only 3 km of motorways per 1000 inhabitants, while in the EU it is on average 14 km (*Transport – wyniki działalności w 2014 r.* 2015).

Tourist activity⁴

Poland is a tourist destination of numerous assets and varied infrastructure, which creates an opportunity for specialist forms of tourism to develop. There are about 50 000 km of marked walking tourist trails, nearly 20 000 cycling trails and about 1200 kayaking routes (*Turystyka w Polsce w 2014 r.* 2015).

The potential of Poland as regards natural, cultural and human resources is considerable. In 2011, Poland occupied a high, 30th position among 139 other countries as regarded these resources (Blanke, Chiesa 2011).

Despite various changes taking place on the global market, the share of tourist economy in GNP is rather stable and comes at 5.6% on average, with the employment rate estimated at about 4.7% of all working people. Income from the visits of foreign tourists reaches about 4.5 billion Euros (*Program rozwoju turystyki do 2020 r.* 2015). The share of tourism in export is growing: in 2010 it was 5.0% and in 2014 – 5.6%. Unfortunately, the share of tourism in import is decreasing: in 2010 it was 3.0% and in 2014 – only 1.4%.

Incoming tourism

The intensity of foreign tourism in the last five years has been showing a growing tendency – in 2010, Poland was visited by 12 470 000 tourists, while in 2014 it was 16 million (Janczak, Patelak 2014). The majority of tourists coming to Poland are citizens of Germany (1/3) and representatives of countries situated east of Poland: Ukraine, Russia, Belarus and Lithuania (1/4). They are followed by travelers from the Czech Republic, Slovakia and the Netherlands.

An average stay of a foreign tourist in Poland lasts 4.5 days (as of 2013), and longer stays prevail among representatives of the so called old Union and our eastern neighbours. The motivations to visit Poland also vary – visitors from the old Union and overseas arrive mainly for typically tourist purposes, while our eastern neighbours and representatives of the new Union usually come on business. The third motivation is visiting relatives and friends.

⁴ Based on data of Ministry of Sport and Tourism of Poland.

Foreign tourists most often stay in typical hotel-type facilities (hotels, motels, guest houses) – 54%, as well as at relatives' and friends' homes – 27%. The mean daily expenses are about 70\$. It must be stressed that a great majority of journeys are organized individually (c. 70%). The most popular voivodeships are Małopolskie, Lower Silesian, Pomeranian,

West-Pomeranian and Masovian, with 64.5% of all visits (<http://www.national-geographic.pl/porady/polska-kto-odwiedza-nas-najchetniej> 02.01.2016). Among the most frequently visited cities are Krakow, Warsaw and Gdańsk (according to the hotel reservations in trivago.pl).

According to the report by the Polish Tourist Organization, the level of foreign tourists' satisfaction comes to about 92%, and the main criteria of satisfaction with the stay are good atmosphere, safety, cleanliness and a reasonable price.

Poles' tourism

Tourist activity is declared by 53% of Poles (as of 2014). In the case of domestic tourism, we can observe a falling tendency as regards long-term journeys (27%) and an increasing tendency as regards short-term journeys (34%), often made several times a year. A great majority (95%) of Poles make tourist trips in summer, and also in spring (due to the so called "long weekends" – sequences of free days including state and religious holidays). The main geographical areas of domestic tourism reception are strictly connected with the time of travel. The leading area is the coastal region (74% of trips) and the mountains (68% – the respondents could choose more than one answer) (*Raport z badania krajowego rynku turystycznego 2014*).

The main purposes of journeys vary depending on their duration. In the case of short-term trips, the main motivation is visiting relatives and friends, while the strictly tourist motivation is typical of long-term trips and foreign travel. For five years, 15% of Poles have been participating in journeys abroad, the most popular destinations including Germany, Great Britain, Italy, Croatia, Greece, Spain and the Czech Republic. The most frequently visited destinations in Poland (c. 54%) are the West-Pomeranian, Pomeranian (the main areas of long-term tourism concentration, connected with summer recreation), as well as Małopolskie, Masovian and Lower Silesian voivodeships (mostly short-term trips). The most frequently chosen accommodation facilities include hotels, motels and guest houses – they dominate during short-term trips. Private bed & breakfast facilities are usually chosen during long-term journeys.

Polish tourists usually use private cars (81%) and public transport (77%) – mostly trains and buses. The choice of the means of transport depends on who we are travelling with (e.g. the car is most popularly used by families with children).

According to the research conducted in 2014, Poles choose mainly moderate forms of spending free time during a tourist trip. The most frequently quoted forms

of activity include: sightseeing / contact with culture (34%), resting and passive recreation (25%), as well as entertainment combined with social life (15%).

Domestic tourists usually search for inspiration regarding a tourist trip on the Internet (76%) and are guided by the opinions of their family and friends (63%).

Poles are becoming increasingly aware of the attractiveness of their country. 85% of respondents regard Poland as a country attractive to tourists and worth visiting by foreigners. Unfortunately, the issue of promoting tourist assets and popularizing information about them is evaluated much lower.

7. The specific model of rural tourism in Poland and its perspectives

As it was mentioned earlier, recreation in the Polish countryside has a long tradition. However, the changing needs of the contemporary tourism as well as the growing competition on the tourist services market forced specialists to specify the forms of recreation in the country. Accordingly, rural tourism is a wider concept, comprising various tourist activities performed in rural areas but connected with widely understood rurality, while agritourism refers strictly to recreation on an active farm.

It is estimated that in Poland there are about 8000 agritourist farms, offering nearly 85000 beds. Agritourist farms make up slightly less than 1% of all farms. 80% of them are small farms, below 15 hectares.

According to the statistical data, in 2014, 612 500 tourists spent their holidays on farms, 7% of whom were foreign tourists (mainly from Germany and Great Britain) (<http://www.minrol.gov.pl/Ministerstwo/Biuro-Prasowe/Informacje-Prasowe/Czas-na-agroturystyce> 12.12.15). Accommodation is distributed all over the country, but we may observe the phenomenon of concentration – almost 40% of agritourist farms can be found in three voivodeships: Małopolskie, Podkarpackie (the south of Poland) and Warmińsko-mazurskie (the north-eastern periphery).

Rural tourism and agritourism clearly marked their presence on the market in the early 1990s, a sign of which was the foundation of the first organizations associating agritourism providers from the Mazury region. A major impulse for activity were the financial resources gained from the *Phare-Tourin*, a European program run in 1992-1999, in the countries aspiring to join the EU. A large part of this money was used to prepare farmers to providing tourist services.

The issue of the development and promotion of rural tourism nation-wide interests the Ministry of Agriculture and Rural Development, the Ministry of Sport and Tourism, as well as many other entities. The central role is played by the Polish Federation of Rural Tourism “Hospitable Farms”, founded in 1996 and supporting the activity of 45 regional and local organizations associating rural tourism facilities (<http://pftw.pl/kategoryzacja/Kategoryzacja/kategoryzacja> 27.12.2015). One of the Federation’s main tasks is to raise the quality of tourist services in the Polish countryside, by e.g. voluntary popularization of facility categorization, conducted

by qualified inspectors. It involves classifying facilities into one of two groups (after they meet the criteria ascribed to a given group):

- Recreation in the countryside
- Recreation on a farm.

The facility which is undergoing assessment may be given the third category maximum, symbolized with three little suns. This status is valid for four years, after which it is necessary to reapply for assessment. The dynamics of rural accommodation categorization is varied and depends on a number of factors. For instance, in 2004-2006, when new EU funds were being distributed, facility categorization was the necessary criterion to apply for a subsidy. So far, 250 facilities have been categorized (as of May 2015), most of them in Małopolskie voivodeship (http://www.arimr.gov.pl/fileadmin/pliki/PREZENTACJE_OR/1305_Dane_o_turystyce_wiejskiej.pdf 27.12.15). Service providers are most interested in the “one sun” category (nearly one half of all facilities), and least interested in the highest category – “three suns”. It is worth mentioning that over the last two years, the number of facilities applying for reassessment has decreased to only 10%. One of the main reasons for that is the poor knowledge of categorization among the guests resting in the countryside.

The Polish Federation of Rural Tourism “Hospitable Farms” are trying to reach potential tourists by creating topical catalogues which present facilities and their offers matching a specific segment of clients.

Another national organization supporting the development of rural tourism is the European Centre of Ecological Agriculture and Tourism – ECEAT Poland. This association works first of all for the preservation of the biological diversity of rural areas.

It must be emphasized that recreation in the Polish countryside is promoted by many entities of different organizational structure – these are Agricultural Consultancy Centres, regional and local authority departments, as well as tourist, ecological or agricultural associations.

At present, the characteristic features of Polish rural tourism and agritourism include growing specialization and the tendency to create brand products. According to *The program of tourism development in the rural areas of Poland* (2015) (http://ksow.pl/fileadmin/user_upload/ksow.pl/PROJEKTY_2015/Program_rozwoju_turystyki/Program_rozwoju_turystyki_na_obszarach_wiejskich_wersja_ko%C5%84c.pdf 27.12.2015), there are three groups of products:

1 – National – thematic/topical products launched by the Polish Federation of Rural Tourism, “Hospitable Farms” (Recreation in a farmer’s house, Accommodation in an eco-farmer’s house, For families with children, For mushroom pickers, For fishers, In the saddle, In the tradition, The hits of rural tourism), as well as by the Agricultural Consultancy Centre in Krakow (the Educational Farms Network). These projects are a result of cooperation with relevant ministries (for agriculture and tourism issues).

In 2012, the Ministry of Agriculture and Rural Development commissioned an expert opinion regarding the potential of rural tourism products and their competitiveness on the tourist services market. A project called “Hits of rural tourism” was prepared and 42 products were chosen from all voivodeships, which had special, rural character and at the same time the biggest development predispositions (<http://agro.travel/data/file/agro%202013/konferencja/materialy/Hity%20turystyki%20wiejskiej.pdf> 22.12.2015). The products were grouped according to 9 themes (unique nature, herbs, disappearing and traditional professions, horses, wine production traditions, culinary heritage, education, buildings of exceptional architectonic and landscape value, other buildings), and next a list of national hallmark products was compiled. The “Hits of rural tourism” project is to contribute to increasing the prestige of Polish rural tourism and creating a network of recognizable, brand products. A result of the work is also a catalogue-guide to theme-specific places (under the slogan: *Rest in the countryside – actively, naturally, traditionally, culinarily, educationally*), published in five languages (Polish, English, French, German, Russian).

The Educational Farms Network is a project focused on promoting folk tradition and culture, discovering good Polish food and interactive education on a farm. This project, commissioned by the Ministry of Agriculture and Rural Development in 2011 and run by the Agricultural Consultancy Centre, comprises 182 educational farms situated in different regions of Poland (http://ksow.pl/uploads/tx_library/files/zagrody_edukacyjne.pdf 29.12.2015).

2 – Regional – usually created for specific administrative units, e.g. the projects in Małopolska included “Małopolska smelling of herbs”, “Małopolska for children”, “Małopolska for the elderly”, “Małopolska – a land of honey”, “Małopolska countryside in a saddle”.

3 – Local – they are usually eco-museums or theme villages, created mainly by Local Action Groups (based on several facilities situated within the area of one or several villages, within the radius of up to 20 km). An eco-museum is a network/system of objects forming a living and functioning collection, where natural, cultural and historical elements are presented at the place where they occur and in accordance with their original use, most often in rural areas (Davis 1999). Creating them in Poland has been supported by the Partnership for Environment Foundation, helped by public organizations, institutions and firms associated in the National Network of Partner Groups for Sustainable Development, along greenways since 2000. One of them is the Eco-Museum of Crafts in Dobków – a village in the Land of Extinct Volcanoes. The inhabitants, who live and work there, organize ceramics workshops and present the distant geological past of the locality. The “Three Cultures” Eco-Museum in the *gmina* of Lutowska is a historical – nature path taking tourists to a Jewish cemetery, ruins of a synagogue, an old Jewish school, a site where a *tserkov* used to stand and a Greek Catholic cemetery, old Boyko huts called *chyże*, the site where “Pan Wołodyjowski” was filmed, as well

as a few viewing points with boards presenting information about the fauna and flora of the Beskid Mountains. In turn, Lanckorona in Małopolska decided to rely on angels! It is a place with the only museum of these winged creatures in Poland, founded in 2004. The angels live everywhere in the village and in December, on the Day of the Angels, you may see them having a stroll in the Lanckorona market square, whose buildings are considered to be the greatest attraction of the Eco-Museum. The inhabitants organize creative workshops in tissue-paper craft, ceramics, embroidery, painting on glass, making candles or the art of paper cutting.

A theme village is a spatial facility whose image is created on the basis of a leading theme worked out by the local community. Currently, there are over 50 such places in Poland, e.g. the Flower Village – Żalno and the Mushroom Village – Krzywogoniec (the kujawsko-pomorskie region), the Land of Chamomile – Hołowno (Lublin Region), Blacksmiths' Village – Wojciechów (Lublin Region), the Village of Healthy Living – Dąbrowa (West-Pomeranian Region), the Labyrinth Village – Paproty (West Pomeranian Region), Hobbits' Village – Sierakowo Sławieńskie (West Pomeranian Region), etc. (<http://www.wioskitematyczne.org.pl/files/Wioski%20tematyczne%201997%20-%202013.pdf>, 6.01.2016). One of the most interesting examples is Iwięcino or the Village of the End of the World. The leading theme of this Pomeranian locality is church polychrome depicting scenes from the Last Judgment Day, including an exceptional image of the devil, corralling condemned souls to the abyss of hell. He does not have hoofs or even legs! His body is covered with scales and ends with a fish tail... All new activities and acquired knowledge are related to the passage of time – the village presents the heavenly observatory, “the barn of time and entropy”, whose creators attempted to present the process of the passage of time, as well the deprivation chamber, i.e. a dark and soundproof room where you can feel the difference in the perception of time. It is also possible to play a field game in which the participants solve the mystery of Father Malichius, connected with the main painting. The guides to the attractions are of course angels and devils, impersonated by the inhabitants of Iwięcin – both children and adults. The purpose of creating a theme village is to enliven rural economy through the integration of the local community around issues related to a given regional product, service or culture.

The progressing specialization within this form of tourism is proved by the International Fairs of Rural Tourism and Agritourism “AGROTRAVEL”, held in Kielce (Świętokrzyskie Region) since 2009.

Polish rural tourism and agritourism entered the next stage of development, involving the creation of brand network tourist products, based on an original idea and cooperation of different local entities. People are motivated to undertake the abovementioned activities by e.g. competitions for the best sites of rural tourism and agritourism, as well as the best related products. The competitions are organized by the national tourism organization functioning at the Ministry of Sport and Tourism, province authorities and related organizations.

The main tasks of the organizers of recreation in the countryside include the following: building a stable, recognizable brand of innovative tourist products, improving the quality of services in accordance with the assumptions of eco-development, creating a stable and coherent system of organizations supporting the development of rural tourism and agritourism, as well as running effective promotion. Completing these tasks is to result in the competitiveness of this form of tourism on the national and international scale.

Conclusions

Rural tourism is becoming an increasingly important element of tourism in a wide sense of this term – both as regards the demand and the supply. It is estimated that in Western Europe, rural tourism already takes up over 28% of the holiday time, while the farmers derive 50% of their income from non-agricultural activity (!) (10).

Rural tourism in Poland has an exceptionally big chance to develop even further, due to its potential presented above. For instance, taking all the states of Central and Eastern Europe into account, it is the only country where small and medium-sized farms are predominant, there is an abundance of tangible cultural resources, authentic folklore, customs and rituals which have been preserved and are being handed down from generation to generation, as well as unspoiled nature with preserved biodiversity. In addition to that, there are about 8000 agri-tourist farms offering traditional Polish hospitality.

Unfortunately, there are drawbacks as well, for instance the lack of coordinated development or promotion of this form of recreation. The facilities and attractions of rural areas are often scattered over a large area, insufficiently advertised and hard to reach. However, these weaknesses can be eliminated.

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ASSESSMENT OF ENTERPRISE BASED ON THE METHOD OF RATIOS

***Abstract:** In order to develop its strategy, any enterprise is required to thoroughly know its financial situation in terms of the correlation between the financial efforts and the financial results, by the aid of the financial indicators. They are significant reports that regard the balance sheet or income statement of the company and enable the assessment of the financial situation, which has an essential role in the decision-making process. When developing the indicators, the basic idea is to capture the correlations between two variables characterized by a causal relationship; the indicators need to be significant for the phenomenon under study and to enable comparisons that reveal the trends in terms of their dynamics.*

***Key words:** financial performance, financial banking, company's profitability.*

1. Introduction

The company's profitability is assessed using a system of ratios that are determined as the ratio between the economic and financial effects obtained by the company and the efforts made in this regard.

The method of ratios is used both for the internal management of the enterprise, for comparisons with other companies, as well as in order to assess the financial structure of the enterprise and set the financial diagnosis and adopt the short term and long term strategies. At the same time, the method of ratios enables the assessment of the company's situation, by comparing the values of the calculated ratios with the benchmarks.

The requirements regarding its implementation have been updated and deepened due to the combined action of three factors [2, p. 163]:

1. The analysis has benefited from the improvement of the sources of accounting and financial information, which enabled the accumulation of reliable benchmarks for calculating the ratios associated with an enterprise or a population of enterprises;
2. The applications in the field of computer science have led to an accumulation of data and accelerated the calculations;
3. The development of the advanced statistical methods allows the efficient usage of these data and the systematic analysis of the ratios.

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The objectives of the method consist in determining the thresholds, the norms that enable the assessment of a company's situation by comparing the ratios calculated for that company with the benchmarks. These benchmarks correspond to the ratios that are calculated based on statistics (for example, for all the companies with the same object of activity), or based on the values set for an enterprise which is considered to be exemplary.

The ratios express the tendencies in the evolution of the enterprise, its self-financing and its development capacity; they are useful for the financial banking and money market because they provide an insight into the financial situation of the company, its market position, its position in relation to the customers and suppliers and in relation to the creditors and shareholders.

The method of ratios is used both for examining the balance sheet in order to assess the structure of the assets and liabilities, as well as for studying the income statement in order to analyze the operating structure and the profitability. Using the method of ratios as a tool for financial decisions requires complying with the following conditions:

- The evolution of the ratios will be studied based on several balance sheets and income statements;

The company's field of activity will be measured in order to compare the ratios with a norm, which is usually the sector average of various ratios.

“Ratios can provide the profile of the enterprise, its economic features and competitive advantages, as well as the specific operating, financial and investment characteristics” [8, p. 141]. For the banks, the firm's liquidity is a fundamental indicator which is analyzed during the process of lending, given that unprofitable actions lead to the decrease in the assets' value. For the investors, long term profitability and efficiency are the main criteria, as well as the forecasting of future profits and the company's dividends.

2. The main categories of financial ratios

The main categories of financial ratios are:

- ◆ *Liquidity ratios*, which show the company's capacity to meet its short term payment obligations;
- ◆ *Leverage ratios*, which enable the comparison between equity and borrowed capital;
- ◆ *Asset management ratios*, which measure the firm's effectiveness in terms of asset usage;
- ◆ *Return ratios*, which measure the overall effectiveness of the company;
- ◆ *Growth ratios*, which show the company's capacity to maintain its position in the context of economic expansion;
- ◆ *Market value ratios*, which measure the ability of the management team to create a market value that exceeds the costs involved.

According to IAS (International Accounting Standards), the ratios are structured in four groups:

Liquidity indicators:

a) Current liquidity indicator = $\frac{\text{Current assets}}{\text{Current debt}}$

- Recommended acceptable value – around 2;
- Provides the guarantee of covering de current debt from the current assets.

b) Immediate liquidity indicator (acid test) = $\frac{\text{Current assets-Inventories}}{\text{Current debt}}$

Risk indicators:

a) Leverage indicator:

$$\frac{\text{Borrowed capital}}{\text{Equity}} \quad \text{or} \quad \frac{\text{Borrowed capital}}{\text{Employed capital}}$$

where: Borrowed capital = over one year loans;

Employed capital = borrowed capital + equity.

b) Times interest earned indicator; the lower the value of this indicator, the riskier is the position of the economic agent:

$$\frac{\text{Earnings before interest and taxes}}{\text{Interest expenses}}$$

Activity (management) indicators, which provide information regarding:

- The speed of the economic agent's cash inflows and outflows;
- Its ability to control the current capital and its main commercial activities
- Inventory turnover

$$\frac{\text{Cost of sales}}{\text{Average inventory}}$$

– Days of inventory

$$\frac{\text{Average inventory}}{\text{Cost of sales}} \cdot 365$$

– Days sales outstanding (Average collection period), which shows the effectiveness of the legal entity in collecting the receivables. A rising value of the indicator may indicate certain problems related to the loans granted to customers.

$$\frac{\text{Customers average inventory}}{\text{Turnover}} \cdot 365$$

– Days payable outstanding approximates the number of days a legal entity takes to pay its suppliers.

$$\frac{\text{Suppliers average inventory}}{\text{Purchases of goods (services excluded)}} \cdot 365$$

- Long term assets turnover

$$\frac{\text{Turnover}}{\text{Long term assets}}$$

- Total assets turnover

$$\frac{\text{Turnover}}{\text{Total assets}}$$

Return indicators, which show the efficiency of the legal entity in obtaining profit by using the available resources:

- a) *Return on capital employed*

$$\frac{\text{Earnings before interest and taxes}}{\text{Capital employed}} = \text{Re},$$

where the capital employed includes equity and long term debt.

- b) *Gross margin*

$$\frac{\text{Gross profit from sales}}{\text{Turnover}} \cdot 100$$

A decrease in the percentage indicates the fact that the company is not able to control its production costs or achieve the optimal selling price.

A fundamental objective of financial management is “maintaining a minimum level of the profitability ratio (...). The opposition between profitability and liquidity is valid in the short term and belongs to treasury management, which aims at reducing excess liquidity. In reality, profitability and liquidity are complementary goals: maintaining a minimum level of liquidity is possible only if the generated profitability is acceptable. Only a minimal volume of the monetary surplus enables the generation of liquidity, which is necessary for purchasing new assets and pay back the debt” [7, p. 115]. The importance attached to each of these two objectives, profitability and liquidity, depends on the strategy of each company, which defines its relationship with the economic and financial environment and its development plans. Thus, solvability and profitability are the bases of the company’s policy and the objectives of its financial management.

3. Analysis of liquidity ratios

Between the company’s profitability and its liquidity there is an inter-conditioning relationship in the sense that the improvement of the profitability level, relieved by additional profits, has a positive effect upon the funding of the

investment process and the remuneration of the factors of production. On the other hand, accelerating the recovery of the expenses associated with the use of the factors of production involves the increase in the employed capital turnover and the level of liquidity, which leads to increased profitability. The fundamental condition for financial balance is the financing of the cyclical needs from the permanent capital. In case the necessary working capital (which expresses the temporary financing needs that are continuously renewable and are not covered from temporary sources) is higher than the working capital, the inefficiency of the current activity generates financial imbalances. These imbalances entail additional risks in terms of the profitability of the following financial years and the integrity of the equity.

Positive net treasury is the most explicit form of achieving the company's financial balance [3, p. 175]. It indicates a monetary surplus which can be found under liabilities as net profit. In the case of a negative treasury, the financing deficit is usually covered based on new operating liabilities, discounts or treasury loans.

The analysis of a company's liquidity based on ratios involves comparing the current assets (which include cash, liquid securities, bills of exchange receivable and inventories) with the current financial liabilities (including bills of exchange payable, the part of the long-term loans whose maturity is within the time frame taken into consideration (present), short-term loans and taxes payable and other expenses, particularly salaries).

Specific literature [4, p. 26] recommends the current ratio and the quick ratio as commonly used ratios in assessing short-term solvability.

The *Current ratio*, also called *general liquidity ratio*, indicates the extent to which the rights of short-term creditors are covered from the value of the assets that are likely to be converted into cash within the time frame corresponding to the maturity period of the debt.

$$\text{Current ratio} = \frac{\text{Current assets}}{\text{Current liabilities}}$$

Current assets include cash, highly liquid securities, bills of exchange receivable and inventories, while current liabilities consist of bills of exchange payable, short-term bank loans, the part of the long-term loans whose maturity is within the time frame taken into consideration (present), income taxes payable and other expenses (particularly salaries).

The current ratio is the most common way of assessing short-term solvability due to the fact that it indicates the extent to which the rights of short-term creditors are fully covered from the value of the assets that are likely to be converted into cash within the time frame corresponding to the maturity period of the debt.

The current ratio obtained by ALFA Company (table 1) at the end of financial year N is the following:

$$\text{Current ratio} = \frac{4429002}{2930043} = 1.51 \text{ f } 1$$

Table 1

Patrimonial Balance Sheet of ALFA COMPANY

ACTIV	N		N + 1		PASIV	N		N + 1	
	RON	%	RON	%		RON	%	RON	%
Total assets	30042477	100.00	34861496	100.00	Total liabilities	30042477	100.00	34861496	100.00
Long term assets	19636056	65.36	21692044	62.22	Equity	14287481	47.55	13809210	39.61
Intangible assets	30632247	1.56	416487	1.92	Social capital	8858238	62.00	10537808	76.31
Tangible assets	19243334	98.00	20867746	96.19	Reserves	3216112	22.51	2239854	16.22
Financial assets	8639865	0.44	407811	1.89	Profit (loss) for the period	2213131	15.49	1031548	7.47
Current assets	7406421	34.64	1016945	37.78	Provisions for risks and expenses	1294830	4.31	805301	2.31
Inventories	3540270	47.80	4637270	45.60	Debt > 1 year	6572400	45.45	7938843	39.21
Customers	2310803	31.20	4444051	43.70	Deferred income	114235	0.73	9921023	0.49
Other claims	171088	2.30	274575	2.70	Suppliers	1953568	13.51	3500704	17.29
Investments	977648	13.20	294914	2.90	Fiscal and social debt	1998395	13.82	14820793	7.32
Liquid assets	406612	5.50	518642	5.10	The part < 1 year of the long-term loans	380302	2.63	3336703	16.48
					Current loans	3441266	23.80	19271081	19.21
					Total debt	14460166	52.45	20246985	60.39

The supra-unitary value of the current ratio is the expression of a financial working capital that ensures the overcoming of eventual difficulties which can be caused by the movement or depreciation of the current assets.

The sub-unitary value of the current ratio, which indicates that the liquidity is insufficient for covering the potential outstanding debt, requires the inventory reduction for paying the short-term outstanding debt.

In the field of industry, the values of the current ratio undergo significant variations from one company to another; the causes of these variations are one of the key issues that financial analysis is supposed to solve.

The inverted current ratio shows the percentage of the assets' book value whereat they can be liquidated, in case of the need to pay the debt towards the creditors:

$$\frac{1}{\text{Current ratio}} = \frac{2930043}{4429002} = 0.66 = 66\%$$

Thus, the current assets of ALFA Company that are close to maturity may be liquidated at 66% of their book value. The current ratio suggests that the firm may reduce its bills of exchange receivable (which reduces the value of the numerator) by reducing the loan period offered to its customers or may increase the value of its bills of exchange payable (which modifies the denominator of the current ratio), making maximum use of the loans offered by the suppliers. Interpreting the current ratio is relatively difficult because a high value may indicate a liquid position as well as the existence of a surplus of liquid funds, which is a negative aspect since the current bank account funds are an asset that does bring profit for the company.

The quick ratio [1, p. 655] expresses the company's ability to meet its short-term liabilities from receivables and liquid assets.

$$\text{Quick ratio} = \frac{\text{Current assets} - \text{Inventories}}{\text{Current liabilities}}$$

Unlike the case of the current ratio, the numerator also includes the inventories, which are the least liquid current assets; thus, the issue of liquidating the inventories usually drags along losses. Therefore, the ratio taken into consideration is a quick test for measuring the firm's ability to meet its short-term liabilities.

For ALFA Company, the value of the quick ratio is the following:

$$\text{Quick ratio} = \frac{4429002 - 3109421}{2930043} = 0,45 < 0,8 \text{ (industry average)}$$

$$\frac{\text{Quick liabilities} - \text{Cash}}{\text{Bills of exchange receivable}} = \frac{2930043 - 428540}{2891041} = 86\%$$

The values of the current ratio and quick ratio show that in financial year N the company under analysis has an acceptable level of short-term liquidity; short-term

liabilities can be met by liquidating the bills of exchange receivable at more than 86% of their book value.

4. Analysis of leverage ratios

Two of the most used ratios regarding debt (credit) management are the leverage ratio and the times interest earned, given that they use balance sheet ratios in order to show the extent to which the assets were funded from borrowed funds, and ratios based on the income statement in order to determine how many times the value of the fixed costs (such as those related to interest payment) is the value of the operational profits" [6, p. 105].

The *leverage ratio* measures the share of the loans in the total funds employed by the firm in the productive activity.

$$\text{Leverage ratio} = \frac{\text{Total Debt}}{\text{Total liabilities}}$$

Creditors prefer low values of this ratio, as they indicate a greater protection against the potential losses of the creditors in case of bankruptcy. For managers, a high financial leverage is preferred both because of the increase in the anticipated earnings, as well as in order to keep control over the company in case new shares are issued. For ALFA Company, in the financial year N, the leverage ratio had the following value:

$$\text{Leverage ratio} = \frac{8626024 - 4485532}{8626024} = 48\%$$

Since the industry average is 68%, we can say that the company does not face financing problems (48% of the assets have been financed based on loans); however, getting new loans in order to acquire new assets involves the growth of the leverage ratio, which could lead to substantially higher interest rates.

In the financial analysis, debt management also involves using the ratio between debt and equity or variations of this ratio under the following forms:

- Debt – to- Assets (debt relative to assets) D/A ;
- Debt – to- Equity (debt relative to equity) D/E.

Between them, the following relationships can be established, starting from:

$$\left. \begin{array}{l} P = D + E \\ P = A \end{array} \right\} \Rightarrow A = D + E \Rightarrow D / A = \frac{D / E}{1 + D / E} \text{ and } D / E = \frac{D / A}{1 - D / A}$$

The value of both reports increases along with the increase in the loan share; the D/A ratio increases linearly towards 100%, and the D/E ratio increases exponentially and asymptotically towards $+\infty$.

The *Times Interest Earned (TIE)* is the ratio between the company's Earnings before interest and taxes (EBIT) and interest expenses. TIE shows the extent to which the firm's revenues can decrease without causing financial problems.

$$TIE = \frac{EBIT}{\text{Interest expenses}} = \frac{\text{Earnings before tax} + \text{Interest expenses}}{\text{Interest expenses}}$$

$$TIE = \frac{2995909 + 1340832}{1340832} = 3,23 > 2,4 \text{ (industry average)}$$

Since the average industry is 2.4, we can say that the operational net profit of the company available for interest related payments is 4,336,738 thousand lei; thus, the interest is covered 3.23 times. A level of TIE higher than the industry average indicates a safety margin of ALFA Company in terms of interest coverage.

5. Analysis of turnover ratios

These ratios show the effectiveness of the company's assets; they regard comparisons between the turnover and different asset positions.

Inventory turnover ratio is the ratio between turnover and the inventory value.

$$\text{Inventory turnover ratio} = \frac{\text{Sales turnover}}{\text{Inventory value}}$$

$$\text{Inventory turnover ratio} = \frac{4695751}{1109421} = 4,23 < 8 \text{ (industry average)}$$

A significantly lower value than the industry average is explained by the fact that ALFA Company operates with a larger amount of inventory than necessary or the stocks include raw materials, consumables and finished goods that are defective or obsolete and their real value is lower than the book value.

The correlated analysis of a current ratio which is close to the industry average, a low value acid test and an inventory turnover which is lower than the industry average leads to the conclusion that the firm may hold used or obsolete inventory.

The interpretation of this ratio raises several related to the fact that the turnover is expressed at the market price, while the inventories are expressed at their book value, which is usually represented by the historical costs; therefore, it is recommended to use the cost of goods sold (COGS) for the ratio's numerator. Another problem refers to the fact that the methods of assessing the costs differ among firms. Usually the FIFO method (first in, first out) is used; however, some companies prefer the LIFO method (last in, first out), which includes the calculation of older stocks, with lower values; this results lead to an increased speed of the inventory turnover.

The fact that what is taken into account are the annual sales, while the inventories are taken into consideration at the value that corresponds to a certain moment in time, is generating controversy; therefore, it is recommended to use an annual average of the inventories and to analyze the seasonal aspects that may affect the company's activity.

Days Sales Outstanding Ratio measures the bills of exchange receivable turnover. It determines the daily sales that are blocked into bills of exchange receivable, or the time frame expressed in days between the time of sale and the receipt of the counter value.

$$DSO = \frac{\text{Bills of exchange receivable}}{\text{Daily sales}} = 365 \cdot \frac{\text{Bills of exchange receivable}}{\text{Turnover}}$$

$$DSO = 365 \cdot \frac{2891041}{4695751} = 224,72 \text{ days} > 30 \text{ days (average value)}$$

The fact that the value of DSO is significantly higher than the industry average shows that the payments made by the customers are behind schedule; however, we must also take into account the issue related to the payments in installments. This situation requires the adoption of measures that should improve the methods of collecting the payments, all the more so since during the last 3 years the DSO has had an upward trend, although the credit sale terms have not been significantly changed.

Fixed assets turnover is expressed using the fixed assets turnover ratio:

$$\text{Fixed assets turnover ratio} = \frac{\text{Sales turnover}}{\text{Net value of fixed assets}}$$

$$\text{Fixed assets turnover ratio} = \frac{4695751}{4197022} = 1,18 < 7,5 \text{ (industry average)}$$

The significant difference compared to the industry average shows that ALFA Company does not use the fixed assets efficiently. For intra-sector comparisons, this ratio raises issues related to the effect of inflation on the assessment of the assets, which are booked at their historical value (with the exception of cash and commercial receivables).

The interpretation of the fixed assets turnover ratio is difficult due to the fact that a high value of this ratio may indicate the efficient use of the fixed assets, as well as the fact that the company is not sufficiently capitalized and does not have the necessary funds for asset purchases. Thus, it is recommended to analyze the net effects of a group of financial ratios as well; banking and credit organizations use the linear discriminant analysis for this purpose. LDA is a statistical method that analyses the financial ratios of companies; it enables the classification of the companies in terms of the probability of facing financial difficulties.

Total assets turnover or capital turnover [5, p. 183]

$$\text{Total assets turnover} = \frac{\text{Sales turnover}}{\text{Total assets}}$$

$$\text{Total assets turnover} = \frac{4695751}{8626024} = 0,54 < 2,5 \text{ (industry average)}$$

The value below the industry average shows that ALFA Company does not generate enough sales corresponding to the assets used. The most frequent cause is the mismanagement of the inventories; the improvement acti

The lower value compared to the industry average shows that ALFA Company does not generate enough sales corresponding to the assets used. The most frequent cause is the mismanagement of stocks; the remedy measures should lead to the increase in the sales figure and the disposal of unprofitable assets.

6. Conclusions

Financial ratios, widely used tools for diagnostic analyses, enable the comparability between enterprises of various sizes and from different fields of activity in terms of their profitability and risk. The usefulness of financial ratios both within the company's internal decision-making process and the external one regarding the creditors, investors, the exchange or the fiscal authorities is provided both by their significance as well as by the information contained by them.

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