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TABLE OF CONTENTS

Dushko Josheski; Natasha Miteva; Tatjana Boshkov
AIYAGARI, BEWLEY, HUGGETT, IMROHOROĞLU (ABHI) ECONOMIES: LITERATURE REVIEW AND COMPUTATIONAL EXAMPLES 7

Nikola V. Dimitrov
BRIEF HISTORICAL ACCOUNT OF THE HOTEL INDUSTRY IN BITOLA 29
(On the occasion of 180 years since the first hotel in Bitola 1843)

Zoran Temelkov
OVERVIEW OF ARTIFICIAL INTELLIGENCE (AI) APPLICATION IN THE BANKING INDUSTRY 43

Slavi Dimitrov
THE STRATEGIC DESIGN OF EUROCITY CHAVES-VERIN AS A TOURIST DESTINATION 52

Tatyana Dimitrova
GOVERNANCE THROUGH COOPERATION: A NEW VISION OF CROSS-BORDER COOPERATION (EXAMPLE OF EUROCITY CHAVES-VERIN) 63

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AIYAGARI, BEWLEY, HUGGETT, IMROHOROĞLU (ABHI) ECONOMIES: LITERATURE REVIEW AND COMPUTATIONAL EXAMPLES

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Abstract
This paper will review ABHI models in economics. Namely those are collection of models Aiyagari-Bewley-Hugget-Imrohoroglu economies where there is precautionary savings amongst the economic agents, liquidity constraints, and where Markets are exogenously incomplete. There is incompleteness by assumption as opposed to limited commitment and limited enforcement models. In Huggett (1993) model there is diminishing marginal savings rates for some agents and negative marginal savings rate for other agents with an increase in their wealth (assets). In the incomplete markets in general equilibrium cash-on hand $R_a + y$ is more in consumption with lower assets, this applies even more so in partial equilibrium model. And in the period with lowest: consumption, income and assets incomplete markets in partial equilibrium model predicts highest savings rate.

Key words: *Aiyagari, Bewley, Huggett, Imrohoroğlu (ABHI) economies,incomplete markets, heteoregenous agents,pure credit model*
JEL Classification: D14, D31, E21

Introduction
Models with heterogenous agents have become dominant workhorse in macroeconomics since seminal works by: Bewley(1986), Hopenhayn(1992),Huggett (1993), Aiyagari (1994)[1].Agents in these economies make choices by taking some aggregate variables that depend on distribution of individuals in the economy. Their choices with idiosyncratic shocks will determine the evolution of distribution of savings, consumption, and wealth in the economy. The equilibrium in these economies is being characterized by the dynamic programming equation that descries intertemporal problem of each agent by the law of motion of distribution and by the market clearing conditions which link individual choices to aggregate variables, see Galo,Moll (2018). Models with perfect insurance estimated small magnitude of cost effects on business cycles (0.1% of total consumption in US). But some studies such as Imrohoroğlu (1989) precluded perfect insurance exogenously such as in

[1] More complete review of this literature could be read in Heathcote et al.(2009)

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Scheinkman,Weiss(1986)[2].There is evidence of liquidity constraint at micro level, see Zeldes(1989).Tobin and Dolde (1971) have examined the implications of liquidity constraints in a deterministic framework and showed that capital accumulation in the economy analyzed increases by a factor of two because of liquidity constraints. Many studies have used calibrated versions of Bewley models to give quantitative answers to questions including the welfare costs of inflation Imrohoroğlu,(1992), the risk-sharing benefits of unfunded social security systems Imrohoroğlu, Imrohoroğlu, Joines (1995), the benefits of insuring unemployed people Hansen , Imrohoroğlu (1992), and the welfare costs of taxing capital Aiyagari, (1995). See Kaplan, Violante (2010) for a quantitative study of how much insurance consumers seem to attain beyond the self-insurance allowed in Bewley models. Heathcote, Storesletten, and Violante (2012) combine ideas of Bewley with those of Constantinides and Duffie (1996) to build a model of partial insurance. Aiyagari (1994) model belongs to a class of models that involves a considerable number of individual dynamics, uncertainty, and asset trading which is the main mechanism by which individuals attempt to smooth consumption. Aggregate variables are unchanging so that is the main difference with representative agent models[3].Bewley (1986) developed on the idea that short run consumers may act as if their marginal utilities of money were constant. Also "The model is of a pure exchange economy with immortal consumers who hold money to offset fluctuations in their endowments and utility functions. It is also assumed that there is a continuum of consumers and that the fluctuations in their utilities and endowments are independent. "Huggett model was based on the enormous literature that up until then was done on "….heterogenous-agent-incomplete-insurance models of asset pricing….", some of the references here include : Bewley (1980), Lucas (1980), Taub (1988). But the research paper in Huggett (1993) paper was motivated by the work of Mehra ,Prescott (1985).As to question :Why heterogeneity of agents matters in macroeconomics? Asked and answered partially by Boppart et al. (2018) his answer states: Marginal decisions made by households, regarding: consumption, hours worked, and investments in various types of assets "vary quite substantially" in population. Arrow (1951) and Arrow,Debreu (1954),proved that competitive equilibrium in Arrow-Debreu economy is Pareto optimal and discovered class of convex Arrow-Debreu economies for which competitive equilibria always exist. In the case of incomplete, see Geanakoplos (1990)markets this equilibrium may (will) not be efficient see Geanakoplos (1986) or the will be suboptimal constrained. The purpose of Imrohoroğlu (1989) was to "develop tools for computing the equilibria for economies with two different forms of incomplete insurance markets and to apply these tools to estimate the magnitude of the costs of business cycles." This paper will review all

[2] Other studies departed from the assumption of perfect insurance by : limiting insurance arrangements endogenously by using moral hazard or incomplete information models as pursued in Green (1987), Atkeson (1988), and Townsend (1988) ,see Galo,Moll (2018).

[3] This paper exposition was built around the Brock,Mirman (1972)standard growth model modified to include a role for uninsured idiosyncratic risk and liquidity/borrowing constraints. Second goal of this model were to study the role of individual risk and its importance for aggregate saving. As literature suggests precautionary savings may be quantitatively important component of aggregate saving. Modigliani (1988) argues that pure bequest motive is important only for people in the highest income and wealth brackets and that "some portion of bequests, especially in lower income brackets, is not due to a pure bequest motive but rather to a precautionary motive reflecting uncertainty about the length of life, although it is not possible at present to pinpoint the size of this component." See Aiyagari(1994).

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these issues and will include computational models in its final form. To the satisfaction of the authors and readers it will be to increase the knowledge on these models and later to go to HANK models[4]. This paper is organized as follows: First, it will be explained mathematically Aiyagari model (1994) in Discrete and Continuous Time, second, we will explain Bewley economy with assets in positive supply. Then Huggett model with a example of pure credit model will be looked at, followed by Imrohoroğlu model (1989). Computation examples will include Aiyagari economy with idiosyncratic Brownian motion and random deaths, and Human capital model which will correlate policy, physical capital and human capital and fraction of time for learning. This will be followed by computational examples on Solving the incomplete markets model in general equilibrium and solving the incomplete markets model in partial equilibrium.

Aiyagari model (1994) in Discrete and Continuous Time

The material in this notebook is based on Achdou et al. (2022). In the discrete version of this model we have following problem:

equation 1

$$\max \mathbb{E}_{t=0}^{\infty} \beta^t u(c_t)$$

s.t.

$$a_{t+1} + c_t \leq w z_t + (1+r)a_t, c_t \geq 0, a_t \geq -\mathcal{B}$$

c_t is current consumption.a_t is assets,$z_t$is an exogenous component of labor income capturing stochastic unemployment risk, w is a wage rate,r_t is a net interest rate,$\mathcal{B}$ is the maximum amount that the agent is allowed to borrow,Here z_t follows Markov chain process [5]with matrix P[6]. For the firms in the discrete time economy, we have:

equation 2

$$Y = AK_t^a L_t^{1-a}$$

Where in previous $A > 0; a \in (0,1)$ .Now, the firm maximizes:

equation 3

$$\max_{K,N} [AK_t^a N^{1-a} - (r+\delta)K - wN\ ]$$

Where δ is depreciation rate, from the FOC with respect to capital, the firm's inverse demand for capital is given as:

equation 4

$$r = Aa\left(\frac{N}{K}\right)^{1-a} - \delta$$

Equilibrium wage rate is given as:

equation 5

$$w(r) = A(1-a)\left(\frac{Aa}{r+\delta}\right)^{\frac{a}{1-a}}$$

[4] Debortoli D. Galí,J(2017) identify three channels at work in Heterogeneous Agent New Keynesian (HANK) models: (i) changes in the average consumption gap between constrained and unconstrained households, (ii) variations in consumption dispersion within unconstrained households, and (iii) changes in the share of constrained households

[5] $z_{chain} = \text{MarkovChain}([0.9\ 0.1;\ 0.1\ 0.9], [0.1;\ 1.0])$

[6] $\mathrm{P}\left(\mathrm{x_n} = \mathrm{a_{i_n}} \middle| \mathrm{x_{n-1}} = \mathrm{a_{i_{n-1}}}, \ldots, \mathrm{x_1} = \mathrm{a_{i_1}}\right) = \mathrm{P}(\mathrm{x_n} = \mathrm{a\_i_n} | \mathrm{x_{n-1}} = \mathrm{a_{i_{n-1}}})$,x_n is a Markov chain, Papoulis,(1984).

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In continuous time this economy can be represented as the next equation where : $z_1 < z_2$ and $s_j(a) = wz_j + ra - c_j(a)$ and $c_j(a) = (u')^{-1}\left(v_j(a)\right)$. There is state-constraint $a \geq \underline{a}$.The FOC here is:$u'\left(c_j(\underline{a})\right) = v_j'(\underline{a})$ still holds at the borrowing constraint. In order to respect constraint we have to :$s_j(\underline{a}) = z_j + ra - c_j(\underline{a}) \geq 0$ .Combining the FOC the state constraint motivates boundary condition:$v_j'(\underline{a}) \geq u'(z_j + r\underline{a}); j = 1,2.$

equation 6

$$\rho v_1(a) = \max_c u(c) + v_1'(a)(wz_1 + ra - c) + \lambda_1(v_2(a) - v_1(a))$$
$$\rho v_2(a) = \max_c u(c) + v_2'(a)(wz_2 + ra - c) + \lambda_1(v_1(a) - v_2(a))$$
$$0 = -\frac{d}{da}[s_1(a)g_1(a)] - \lambda_1 g_1(a) + \lambda_2 g_2(a)$$
$$0 = -\frac{d}{da}[s_2(a)g_2(a)] - \lambda_2 g_2(a) + \lambda_1 g_1(a)$$
$$1 = \int_{\underline{a}}^{\infty} g_1(a)da + \int_{\underline{a}}^{\infty} g_2(a)da$$
$$K = \int_{\underline{a}}^{\infty} a g_1(a)da + \int_{\underline{a}}^{\infty} a g_2(a)da$$
$$r = aK^{a-1} - \delta; w = (1-a)K^a$$

Bewley economy: Assets in Positive Supply

Due to Bewley (1977),there is a class of incomplete markets general equilibrium model[7].In this model asset supply:$A(r) = 0$ or:

equation 7

$$A(r) = \sum_j \int_{\underline{a}}^{\infty} a g(a, y_j; r) da$$

Where $\underline{a} = A(-1)$; $r = \beta^{-1} - 1$ or $r = \rho$ asset explode $A(r) \to \infty$.Government issues bonds $\mathcal{B}$ and finances interest payments according to a tax function $\tau(a, y)$ and total tax revenues are given as:

equation 8

$$T(r) = \sum_j \int_a \tau(a, y_j) g(a, y_j; r) da$$

Subject to government budget constraint:$G + r\mathcal{B} = T(r)$ and market clearing condition is $A(r) = \mathcal{B}$.If $\mathcal{B}$ is exogenous then we determine:$G(r) = T(r) - r\mathcal{B}$ as residual, provided $G(r) \geq 0$.And for computation with exogenous G we solve :

[7] In economics, incomplete markets are markets in which there does not exist an Arrow–Debreu security for every possible state of nature.About Arrow -Debreu securities: It posits that under certain economic assumptions (convex preferences, perfect competition, and demand independence) there must be a set of prices such that aggregate supplies will equal aggregate demands for every commodity in the economy, see Arrow,Debreu(1954).

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equation 9

$$A(r) = \frac{T(r) - G}{r}$$

Asset grid in this model is given as:$A = [0 < \overline{a}_1 < \overline{a_2} < \cdots . < \overline{a_n}\,]$; and so the household choose policy $\{c_t, a_{t+1}\}_{t=0}^{\infty}$ see Ljungqvist,L. Sargent,T.J.(2018). And so households maximize:

equation 10

$$E_0 \sum_{t=0}^{\infty} \beta^t u(c_t)$$

Subject to constraint: $c_t + a_{t+1} = (1 + r)a_t + ws_t$ and $a_{t+1} \in A$.Where $u(c)$ is strictly increasing, and β is discount factor, $u(c)$ is also twice differentiable that satisfies Inada conditions[8]:$\lim_{c \downarrow 0} u'(c) = +\infty$; $\beta(1 + r) < 1$ .The Bellman equation for each $i \in \{i, \dots \dots, m\} \forall h \in [1, \dots, n]$is given as:

equation 11

$$v(\bar{a}_h, \bar{s}_i) = \max_{a' \in A} \left\{ u[(1 + r)\bar{a}_h + w\bar{s}_i - a'] + \beta \sum_{j=1}^{m} \mathcal{P}(i,j) v\left(a' \bar{s}_j\right) \right\}$$

Where in previous a' is previous period asset holding. Wealth and employment distribution in this model are given as:

equation 12

$$Prob(a_{t+1} = a', s_{t+1} = s') = \sum_{a_t} \sum_{s_t} Prob(a_{t+1} = a' | a_t = 1, s_t = s)$$

$$Prob(s_{t+1} = s' | s_t = s) \cdot Prob(a_t = a, s_t = s)$$

$$\lambda_{t+1}(a' \cdot s') = \sum_{a} \sum_{s} \lambda_t(a,s) Prob(s_{t+1} = s' | s_t = s) \cdot \mathcal{I}(a', s, a)$$

Where the indicator function $\mathcal{I}(a', a, s) = 1 \wedge a' = g(a, s)$. This assumption exploits the fact that the optimal policy is a deterministic function of the state, which comes from the concavity of the objective function and the convexity of the constraint set. The indicator function $\mathcal{I}(a', a, s) = 1$ identifies the time t states a, s that are sent into a' at time $t + 1$.The proceeding equation can be presented as:

equation 13

$$\lambda_{t+1}(a' \cdot s') = \sum_{s} \sum_{\{a : a' = g(a,s)\}} \lambda_t(a,s) \mathcal{P}(s, s')$$

A time-invariant probability distribution λ that solves equation $\lambda_{t+1}(a' \cdot s') = \sum_s \sum_{\{a:a'=g(a,s)\}} \lambda_t(a,s) \mathcal{P}(s,s')$(i.e., one for which $\lambda_{t+1} = \lambda_t$) is called a stationary distribution.The optimal policy function $a' = g(a, s)$ and the Markov chain $\mathcal{P}$ on s induce a Markov chain for x via the equation:

[8] Given $f: X \to Y$ where $X = \{x : x \in \mathbb{R}_+^n\}$ and $Y = \{y : y \in \mathbb{R}_+^n\}$ and the conditions are :$f(0) = 0$;the Hessian matrix $H_{ij} = \left(\frac{\partial^2 f}{\partial x_i \partial x_j}\right)$ needs to be negative semidefinite i.e. $n \times n$ symmetric matrix $\mathcal{M}$ is negative semi-definite or non-positive semi-definite if: $x^T M x < 0; \forall x \neq 0 \in \mathbb{R}^n \setminus \{0\}$,see Inada (1963), and for Hessian matrix see Gradshteyn,Ryzhik(2000).

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equation 14

$$Prob[(a_{t+1} = a', s_{t+1} = s']|(a_t = a, s_t = s) = Prob(a_{t+1} = a'|a_t = a, s_t = s) \cdot Prob\,(s_{t+1} = s'|s_t = s) = \mathcal{I}(a', a, s)\mathcal{P}(s, s')$$

Where $\mathcal{I}(a', a, s) = 1$.Now, suppose that the Markov chain associated with $\mathcal{P}$ is asymptotically stationary and has a unique invariant distribution π_∞. Typically, all states in the Markov chain will be recurrent, and the individual will occasionally revisit each state. Then the distribution π_∞ tells the fraction of time that the household spends in each state.Now, we are deducing probability measure $\lambda(\bar{a}_i, \bar{s}_h) = Prob((a_t = \bar{a}_i, s_t = \bar{s}_h)$ over $(\bar{a}_i, \bar{s}_h)$:

equation 15

$$\lambda(\bar{a}_i, \bar{s}_h) = Prob((a_t = \bar{a}_i, s_t = \bar{s}_h) = \pi_\infty(j)$$

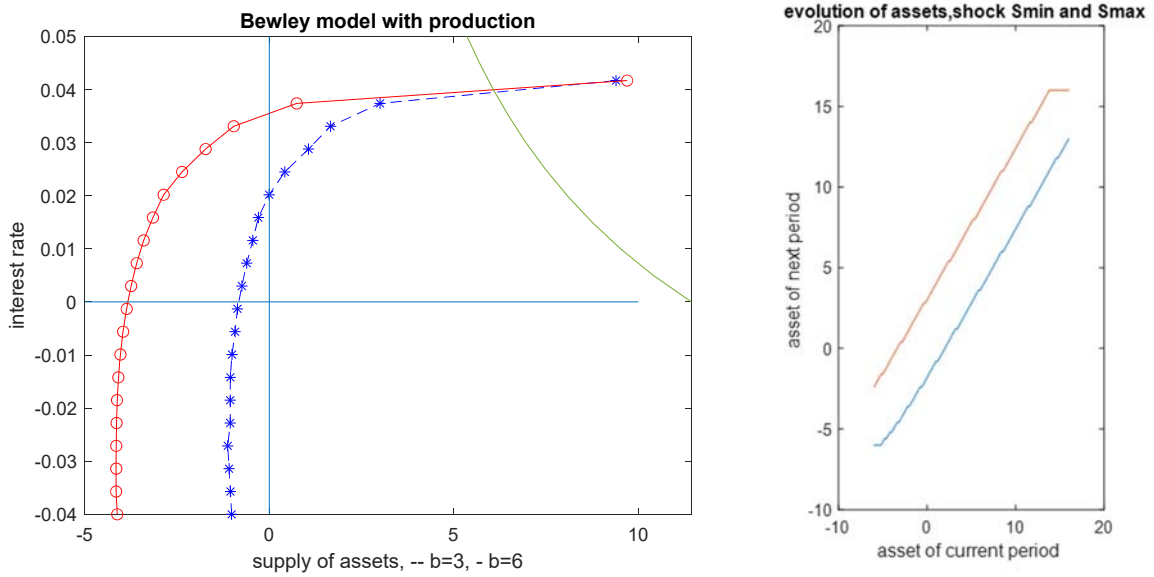
Where $\pi_\infty(j)$ is the j-th component of vector π_∞ and $j = (i-1)m + h$.Where we have given interest rate r , the population mean:

equation 16

$$E(a)(r) = \sum_{a,s} \lambda(a, s)g(a, s)$$

This first foremost is the average asset level experienced by every household, where the average is across the time. Second it is the average asset level of the economy as a whole.

Figure 1 Bewley model with production and the evolution of assets, and shocks



Source: Authors own calculations based on a code available at: https://dge.repec.org/codes/sargent/bewley/

Huggett (1993) model : a Pure credit model

This part is based on a Huggett (1993).The problem here is to maximize:

equation 17

$$E\left[\sum_{=0}^{\infty} \beta^t u(c_t)\right]$$

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Subject to :$a_{t+1} + c_t \leq e_t + ra_t$ .Where in previous e_t is a stochastic process, and c_t is constrained to be adapted to the filtration generated by previous process. We impose two constraints: $a_0 \geq 0$; $a_t \geq \underline{a}$ $\forall t$.We call this borrowing limit or credit constraint, or liquidity constraint[9]. Now this stochastic Euler equation will become:

equation 18

$$u'(c_t) = \beta r E_t[u'(c_{t+1})]$$

About Euler equation:
Here following lemma applies see Achdou et al.(2022)

Lemma 1: The consumption and savings policy functions $c_j(a)$ and $s_j(a)$ for $j = 1,2..$ corresponding to HJB equation : $\rho v_j(a) = \max_c u(c) + v_j'(a)\big(y_j + ra - c\big) + \lambda_j\Big(v_{-j}(a) - v_j(a)\Big)$ which is maximized at : $0 = -\frac{d}{da}\big[s_j(a)g_J(a)\big] - \lambda_j g_j(a) + \lambda_{-j}g_{-j}(a)$ is given as:

equation 19

$$(\rho - r)u'\Big(c_j(a)\Big) = u''\Big(c_J(a)\Big)c_j'(a)s_j(a) + \lambda_j(u'\Big(c_{-j}(a)\Big) - u'\Big(c_j(a)\Big)$$
$$s_J(a) = y_J + ra - c_j(a)$$

Proof : differentiate $\rho v_j(a) = \max_c u(c) + v_j'(a)\big(y_j + ra - c\big) + \lambda_j\Big(v_{-j}(a) - v_j(a)\Big)$ with respect to a and use that $v_j'(a) = u'\Big(c_j(a)\Big)$ and hence $v_j''(a) = u''\Big(c_j(a)\Big)c_j'(a)$ ■

The differential equation:

equation 20

$$(\rho - r)u'\Big(c_j(a)\Big) = u''\Big(c_J(a)\Big)c_j'(a)s_j(a) + \lambda_j(u'\Big(c_{-j}(a)\Big) - u'\Big(c_j(a)\Big)$$
$$s_J(a) = y_J + ra - c_j(a)$$

is and Euler equation , the right hand side$(\rho - r)u'\Big(c_j(a)\Big)$ is expected change of marginal utility of consumption $\frac{\mathbb{E}_t[du'(c_j(a_t))]}{dt}$.This uses Ito's formula to Poisson process:

equation 21

$$\mathbb{E}_t\big[du'(c_j(a_t)\big] = \Big[u''(c_j(a_t)c_j'(a_t)s_j(a_t) + \lambda_j\Big(u'(c_{-j}(a_t)\Big) - u'\Big(c_j(a_t)\Big)\Big]dt$$

So, this equation $(\rho - r)u'\Big(c_j(a)\Big) = u''\Big(c_J(a)\Big)c_j'(a)s_j(a) + \lambda_j(u'\Big(c_{-j}(a)\Big) - u'\Big(c_j(a)\Big)$ $s_J(a) = y_J + ra - c_j(a)$ can be written in more standard form:

[9] DSGE models were also critiqued by Stiglitz (2018) for this. His critique is that pre-crisis DSGE models did not allow for financial frictions and liquidity constrained consumers, though than existing literature denies this as Galí, López-Salido, and Vallés (2007) investigate the implications of the assumption that some consumers are liquidityconstrained. They find that liquidity constraints magnify the effects of government spending. Previously, Carlstrom and Fuerst (1997) and Bernanke, Gertler, and Gilchrist (1999) develop DSGE models that incorporate credit market frictions.Zeldes (1989), confirms borrowing constraints seem empirically plausible and formal econometric tests indicate so.

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equation 22

$$\frac{\mathbb{E}_t[du'(c_j(a_t)]}{dt} = (\rho - r)dt$$

Now,let's suppose that e_t is a time-homogenous Markov process.Then optimal savings function is given as:

equation 23

$$a_{t+1} = h(a_t, e_t)$$

Consumption function is given as:

equation 24

$$c(a, e) = e + ra - h(a, e)$$

If we assume period CRRA utility function we have:

equation 25

$$[c(a, e)]^{-\sigma} = \beta r E[[c(ra + e - c(a, e), e']^{-\sigma} | \, e]$$

Krussel, Smith (1998) explain that linearity of consumption and saving policy functions with CRRA utility functions, explains their finding that the business cycle properties of baseline heterogeneous agent model are virtually indistinguishable from its representative agent counterpart. Now MPC and MPS will be given as: $MPS_\tau(a) = e^{-\eta\tau} \approx 1 - \eta\tau$ and $MPC_\tau(a) = 1 - e^{-\eta\tau} + \tau r \approx \tau(\eta + r), \eta := \frac{\rho - r}{\gamma}$.

Lemma 2. The conditional expectation of consumption $c_{j,\tau}(a)$ defined previously as $c'_{j,\tau}(a) = \mathbb{E}\left[\int_0^\tau c_j(a_t)dt \,\middle|\, a_0 = a, y_0 = y_j\right]$ can be computed as $c_{j.\tau}(a) = \mathcal{P}_j(a, 0)$.In previous expression $\mathcal{P}_j$ satisfies system of two PDE's.

equation 26

$$0 = c_j(a) + \partial_a \mathcal{P}_j(a, \tau)s_j(a) + \lambda_j\left(\mathcal{P}_{-j}(a, \tau) - \mathcal{P}_j(a, \tau)\right) + \partial_\tau \mathcal{P}_j(a, \tau), j = 1,2..\mathcal{P}_j(a, \tau) = \forall a$$

1. *Proof:* per Achdou et al.(2022) follows directly from application of Feynman-Kac formula for computing conditional expectations as solutions to PDE's. So, since $c'_{j,\tau}(a) = \mathbb{E}\left[\int_0^\tau c_j(a_t)dt \,\middle|\, a_0 = a, y_0 = y_j\right]$ and if A is infinitesimal generator (Feller process or Levy process, or Ornstein–Uhlenbeck process): **Feller process**-Let E be a LCCB (locally compact with countable base) and $E \subset \mathbb{R}^n, \exists n \in N$ and $C_0(E) = C_0(E, \mathbb{R})$ be the space of continuous function that vanishes in inf. A Feller semigroup $C_0(E)$ is a family of positive linear operators $T_\tau, \tau \geq 0$ on $C_0(E)$
   - ✓ $T_0 = Id; \|T_\tau\|; \forall \tau \in T$ i.e. $\{T_\tau\}_{\tau \in T}$ is a family of contracting maps
   - ✓ $T_{\tau+s} = T_\tau \circ T_s$ (the semigroup property)
   - ✓ $\lim_{t \downarrow 0} \|T_\tau f - f\| \forall f \in C_0(E)$

See Revuz et al.(2005).

2. **Levy process**- L let be is an infinite divisible random variable $\forall t \in [0, \infty]$

✓ L can be written as the sum of a diffusion, a continuous Martingale and a pure jump process; i.e:

equation 27

$$L_t = at + \sigma B_t + \int_{|x|<1} x d\tilde{N}_\tau + \int_{|x|\geq 1} x dN_\tau(\cdot, dx), \forall t \geq 0$$

In previous expression $a \in \Re$, B_t is the standard Brownian motion, N is defined to be the Poisson random measure of the Lèvy process

✓ Lèvy -Khintchine formula: from the previous property it can be shown that for $\forall \tau \geq 0$ one has that :

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equation 28

$$E\left|e^{inL_t}\right| = e\text{^}(-\tau\psi(u)$$

$$\psi(u) = -iau + \frac{\sigma^2}{2}u^2 + \int_{|x|\geq 1}\left(1 - e^{iux}\right)dv(x) + \int_{|x|<1}\left(1 + e^{iux} + iux\right)dv(x)$$

$a \in \Re; \sigma \in [0,\infty); v > 0$ borel measure and σ is Lèvy measure. More so $v(\cdot) = E[N_1(\cdot, A)]$

See Applebaum (2004).

3. **Ornstein–Uhlenbeck process-** The Ornstein-Uhlenbeck process is a stochastic process that satisfies the following stochastic differential equation:

equation 29

$$dx_\tau = k(\theta - x_\tau)d\tau + \sigma dW_\tau$$

$k > 0$ is the mean rate of reversion; θ is the long term mean of the process, $\sigma > 0$ is the volatility or average magnitude, per square-root time, of the random fluctuations that are modelled as Brownian motions.

✓ Mean reverting property-where $dx_\tau = k(\theta - x)$:

equation 30

$$\frac{\theta - x_\tau}{\theta - x_0} = e^{-k(\tau-\tau_0)}, x_\tau = \theta + (x_0 - \theta)e^{-k(\tau-\tau_0)}$$

✓ Solution for $\forall\tau > s \geq 0$ is given as:

equation 31

$$x_\tau = \theta + (x_s - \theta)e^{-k(\tau-s)} + \sigma\int_s^\tau e^{-k(\tau-u)}dW_u$$

See Jacobsen.M(1996) .So now partial differential equation $\frac{\partial c_{j,\tau}}{\partial\tau} = Ac_{j,\tau}(a) - c_{j,\tau}(\underline{a})(a)$ is the solution to $c'_{j,\tau}(a) = \mathbb{E}\left[\int_0^\tau c_j(a_t)dt \,\middle|\, a_0 = a, y_0 = y_j\right]$ ■. Here will be presented two main approaches for solving Huggett (1993) model and problem numerically. This part is based on : Rouwenhorst (1995) and also in Kopecky and Suen (2010).Now, e_t is a two-state Markov process $e_t \in \{e_l, e_h\}$ and that transition probabilities are given as following:

equation 32

$$\Gamma = \begin{bmatrix} \gamma & 1-\gamma \\ 1-\gamma & \gamma \end{bmatrix}$$

Where in previous autocorrelation is given as: $2\gamma - 1$. Now about the two-state Euler equation process:

1. In the low earnings state:

equation 33

$$\begin{aligned}(e_l + ra - h(a,e_l)^{-\sigma} \\ &= \beta r\{\gamma[e_l + rh(a,e_l) - h(h(a,e_l),e_l]^{-\sigma} \\ &+ (1-\gamma)[e_h + rh(a,e_l) - h(h(a,e_l),e_h]^{-\sigma}\}\end{aligned}$$

2. In the high earning state:

equation 34

$$\begin{aligned}e_h + ra - h(a,e_h)^{-\sigma} \\ &= \beta r\{\gamma[e_h + rh(a,e_h) - h(h(a,e_h),e_h]^{-\sigma} \\ &+ (1-\gamma)[e_l + rh(a,e_h) - h(h(a,e_h),e_l]^{-\sigma}\}\end{aligned}$$

With exogenous grid savings function is approximated as:

equation 35

$$[e_l + ra_k - y]^{-\sigma} = \beta r\left\{\gamma\left[e_l + ry - \hat{h}(y,\theta^{l,0}\right]^{-\sigma} + (1-\gamma)\left[e_h + ry - \hat{h}(y,\theta^{h,0}\right]\right\}$$

Where in previous: $\theta^0 = [\theta^{l,0}, \theta^{h,0}]$ these are vectors, and$\hat{h}(a^k,\theta) = \theta_k, \forall k$ and $\theta^l, \theta^h \in \mathbb{R}^N$. To solve for y we have:

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equation 36

$$y = \frac{a^m f_k^l(a^{m+1};\theta^0) - a^{m+1} f_k^l(a^m;\theta^0)}{f_k^l(a^{m+1};\theta^0) - f_k^l(a^m;\theta^0)}$$

Now :

$$f_k^l(y,\theta^0) = [e^l + ra - y]^{-\sigma} = \beta r\left\{\gamma\left[e^l + ry - \hat{h}(y;\theta^{l,0}\right]^{-\sigma} + (1-\gamma)\left[e_h + ry - \hat{h}(y,\theta^{h,0}\right]\text{^} - \sigma\right\}$$

Where $f_k^l(y,\theta^0)$ is the FOC function at $a = a^k; e = e^l$.With the method of endogenous grid we have:

equation 37

$$a = \frac{[A^l(y,\theta^0)]^{-\frac{1}{\sigma}} - e^l + y}{r}$$

Savings grid is $y = \{y^1, y^2, \dots, y^n\}$ and $y^1 = \underline{a}; y^n = \bar{a}$. We can define here:

equation 38

$$A^l(y;\theta^0) = \beta r\left\{\gamma\left[e^l + ry - \hat{h}(y;\theta^{l,0}\right]^{-\sigma} + (1-\gamma)\left[e_h + ry - \hat{h}(y,\theta^{h,0}\right]^{-\sigma}\right\} = 0$$

And for $A^l(y;\theta^0)$ we have:

equation 39

$$A^h(y;\theta^0) = \beta r\left\{\gamma\left[e^h + ry - \hat{h}(y;\theta^{h,0}\right]^{-\sigma} + (1-\gamma)\left[e_l + ry - \hat{h}(y,\theta^{l,0}\right]^{-\sigma}\right\} = 0$$

Now, the density function can be discretized:

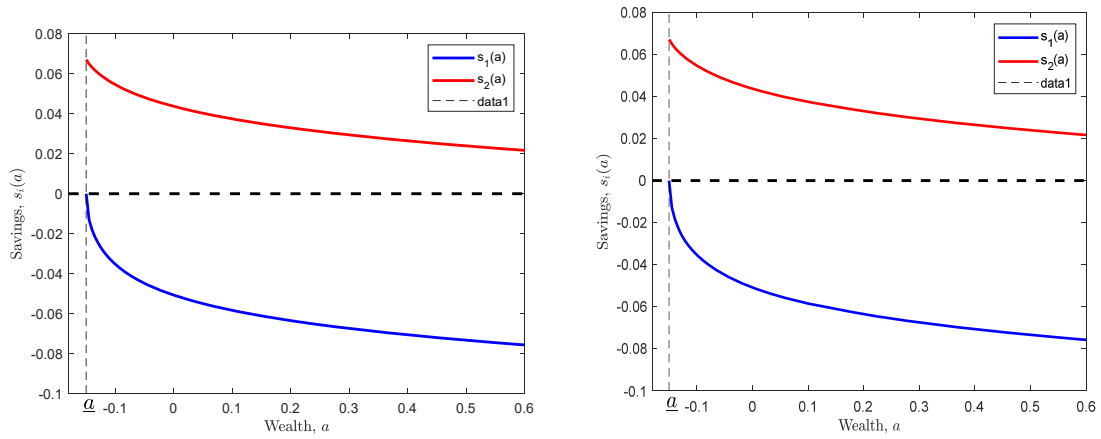
equation 40

$$f_{i,j}^1 = f_{i,j}^1 + \pi\left(\lambda^j \middle| \lambda^k\right)\frac{a_{i+1} - h(a_l,\lambda^k)}{a_{i+1} - a^i} f_{l,k}^0$$

$$f_{i+1,j}^1 = f_{i+1,j}^1 + \pi\left(\lambda^j \middle| \lambda^k\right)\frac{h(a_l,\lambda^k) - a^i}{a_{i+1} - a^i} f_{l,k}^0$$

$$\sum_{i=1}^{n}\sum_{j=1}^{m} f_{i,j}^1 = 1$$

Figure 2 Huggett model economy savings and wealth



Source: Author's calculations based on code available at: https://benjaminmoll.com/codes/

Imrohoroğlu model (1989)

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This part is based on Imrohoroğlu (1989). This model was instigated by studies such as hat of Lucas (1987)[10].The purpose of the study by Imrohoroğlu (1989) was to "examine whether the magnitude of the costs of business cycles in economies with incomplete insurance differs significantly from the cost estimates found in an environment with perfect insurance". In this model:

equation 41

$$E\sum_{t=0}^{\infty}\beta^{t}U(c_t)$$

Where $0<\beta<1$, their subjective discount factor and c_t their consumption at period t.

Utility is:

equation 42

$$U_t=\frac{c_t^{1-\sigma}}{1-\sigma},\sigma>0$$

Now, let a_{t+1} are asset holdings at the beginning of period $t+1$, and let r be the rate of return of stored assets. Then the evolution of individual assets holdings is given as:

equation 43

$$a_{t+1}=\begin{cases}(1+r)(a_t-c_t+y)\ if\ i=e\\(1+r)(a_t-c_t+\theta y)\ if\ i=u\end{cases}$$

The transition matrix pf n is a 2×2 matrix and is given as:

equation 44

$$\mathbf{P}=\begin{bmatrix}P_{11} & P_{12}\\P_{21} & P_{22}\end{bmatrix}$$

Where in previous $\Pr\{n_{t+1}=g|n_t=g\}=p_{11}$and $\Pr\{n_{t+1}=b|n_t=b\}=p_{22}$ .The transition matrix for good times for$i$ is given as $\mathbf{P}^g$ and in bad times is $\mathbf{P}^b$ now let:

equation 45

$$\mathbf{P}^g=\begin{bmatrix}p_{\underline{u}\,u}^{g} & p_{\underline{e}\,u}^{g}\\p_{\underline{u}\,e}^{g} & p_{\underline{e}\,e}^{g}\end{bmatrix},\ \mathbf{P}^b=\begin{bmatrix}p_{\underline{u}\,u}^{b} & p_{\underline{e}\,u}^{b}\\p_{\underline{u}\,e}^{b} & p_{\underline{e}\,e}^{b}\end{bmatrix}$$

Where $\Pr\{i_{t+1}=u^g|i_t=e\}=p_{\underline{u}\,e}^{g}$.No for the computation of equilibrium in economies with imperfect insurance we have the optimality equations:

equation 46

$$V(a,s)=\max\left\{U(c)+\beta\sum_{s'}\mathbf{\Pi}(s,s')V(a',s')\right\}$$

$$V_{(k+1)(a,s)}=\max\left\{U(a,s,a')+\beta\sum_{s'}\mathbf{\Pi}(s,s')V_k(a',s')\right\}$$

In this economy also :

equation 47

$$\bar{y}=ky+(1-k)\theta y$$
$$k'=k\pi_{\underline{e}\,e}^{n}+(1-k)\pi_{\underline{e}\,u}^{n}$$

[10] Lucas (1987) estimates that magnitude of the costs of business cycles on total consumption to be remarkably small 0.1%. And this estimation is based on a assumption that of a perfect insurance of idiosyncratic risk.

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Where k is a fraction of people employed in the current period and $\bar{y}^n$ be the per capita income in the current period, where $n = g, b$ .In this model :

equation 48

$$\lambda_{t+1}(x') = \sum_{(x'=a'=f(x))} \sum_{s'} \mathbf{\Pi}(s, s')\, \lambda_t k$$

Where $\lambda_t(x)$ is the fraction of the time individual attains at a particular state (a, s) ,and state probability $x' = (a', s')$, and $a_{t+1} = f(x)$.

The budget constraint for any agent is given as:

Equation 49

$$a_t \geq 0, a_{t+1} = \begin{cases} (1+r)(a_t - c_t + y); \wedge s = e \\ (1+r)(a_t + c_t + \theta y) \wedge s = u \end{cases}$$

For this part see Imrohoroğlu et al.(1993).This is a life cycle model and economic agents must mandatory retire at certain age j^* now if $s = e$ and $n_j = \hat{h}$ all the individual receive $w_j^e = w\varepsilon_j\hat{h}$ where w, r are the wage rate and interest rate respectively, and ε_j denotes efficiency index[11], and $\hat{h}$ are the hours worked by the agent age j individual. Now, if $s = u$ then $n_j = 0$ or in the unemployed state employment is zero. After the mandatory retirement at age j^* the disposable income of the retired agent equals benefits that are presented as:

equation 50

$$b_j = \begin{cases} 0, j = 1,2, \dots, j^* - 1 \\ \theta \dfrac{\sum_{i=1}^{j^*-1} w_i^e}{j^* - 1}, j = j^*, j^* + 1, \dots, J \end{cases}$$

The only role for the government in these models is to administer the unemployment insurance and social security programs. Individual disposable income through lifetime is given as:

equation 51

$$q_j = \begin{cases} (1-\tau_s - \tau_u) w_j^e \,, j = 1,2, \dots, j^* - 1, \wedge s = e \\ w_j^u, j = 1,2, \dots, j^* - 1, \wedge s = u \\ b_j, j = 1,2, \dots, j^* - 1, \dots \dots, J \end{cases}$$

In previous θ represents fraction of some income. In previous expressions social security system is self-financing.

equation 52

$$\tau_s = \frac{\sum_{j=j^*}^{J} \sum_a \mu_j \lambda_j(a,s) b_j}{\sum_{j=1}^{j^*-1} \sum_a \mu_j \lambda_j(a, s=e) w \varepsilon_j \hat{h}} = \frac{b \sum_{j=j^*}^{j^*-1} \mu_j}{w\hat{h} \sum_{j=1}^{j^*-1} \mu_j \lambda_j(a,s) \varepsilon_j}$$

And the unemployment insurance benefit program is self-financing also:

$$\tau_u = \frac{\sum_{j=j^*}^{J} \sum_a \mu_j \lambda_j(a, s=u) \xi w \hat{h}}{\sum_{j=1}^{j^*-1} \sum_a \mu_j \lambda_j(a, s=e) w \varepsilon_j \hat{h}} = \frac{\xi \sum_{j=1}^{J} \mu_j}{w\hat{h} \sum_{j=1}^{j^*-1} \mu_j \lambda_j(a,s) \varepsilon_j}$$

The lump-sum distribution of accidental bequests is determined by :

[11] The number of units of work effort into which one unit can be turned, of an age j agent.

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Original scientific paper

equation 53

$$\mathcal{T}^* = \sum_j \sum_a \sum_s \mu_j \lambda_j(a,s)\left(1-\psi_{j+1}\right)A_j(a,s)$$

Backward recursion follows:
equation 54

$$V_j(\tilde{x}_j) = \max_{\{c_j,a_j\}} \left\{ U(c_j, c_{j-1} + \beta\psi_{j+1} \sum_{s'} \Pi(s',s) V_{j+1}(\tilde{x}_{j+1}) \right\}$$

Aiyagari economy with idiosyncratic Brownian motion and random deaths

In this economy:
equation 55

$$r_t = \frac{\alpha Y_t}{K_t} - \delta_K; w_t = \frac{(1-\alpha)Y_t}{L_t}; Y = AK^{\alpha}L^{1-\alpha}$$

Utility is given as :
equation 56

$$U_0 = \mathbb{E}_0 \left[\int_0^{\infty} e^{(\rho+\eta)t} u(c_t) dt \right]$$

In this economy there is no intergeneration altruism. Individuals buy annuity in perfectly competitive insurance market that pays them a flow of ηa_t in exchange of taking control of all the assets when agent dies, see Galo,Moll (2018).Agents assets evolve according to:
equation 57

$$da_t = [w_t z_t + (r_t + \eta)a_t - c_t]dt = s(a_t, z_t, w_t, r_t, c_t)dt$$

Labor units z_t provided by the agent follow:
equation 58

$$dz_t = \theta(\hat{z} - z_t)dt + \sigma dB_t$$

$a_t \geq -\Phi$ is natural borrowing limit:
equation 59

$$-\Phi > -\underline{z} \int_t^{\infty} e^{\int_t^s r_\tau d\tau} w_s ds, \forall t \geq 0$$

The Hamilton-Jacobi-Bellman equation for individual problem is given as:
equation 60

$$(\rho+\eta)V = \max_{c\geq 0} \frac{c^{1-\gamma}}{1-\gamma} + s(a,z,w(t),r(t),c)\frac{\partial V}{\partial a} + \theta(\hat{z}-z)\frac{\partial V}{\partial z} + \frac{\sigma^2}{2}\frac{\partial^2 V}{\partial z^2} + \frac{\partial V}{\partial t}$$

The state of the economy is the joint density of wealth and labor $g(t,a,z)$:
equation 61

$$\frac{\partial g}{\partial t} = -\frac{\partial}{\partial a}(s(a,z,w(t),r(t),c)g) - \frac{\partial}{\partial z}(\theta(\hat{z}-z)g) + \frac{1}{2}\frac{\partial^2}{\partial z^2}(\sigma^2 g) - \eta g + \eta\delta_0$$

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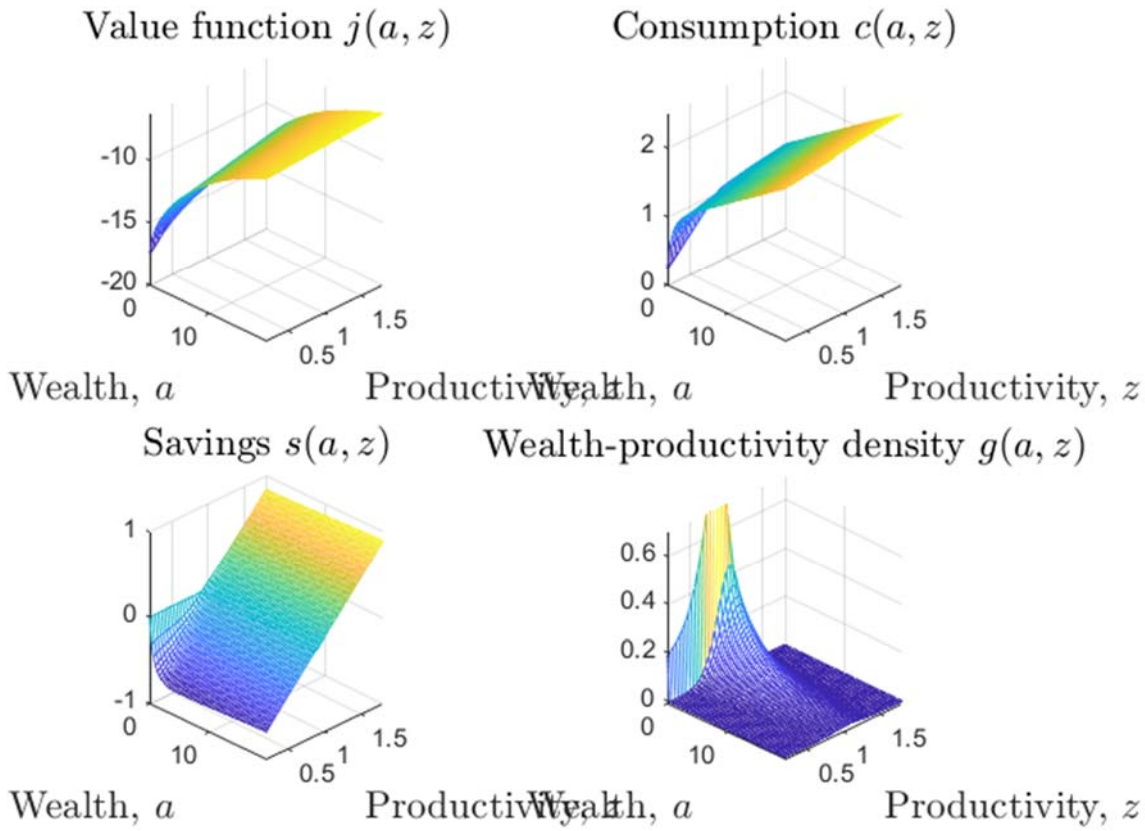
Figure 3 Value function, Consumption function ,Savings, and Wealth and productivity density in Aiyagari economy with idiosyncratic Brownian motion and random deaths



Source: Author's own calculations based on a code for paper by Galo,Moll (2018).

Social planner value function is given as[12]:

equation 62

$$\rho + \eta)j = \max_{c \geq 0} \frac{c^{1-\gamma}}{1-\gamma} + \lambda\big(a - K(t)\big) + (w(t)z + (r(t) + \eta)a - c)\frac{\partial j}{\partial a} + \theta(\hat{z} - z)\frac{\partial j}{\partial z} + \frac{\sigma^2}{2}\frac{\partial^2 j}{\partial z^2} + \frac{\partial j}{\partial t}$$

Lagrange multiplier is given as:

equation 63

$$\lambda(t) = -\frac{\alpha(1-\alpha)}{K(t)^{2-\alpha}} \int \int_{\underline{z}}^{\overline{z}} \frac{\partial j}{\partial a}(a - K(t)z)g(t,a,z)dzda$$

[12] Where discounted aggregate utility is given as: $J\big(g(0,\cdot)\big) = \max_{c(\cdot)\in\mathcal{C}(t,a,z)} \int_0^\infty e^{\rho t} \int u(c)g(t,a,z)dadzdt$

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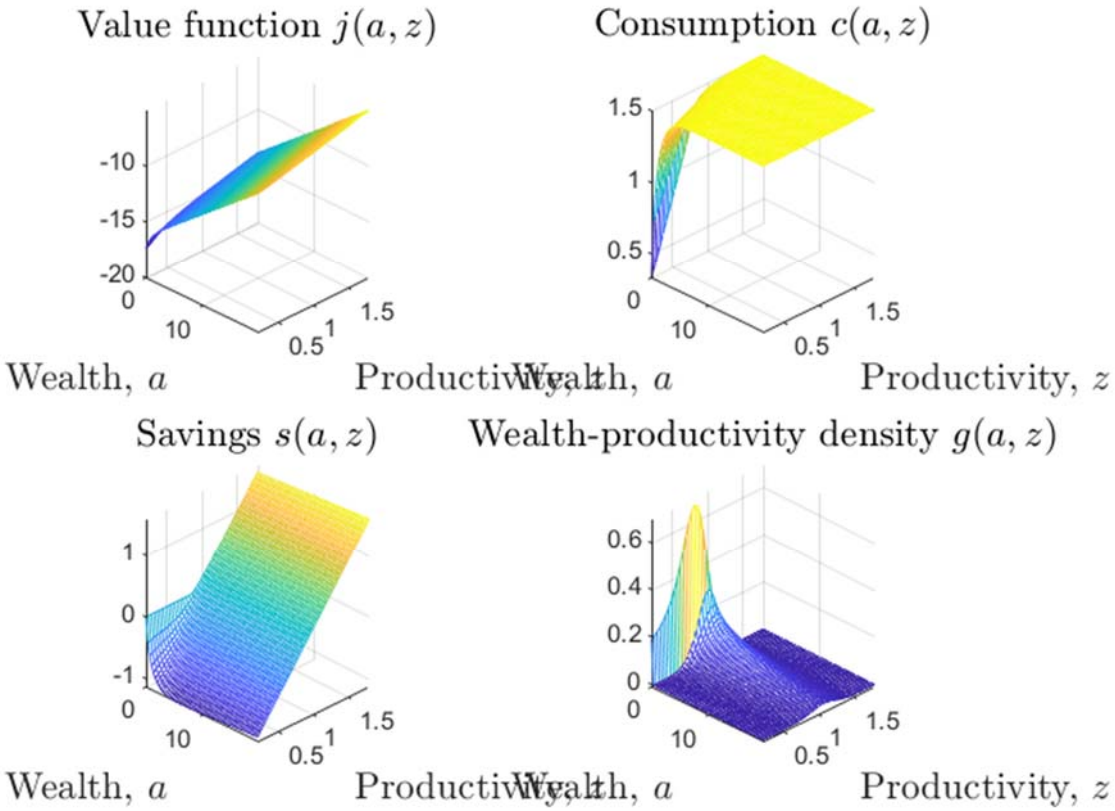
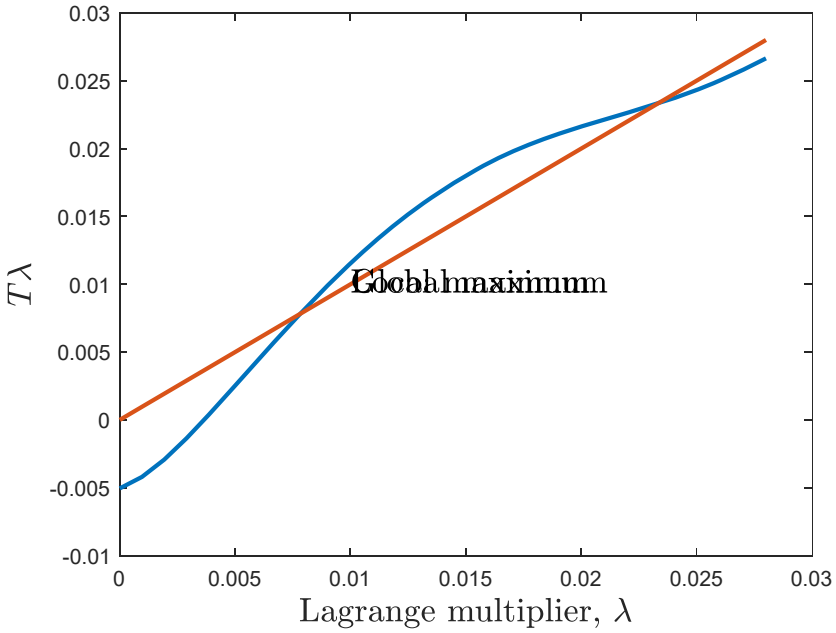
Figure 4 Value function, Consumption function ,Savings, and Wealth and productivity density in Aiyagari economy with idiosyncratic Brownian motion and random deaths



Source :Author's own calculations based on a code for paper by Galo,Moll (2018).

Figure 5 Lagrange multiplier in this economy



Source: Author's own calculations based on a code for paper by Galo,Moll (2018)

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Original scientific paper

Human Capital Model

The household solves the following problem:

equation 64

$$\max_{(c_t,s_t)_{t\geq 0}} \int_0^{\infty} e^{-\rho t}\, u(c_t)dt \; s.t.$$
$$\dot{a}_t = ra_t + wh_t(1-s_t) - c_t$$
$$\dot{h}_t = \theta(s_t h_t)^{\alpha} - \delta h_t$$
$$a_t \geq a$$

I previous expression a_t is wealth (assets),h_t is human capital,c_t is consumption,s_t is the time units spent in education. Interest rate is denoted by r and w are wages and δ is the human capital depreciaton rate and θ and α are the parameters of human capital PF (production function). There $\theta > 0\,; \alpha \in (0,1)$.There is a lower bound on wealth denoted by $\underline{a}$.Utility is CRRA with σ parameter:

equation 65

$$u(c) = \begin{cases} \log(c)\,, if\ \sigma = 1 \\ \dfrac{c^{1-\sigma}}{1-\sigma}\ if\ \sigma \neq 1 \end{cases}$$

The HJB equation for the above problem is given as:

equation 66

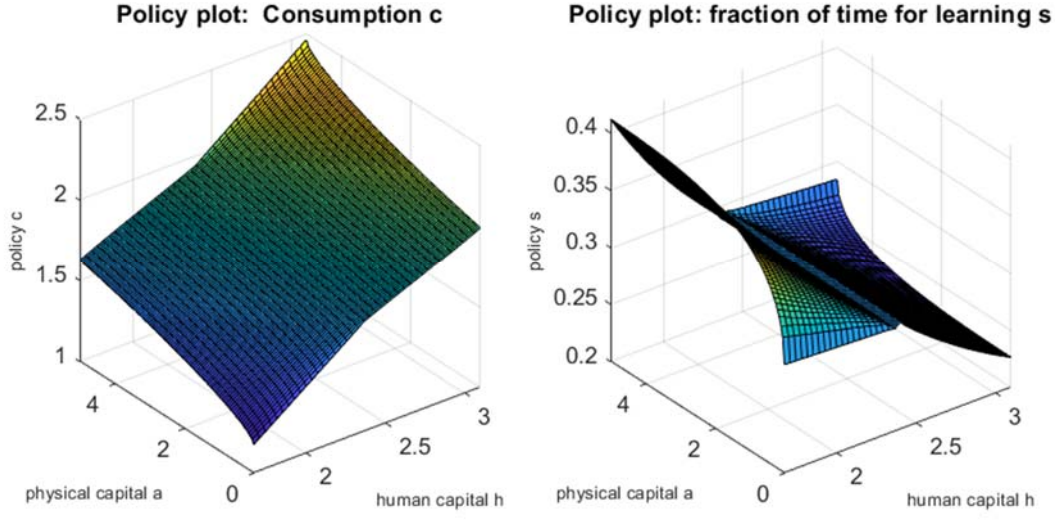
$$\rho V(a,h) = \max_{c,s} u(c) + V_a(a,h)[ra + wh(1-s) - c] \; + V_h(a,h)[\theta(sh)^{\alpha} - \delta h]$$

And the FOC's follow:

equation 67

$$u'(c) = V_a(a,h)$$
$$V_a(a,h)wh = V_h(a,h)[(sh)^{\alpha} - \delta h]$$

Figure 6 policy, physical capital and human capital and fraction of time for learning



Source: Author's own calculations based on a code available at: https://benjaminmoll.com/wp-content/uploads/2020/03/human_capital.m

Solving the incomplete markets model in general equilibrium.

Parameters are :

β = 0.96; %HH subjective discount factor

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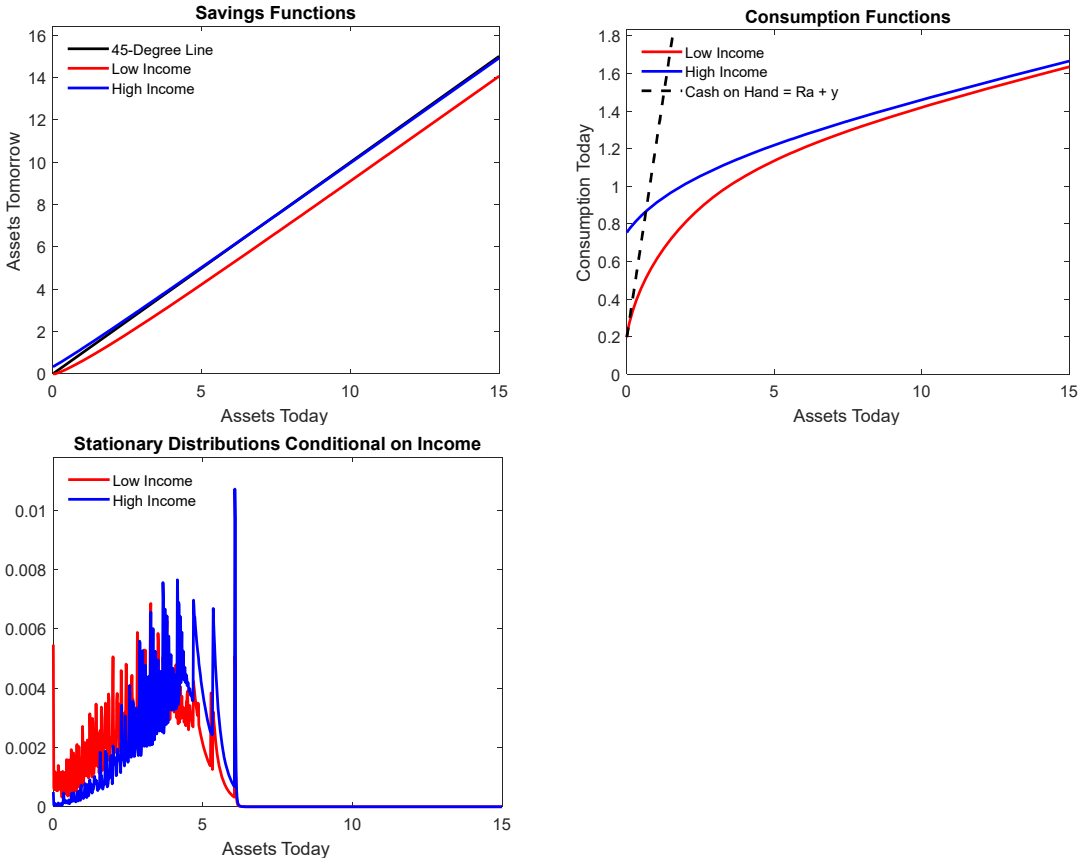
α = 0.33; %capital share
δ = 0.1; %depreciation rate
γ = 2; %CRRA risk aversion
e_h = 1.0891; %high labor efficiency level
e_l = 0.1980; %low labor efficiency level
ph_h = 0.95; %high efficiency persistence
pl_h = 0.45; %low efficiency (inverse) persistence
$\bar{a}$ = 0; %lower bound on assets

Figure 7 Incomplete markets in General equilibrium : Savings, consumption, Stationary distribution conditional on income



Source: Authors' own calculations based on a code available at; https://github.com/stpica/EC702-Fall-TA

Solving the incomplete markets model in partial equilibrium.

Now we are presenting incomplete markets model in partial equilibrium:

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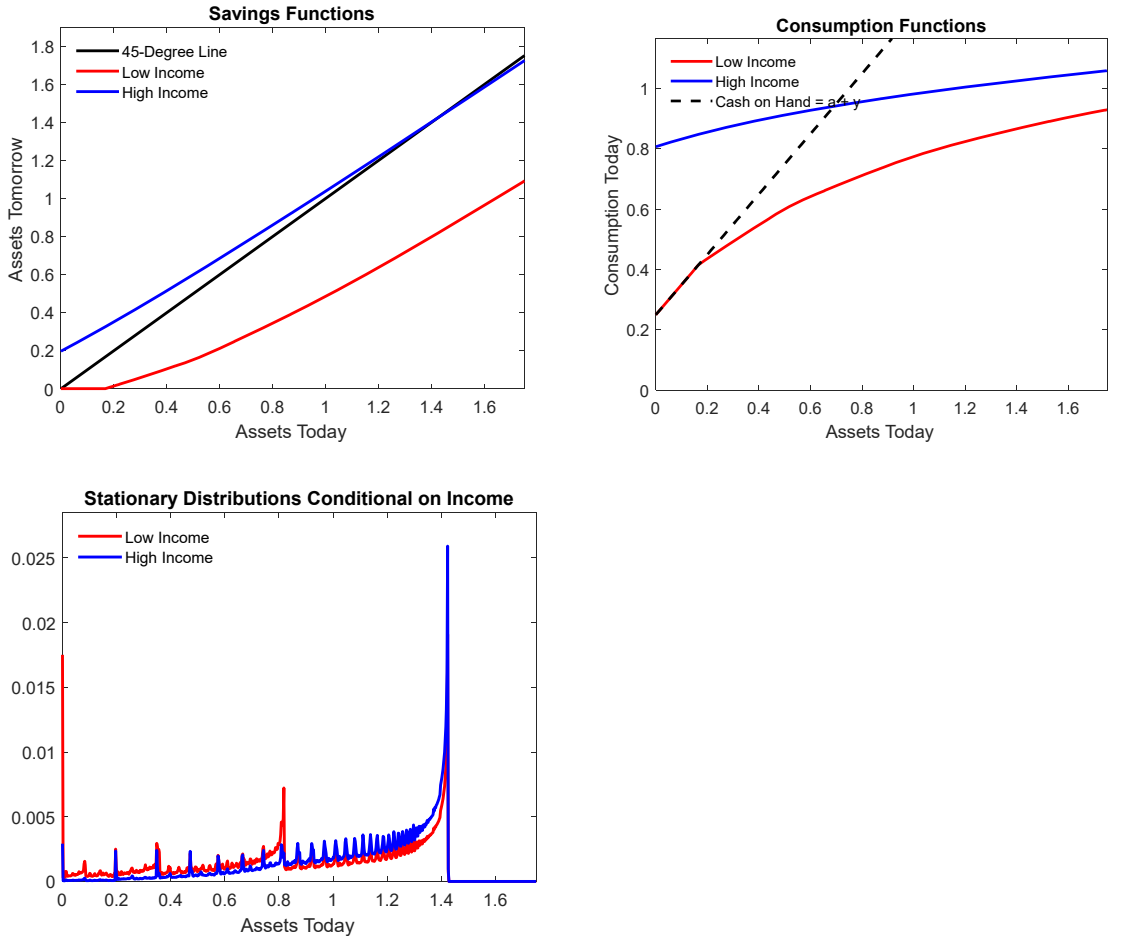
Figure 8 Incomplete markets in partial equilibrium : Savings, consumption, Stationary distribution conditional on income



Source: Authors' own calculations based on a code available at; https://github.com/stpica/EC702-Fall-TA

Parameters in this model are given as:

R = 1.02; %gross real interest rate
β = 1/1.04; %HH subjective discount rate
γ = 2; %CRRA parameter
y_l = 0.25; %low income realization
y_h = 1.0; %high income realization
pl_h = 0.7; %P(y' = yh | y = yl)
ph_h = 0.95; %P(y' = yh | y = yh)
$\bar{a}$ = 0; %borrowing constradense0nt a' >= abar

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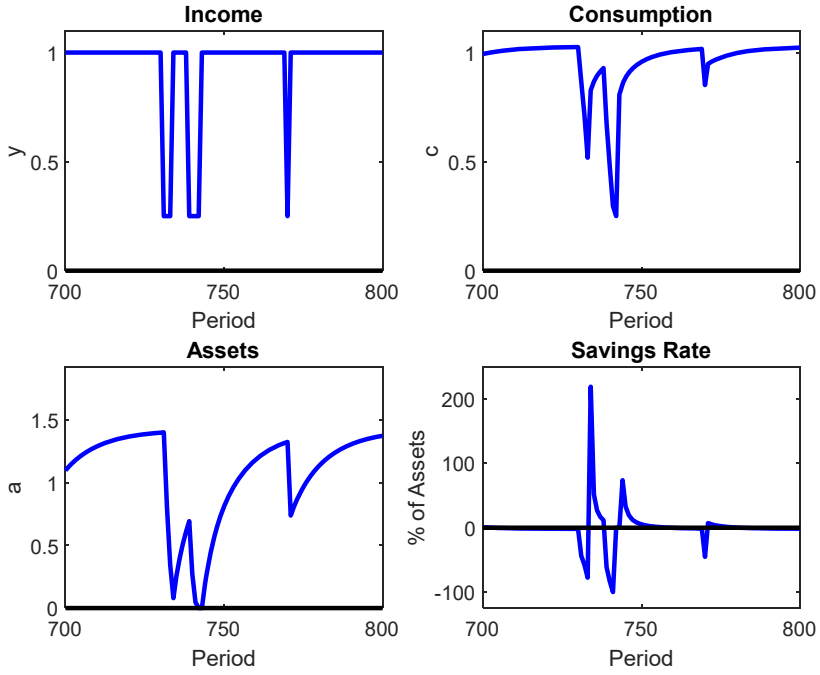
Figure 9 income ,consumption,assets,savings rate in Incomplete markets in partial equilibrium



Source: Authors' own calculations based on a code available at; https://github.com/stpica/EC702-Fall-TA

Conclusion

In the Bewley economy with assets in positive supply, interest rate is positive with positive asset supply, and there is a difference between assets of next and assets of current period,In Aiyagari model with idiosyncratic Brownian motion and random deaths the constrained efficient allocation displays under accumulation of capital in the competitive equilibrium which means that there is more capital than the first best. Competitive equilibrium displays capital overaccumulation because of precautionary savings. In the human capital model as higher is the fraction of time in learning, the lower is physical capital, and higher is policy function. In the incomplete markets in general equilibrium cash-on hand $R_a + y$ is more in consumption with lower assets, this applies even more so in partial equilibrium model. And in the period with lowest: consumption, income and assets incomplete markets in partial equilibrium model predicts highest savings rate.

References

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Online: ISSN **2671-3810**
UDC: 330.567.2:330.88
https://doi.org/10.46763/IJEMT2332
Original scientific paper

1. Achdou, Y. Han, J. Lasry, J-M. Lions, P-L. Moll, B.(2022). Income and Wealth Distribution in Macroeconomics: A Continuous-Time Approach, The Review of Economic Studies,Volume 89,Issue 1,Pages 45-86
2. Aiyagari, S. Rao (1994). Uninsured Idiosyncratic Risk and Aggregate Saving, The Quarterly Journal of Economics, Volume 109, Issue 3, pp. 659–684, https://doi.org/10.2307/2118417
3. Aiyagari, S. Rao (1995). Optimal Capital Income Taxation with Incomplete Markets, Borrowing Constraints, and Constant Discounting. Journal of Political Economy, 103(6), pp.1158–1175. http://www.jstor.org/stable/2138707
4. Applebaum, D.(2004). Lèvy Procesess and Stochastic Calculus. Cambridge University Press, Cambrigde, UK.
5. Arrow, J. (1951). An Extension of the Basic Theorems of Classical Welfare Economics. In J. Neyman (ed.), Proceedings of the Second Berkeley Symposium on Mathematical Statistics and Probability (p./pp. 507--532), : University of California Press.
6. Arrow, K. J.; Debreu, G. (1954). Existence of an equilibrium for a competitive economy. Econometrica. 22 (3),pp.265–290.
7. Arrow, Kenneth J.; Debreu, Gérard (1954). Existence of an equilibrium for a competitive economy. Econometrica. The Econometric Society. 22 (3): 265–90. doi:10.2307/1907353. JSTOR 1907353
8. Atkeson, A.(1988).International Lending with Moral Hazard and Risk of Repudiation. Manuscript. Chicago: Univ. Chicago.
9. Bernanke, Ben S., Mark Gertler, and Simon Gilchrist. (1999). The Financial Accelerator in a Quantitative Business Cycle Framework. Chap.21 in Handbook of Macroeconomics vol. 1C. Elsevier
10. Bewley, Truman F. (1977). The Permanent Income Hypothesis: A Theoretical Formulation" (PDF). J. Econ. Theory. 16 (2),pp. 252–92.
11. Bewley,T.F.(1986).Stationary monetary equilibrium with a continuum of independently fluctuating consumers.In "Contributions to Mathematical Economics in Honor of Gerard Debreu" (W. Hildenbrand and A. Mas-Colell (eds.), North Holland
12. Boppart,T.,Krusell,P.Mitman,K.(2018).Exploiting MIT shocks in heterogeneous-agent economies: the impulse response as a numerical derivative. Journal of Economic Dynamics and Control,Volume 89,pp. 68-92
13. Brock, William A., Mirman,L. (1972).Optimal Economic Growth and Uncertainty: The Discounted Case, Journal of Economic Theory, IV (1972),pp.479-513.
14. Carlstrom, Charles T., and Timothy S. Fuerst. (1997). Agency Costs, Net Worth, and Business Fluctuations: A Computable General Equilibrium Analysis. American Economic Review,87(5),pp.893–910.
15. Constantinides, G. M., & Duffie, D. (1996). Asset Pricing with Heterogeneous Consumers. Journal of Political Economy, 104(2), pp.219–240. http://www.jstor.org/stable/2138925
16. Debortoli D. Galí,J(2017). Monetary policy with heterogeneous agents: Insights from TANK models, Economics Working Papers 1686, Department of Economics and Business, Universitat Pompeu Fabra, revised May 2021.
17. Galí, Jordi, J. David LÓpez-Salido, and Javier Vall´es. (2007). Understanding the Effects of Government Spending on Consumption. Journal of the European Economic Association 5(1),pp.227–70
18. Galo,N. Moll,B.(2018). Social Optima in Economies with Heterogeneous Agents, Review of Economic Dynamics, Elsevier for the Society for Economic Dynamics, vol. 28, pp. 150-180.

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Accepted: 20.12.2023

International Journal of Economics, Management and Tourism
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Online: ISSN **2671-3810**
UDC: 330.567.2:330.88
https://doi.org/10.46763/IJEMT2332
Original scientific paper

19. Geanakoplos, J.D.; (1990). An introduction to general equilibrium with incomplete asset markets. Journal of Mathematical Economics, 19(1-2), pp. 1–38.
20. Geanakoplos, J.D.; Polemarchakis, H.M. (1986). Existence, regularity and constrained suboptimality of competitive allocations when the asset structure is incomplete. In Hell, W.P.; Starr, R.M.; Starrett, D.A. (eds.). Uncertainty, information and communication: Essays in honor of K.J. Arrow. Vol. 3. Cambridge University Press. pp. 65–95. ISBN 9780521327046.
21. Gradshteyn, I. S. and Ryzhik, I. M. (2000). Hessian Determinants, in Tables of Integrals, Series, and Products, 6th ed. San Diego, CA: Academic Press, p. 1069.
22. Green, E.(1987). Lending and the Smoothing of Uninsurable Income. In Contractual Arrangements for Intertemporal Trade, edited by Edward C. Prescott and Neil Wallace. Minnesota Studies in Macroeconomics, vol. 1. Minneapolis: Univ. Minnesota Press.
23. Hansen, G. D., Imrohoroğlu, A. (1992). The Role of Unemployment Insurance in an Economy with Liquidity Constraints and Moral Hazard. Journal of Political Economy, 100(1), pp.118–142. http://www.jstor.org/stable/2138808
24. Heathcote, Jonathan, Kjetil Storesletten, and Giovanni L. Violante. (2012). Consumption and Labor Supply with Partial Insurance: An Analytical Framework. Mimeo. Working paper, Federal Reserve Bank of Minneapolis and NYU
25. Heathcote,J., Storesletten, K., Violante, G. L.(2009). Quantitative Macroeconomics with Heterogeneous Households. Annual Review of Economics, 1(1), pp.319–354. doi: 10.1146/annurev.economics.05
26. Hopenhayn, H. A. (1992). Entry, Exit, and firm Dynamics in Long Run Equilibrium. Econometrica, 60(5), pp.1127–1150. https://doi.org/10.2307/2951541
27. Huggett, M. (1993). The risk-free rate in heterogeneous-agents, incomplete insurance economies. Journal of Economic Dynamics and Control 17 (5/6), pp.953–970.
28. Imrohoroğlu A, Imrohoroglu S, Joines DH. (1993). A Numerical Algorithm for Solving Models With Incomplete Markets. The International Journal of Supercomputing Applications. 1993;7(3),pp.212-230. doi:10.1177/109434209300700304
29. Imrohoroğlu, A. (1989). Cost of Business Cycles with Indivisibilities and Liquidity Constraints. Journal of Political Economy, 97(6), pp.1364–1383. http://www.jstor.org/stable/1833243
30. Imrohoroğlu, A. (1992). The Welfare Cost of Inflation Under Imperfect Insurance. Journal of Economic Dynamics and Control, Vol. 16(1), pp. 79–92
31. İmrohoroğlu, A., İmrohoroğlu, S., & Joines, D. H. (1995). A Life Cycle Analysis of Social Security. Economic Theory, 6(1), pp.83–114. http://www.jstor.org/stable/25054865
32. Inada, Ken-Ichi (1963). On a Two-Sector Model of Economic Growth: Comments and a Generalization. The Review of Economic Studies. 30 (2), pp.119–127.
33. Jacobsen.M(1996). Laplace and the Origin of the Ornstein-Uhlenbeck Process. Bernoulli, Vol. 2, No. 3. (Sept. 1996), pp. 271 – 286.
34. Kaplan, Greg, and Violante. G. L. (2010). How Much Consumption Insurance beyond Self-Insurance? American Economic Journal: Macroeconomics, 2 (4),pp. 53-87.
35. Kopecky, K. A. and R. M. H. Suen (2010). Finite state Markov-chain approximations to highly persistent processes. Review of Economic Dynamics 13 (3), pp.701–714.
36. Krusell, P., A. A. Smith (1998). Income and Wealth Heterogeneity in the Macroeconomy,Journal of Political Economy, 106(5), pp.867-896.
37. Ljungqvist,L. Sargent,T.J.(2018).Recursive Macroeconomic Theory. The MIT Press
38. Lucas, R.E., (1980). Equilibria in a pure currency economy, in: J. Kareken and N. Wallace, eds.,Models of monetary economies (Federal Reserve Bank of Minneapolis, Minneapolis, MN)
39. Lucas, R.E.Jr (1987). Models of business cycles. Oxford: Basil Blackwell, 1987. pp. 120

Manuscript received: 04.12.2023
Accepted: 20.12.2023

International Journal of Economics, Management and Tourism
Vol. 3, No. 2, pp. 7-28
Online: ISSN **2671-3810**
UDC: 330.567.2:330.88
https://doi.org/10.46763/IJEMT2332
Original scientific paper

40. Mehra, R. and E.C. Prescott (1985). The equity premium: A puzzle, Journal of Monetary Economics 15, pp.145-162.
41. Modigliani, F.(1988). The Role of Intergenerational Transfers and Life Cycle Saving in the Accumulation of Wealth. Journal of Economic Perspectives, 2 (2),pp.15-40.
42. Papoulis, A.(1984) .Brownian Movement and Markoff Processes. Ch. 15 in Probability, Random Variables, and Stochastic Processes, 2nd ed. New York: McGraw-Hill, pp. 515-553.
43. Revuz,D. Yor, M. (2005). Continuous Martingales and Brownian Motion, Third Edition Corrected. Volume 293, Grundlehren der mathematischen Wissenschaften. Springer, Berlin, 2005.
44. Rouwenhorst, G. (1995). Asset pricing implications of equilibrium business cycle models. In T. F. Cooley (Ed.), Frontiers of Business Cycle Research, Chapter 10. Princeton University Press.
45. Scheinkman, Jose A., and Weiss, Laurence. (1986). Borrowing Constraints and Aggregate Economic Activity. Econometrica 54 ,pp.23-45.
46. Stiglitz, J.E.(2018). Where modern macroeconomics went wrong. Oxford Review of Economic Policy, Volume 34, Numbers 1–2, 2018, pp. 70–106.
47. Taub, B., (1988). Efficiency in a pure currency economy with inflation, Economic Inquiry 26, pp.567-583
48. Tobin, James, and Dolde, Walter. (1971). Wealth, Liquidity and Consumption. In Consumer Spending and Monetary Policy: The Linkages. Monetary Conference Series, no. 5. Boston: Fed. Reserve Bank Boston.
49. Townsend, R. M.(1988). Information-constrained Insurance: The Revelation Principle Extended. J. Monetary Econ. 21 (March/May 1988),pp.411-50.
50. Zeldes, S. P. (1989). Consumption and Liquidity Constraints: An Empirical Investigation. Journal of Political Economy, 97(2), pp.305–346. http://www.jstor.org/stable/1831315

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BRIEF HISTORICAL ACCOUNT OF THE HOTEL INDUSTRY IN BITOLA
(On the occasion of 180 years since the first hotel in Bitola 1843)

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Abstract
The occasion for this work is 180 years since the first hotel in the city of Bitola, in 1843. The text is supported by selected photos and a table through which a brief historical development of the accommodation facilities in the city in the last two centuries. The purpose of the research is to determine the appearance of the first hotel, other accommodation facilities, their classification, the division by types and time periods.

The first accommodation facilities were caravanserais and anns. From the middle of the 19th century, the first hotels appeared, and later other types of accommodation facilities appeared in the city. The entire paper is presented chronologically through six periods and follows the development of the hotel industry in the city of Bitola. The research uses several sources, archival documents, scientific and professional papers, monographs, books and interviews.
Keywords: an, caravanserai, hotels, hotel industry, Bitola, RN Macedonia
JEL Classification: Z32 Tourism and Development; Z39 Tourism: Other

INTRODUCTION
We register the beginning of the first accommodation facilities, inns and caravanserais in Bitola in the 15th century (1435). In Bitola there were several types of inns and caravanserais located in several parts of the city. The first hotel in Bitola was recorded in 1843. The number and equipment of hotels during the XIX (that is, from 1843), the entire XX and the first two decades of the XXI century (2023) or a period of 180 years has different dynamics and depending on economic, military and political reasons .

The development of the hotel industry in the city of Bitola takes place in six periods[1] (Ottoman period, 1843-1912; Balkan and World War I period, 1912-1918; Inter-World War period or Kingdom of Yugoslavia period, 1919-1941; World War II period, 1941-1944; Socialist period or FNRJ period , and SFR Yugoslavia, 1945-1991; and the period of the independent Republic of Macedonia, from 1991 onwards. Today in Bitola there are about 120 accommodation facilities, of which 35 are hotels, and the rest are hostels, apartments, villas, etc.

MATERIAL AND METHODS
The whole paper draws on multiple sources, diverse literature and empirical research - personal experience. The research uses: archival documents from the city archive, scientific and professional papers, monographs, books, old topographical maps and interviews with hoteliers. From a variety of literature, we will list only the most important ones for the city of Bitola, which present data on inns, hotels and other

[1] The author of this paper is preparing a monograph with the working title: "Bitola - hospitality, hotels and tourism". There will be more about the periods in the monograph, here we present only fragments.

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Original scientific paper

accommodation facilities (Sterjovski, 2020; Dimitrov, 2018; Dimitrov, & Veljanov, 2017; Najdov, 2014; Sterjovski, 2009; Dimitrov, 1998; Matkovski, 1992; Petrushevski, 1984).

We use more of the scientific research methods: inductive-deductive method, then dialectical, historical, description, data collection, classification, observation, interview and empirical method.

RESULTS

Man, as a natural being, has not stopped moving in geographical space since his appearance. With the advent of trade, there was a need for people to travel from one place to another. Traveling, along the way they stopped at places where there was water, food and spent the night. Later, with the establishment of settlements and roads, travelers stopped and sought overnight accommodation in passenger stations or overnight settlements. The Roman historian Tacitus states that at that time there were separate catering facilities for men and separate ones for women, which were divided to accommodate guests from different strata of society. (Dimitrov and Veljanov, 2017).

Our research on the hospitality industry in Bitola covers a time period of several centuries. Thus, from the appearance of the first hotel until today, the development of hospitality in Bitola took place in six periods, namely: Ottoman period, 1843-1912; period of Balkan and First World War, 1912-1918; the period between the two world wars or the period of the Kingdom of Yugoslavia, 1919-1941; World War II period, 1941-1944; Socialist period or period of SFR Yugoslavia, 1945-1991; and the period of the independent Republic of Macedonia, from 1991 onwards.

From the appearance of the first hotel in 1843 until today, the hotel industry in Bitola has reached the number of 35 hotels, 6 hostels and 77 other accommodation facilities (apartments, villas, lodgines, etc.), or a total of 118 different accommodation facilities were operating in the city.

1. Ottoman period (until 1912)

Anns and caravanserais

During the Ottoman Empire, the accommodation facilities used were anns and caravanserais. Anns and caravanserais are resorts or lodgings for travelers and merchants going from one place to another for various private or business needs.

The main difference between inns and caravanserais is that in inns you have to pay for the stay and all services, while in the caravanserai you don't have to pay. The apartments were messy, without inventory and everyone slept on the floor. "Annes are spacious buildings consisting of stables on the ground floor and unfurnished rooms, halls and galleries on the upper floors. Each passenger comes with his own rug, bed, and items for personal use that he uses during the trip" (Report...Belg de Buga, 2005)

In the literature, there are several divisions of anns, namely: according to the place where they are located (Petrushevski, 1984; Dimitrov& Veljanov, 2017) and according to architecture (Dimitrov&Namichev, 2017).

The first overnight accommodation facilities, anns and caravanserais in Macedonia are mentioned in the 15th century. The first Annas in Bitola were registered in the Bitola seals in the 15th century. Namely, in 1435 in Bitola there is a mention of

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Sungur Chaush beygov an. The anoth belonged to the waqf of the great benefactor Singur Chaush Bey. At approximately the same time, Isa Fakih, the father of Ishaq Efendi, the builder of the "Ishaq Mosque", also had an an in Bitola. (Hasan Kalesi, 1972).

In 1591, from Ivan Kavaza's travelogue, we learn that in Bitola there was "a caravanserai that is good for horses, but uncomfortable for people". (Matkovski, 1991).

In the first half of the 18th century, 14 an were registered in Bitola: (Vishko Ali, 2007), in 1827 the number of an in the city of Bitola was 17 (Konstantinov, 1961), in 1856, 22 an. According to the official Turkish statistics from 1876, there were 50 an in the entire territory of the city (Momidić-Petkova, 1993/94), in 1883, according to the travelogue of an unknown author, there were about 40 anos in Bitola. (Matkovski, 2002)

From the Report of the French Vice-Consul in Bitola, (Beleg de Buga), from 1856, we learn that: "...in Bitola there are still no European lodgings and the need for them is beginning to be felt." (Report, 2005).

The largest number of ans were located around the bazaar, but there were also along the river Dragor and around the city clock.

First hotels

We learn the first information about a hotel in Bitola from the travelogue of Josef Müller from 1843 year who noted "Among the 2,500-2,600 private houses, the beautifully appointed, simply and very tastefully decorated hotel of the Greek vice-consul and apothecary, Lorenzo Peri, stands out." (Matkoski, 1992).

Lorenzo Peri is known to have been from Crete. The home - the pharmacy, was opened before 1843, and served as a hotel. The hotel was located at the northern beginning of "Shirok Sokak" on the left hand side if we are going south. It was "a house with two shops and a floor, with an iron balcony, with an entrance for both the shops and the house from the side of the main street..." (Sterjovski 2020).

In 1890, we learn that there was a hotel "Hotel de l`Oreint" in Bitola. (Gopčević, 1890). It is most likely that this hotel was built at least a decade ago, ie around 1880. We support this data with the fact that Bitola from the seventies of the 19th century became an important commercial, construction, craft, political and administrative center of the Rumeli Province. The city significantly imported western goods, especially metal beds, window glass, porcelain, whiskey, cognac, etc., and also noticed an increased visit of foreign diplomats, merchants, and travel writers. (Dimitrov, 2005; Dimitrov and others, 2017).

During the period of 22 years (1890 to 1912), the Hotel "Orient" received various names "Lokanda", Shark (East), "Monastir" and the last name Hotel "Bosna".

From the travelogue of Colmar Goltz, from 1893 we learn the name of another hotel in Bitola, Hotel "Beograd". The "Hotel - City of Belgrade" opened its not very hospitable doors to us; however, in the end, it turned out to be more tolerable than we thought." (Matkovski, 2005)

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Original scientific paper

Figure 1. Hotel "Orient"

In 1898, the hotel "Hamidie" is also mentioned in Bitola. "An inn workshop named Hotel "Hamidie" was located in the most beautiful place in Bitola, right at the entrance to the city, on the right side when coming from the railway station..." (Advertisement published in the Constantinople newspaper "Konstantinople", 24.09.1898). And the Hamidieh hotel was located on Shirok Sokak and was named after Sultan Abdul Hamid II (reigned for 33 years, 1876 - 1909).

In Bitola, in the period from 1904 to 1912, we register the following hotels "Central" (1904), then "Syntagma" (1907), "Liberte" (1909), "Europa", "Solun", "Moscow", and hotel "Constantinople" (1911/12), all located on the main street (Sterjovski, 2016, Sterjovski, 2020; Dimitrov&Veljanov, 2017).

From the research, for the Ottoman period, we conclude that in Bitola, from 1843 to 1912, a total of 14 hotels operated. Eleven hotels were located on the street "Hamidie" - "Sultanie", or "Shirok Sokak" (named by the local population), namely: "Lorenzo Perry Hotel", Hotel "Orient", "Belgrade", "Hamidie", " Central", "Syntagma" ((later with a new name "Constitution"), "Liberte", "Europa", "Thessalonica", "Moscow" and Hotel "Constantinople". Three hotels were located along the Dragor river: hotel "Macedonia" (hotel of Jovkovci, also known as hotel "Macedonia", mentioned in 1903, later it had a new name "America"), then hotel "Balkan" (hotel of Sotir Zdravkovski or Tiro Rogozinaro) and Roma Hotel. In the absence of data on the number of rooms and beds in the hotels, we estimate that, with the exception of the "Orient" hotel, the other hotels had a small capacity (2-4 rooms, with 4-10 beds), so the total number of rooms was 80 rooms and about 200 beds. Meanwhile, the number of people who were directly and indirectly engaged in hotel business was about 100 people.

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2. Period of the Balkan Wars and the First World War (1912 - 1918)

During the period of the Balkan Wars and the First World War, only nine hotels continued to operate, four hotels closed due to economic reasons, and the "Constitution" hotel suffered in the bombing.

Hotels that continued to operate during the war were: Hotel "Bosna" (which was renovated with balconies in 1915), Hotel "Belgrade" (the Bulgarian government renamed it Hotel "Plovdiv", and then it became Hotel " Belgrade") (Sterjovski, 2020), Hotel "Central", Hotel "Macedonia", Hotel "Balkan", Hotel "Liberte", Hotel "Thessalonica", Hotel "Moscow" and Hotel "Europe" (known for changed its name three times to Hotel "Nova Serbia", then Hotel "New Bulgaria", and then returned the name Hotel "Europe"). (Dimitrov & Veljanov, 2017).

3. Period of the Kingdom of Yugoslavia or Between the Two World Wars (1919 - 1941)

During this period, the hotel industry recorded an upward trend. Namely, better hotels with higher standards and greater capacity are being built. Also, some of the anns are modernized and become small hotels with 3-6 rooms and a maximum of about 15 beds.

During that period, the hotels: "Bosna" (15 rooms, 40 beds), "Grand Hotel Jevtic" (22 rooms, 60 beds), "Central" hotel (8 rooms, 20 beds), "Tourist" hotel (15 rooms, 40 beds) and Hotel "Solun" (30 rooms with 70 beds). These hotels had 90 rooms with a capacity of 230 beds.

The hotel "Grand Hotel "Jevtic" was built in 1922-1925 in the style of modern European hotels. He had a representative restaurant where classical music was played. The hotel was the first hotel in Bitola that introduced electricity in every room. Within the hotel, in the ground floor, there was also a cinema with about 300 seats. World silent film trends were carried in the cinema. In 1933, in this cinema, a sound film was shown for the first time in Bitola. (Buildings, Sterjovski, and - Sun on the pole" - I. Petrushevska; Internet portal: Bitola once and now).

In the period 1929-1931 in Bitola there were 9 hotels: "Jevtic", "Bosna", "Royal", "Thessalonica", "Yugoslavia", "Belgrade", "Central", "Balkan" and "Macedonia". (Almanac– Kingdom of Yugoslavia, second edition, Zagreb, 1932). Two more hotels that were working at that time are not included in the Almanac, namely: Hotel "Moscow" and "Europa". Later, 5 more hotels appear ("Liria", "Sofia", "Slovenia", "Kicevo", "Prespa", "Ohrid Lake" and 2 annas in the bazaar, which are being modernized with guest rooms and a restaurant ("English Han " and "Misir Han").

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Original scientific paper

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Picture 2. Hotel and Restaurant "Bosna"

Thus, in the period between the two world wars, there were 20 hotels in Bitola. The most numerous were the hotels located in the central area and along Shirok Sokak, at number 12, namely: hotel and restaurant "Bosna", hotel and restaurant "Grand Hotel Jevtic", hotel and restaurant "Central", hotel and restaurant "Tourist", Hotel and Restaurant "Solun", Hotel "Europe", Hotel "Liria", Hotel and Restaurant "Royal", Hotel and Restaurant "Yugoslavia", Hotel "Moscow", Hotel and Restaurant "Sofia" and Hotel "Slovenia".

There were 8 hotels in the part along the river Dragor, namely: hotel and restaurant "Ohrid Lake", hotel and restaurant "Balkan", hotel and restaurant "Kicevo", hotel "Macedonia", hotel "America", hotel and restaurant "Prespa". , hotel and restaurant "Ingiliski Han", and hotel and restaurant "Misir Han" (Archive of Macedonia, Skopje, and interview with old residents of Bitola and photos of the facilities).

In the summer of 1927, an orphanage for children suffering from pulmonary tuberculosis began operating in Pelister.

In 1939, for unknown reasons, the "Bosna" hotel was burned down and ceased to exist. Just before the Second World War, several hotels in Bitola were closed due to economic reasons.

The total hotel facilities (number of hotels, rooms and beds) in the period between the two world wars in the city of Bitola reached the following number: 20 hotels, with about 200 rooms and over 800 beds. During this period, about 200 people were directly and indirectly engaged in hotel business.

At first, the resort had a capacity for 120 children, and later, when there were four buildings, a swimming pool, etc., it could accommodate up to 400 children. Also, on Pelister, in the middle of 1938, a mountain lodge "Begova Cheshma" with three bedrooms and other rooms was built. (Sterjovski, 2020; Sterjovski, 2016)

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4. Period of World War II (1941-1944)

During the Second World War, the number of hotels in Bitola drastically decreased. Of course, the reason was the war, the economic crisis and the abandonment of the city by several hotel owners.

Some of the hotels also changed their names, for example: the "Balkan" hotel was renamed "Zagreb", and some of the hotels bore the name of the owner ("Na Jovkovci" hotel, Popjanev's hotel, etc.).

From the research, we learn that the Children's Summer Camp of Pelister, near the village of Magarevo, worked in 1942 and received 100 children in two shifts. (Pelistersko Echo No. 30, June 20, 1942, p. 2)

In confirmation of the previous one, a source testifies in 1943, in which it is mentioned that only three hotels were operating in Bitola: "Solun", "Tourist" and "Bulgaria". (Peter Savinov, Guidebook "Ohrid", Skopje, 1943, p. 22, pictures 16). However, our research showed that 11 hotels with restaurants were operating in Bitola: "Solun", "Tourist", "Zagreb", "Central", "Bulgaria" (previously "Yugoslavia"), "Kicevo", "Ohrid Lake", " Missiran", "Prespa" and "Royal".

5. Period of FNRJ or SFR Yugoslavia (1945-1991)

After the Second World War, a new political - economic system - socialism was introduced at the very beginning. This new society is based on collective principles, so in 1948 all private economic enterprises, including hotels, restaurants, factories, etc., were nationalized and became state property.

In Bitola, 17 hotels and restaurants are being nationalized, i.e. from private to state-social ownership, namely: "Central", "Sofia", "Royal", "Yugoslavia", "Balkan", "Kicevo", "Ohrid Lake". , "Grand Hotel", "Solun", "Tourist", "Slovenia", "Ingiliski Han", "Mirir Han", and four more hotels without the name of the hotel listed. (Archive of Macedonia, Skopje)

From an interview with former hospitality employees, we learned the following. In 1947, a city hotel-catering national enterprise was established, HUNAP, which manages the listed hotel and restaurant facilities.

In 1949, the hotel and restaurant "Trudbenik" was put into operation, in which there is also a modern cinema. As part of the city's national catering company, there was first one, and later two separate catering companies, UP "Neolitsa" and UP "Trudbenik". Until 1952, the "Tourist" hotel continued to operate in Bitola. After the nationalization process, the number of hotels, rooms and beds decreased significantly.

Until 1952, "Solun" worked as a hotel and restaurant, and then only as the "Solun" restaurant. Other small hotels and restaurants were "Macedonia" and "Rabotnik". The mountain lodge "Begova Cheshma" was still working on Pelister, and a little higher up the mountain lodge "Kopanki", the children's resort. There were no other accommodation facilities for guests in the city and municipality.

In 1960, a new and modern (for that time) hotel and restaurant "Macedonia" was built on the site of the previous hotel "Macedonia" and "Rabotnik". In total, in 1962, the city of Bitola had two hotels ("Macedonia", "Trudbenik"), one home ("Begova Cheshma na Pelister"), with a total capacity of 93 rooms, 198 beds, and together with the Children's Resort "Pelister" (4 barracks, 17 rooms, 400 beds) and PD "Kopanki" (10

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rooms, 100 beds), the municipality had 120 rooms and 698 beds and 220 employees. (UTP "Macedonia": State Archives of Macedonia, Bitola Department, Fund: 02.0579; Fund: URO "Macedonia" - Bitola 1952-1990)

Figure 3. Hotel "Macedonia"

In 1974, the hotel and restaurant "Epinal" was built in Bitola, with 60 rooms and capacity for 440 guests. In Bitola in 1974, there were the following accommodation facilities: Hotel "Macedonia", Hotel "Trudbenik", Hotel "Begova Cheshma", then Children's resort "Pelister", mountain lodge "Kopanki" and mountain lodge "Golemo Ezero".

According to data from 1982/83. Bitola has 3 hotels with a total of 503 beds ("Epinal" 431 beds, "Macedonia" 40, "Begova Cheshma" 32 beds), then "Nižepole" Youth Settlement 400 beds, Pelister Children's Resort 450 beds, Mountain Lodge "Kopanki" 100, Mountain lodge "Golemo Ezero" 40 beds. Tourists 34,404; Overnight stays 92,525. (Informant Bitola, 1982) If we add the 50 beds in the Mountain Home "Neolitsa" (Dimitrov, 2022) Then, the total accommodation facilities of the Municipality of Bitola in 1983 amounted to 553 beds.

Figure 4. Hotel "Epinal"

In 1985/6, the "Epinal" hotel was significantly expanded and had 130 rooms and 780 beds. The hotel with the extension was of high "B" category. It had a restaurant, dairy restaurant, city bar, banquet hall, coffee bar, business club, casino "Atlantic", hair salon and others. (Dimitrov, 1998)

In 1986, ROUT "Macedonia" had a maximum number of 30 organizational units, with a total of 430 employees. The number of hotels was 2, "Epinal" from "B" category and "Macedonia" from "C" category. UTP "Macedonia". (State Archives of Macedonia, Bitola Department, Fund: 02.0579; Fund: URO "Macedonia" - Bitola 1952-1990).

In 1989, the hotel "Bitola" was put into use. Hotel "Bitola" was part of POS "Borets", (a socially owned enterprise for catering, rest and recreation of pensioners) and had 95 rooms (36 single, 48 double,

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6 most modern suites and 5 rooms with French beds) and 150 beds. (Flyer of Hotel Bitola,1989)

In Bitola in 1989 there were the following accommodation facilities: 3 hotels ("Epinal", "Macedonia", "Bitola"), 1 tourist settlement ("Pelister" - Nizhnepole), 1 resort ("Pelister" resort) and 3 mountain lodges "Kopanki", "Golemo Ezero" and "Neolitsa") (Tourist map of Bitola,1989). In 1989, the Municipality of Bitola had 1484 beds, and in 1996, 1776 beds. (Dimitrov, 1998)

6. Period of the Independent Republic of Macedonia.

From 1991 onwards with the transformation of the economy in SR. Macedonia and the denationalization process, the hotel industry in the city is changing significantly. In 1994, on the site of the former mountain lodge, and later the "Begova Cheshma" hotel, the "Molika" hotel was built.

Figure 5. Hotel "Molika"

In 1996, the joint-stock company for UTT "Macedonia" - Bitola had 3 hotels, 9 restaurants, 2 cafes, 4 pastry shops, 12 kiosks, a buffet, an inn and a grocery store, 2 warehouses, 1 bingo and employed over 230 people. The reduction of capacities and employees is the result of intensive privatization in the hospitality industry. (Dimitrov, 1998)

From 1997/98 onwards, the number of accommodation facilities in Bitola began to grow continuously. Thus, until 1999, there were 6 hotels in Bitola and its surroundings: "Epinal", "Bitola", "Capri", "Premier", "Molika" and "Shumski Feneri". Until 2010, there are 10 hotels in Bitola and its surroundings (hotel "Shator", hotel "Ambassador", hotel "Reese" and hostel "Domestika") and 6 other accommodation facilities.

In the municipality of Bitola in 2008, there were 16 catering facilities, with 481 rooms and 1296 beds and 311 employees. (DSZ: Inventory of capacities in the hospitality industry, 2008, Statistical review: Transport, tourism and other services, 8.4.9.03.635. Skopje, 14.09.200)

In 2016, there were 45 catering establishments in the Municipality of Bitola, with 689 rooms and 1573 beds and a total of 788 employees. (Statistical review: Transport, tourism and other services, 8.4.17.05.883, Skopje, October, 2017.)

In the period 2010-2018, 50 other accommodation facilities are being built in Bitola and its surroundings. In 2019, there are a total of 28 hotels in Bitola and its surroundings: Hotel "Epinal", "Molika", Shumski Feneri, "Capri", "Premier", "Shator", "Millennium", "Bela Kuća", "Tokin House". , "Theatre", "Premier Center", "Trev", "De Niro", "Cholla", "Barroom", "Boulevard", "Broad Alley", "Corzo", "City Hall", "Glamour", " Orbis", "Rustico", "Victoria", "Villa", "Gala Garden", "Grand Premier", "Kiko" and "Cheops".

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According to our research, in 2023, there are 179 accommodation facilities in Bitola Municipality, of which: 26 hotels, 5 hostels and 148 villas, apartments, guest houses and homes that rent rooms for guests. Among them in the city of Bitola are: 23 hotels, 5 hostels and 118 villas, apartments, guest houses and homes - apartments that rent rooms for guests. While, in the vicinity of Bitola there are 3 hotels and 30 villas, apartments and guest houses. (Data from the Municipality of Bitola - Department of Economic Development; Websites of hotels and Interviews with hotel owners and other employees)

In the vicinity of Bitola, i.e. in the area of the national park "Pelister" and in the sub-Pelister villages (Trnovo, Magarevo, Dihovo and Nizhepole), there are 22 accommodation facilities, of which 3 hotels ("Molika" with 4****, "Shumski Feneri" with 3*** and "Shator" with 3***), and 19 other facilities (villas, apartments, guest houses, etc.). Then, on the road to the village of Bratindol there are 4 accommodation facilities, on the road to the village of Bistrica there are 3 accommodation facilities, and on the road to the village of Kravari, 1 accommodation facility.

According to our calculations, by September 2023, all accommodation facilities in city of Bitola, there are over 800 rooms with a capacity of over 1800 beds.

DISCUSSION

In the absence of statistical data on the capacity of the listed accommodation facilities (number of rooms and beds), we extract their number from the web pages of some of the facilities that have provided that information. For the rest, we got the number from direct contact with the owners and employees of the accommodation facilities. So, in 2023, we estimate that the city of Bitola will have approximately 800 rooms and 1800 beds, and the municipality of Bitola will have over 1000 rooms and over 2200 beds.

In the summer period of the year, over 3000 tourists stay in the city for several days, weeks and even months. There is a particularly large number of tourists with Bitola origin - returnees from abroad, who rent rooms, apartments and flats for a temporary stay in the city of one or more months. So, in the summer period, all registered accommodation capacities are filled, so a large part of the guests are also accommodated in unregistered private facilities in the city and its surroundings, and some in neighboring municipalities.

This situation has existed in Bitola for several years and the city regularly faces a lack of accommodation facilities. If we add to this the fact that in the city and in the municipality there is still no hotel with 5* and hotels with a larger accommodation capacity. The accommodation situation for tourists and other guests is alarming during the summer when more cultural and other events are held. Namely, then the number of tourists and others is over 5000 guests. This means that the need to build modern hotels with a large accommodation capacity and other facilities (hostels, apartments, etc.) in the city and its surroundings is more than necessary.

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Original scientific paper

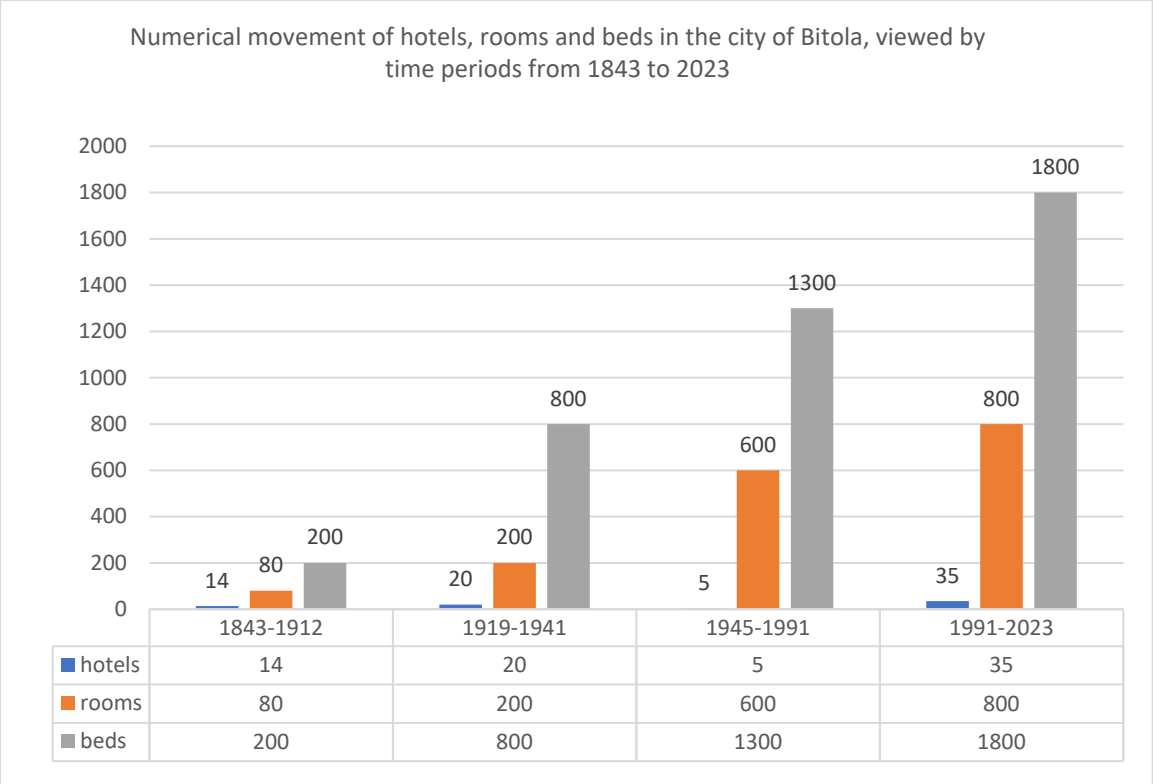
Table 1. Estimate of the number of hotels, rooms and beds in the city of Bitola, viewed by time periods from 1843 to 2023

Time period	Maximum number of:		
	hotels	rooms	beds
Ottoman period (1843-1912)	14	80	200
Kingdom of Yugoslavia (1919-1941)	20	200	800
SFR Yugoslavia (1945-1991)	5	600	1300
Independent Macedonia (1991-2023)	35	800	1800

From table 1 and graph 1, we derive the following analyses. In the period 1843-1912, a total of 14 hotels operated with a total capacity of 80 rooms and 200 beds, or an average of 5.7 rooms and 14 beds per hotel. In the period 1919-1941, a total of 20 hotels operated with a capacity of 200 rooms and 800 beds, and an average of 10 rooms and 40 beds per hotel. In the period 1945-1991, there were at least only 5 hotels, but all of them had a larger capacity, a total of 600 rooms with 1300 beds and the highest average of 120 rooms and 260 beds per hotel. In the last period 1991-2023, we registered the largest number of hotels, 35, but that's why the number of rooms (800) and beds (1800) was not large.

Thus, on average, each hotel has 22.8 rooms and 51.4 beds. From the research we found out that most of the hotels are of lower capacity, some of them are old town houses that have been adapted into hotels and almost all of them are located in the central city area with limited capacity and the inability to expand.

Graph 1. Numerical movement of hotels, rooms and beds in the city of Bitola, 1843-2023.



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These data confirm that there are hotels in Bitola with a large accommodation capacity of rooms, apartments and other contents. Which is in addition to what was stated above about the mandatory need for hotels, and especially large and modern hotels with a high category of 5* and 4*. (See Table 2.)

Table 2. Categorization of hotels in the city of Bitola, in the period 2019-2023

Hotel category with number of stars (*)	**Name of the hotel**
4****	Epinal" – SPA & Casino"; "Millennium - Millenium Palace"; "Tref"; "Ambassador"; "Grand Central"; "Cheops"; Chiflik Winery = 7 hotels with 4****
3***	"Capri"; "White House"; "Epinal - Shirok Sokak"; "Primier"; "Corzo"; "City House"; "Talkin' House"; "El Greco"; "Lozar Wine Cellar"; "Kiko" = 10 hotels with 3***
2**	"Boulevard"; "Bastion"; "De Niro"; "Villa Grand Bitola"; "Barum"; "Rustico"; "Orbis"; Travel Bab"; "Theatre"; "Premier Center"; "Chola"; "Victoria"; "Gala Garden", "Villa", "De Niro - Center"; "Gradska Kuća", "Univermak", "Benny Fontana" = 18 hotels with 2**

Source: Hotel websites; Municipality of Bitola, department for economic development; Field research; Golden Book, Yellow Pages: 2006/7; 2008/9; 2012/13; 2017/18, Publisher NID "YELLOWPAGES"–Skopje; https://www.booking.com/hotel/mk/; https://www.booking.com/city/mk/bitola.en

Hotel „Kapri“

Hotel „Premier“

Hotel „Theatre“

Hotel „Grand Center“

Hotel „Millenium“

Hotel „Cheops“

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Hotel „Ambasador“

Hotel „Shumski feneri“

Hotel „Shator“

Figure 6-14. A small part of the hotels in the city of Bitola and the immediate surroundings

CONCLUSION

City of Bitola, this year 2023 marks 180 years since the first hotel in 1843. Throughout historical periods, the number of hotels and other accommodation facilities has changed. The hotel industry reaches a maximum number of 35 hotels in the period 2019-2023. Especially in the summer period of the year, the city has a shortage of accommodation facilities. Also, in Bitola there are no hotels with a large capacity of rooms and beds, nor a hotel of a high category with 5*. The city also suffers from a lack of specialized staff in the field of hotel and catering. These problems, the local and the society as a whole should have a serious approach in overcoming the problems, on the contrary, the hotel and catering industry will fall into a serious crisis of unprofitability, which will be significantly felt in tourism and the economy in general.

REFERENCES:

1. Sterjovski, Aleksandar (2020) Bitola - buildings, Bitola (in Macedonian)
2. Dimitrov, Nikola (2018) *Early Forms of Tourism in the Republic of Macedonia: Ottoman Period, Bitola and Skopje Vilayet.* Journal of Tourism and Hospitality Management, 6 (5). pp. 211-221. ISSN 2328-2169
3. Dimitrov, Nikola & Veljanov, Trajan (2017) From anns to hotels, from bars to restaurants, Shtip (in Macedonian)
4. Najdov, Dimche (2014) Bitola through old postcards, Bitola (in Macedonian)
5. Sterjovski, Aleksandar (2009): Dragor River, Bitola (in Macedonian)
6. Dimitrov, V. Nikola (1998) Bitola - urban geographical development, DNUB, Bitola (in Macedonian)
7. Matkovski, Aleksandar (1992) Macedonia in the works of foreign travel writers 1827-1849, Misla, Skopje (in Macedonian)
8. Petrushevski, Ilija (1984) The Anovites and caravanserais in Macedonia, History, year XX, no. 2, Skopje (in Macedonian)
9. Report on the Bitola Pashalak of the French Vice-Consul in Bitola, Beleg de Buga from 1856, Edited and translated by Susana Stamboliska, State Archives of the Republic of Macedonia, Skopje, 2005. (in Macedonian)
10. Kalesi, Hasan, (1972) The oldest Vakuv documents in Yugoslavia in the Arabic language, Pristina (in Serbian)
11. Matkovski, Aleksandar (1991) Macedonia in the works of foreign travel writers 1371 - 1777. - Misla, Skopje (in Macedonian)
12. Vishko, Ali (2007) Bitola and Bitola in the second half of the 19th century according to Ottoman and diplomatic sources, Iris, Skopje (in Macedonian)
13. Konstantinov, Hr. Miloš (1961), Crafts and guilds in Bitola and its surroundings, Bitola (in Macedonian)
14. Momidić-Petkova, Radmila (1993/94) Development of the Bitola bazaar (until World War II), Proceedings 4-5, Institute for the Protection of Cultural Monuments and Natural Rarities, Museum and Gallery, Bitola (in Macedonian)

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https://doi.org/10.46763/IJEMT2332029d
Original scientific paper

15. Matkovski, Aleksandar (2002): Macedonia in the works of foreign travel writers 1879 – 1888, Gjurdja, Skopje (in Macedonian)
16. Gopčević, Spyridon (1890) Old Serbia and Macedonia, Belgrade (in Serbian)
17. Dimitrov, Nikola (2005) Geographical - historical review of the economic rise of Bitola in the XIX century. In: Tribina Bitola through the centuries - VIII in order on the subject of Bitola in the XIX century - economic prosperity -, 03.11.2004, Bitola (in Macedonian)
18. Matkovski, Aleksandar (2005): Macedonia in the works of foreign travel writers 1889 – 1898, Gjurdja, Skopje (in Macedonian)
19. Constantinople messenger. (1898). Year IV, Constantinople, Thursday, September 24, No. 39. (in Serbian)
20. Sterjovski, Aleksandar (2016) Bitola - Sport, Bitola (in Macedonian)
21. Almanac– Kingdom of Yugoslavia, second edition, Zagreb, 1932. (in Serbian)
22. Archive of Macedonia, Skopje, and interview with old residents of Bitola and photos of the facilities
23. Pelistersko Echo No. 30, June 20, 1942, p. 2. (n Bulgarian)
24. Savinov, Peter Guidebook "Ohrid", Skopje, 1943, p. 22, pictures 16. (in Bulgarian)
25. Archive of Macedonia, Skopje (in Macedonian)
26. UTP "Macedonia": State Archives of Macedonia, Bitola Department, Fund: 02.0579; Fund: URO "Macedonia" - Bitola 1952-1990. (in Macedonian)
27. Informant Bitola, 1982 (in Macedonian)
28. Dimitrov, V. Nikola, (2022). Mountaineering Sports Club "Gyorgji Naumov" - Bitola, Bitola. (in Macedonian)
29. State Archives of Macedonia, Bitola Department, Fund: 02.0579; Fund: URO "Macedonia" - Bitola 1952-1990. (in Macedonian)
30. Flyer of Hotel Bitola,1989. (in Macedonian)
31. Tourist map of Bitola.1989. (in Macedonian)
32. DSZ: Inventory of capacities in the hospitality industry, 2008, Statistical review: Transport, tourism and other services, 8.4.9.03.635. Skopje, 14.09.200. http://www.stat.gov.mk (in Macedonian)
33. Statistical review: Transport, tourism and other services, 8.4.17.05.883, Skopje, October, 2017. http://www.stat.gov.mk (in Macedonian)
34. Municipality of Bitola - Department of Economic Development; (in Macedonian)
35. Websites of hotels (in Macedonian)
36. Field research; Golden Book, Yellow Pages: 2006/7; 2008/9; 2012/13; 2017/18, Publisher NID "YELLOWPAGES"–Skopje (in Macedonian)
37. Interviews with hotel owners and other employees.

INTERNET SOURCES:
https://www.booking.com/hotel/mk/;
https://www.booking.com/city/mk/bitola.en
https://macedonian-hotels.mk/
http://www.stat.gov.mk

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OVERVIEW OF ARTIFICIAL INTELLIGENCE (AI) APPLICATION IN THE BANKING INDUSTRY

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ABSTRACT

Many factors have facilitated transformational changes in the banking industry in recent years. Among the most notable drivers of change are technological advances, particularly the development of AI-based solutions. The integration of AI and ML models has caused a significant transformation of banking operations and the overall banking industry. The rapid evolution of AI technology offered solutions for challenges found in traditional banking processes and operations. Consequently, key applications of AI solutions are identified in fraud detection, risk management, customer support, and regulatory compliance.
Keywords: Artificial Intelligence, Banking Industry, Machine Learning, Banks, Bank products, Technological developments, Regulatory compliance

JEL Classification: G21

INTRODUCTION

In today's customer-centric economy, the banking industry closely monitors any technological developments in an effort to improve its business processes and augment financial products and services. In the last couple of years, AI technology has experienced significant acceptance among financial institutions, and banks have integrated AI solutions to enhance different processes and operations. The new technology is utilized to improve customer experience, enhance the bank's operations, improve regulatory compliance, and save organizational resources.

Although the benefits are more than evident, the implementation of AI comes with a vast number of challenges that banks need to cope with in the future. They need to cover issues with AI model explainability, implementation costs, data privacy, potential AI bias, and regulatory compliance.

1. Applications of AI in Banking

Advances in artificial intelligence (AI) and related technology have resulted in significant transformations in the banking industry and the manner in which financial institutions conduct their day-to-day activities. AI technology has become an integral part of different areas of banking, providing banks with numerous advantages as well as challenges. An overview of the current state of AI in the banking industry indicates that banks utilize the new technology in areas such as (Aaliyah et al., 2023; Divya & Alexander, 2023; Harry et al., 2023; Svoboda, 2023):

1.1 Customer service and engagement

Customer support is among the first areas where banks utilize AI technology to enhance customer experience and satisfaction while controlling or even reducing their costs (Praveen, 2017). Banks have adopted the use of chatbots and virtual assistants to offer real-time support, answer general inquiries, and provide assistance for basic transactions (Khatab, 2020). The application of natural language processing (NLP) enabled banks to offer a system that could correctly understand customer queries and give adequate feedback ((Mi Alnaser. et al., 2023). Accordingly, the ability to set up a system that offers 24/7 support transformed the customer service experience in the banking industry.

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Banks are also able to increase the degree of personalization for their customers when using AI to analyze customers' behavior and data. AI algorithms can provide recommendations for suitable services and ease the process of customizing products to cover customers' preferences or experiences. This augments the bank's cross-selling and upselling activities, which ultimately leads to an increase in revenue and augmented customer experience.

1.2 Credit scoring and risk assessment

Increased usage of AI technology for credit scoring and risk assessment enables banks to combine traditional data with non-traditional data sets for the evaluation of customer risk levels (Sadok et al., 2022). Thanks to AI, banks can now incorporate data obtained from sources such as social media profiles in their analysis and conduct more accurate assessments of customer's creditworthiness (Schmitt & Roper, 2023; Kamal, 2021). They can boost their credit scoring and risk assessment models because, unlike traditional technology, AI algorithms can swiftly analyze vast quantities of data. This leads to more informed lending decisions and expansion of the customer base through the inclusion of potential customers who were excluded or marked as risky customers with the traditional scoring models.

1.3 Risk management

Nowadays, banks can employ AI algorithms to improve their techniques for managing risks associated with banking operations (Kamal, 2021). AI technology helps the risk management process by analyzing the impacts and risks associated with different financial products and investments. Accordingly, banks have the opportunity to optimize their portfolio and increase the effectiveness and efficiency of their risk management efforts. The ability of AI and ML models to make market predictions aids banks in detecting market trends and reaching a trading decision. Accordingly, with technologically advanced systems, they can optimize their investment decisions to better cope with market risks.

1.4 Investment advisory services and wealth management

Banks and other financial institutions use AI for easier evaluation and grouping of customers based on their risk profiles. Consequently, they are able to use robo-advisors to deliver automated investment advice for different risk profiles. The AI-powered robo-advisors can now manage investment portfolios and offer efficient investment options.

Moreover, AI has a positive impact on the wealth management services offered by banks and financial institutions by increasing their level of sophistication (Orçun, 2019). The implementation of AI-backed robo-advisors and wealth management services creates an opportunity for the development of portfolios that can be customized to accommodate an individual's financial goals. Traditionally, wealth management services were commonly available to high-net-worth individuals. However, automation increases the cost-effectiveness of these services, making them more accessible to an increased number of customers and customers with lower levels of capital.

1.5 Trading activities

Trading is another area where AI and machine learning technology is heavily utilized. Machine learning algorithms are used to make real-time trading decisions by analyzing market data, relevant news, and sentiment analysis (Orçun, 2019). AI helps the objective of maximizing returns through portfolio rebalancing and risk management. Thus, AI enables the process of developing adequate trading strategies and augmenting trading performance. The capabilities of Natural Language Processing (NLP) enable banks to perform sentiment analysis of market participants using data from social media and other online platforms. Hence, AI helps them better understand customer expectations and identify potential opportunities.

1.6 Regulatory compliance and reporting

The banking industry is among the most heavily regulated industries due to its role in the local, national, and global economic landscape. Hence, they are subject to strict regulation that comes with high compliance costs and complexity. The evolving regulatory landscape

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means that banks need to constantly monitor for potential changes and comply with new regulations. The role of AI in this regard can be to streamline the process of compliance through the automation of data gathering, analysis, and preparation of reports. Advanced algorithms can support banks in the process of data analysis and identification of potential regulatory compliance issues (Kamal, 2021). On-time identification of problematic areas could offer banks sufficient time for correction of compliance issues before any interference from the authorities. Thus, the risk of penalties can be significantly reduced along with the costs associated with possible compliance failure.

Furthermore, AI significantly contributes toward Anti-Money Laundering (AML) and Know-your-customer (KYC) compliance (Tulcanaza-Prieto et al., 2023). The advanced AI systems and Machine Learning algorithms aid banks in their efforts to detect suspicious activities and transactions and augment customer identity verification processes. Hence, banks AI ensures that banks fulfill defined regulatory requirements.

AI is also a tool with which banks ensure data privacy of customer data and compliance with data protection regulations such as GDPR in Europe or CCPA (California Consumer Privacy Act) in California, USA.

Overall, when it comes to regulation and compliance, AI offers banks a way to automate a significant portion of the labor-intensive processes associated with transaction monitoring, monitoring of changes in regulations, and customer due diligence.

1.7 Fraud Detection and Prevention

Advanced systems and algorithms are able to detect unusual behavior and patterns by analyzing large quantities of data. The ability of AI to identify anomalies ensures that banks significantly reduce or even eliminate the possible occurrence of fraudulent activities. AI technology can be employed in the assessment of transaction data and customer behavior in real-time while triggering alerts for additional examination in cases when suspicious activities are detected (Harry et al., 2023). Such a proactive approach in which banks utilize the advantages of AI systems helps them reduce financial losses and potential reputational damages.

1.8 Operational efficiency

Additionally, banks may also use AI and ML applications for Robotic Process Automation (RPA) to automate repetitive and rule-based tasks executed in the back office. Automation of tasks such as data entry, document processing, compliance checks, etc., with AI ultimately increases operational efficiency and reduces costs (Svoboda, A. 2023).

It is evident that AI technology has diverse applications in the banking industry. Using AI and ML algorithms, banks can streamline tasks, redesign processes, enhance operations, and simplify the execution of activities while achieving a competitive edge and growth.

There are a vast number of examples of banks across the globe that have redesigned and adapted processes by integrating AI solutions. Different banks implemented AI technology in different areas of their operations. This provides a practical insight into the benefits and limitations associated with the utilization of AI algorithms in banking operations. The following table provides an overview of banks that have implemented or are in the process of integrating AI solutions in specific processes.

Table 1: Implementation of AI solutions in banking operations

Bank	Process	Application of AI solutions
HSBC	- Customer service - Regulatory Compliance	- Chatbots for customer support - Offer personalized services - Leveraging AI to augment AML processes, which are crucial for compliance and risk management
Standard Chartered	- Process automation - Risk management	- Automation of manual processes

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Original scientific paper

		- Real-time risk management and fraud prevention
Wells Fargo	- Customer insight - Customer support - Risk management	- Predictive analytics - AI-powered virtual assistants enhance customer interactions and perform routine tasks.
DBS Bank	- Customer support	- AI-driven chatbots for instant personalized customer support
Scotiabank	- Customer experience - Customer support	- AI technology enables to better understanding of customer behavior and preferences.
UBS	- Customer service - Wealth management	- Improvements in wealth management services - Investment banking
Citigroup	- Trading - Data analysis	- AI algorithms are used to analyze different types of market data and detect potential trading strategies. - Predictive analysis to identify payment patterns
JP Morgan Chase	- Trading and portfolio management - Fraud detection	- Algorithmic trading and portfolio management - Fraud Detection with Machine Learning
Deutsche Bank	- KYC and client onboarding - Regulatory compliance	- AI integrated into the compliance monitoring processes to augment regulatory compliance.
Danske Bank	- Regulatory compliance	- Fraud detection - Enhance Anti-Money Laundering (AML) processes
Capital One	- Customer experience	- Data management - Personalized customer recommendations
ING Group	- Loan syndication - Loan approval - Risk management	- AI solution for predictive analytics to identify potential parties interested in syndicated loans - AI algorithms are used to streamline and speed up credit assessment.
BBVA	- Trading - Automation of processes	- Automation of trading process for different assets - AI-powered Robotic Process Automation to automate manual and routine processes.
BNP Paribas	- Customer support - Customer onboarding process	- AI-based virtual assistant in Securities Services units - AI technology is implemented to streamline customer onboarding processes

Source: Prepared by the author

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Although the implementation and integration of AI technology in the banking industry is considered to be in its infancy stage, the above examples show that AI experiences widespread acceptance in the banking industry. The implementation of AI solutions is especially evident among larger banks with sufficient levels of resources, a large customer base, and the need for redesigning and automation of crucial processes.

The real-life experience of banks with AI technology indicates that AI-driven chatbots significantly improved response time, bringing multiple benefits for the banks as well as customers. AI-based predictive analytics for analyzing extensive data sets and identification of risk and fraudulent activities decrease the risk exposure of banks. Moreover, AI applications in the AML and compliance process improved the reputation of implementing banks and reduced regulatory penalties while saving time and resources. Using AI and ML algorithms in trading and wealth management operations for analyzing market data and identifying trading patterns contributed toward an increase in profits for trading activities. Certain banks employed AI technology to increase the degree of personalization and customer service. Consequently, they experienced a rise in acceptance of recommended products and recorded increased customer satisfaction and engagement.

Examples shown in Table 1 represent a fraction of banks that implemented or plan to implement AI solutions in their operations. There are numerous other banks and financial institutions that utilize AI-driven processes to enhance processes, improve operational efficiency, enhance customer experience, and mitigate risks. Given the widespread application of AI technology and the wide number of benefits it brings to banks, it is already positioned among the driving forces behind the evolution of the banking industry.

2. BENEFITS OF AI IN BANKING

The banking industry records an increased trend of acceptance of Artificial Intelligence technology and application of Machine learning algorithms in different processes. The key aspects behind the transformative power of AI in the banking industry are the benefits coming from its implementation in everyday processes. AI, as a driver of change, changes the way in which banks and financial institutions execute their operations, communicate with customers, adhere to regulations, and deliver financial products and services to the end user (Mi Alnaser. et al., 2023). Accordingly, some of the most notable benefits for banks originating from the implementation of AI solutions are identified in following the areas:

- **Enhanced efficiency**

The automation of repetitive and time-consuming tasks using AI technology decreases the need for human intervention. Hence, banks can now experience faster process times for different banking operations and processes such as data entry, transaction reconciliation, document verification, etc. (Sharma, 2023). Consequently, this enhancement in efficiency while reducing error rates creates cost-saving opportunities, and employees are able to focus on high-value tasks and activities associated with strategic decision-making.

- **Cost savings**

Automation of repetitive tasks, compliance and reporting processes, data entry, and analysis reduces labor intensity, resulting in a decrease in respective cost levels. Hence, even though initial investment in AI may be higher, banks ultimately record a decrease in operational expenses and cost savings in the long run (Theuri & Olukuru, 2022). Moreover, the implementation of AI and automation of processes enables banks to better manage and allocate their resources, increasing the effectiveness and efficiency of their operations. In addition, the ability of AI solutions to cope with large volumes of customer inquiries and transactions simultaneously reduces customer service costs and transaction processing costs (Kamal, 2021).

- **Enhanced customer experience**

Advances in chatbots and virtual assistants powered with AI technology offer nearly instant and 24/7 customer support, thus improving the overall experience for the bank's

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customers. AI algorithms enhance the personalization of products and services, increasing the accuracy of recommendations by analyzing customer data and behavior (Tulcanaza-Prieto et al., 2023). Fast response time, round-the-clock support, and an increased level of personalization could ultimately strengthen the relationship with customers and increase customer retention and loyalty.

- **Improved security**

The banking industry is commonly subject to fraud and cyberattacks, which makes security among the top priorities for banks. Consequently, AI has taken on a pivotal role in the process of enhancing banks' security against potential breaches (Joseph & Thomas, 2023; Tulcanaza-Prieto et al., 2023). Employing AI solutions in fraud detection and prevention aids banks in protecting their assets and reputations against potential cyber threats.

- **Advances in risk management**

Thanks to AI and Machine Learning algorithms, banks can augment their risk assessment and credit scoring models and processes, leading to improvements in the lending process (Sharma, 2023). Unlike traditional models, AI-powered assessment and credit scoring models offer better risk evaluations due to the ability to process vast amounts of data from multiple sources (Sadok et al., 2022). Consequently, banks are able to improve their lending decisions and limit the exposure to credit risk. AI gives banks an opportunity to decrease the level of non-performing loans and strengthen the loan portfolio.

- **Augmentation of decision-making processes**

AI, with its advanced data analytic tools, allows banks to better understand their data and gain deeper insights into customer behavior, demand for bank’s products and services, impact of various factors on bank operations, etc. Thus, they are able to make informed decisions associated with product developments, marketing decisions, and customer preferences (Sharma, 2023). AI-supported strategic decisions may ultimately lead to gaining competitive advantage and organizational growth (Khatab, 2020).

- **Expansion of customer base through financial inclusion**

The traditional credit scoring and risk assessment models usually limit access to financial products or even fully exclude certain populations from using banks' services. By considering traditional sources, potential customers may be categorized as too risky or deemed too costly to be served where profits are either too low or even negative. Nevertheless, the AI-powered credit scoring models combined with other benefits brought by the AI-based automation of processes offer banks an opportunity to serve the underserved market and increase their customer base. Thanks to AI, banks are now able to better understand underserved segments and adapt their lending process. Thus, AI technology opens up the doors for banks to expand their market share by enabling the financial inclusion of underserved business entities and households.

Based on the areas in which AI is implemented by banks, it brings a vast number of benefits for financial organizations as well as for banks' customers. Utilization of AI models enhances efficiency, augments customer experience, improves security and data protection, offers better risk management, and offers cost savings opportunities. The future evolution of AI and even further integration of the technology is expected to deepen the benefits and increase the competitive advantages.

3. CHALLENGES OF AI IN BANKING

Even though there are a vast number of benefits for the banking industry, banks are yet to face numerous challenges related to the utilization and employment of AI-powered solutions in their operations. The challenges associated with the current state of employing AI in the banking industry include:

- Need for qualified staff,
- Data privacy,
- Model explainability,

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Original scientific paper

- Implementation costs,
- Regulatory compliance
- Bias and Fairness
- Operational integration

Ensuring successful implementation and integration of AI imposes the need for banks to have access to qualified staff such as AI experts, skilled data scientists, and machine learning engineers. However, identifying and attracting adequate talent can turn out to be a challenge by itself (Harry et al., 2023). Moreover, retaining qualified personnel may prove to be an even bigger challenge given the popularity of AI solutions, which causes the demand to exceed the supply of talent. The challenge to find relevant staff could be even more extensive for smaller banks with limited resources.

Banks have access to and store sensitive and personal information. Thus, among the most notable challenges is the one associated with data security and privacy when using customer data in AI solutions. The challenge for banks is to set up an adequate data protection mechanism against potential data breaches and misuse (Morgan & Edward, 2023). Banks should also ensure compliance with regulations such as GDPR.

Model explainability poses a challenge for banks in a way that AI models and Machine Learning algorithms are not easy to understand or interpret. This might affect the transparency and explainability of AI solutions in the process of covering regulatory requirements and maintaining trust with customers (de Lange et al., 2022). Issues arise with the need to explain or justify decisions made utilizing AI systems or decisions made by AI models.

The utilization of AI solutions in bank operations and processes brings numerous benefits. Nevertheless, a major challenge or even a drawback when it comes to implementing AI technology are the associated costs. As a relatively new technological solution, AI implementation costs may require substantial initial investment in technology, staff training, and infrastructure (Soni, 2019). Moreover, the transition from traditional to AI-based processes also comes with certain financial and non-financial costs that should be considered.

Banks operate in a constantly evolving regulatory environment. Hence, they should ensure that their AI solutions will be easily adaptable to changes in regulations. AI applications and systems should be able to meet legal requirements and ethical standards on an ongoing basis to guarantee regulatory compliance (Harry & Thomas, 2023).

Bias and fairness are two of the major issues associated with AI systems as a result of the potential biases present in the historical data. The challenges for banks are to develop AI and ML applications that will eliminate the bias and possible discrimination in lending processes and other products and services (Harry & Thomas, 2023). Banks should set up mechanisms to detect potential bias and implement mitigation techniques combined with mechanisms to regularly review AI solutions to eliminate bias and guarantee fairness in decision-making processes.

Traditional banking processes and systems were developed and updated without any regard for AI technology since it is relatively new and major advances have been recorded during the last couple of years. Thus, implementing and integrating AI solutions in current banking operations and systems is a rather complex task. Banks need to ensure that the technologically advanced AI solutions are fully integrated and compatible with legacy systems. Consequently, the transition from current systems to AI-based operations is a major operational challenge.

Currently, the AI environment in the banking industry is dynamic and characterized by increased integration and continuous advances in models and technology. Banks that will manage to successfully integrate AI solutions are expected to gain a competitive advantage in multiple areas of their operations.

CONCLUDING REMARKS

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Technological advances have always been the driving force of transformational changes in different industries, in particular, the banking industry. The latest developments in AI technology and the vast number of ML models and algorithms lead to the employability of AI solutions in banking operations. The current success stories of banks that integrated AI solutions indicate the degree to which this new technology can augment bank operations and improve customer experience. Thanks to AI and ML models, banks have experienced increased efficiency, improved customer service, security improvements, cost savings, better risk assessment, and advances in risk management techniques.

However, AI application in the banking industry is still in the early stages of development and implementation, and banks are yet to face potential challenges. Banks will need to find a way to overcome the model explainability challenge and the data privacy and security issues to satisfy regulatory requirements. Moreover, while cost savings from utilizing AI solutions are evident, high implementation costs for AI are a major challenge, especially for smaller banks.

Currently, it can be seen that certain banks have already implemented AI and ML solutions in multiple processes within the organization and reaped the associated benefits. Consequently, the successful overcoming of challenges and further evolution of AI technology and its application will bring breakthroughs in the banking industry. Financial products and services will be more accessible, and the utilization of AI should eliminate most or all of the existing limitations when it comes to offering and usage of banking products.

REFERENCES

Aaliyah, A., Khan, D., & Poblete, S. (2023). Innovating Banking with AI/ML: A Data Integrity and Governance Imperative.

de Lange PE., Melsom B., Vennerød, CB., & Westgaard S. (2022). Explainable AI for Credit Assessment in Banks. Journal of Risk and Financial Management. 2022; 15(12):556. https://doi.org/10.3390/jrfm15120556

Divya, Y., & Alexander, D. (2023). Synergy of Data Integrity and AI: Revolutionizing Banking Landscape.

Harry, T., Thomas, J., & Hatim, N.. (2023). Cognitive Banking: AI/ML, Data Integrity, and the Future of Financial Services.

Harry, O., & Thomas, J. (2023). Data Governance's Vital Role in Mitigating AI Risks in Banking.

Joseph, O., & Thomas, J. (2023). Quantum Leap in Data Integrity: AI/ML's Impact on Banking Security.

Kamal Singh (2021). Banks banking on AI. International Journal of Advanced Research in Management and Social Sciences. Vol. 9. No. 9. ISSN: 2278-6236

Khatab, Jawdat Jaafar. (2020). The Role of Artificial Intelligence in Improving Banking Performance: Empirical Evidence from Erbil/ Iraq. Journal of Critical Reviews. Vol. 7. DOI: 10.31838/jcr.07.19.373

Mi Alnaser, F., Rahi, S., Alghizzawi, M., & Hafaz Ngah, A. (2023). Does artificial intelligence (AI) boost digital banking user satisfaction? Integration of expectation confirmation model and antecedents of artificial intelligence-enabled digital banking. Heliyon, Published by Elsevier Ltd. https://doi.org/10.1016/j.heliyon.2023.e18930

Morgan, A., & Edward, E. (2023). Enhancing Data Integrity in Banking Applications using AI/ML Techniques.

Orçun K. (2019). Artificial intelligence in banking - A lever for profitability with limited implementation to date. Deutsche Bank Research - EU Monitor.

Praveen Kumar Donepudi (2017). Machine Learning and Artificial Intelligence in Banking. Asian Business Consortium, Engineering International, Volume 5, No 2. ISSN 2409-3629. DOI: https://doi.org/10.18034/ei.v5i2.490

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Original scientific paper

Sadok, H., Sakka, F., & El Hadi El Maknouzi, M. (2022). Artificial intelligence and bank credit analysis: A review, Cogent Economics & Finance, 10:1, DOI: 10.1080/23322039.2021.2023262

Schmitt, M., & Roper, M. (2023). Artificial Intelligence (AI)-Enabled Credit Scoring in Banking and Fintech: In Search of Maximum Prediction Accuracy.
DOI: http://dx.doi.org/10.2139/ssrn.4520596

Sharma, M. (2023). A Study: How AI is Incorporated in the Middle East Banking. Journal for Research in Applied Sciences and Biotechnology, 2(3), 202–208. DOI: https://doi.org/10.55544/jrasb.2.3.27

Soni, Vishal Dineshkumar (2019). Role of Artificial Intelligence in Combating Cyber Threats in Banking. International Engineering Journal For Research & Development, 4(1), 7. https://doi.org/10.17605/OSF.IO/JYPGX,

Svoboda, A. (2023). The Impact of Artificial Intelligence on the Banking Industry. Journal of Banking and Finance Management. ISSN: 2642–9144. Volume 4, Issue 1. DOI https://doi.org/10.22259/2642-9144.0401002

Theuri, J., & Olukuru, J. (2022). The impact of Artificial Intelligence and how it is shaping banking, KBA Centre for Research on Financial Markets and Policy Working Paper Series, No. 61, Kenya Bankers Association (KBA), Nairobi

Tulcanaza-Prieto, A.B., Cortez, A., & Lee, C.W, & Salamanca, Y. (2023). Influence of Customer Perception Factors on AI-Enabled Customer Experience in the Ecuadorian Banking Environment. Sustainability. 15. 1-22. https://doi.org/10.3390/su151612441.

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THE STRATEGIC DESIGN OF EUROCITY CHAVES-VERIN AS A TOURIST DESTINATION

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Abstract
The creation and expansion of the European Union allows the development of tourism to benefit from cross-border cooperation between individual cities. In the given case, the cities of Chávez and Verín belong to different countries, Portugal and Spain respectively, but they have common historical ties, exchange and cooperation and experience in social relations. They are part of the Atlantic and are the first Eurocities in the Northwest of the Iberian Peninsula. Tourism can play an important role in building this new territorial development model.

Keywords: Eurocities, cross-border cooperation, tourism, tourism development.

Introduction

Cross-border cooperation is a powerful force that spatially affects the socio-economic structures of neighboring regions (Dimitrova, 2022). Within the framework of the European Union (EU), cross-border cooperation has entered the second generation, or more precisely, it is moving from the phase of dominance of infrastructures to the phase of predominance of citizens' lives, largely artificially divided. This is the community's commitment to local collaboration. In this context, Eurocities are very important elements, understood as authentic laboratories for building citizenship and experimenting with shared experiences among equals.

Eurocity is a relatively new cross-border governance tool that was officially established in 2007. The system is based on the governance political cooperation between the mayors of Chávez (Portugal) and Verín (Spain). Eurocity Chaves-Verin unites both cities and Spanish and Portuguese organizations from the two municipalities located on both sides of the Tamega River valley (Dimitrova 2021).

Chaves and Verin are two cities with solid historical ties of exchange and cooperation, and the idea of creating institutional structures to strengthen relations between them has a long history of relations between the two local institutions from a certain time. However, the opportunity opened by the impact of two new factors allowed the implementation of the current Eurocity construction process: the inclusion of the two cities in the Atlantic Axis - an association of municipalities from the Euroregion that promotes cross-border local cooperation and community development 2007-2013 , with a special emphasis on territorial cooperation elevated to the main objective, along with cohesion and commitment to growth and employment.

The aim of Eurocity Chaves - Verin is to create a unique model of a cross-border, innovative and cooperative region that provides residents through joint territorial planning with common management of urban services and joint overcoming of obstacles that hinder mobility. The Eurocity project aims to promote common services and policies in the fields of culture, tourism, trade, education, scientific research and social policy. The promotion of territorial cooperation also strengthens social cohesion between the two communities, improving the quality of life of people in general (Dimitrova 2021).

Although it is a completely local initiative, born with a strong social impulse, after its integration in 2005 in the Atlantic Axis, the project received strong support, as it fully coincided with the strategic directions outlined for the period 2007-2013 in the Axis Strategic Program , whose main pillar is precisely the promotion of governance and cooperation structures, the

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Original scientific paper

main objectives of the Eurocity concept. Thus, in December 2007, the two mayors officially presented the Eurocity project in Chaves, sponsored by the Secretary of State for Regional Development of Portugal, by the Minister of Economy of the Xunta de Galicia, by the Vice President of the Commission for Coordination and Development of the Northern Region (CCDR-N) and by the President of the Province of Ourense, among other authorities. One of the first decisions was to entrust a group of professors and researchers from the universities of Vigo and Trás-os-Montes to prepare a diagnosis and proposals for action, which were presented at the end of 2009. These became a solid basis for collaboration during the following programming periods as well periods (2014-2020, 2021-2027).

The chosen methodological option is based on a reality that recognizes the Eurocity as a process already underway, with a relatively high social acceptance, which implies a specific analysis scale with variable geometric indicators, so the search for information cannot be limited to writing. only documents (relatively scarce), but they extend to the social actors themselves involved in the process.

The research object of this article is the joint tourism management policies in the Chaves-Verin Eurocity. The object of research is the particularities, advantages and disadvantages of the tourism management policy on both sides of the Spanish-Portuguese border.

The objective of scientific development is to analyze the important role of tourism in the construction of this new model of territorial development. The achievement of good economic development indicators, as well as improvements in the field of tourism, is the result of successfully implemented projects that cover the population on both sides of the border.

Economic cooperation in the Chaves-Verin Eurocity

The starting point of development in any territorial community is the set of resources (economic, human, institutional and cultural) that make up its endogenous potential. It is small and medium-sized companies, with their flexibility and their entrepreneurial and organizational capacity, that are called to play a leading role in endogenous development processes (Vázquez 2005). Applying this concept to the case of Eurocity Chaves-Verin, it can be observed that the impetus to initiate structural changes in their production system came after the crisis of the 1980s (Commission Europènne, 1999).

The gradual institutional creation of favorable conditions for trade and economic activity led to a reduction in transaction costs between companies and other economic agents in both regions. In this context, the role of infrastructure clearly defines a model of cooperation that, in addition to reconfiguring the territory in the short term, can redirect it to European and world markets, even despite its peripheral position in geographical and economic terms (Pardellas 2009). Therefore, the state must make systematic efforts to build a fair infrastructure of the market economy, based on rules, regulations and control (Bouzova 2021).

Discussing territorial competitiveness, it is clear that a project like the construction of Eurocity must be part of this line in order to face the challenges in the short term. Perhaps the balance to compensate for the asymmetry of administrative powers between the two banks of the Minho River (the traditional border as a continuation, natural and administrative between Galicia and Portugal until its integration into the EU) can be guaranteed initially in the short term, taking into account the aforementioned support from the Junta de Galicia and the Commission for Coordination and Development of the Northern Region CCDR-N, which would influence macro decisions.

The additional approach is oriented to the analysis and configuration of the geographical space of the two municipalities of Eurocity Chave-Verin as a tourist destination, starting from the economic activity, despite the presence of a number of resources on its territory, both in the unique natural and cultural-historical heritage, and in its specific thermal resources.

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Original scientific paper

The construction of Eurocity allows the analysis of tourism as an essential factor in its development, both for the two municipalities and for the entire border territory between the two countries.

Chaves is a municipality with about 38,000 inhabitants (of which about 18,000 in the urban center), adjacent to the territory of Alto Tamega (comprising 6 municipalities with about 84,000 inhabitants) and is part of the Northern Portugal region (INE 2022). Verin, for its part, is a municipality with about 13,500 inhabitants, the center of an extensive functional area (which includes the Monterrey-Verin region with about 28,000 inhabitants (INE 2022), as well as some municipalities in neighboring regions) and is part of the autonomous region Galicia in Spain.

The two cities are located about 30 km from each other along the old highway (a new highway has already been built) and although they are on the periphery of the peninsula, they seem well framed in the Iberian space, forming part of the Greek "Y" that leads the plateau to the two main coastal cities of the Euroregion: via the Portuguese A7 motorway connecting the metropolitan area of Porto and the Spanish A52 access to the Vigo area. Other factors of functional centrality reinforce this situation, the Chaves activity park and the cross-border logistics platform Chaves-Verin (integrated into the Portuguese logistics program), are already a concrete reality of a future multi-center and multifunctional logistics platform envisaged in the Orense Strategic Plan 2010-2015. (Department of the Presidency. Xunta de Galicia, 2010).

Analyzing the collaboration between Chávez and Verín, we can agree that it has diverse convergent dynamics (Domínguez, 2008):

- Geographical conditioning, common historical and cultural identity, political-institutional proximity, which was supported through various initiatives for cross-border cooperation, construction of joint infrastructure and new opportunities related to residence, rest, employment;
- The presence of common complementary factors, such as territorial resources (Tamega river valley, hot thermal springs), economic (the aforementioned business logistics), cultural (language, music) and equally common urban and territorial management problems;
- Joint community projects, such as under Interreg III, IV, V, two museum interpretation centers, promoting a cultural network or a border smuggling route (turned into a popular tourist route);
- An opportunity to exchange existing experience in the field of education and health care, implying on the one hand a stay and joint teaching for high school students, and on the other hand, offering a variety of health care in the hospitals of Chaves and Verin satisfying the existing needs.

From this point of view, the creation of Eurocity makes a serious request, and against the background of the recent past, it offers two new possibilities, becoming an incredible European experience of a new type. The first condition is the political will of the administrations (local, provincial, autonomous and national) to develop the project. And the second is, its location as a gateway to the interior of the Galicia-North Portugal Euroregion, a territory in need of urgent measures regarding the deteriorating demographic situation and weak economic dynamics, which with actions of this type will increase its competitiveness and the possibility of catching up of the riparian zone (Blas and Fabeiro 2013).

The tourist market in Eurocity Chavez-Verin

The tourism offering of both cities until 2009 can be seen as a clearly marginal factor in their economy and despite the presence of remarkable and unique resources, much of it remains unused or underutilized. Among all of them, obviously, the wealth of thermal and mineral-healing waters stands out, thanks to the same geological fault north-south, from Verín to Peço da Régua, on the coast of the Douro (Domínguez 2008).

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Original scientific paper

The other and no less important water resource is the Tamega River itself, which, rising from San Mamede Mountain, makes its way through the Monterrey Valley, crosses Verin and passes through the Chaves region until it joins the Douro River in Portuguese territory (Fig. 1).

The military architecture is consistent with the history of both countries, accompanied by frequent military conflicts, of which the medieval fortresses of Montterrey (a short distance from Verin) and that of Chaves, in the city center, part of which has now been converted into a four-star hotel. More recent in time are the castles of Aguiar and Montalegre on the Galician side and Saint Stephen, Montforte and Mao Visinho in the Chaves region.

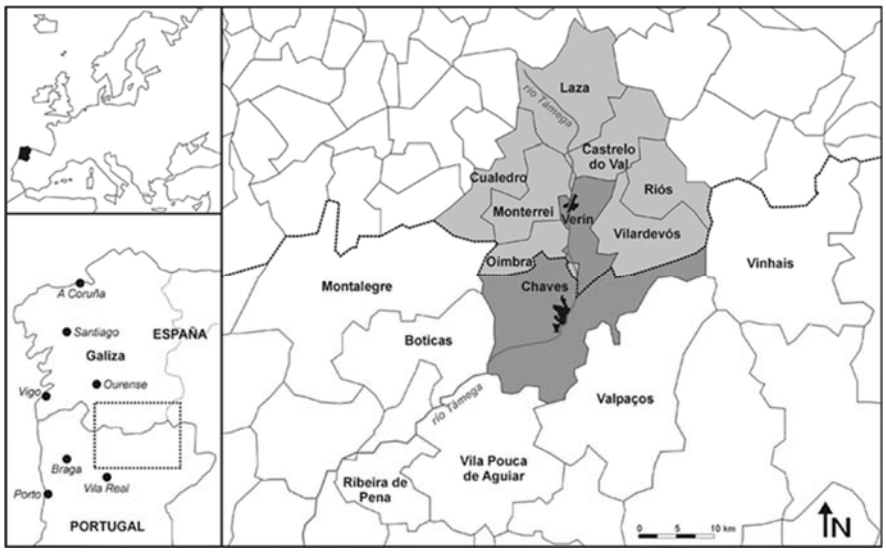

Figure 1 Location of Chaves and Verín
Source: www.eurocidadechavesverin.eu

The touristic use of the resources complements the nature, history and ethnography that already exist, albeit with much greater potential for development and promotion than the current presentation, the Golden Road and the Magic Views, that of the Reservoirs (Dams), that of the Rock Art and that of smuggling, as well as the branch of the Camino de Santiago, which starts in the Algarve, runs parallel to the border with Castile, and was widely used by converted Mozarabs in the 16th and 17th centuries.

Festivals and gastronomy are equally unique resources of this territory, highlighting two of Galicia's most ancient carnivals in Laza and Verín, and of course the presence of quality wines protected by the Monterrey designation of origin, in the case of Galicia, and the VQPRD geographical indication (Quality wines produced in a specific region), specifically Vinho Verde in Ribeira de Pena, Vinho de Valpaços and Vinho Maduro de Chaves, on the Portuguese side (CCDRN 2007).

In general, the accommodation supply shows a highly asymmetric structure in the two municipalities, as shown in Table 1, where we observe that hotel beds in Chaves are almost three times more than those in Verin, which can be explained by the greater weight of the traditional spa tourism related to thermal activity in the Portuguese municipality. In any case, it is evident that most of the places correspond to very low category establishments in Verin and medium and low category establishments in Chaves, which represents an important barrier to developing a quality tourist offer within the Eurocity Project.

Table 1 Tourist base in Eurocity Chaves-Verin

Accommodation	**Chaves**	**Verín**	**Chaves**	**Verín**
	№		**Места**	

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Hotel 4*/3*	4	2	596	128
Hotel 2*	1	1	78	60
Hotel 1*	-	2	-	98
Hostal 1*	-	5	-	146
Albergaria 4*	1	-	107	-
Boarding house	9	4	309	96
A motel	1	-	60	-
Rural tourism	14	0	309	96
Total	**30**	**14**	**1345**	**528**

Source: www.turgalicia.es, www.verin.net

Regarding demand, the tourist activity in the cities of Eixo Atlántico, reveals some particularities regarding the characteristics and motivations of the tourists who come to these two cities (Pardellas, 2009). The data comes from a survey conducted at local tourist information points among 200 visitors (table 2).

Table 2 Characteristics of tourism demand in Eurocity Chaves-Verin

Chaves	**Verín**	**Chaves**	**Verín**	**Chaves**	**Verín**	**Chaves**	**Verín**	**Chaves**	**Verín**	**Chaves**	**Verín**
Age											
< 30		30-60		> 61							
24%	8%	63%	76%	14%	16%						
Emissions markets											
Galicia		Portugal		España		Europa		América			
1%	6%	97%	0%	0%	87%	2%	5%	0%	2%		
Information channels											
Brochures		Mutual friends		Agencies		Past visitors		Internet		Other	
15%	7%	32%	72%	3%	2%	17%	3%	25%	8%	8%	8%
Motivation to travel											
Heritage		Nature		Crafts and folklore		Gastronomy		Tranquility		Cultural events	
39%	48%	22%	32%	1%	2%	14%	15%	20%	2%	1%	0%

Source: Blas, X., & Fabeiro, C., 2013.

From the given data it is clear that Chaves is visited by significantly more young people than Verin (24% compared to 8% under the age of 30) and that the main issue market in both cases is national, but relatively better expressed in Shavesh. Differences regarding sources of information are significant. Visitors to Chaves mainly rely on internet technology to undertake their journey (25%) and demonstrate empathy (17% have come before), those visiting Verin rely heavily on recommendations from relatives and friends (72 %), and only 8% had previously used the Internet.

On the other hand, although the answers show logical variations, the motivation for the trip maintains in the two municipalities a noticeable correspondence with the resources and offers of the two, focusing mainly on the historical heritage and nature, which in turn is in line with the advertising carried out by the two local administrations of their web portals where this offer is most prominent.

Obstacles and facilitators to tourism development

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Both cities previously had strategic development plans (Cámara de Comercio de Verín. Informe 2006; Cámara Municipal de Chaves. Plano de Accão 2015) which looked at the situation and above all presented data and analysis relating to their basic resources and economic activities. With these documents and the information extracted from the interviews and working groups with local agents, the research focuses on discovering the main factors that facilitate or hinder the process of building the Eurocity from the perspective of the hypothesis that tourism can be an essential element in cooperation and in the process as a whole.

In general, three types of positive factors and two negative factors stand out. The most favorable can be found in geography (the Tamega River runs perpendicular to the border and therefore forms territorial alliances), in the presence of an active civil society and the local administration (cultural associations have already been carrying out joint activities since a few years ago and the Atlantic axis - the association of the municipalities of the Euroregion – showed full support for the project from the beginning), and thirdly, in directing state investments in road infrastructure, which position the two municipalities as an important railway junction from the south of Portugal and the center of the peninsula.

As a negative side, we must mention the administrative and jurisdictional asymmetries (the government of Xunta de Galicia has normative and legislative capacity in many of the aspects that affect this project, which do not exist in the Northern region) and of course, the small business association experience with serious problems for innovation and competition.

All this is presented in terms of facilities and difficulties.

Facilities:

• Territory with geological uniformity and lack of physical boundary. The stream of the Tamega River, perpendicular to the border, forming a unique natural and ecological corridor;

• Availability of natural spaces throughout the region and urban green areas with the potential to create an image of the quality of the environment;

• Rural centers in the surroundings with important heritage, historical and cultural value that constitute a common identity;

• Cooperation structures at regional level (Atlantic Axis, Working Community Galicia - Northern Portugal, Community for Territorial Cooperation Tamega), as well as experience in cooperation between the two cities through Interreg IIIA, IV, V (Interpretation Center, Museum, Cultural Network);

• Cultural associations with certain dynamics of programming joint activities, especially in plastic and musical arts (reference for organizing other events in the future);

• Significant economic activity around the thermal springs (Shavesh) and bottled water (Verin), with significant investments in recent years and medium-term diversification projects;

• Communication infrastructures between urban areas that favor their connectivity;

• Geographical location within high capacity roads facilitating access from the peninsula to the joint area;

• Hotel offer with potential for design and development of the destination;

• Combining commerce and restaurants as factors of interconnection, with recent experience of public-private cooperation and innovation initiatives to create a common commercial space.

Barriers:

• Asymmetries in the treatment of the Tamega River corridor, which makes it difficult to protect, classify and even manage it (nature network in Verin and still a request for a protected landscape in Chaves);

• Lack of integrated treatment of the Tamega River as a tourist resource for recreation and nature;

• Unharmonized plans for sewage and water treatment and waste treatment. Verin's delay in joining Agenda 21;

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Original scientific paper

• Differentiated legal, fiscal, tariff, administrative and bureaucratic frameworks on each side of the border, which hinder fluid relations in the Eurocity, both in the exercise of citizenship rights and in economic and business relations;

• Asymmetries in the territorial, urban, economic, commercial and equipment dimension between Chaves and Verin, which do not favor the perception of a fair distribution of costs and benefits arising from the construction process of Eurocity;

• Different legislation and legal provisions for territorial planning applicable in the two municipalities, which also have differences in jurisdictions (larger than the Portuguese side), making it difficult to organize Eurocity as a single territory and to protect the landscape;

• Lack of a Eurocity computer platform that would allow interactive access from the emission markets to integrated information related to the area (consultations, reservations, purchases);

• Insufficient level of professionalism, especially in lower category establishments and in general, lack of training to consolidate a quality offer;

• Limited presence of cross-border investments and stable structures for cooperation between business associations in the area, with a low culture of entrepreneurship and innovation, which reduces the opportunities to implement larger projects.

Strategic framework of the destination

The need for solutions to direct the development of cooperation in Eurocity to a model of micro-competitiveness (horizontal relationship between companies seeking complementarity in production and increased efficiency, based on synergies for the use of common resources) added to macro comes to the fore. an action that generates positive externalities (coordination of regulations and institutional support will be the most important challenges in the medium term for the success of the project).

For the development of tourism, it is believed that the central core of the attraction will be the complex formed by the Tamega River and the available thermal springs, which will allow to create a brand image with the name “Eurocity of Water”, supported respectively by municipal councils in Chaves and Verin. As the Tamega River runs perpendicular to the border (in the north-south direction), it allows a circular tour with two main nodes in the two cities themselves and several nodes and secondary attraction complexes in the neighboring cities, where numerous historical, architectural, ethnographic and cultural resources exist, landscapes as well as thermal springs.

The strategic design of Eurocity Chaves-Verin as a tourist destination was marked by two main axes acting also as links for activities and reconfiguration of the entire territory: the “Ecological Corridor Tamega” and the “City of Health”, should be united in the “Thermal Destination of excellence” (Blas and Fabeiro 2013).

The ecological corridor concept delves into aspects of particular interest to this project, such as ecological connectivity and contact zones, given the transboundary nature of the actions. In this sense, for the definition of the Tamega ecological corridor, it must be taken into account that in the territory of the Chaves-Verin Eurocity we find, as already mentioned, a unique geographical fact compared to the rest of the border between Galicia and the north of Portugal, whereas instead of a natural feature that marks the border, as is the case with the Minho River in the so-called “wet line” or mountain ranges in the “dry line”, here the river is perpendicular to the border and has historically never served as complementing the administrative barrier, but rather to promote ties between the two cities.

This feature represents a remarkably positive and appropriate distinguishing feature and the idea of the ecological corridor, in addition to emphasizing its main role of communication, that it will serve to guarantee the water quality not only of the Tamega River itself, but also of all the aquifers in the area, which represent an important social and tourist resource and will allow, in the short term, to take the necessary actions to declare it a transboundary biosphere reserve.

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The different actions promoted in the so-called “Ecological Corridor Tamega” include different contents, considering the presence of different aspects affecting the concept related to the sustainable territory and therefore influencing the quality of the environment in this tourist destination (namely water, biotope care , the available energy sources, the existing landscape, etc.). That is, the proposed measures aim to bring together all these aspects, turning them into social and institutional commitments for modeling the tourist destination, with the main goal of people's quality of life:

1. Improving the quality of water and rivers as a key to development (this implies action on the various sources and springs of the two municipalities, carrying out an inventory and a global reuse program to ensure the sustainable use of this resource);
2. Creation of a quality green system (which will not be limited to the banks of the river, but to the totality of the surrounding natural spaces, including heritage, cultural and landscape resources, networked and continuous with the urban green spaces of the two cities. This system should be accompanied by walking, cycling and outdoor activity routes, as well as one or more nature classrooms for students);
3. Ecological transformation of Eurocities through the shared program 21 (an action already started by the Atlantic axis in 2006 and which would mean simply expanding and remodeling the actions to work from the point of view of a single urban complex in the programs and actions of environmental type, such as the generalization of the use of renewable energies in social facilities and administrative buildings with a medium-term energy saving program);
4. Restoration of the rural environment and the traditional urban environment (given that interventions in buildings and public spaces have already been carried out with other European programs since 2002, the new approach would suggest a coordinated action to carry out common actions and with similar criteria in the rural cores of the two municipalities, thus creating a time plan for the restoration and improvement of the ethnographic, cultural and architectural spaces to consolidate them as quality tourist attraction nodes).

In turn, in order to define a “City of Health” and considering the presence of important thermal resources in both municipalities, the concept must be extended beyond the traditional areas of prevention and health care, since both the concept itself and the proposals, focused by a configuration of a tourist destination, go beyond the traditional definition of health, which will thus be reoriented to create a new reference model with the integration of different resources that emphasize the concept of well-being. In any case and always from the general goal of a socially rational use of resources, it is obvious that those that exist in this territory represent an important source of opportunities to generate a general thermal and health offer with unique characteristics and remarkable quality (Eurocidade Chaves-Verín 2023).

Therefore, the lines of action for promotion in the “City of Health” cannot lose sight of the European guidelines for improving the quality of life of citizens, which in this case are clearly aimed at the achievement by the administrations of greater efficiency in the management of health resources . On the other hand, it should be noted that already in 2005, a Working Group was created in both municipalities to rationalize and deepen the cooperation between doctors and heads of medical institutions in the two cities, with the aim of improving the medical care of the population as a whole.

To these actions it should be added that modern thermalism seems to be much more oriented towards pleasure and relaxation than the nineteenth century idea of curing certain diseases and this change, integrated into the aforementioned broader concept of well-being, was included in a project of Eurocity to form an up-to-date and attractive definition of health, so that the proposed measures affect residents and visiting tourists alike:

1. Ensuring universal access to public health services (for which the above working group should be used establishing a formal protocol that allows the exchange of personnel and funds, given that there is evidence of complementarity between services and benefits from hospitals in each city and that there is a history of previous cooperation in health actions

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of special importance that would lead to geographic restructuring and clustering of services to increase coverage levels in primary family care);

2. Increasing the social and market value of thermal resources through business cooperation (the consequences of a modern thermal destination require changes in business goals, reorienting in this sense the market strategy, investments and the activity itself, from the consideration that new products and services will have as preferential recipients middle to high income demand segments who come to these facilities to offset the stress of their work and who are also accustomed to a high level of service quality.A parallel and complementary establishment of a Thermal Product Innovation Center would tend to emphasize public-private cooperation, for example with academic staff from the university);

3. Turning Eurocity into a European benchmark for health, nature and water (in this order, the need to revise the requirements for the use of the European Health Card to be adapted to this project, paying special attention to vocational training and higher health personnel for this purpose and designing a protocol for coordination between general and thermal health.At the same time, the integration of the aforementioned ecological corridor of the Tamega River with the creation of a Center for the interpretation of thermalism will complete and direct to this destination offering clients and tourist visitors who are not specifically interested in using the thermal facilities, interesting information and dissemination of this topic, which in itself would become a reference tourism product).

From all that has been said so far, the main goal of the mentioned measures will be to transform the Eurocity (but with the name "Eurocity of Water") into a well-known thermal destination with excellent opportunities, focused simultaneously on nature, free time and, of course, health. Naturally, the consolidation of such a space with excellent achievements in thermal tourism in this area implies a new vision: modern and quality offer of equipment and specialized services (balneo and spa), professional service from hotels and restaurants, development offering additional services and activities, which stimulate and create synergies (a place for the interpretation of thermalism, cosmetic and hygiene products, business opportunities, cultural and attractive activities) and of course with a special emphasis on the tourist offers available in the vein, already mentioned (the golden road and magical views, the route of the dams, the rock art route, the smuggling route, as well as the Camino de Santiago route from southern Portugal). Of course this is accompanied by offering a truly friendly, healthy and environmentally sustainable environment (Blas and Fabeiro 2013).

Considering the information obtained from the meetings with social, economic and institutional agents involved in the Eurocity project, it can be concluded that the perception of local actors is very positive regarding the possibilities of its implementation, especially if we take into account the history of cooperation in some specific cases (health, education, culture) which should benefit in the short term, as well as the obvious full support of the supra-municipal institutions (Xunta de Galicia and Comisão de Coordenação e Desenvolvimento da Região North) (Council of Galicia and Commission for coordination and development of the Northern region, as already commented in the introduction of this document).

In any case, it is interesting to build a scheme for predicting the effects in the medium term, considering, first, that the proposals made are accepted and adopted by the main social and institutional actors of the territory, and second, that tourism works as a factor for urban and territorial development, generating important changes in the system of settlements and in the provision of infrastructure and equipment that act as a favorable element for new entrepreneurial opportunities and job creation (Blas and Fabeiro 2013).

Conclusion

From what has been said so far, the following conclusions and generalizations can be made:

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Original scientific paper

- ✓ The shared territory of Eurocity Chaves-Verin has resources – some of them already transformed into current products and offers that allow it to develop a coordinated and attractive tourist offer for the emission markets of the Peninsula and Europe;
- ✓ The Tamega River is the central core of the destination named Eurocity of Water. This is due to its geographical location and its north-south course, perpendicular to the Spanish-Portuguese border, which makes it a leading factor in the remodeling of the territory. In addition, thermal resources are the second common element that serves to identify this unique destination;
- ✓ The towns of Chavet and Verin take the place of main cores in the configuration of the thermal destination, with huge potential, with secondary attraction nodes (based on the landscape and the unique culture), for the demand segments that are interested in this type of offer. In addition, each of them has resources that can complement the neighboring one, and it is permissible to imagine in the medium term an improved economic structure and a new production system that will be presented and promoted as leading in the existing European mineral springs;
- ✓ As the main objective of the proposed actions is to reach the greatest possible territorial convergence, and together with the indicated antecedents and practices of cooperation, it will favor the construction of a completely new cultural landscape, thanks to the existing common language and the good level of social acceptance of the innovative project;
- ✓ In addition, the significant institutional support for this project also allows us to imagine a scenario of reducing and even removing in some cases the existing barriers and obstacles arising from the differences in the administrative powers of the two regions;
- ✓ In fact, the main weakness lies in the apparent lack of a culture of business cooperation in tourism activities and especially in the sections related to thermalism, which is essential in the development of projects for the joint use of resources, without which it is very difficult to promote Eurocity Chaves-Verin as a thermal destination with excellent possibilities.

References

1. Blas, X., & Fabeiro, C., (2013). Un modelo de reconfiguración del territorio: la eurociudad Chaves-Verín y la cooperación turística en el Alto Támega. Boletín de la Asociación de Geógrafos Españoles N.º 61, 117-137.
2. CCDRN (2007). Política e orentaçôes estratégicas para o desenvolvemento turístico da Regiâo Norte. Document Preliminar. Porto.
3. Dimitrova, T., (2022). Innovative model of administrative cooperation between Galicia and Northern Portugal – "DEVELOPMENT OF THE BULGARIAN AND EUROPEAN ECONOMY - CHALLENGES AND OPPORTUNITIES". Volume 6, University Publishing House "St. St. Cyril and Methodius", Veliko Tarnovo, 2022. 282-293.
4. Dimitrova, T., (2021). Management policy in Eurocity Shaves – Verin. "DEVELOPMENT OF THE BULGARIAN AND EUROPEAN ECONOMY - CHALLENGES AND OPPORTUNITIES". Volume 5, University Publishing House "St. St. Cyril and Methodius", Veliko Tarnovo, 200-206.
5. Dominguez, L., (2008). *Chaves-Verín: a eurocidade da auga.* Ed. Eixo Atlántico. Vigo.
6. Eurocidade Chaves-Verín, AECT. Plano Estratégico de Cooperação Territorial 2030. (2023). Sociedade Portuguesa da Inovação.
7. Figueiredo, A., & Silva, M. R., (2004). "Factores territoriais e institucionais de internacionalizaçâo da cidade-regiâo" in Actas Congreso Porto Cidade-Regiâo. Serv. Pub Univ Porto.
8. González, J. & Figueroa, P., (2005). *Plan Estratégico de Innovación de Galicia 2010*. Xunta de Galicia. Consellería de Innovación, Industria e Comercio. Dirección Xeral de I+D. A Coruña.
9. INE (Instituto Nacional de Estadística). (2022). Madrid.
10. INE (Instituto Nacional de Estatística). (2022). Lisboa.
11. Pardellas, X., (2009). *Estratexias turísticas das cidades do Eixo Atlántico.* Ed. Eixo Atlántico. Vigo.

Manuscript received: 20.11.2023
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UDC: 338.48-44(460:469-192)
https://doi.org/10.46763/IJEMT2332052d
Original scientific paper

12. Bouzova, P., (2021). Levels of security management in business - Modernizacgia mezdeu prosperuta i destrukcjie, Tematski zbornik radova, red. Sl. Neskovic, CESNA-B, Beograd, 153-157.
13. Valls, J. F. (2004). *Gestión de destinos turísticos sostenibles.* Ed. Gestión 2000. Madrid.
14. Vázquez B. A., (1983). “Industrialization in rural areas. The Spanish case”, in *CT/RUR/113/06, OCDE.*
15. Vázquez, B. A., (2005). *Las nuevas fuerzas del desarrollo.* A. Bosch Ed. Barcelona.
16. www.eurocidadechavesverin.eu Retrieved September 20, 2023.
17. www.turgalicia.es Retrieved September 25, 2023.
18. www.verin.net Retrieved September 28, 2023.

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GOVERNANCE THROUGH COOPERATION: A NEW VISION OF CROSS-BORDER COOPERATION (EXAMPLE OF EUROCITY CHAVES-VERIN)

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Abstract
Within the European regions, the cross-border cooperation between Northern Portugal and Galicia is different, the established cultural position is strategic and particular. The mutual understanding between the two regions refers to past cooperation (tribes in Romanization, smuggling routes), which makes the mental border "thinner" and cooperation emerges as the main driver of local and regional development. Given the European vision, cross-border cooperation is seen as a tool to reduce differences between regions, promote convergence and integration.

Keywords: cross-border cooperation, management, Eurocity.

Introduction
In the modern development of Europe, the various political, social, institutional and economic connections that can be established between two border cities acquire a concrete form of cooperation.

We propose a theoretical framework that we believe is appropriate in the study of projects that bring together in cooperation two border territories: common territory for action, institutional framework, activities and initiatives, symbolism and communication. The methodology used is based on quantitative and qualitative indicators. Official information was reviewed, published interviews of direct participants in the implementation of the Eurocity Chavesh-Verin project were analyzed.

The subject of the study is the cross-border cooperation between the municipality of Shavesh and the municipality of Verin, and the subject of the study is the policies that unite and create a model of sustainable cooperation.

Exhibition
We cannot talk about the Euroregion without knowing the management policy of cooperation. The content characteristics, the composition, structure and functions of the governing bodies, the goals and methods of governing influences and feedback, the management techniques at each level have their own characteristics. However, they should be considered in their substantive inseparability (Bouzova, 2021)

As José Antonio Palmeira writes in "Governance in the Galicia-North Portugal Euroregion", the relationship between Galicia and North Portugal does not depend on Madrid and Lisbon. The author understands that civil society is the basis of good relations between regions, as the dynamics are fueled by cultural affinities and by actions at the economic level, and it is in this sense that the concept of governance appears. This concept is considered new and comes directly from the process of globalization and the subsequent reformulation of the concept of the nation state. It should be noted that governance is a term that refers to 'self-governance' in a global

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dimension. According to this author, governance is the "governance of a society" (Palmeira, 2008) and also the "positive acceptance of diversity by the state". In this context, one can see the growing interdependence of states in the face of globalization and the fundamental role played by regional alliances.

According to Palmeira, "if the capacity to govern is no longer necessarily as linked to certain niches of the national territory as it was in the past, the territorial state is still a significant factor and needs to be taken care of". Governance is linked to the process of integration and, therefore, to consolidated European citizenship through the economic and political interdependence of the European Union (EU). It is possible to identify three levels in this process: the EU at the top, the states in the middle and the regional units at the bottom serving as support. In this way, the growing importance of regions in the European context is confirmed; the globalization movement itself ultimately becomes relevant in the sense that through this same movement it is possible to give meaning to the local/regional. Through globalization, we manage to preserve the different identities present in the EU and to visualize a process of European construction that contains within itself a huge multitude of identities. It should be understood that this whole process, which aims to cover the regions in a global panorama, has in itself possible corrections of the inequalities present in the European territories (Palmeira 2008).

There is a distinction between politics and governance (Fernando 2005): politics refers to a course of activities within a polis; politicians rule, judge and deliberate. The human being is analyzed as a "social animal" who is unable to live in isolation and therefore needs to connect with others. In this sense, their social relationships will determine their way of life. Politics is the act of managing these dichotomies through goals and coordinating social situations. Order and social balance prevail for the purposes of the common good (Gonçalo 2004).

Over the decades, some problems and questions arise regarding the concept of governance, which is associated with the crisis of democracy and, accordingly, the difficulties that various forms of governance go through. All of these concepts are challenged due to a decline in civic participation and an overly technical view of society. The action of governance also includes the participation of civil society (institutions, associations, companies, etc.) in certain decisions that were previously a priority of political power (Fernandes 2004).

Management, as mentioned above, has more than one meaning. The fact that it is a concept with real elasticity makes it possible to apply it to different realities and according to different goals. Governance is not a term used only in matters of political power; it is also used in business or institutional environments, local administrations, international and supranational institutions, implying a new form of public management. It basically has two meanings: traditional and modern (Fernandes 2004).

The traditional perspective is based on the authority and rule of the state as something irreplaceable and a fundamental act of government. The modern concept of governance pays particular attention to existing resources at the core of societies capable of self-governance without state intervention (or at least with little state intervention). It is in this context that it is possible to make more effective and fair decisions. On the other hand, there is the belief that society can regulate itself without the action of the state, placing citizens in a more relevant position to the detriment of

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the administration. What is important to know about the concept of governance is that it is primarily a social phenomenon that involves various actors within societies, with the aim of governing and reducing the separation of relations between subjects and civil society.

Governance is directly related to the changes brought about by globalization, but administrative differences between regions must still be taken into account. It is due to the efforts of the Working Community that the difficulties regarding cross-border cooperation have been overcome (Buursink 2001), making it a process closer to the concept of governance and, therefore, to the process of formation of the Euroregion. It was through the Working Community (administrative structure that is the basis of the Eurocity Chaves-Verin project) that the management and use of historical and geographical similarities, as well as the organization of political and social elements in a network for the benefit of the two regions, was created.

However, it becomes plausible to see that the Euroregion concept is linked to globalization and governance. According to Dominguez Castro, the Euroregion is characterized by having “a permanent character, its own identity separate from its members, having its own administrative, technical and financial resources with internal decision-making capacity” (Dominguez Castro 2006). This is generally not the case in Northern Portugal/Galicia; this Euroregion has a permanent character but no identity of its own despite the similarities. It is true that this Euroregion also does not have its own autonomous financial resources. In this case, the accession of Northern Portugal and Galicia essentially involves the planning of cohesion strategies. For all these issues, mutual assistance becomes imperative based on the shared past and the peripheral situation they both share, being peripheral at the European level and in their countries.

Since the beginning of the 1990s, cross-border cooperation projects have been growing in Europe thanks to financial resources provided by the EU. Projects that are implemented within the internal borders of Europe and cover two cities are called: Eurocities, Eurodistricts, cross-border agglomerations, cross-border metropolises, etc. The prefix “euro” is used in the case of cross-border (euro) regions located in Europe and oriented towards European integration. Projects aimed at cross-border cooperation gain importance as “laboratories of European integration”. Through the implementation of cross-border projects, daily contact with residents is maintained, which is a guarantee for the integration of a united Europe (Sohn & Lara-Valencia 2013). Cross-border cooperation within the EU started with the initiative of the Interreg community in 1991, and in the period 2007-2013 it began to form the specific goal of the European regional policy - strengthening territorial cooperation.

Some of the main documents that have been developed in the direction of territorial cooperation in the EU are the European Territorial Strategy of 1999, the Territorial Program of the EU, etc., adopted in 2007 and reformed in 2011 to adapt directly to the strategy “Europe 2020”. The aim is to promote territorial cohesion in cross-border, transnational or inter-regional territories.

The examples of cross-border cooperation in the Iberian Peninsula are numerous, but we will look at a specific model of cooperation - Eurocity Chaves - Verin. This model of cooperation started in 2007, gradually expanding by joining the Atlantic axis (Eixo Atlántico), becoming part of the Euroregion Galicia - Northern Portugal, as well as the European territorial cooperation. Eurocity Chaves - Verin is studied from

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an institutional point of view, how it is formed administratively, how an administration functions with experts from two different countries that have a different form of government Spain (monarchy) and Portugal (republic). The Atlantic Axis is a cross-border association of non-profit municipalities that ultimately corresponds to the territory of the Euroregion (http://www.eixoatlantico.com/ 2023).

The main objectives of the Atlantic Axis are:

- Economic, social, cultural, technological and scientific development of the cities and regions that make it up;
- Promotion of economic, social and cultural cohesion by structuring a common territory.

The main cities that are part of the Atlantic axis: La Coruña, Lugo, Ferrol, Ourense, Santiago de Compostela, Pontevedra, Vigo, Villagarcia de Arusa, Monforte de Lemos, Porto, Braganza, Braga, Chávez, Viana do Castello, Villa Real, Guimarães, Peso da Regua and Vila Nova de Gaia.

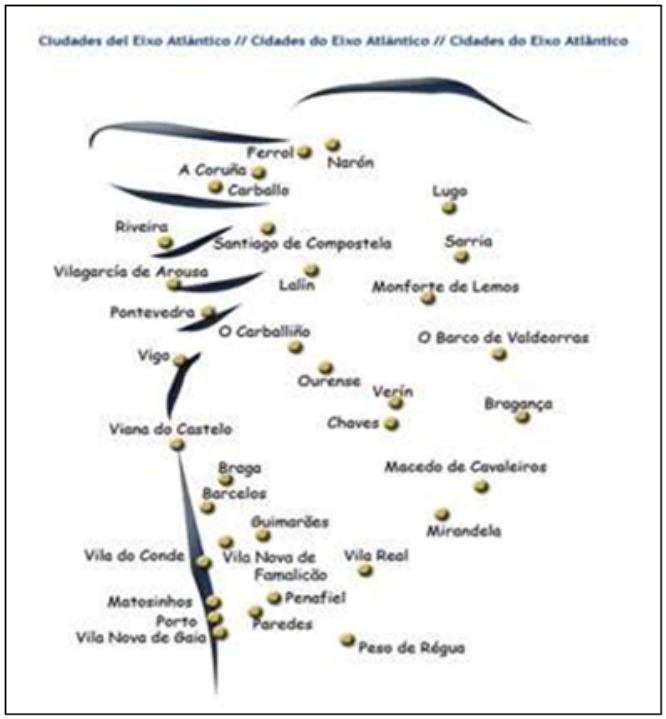

Figure 1: Cities of the Atlantic axis
Source: (http://www.eixoatlantico.com)

We apply two methodological approaches that address complementary aspects. On the one hand, we analyze the documentation generated around the Eurocity project, including reports, academic articles, press releases and published data on the web page and social networks related to initiatives that are implemented on the territory of Eurocity. On the other hand, we also analyze published interviews of experts and citizens who directly participated in the construction of the project. Through the published interviews, the values and beliefs of the local residents, who are direct participants in the implementation of the initiative, are understood.

We also look at terms that are used in the academic literature and refer to the name of the border towns that maintain connections with each other and we will try to present the specifics of cross-border cooperation between two municipalities located in Spain and Portugal. Projects that unite two cities that are bordering but outside the

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EU use other terms, for example twinning or bi-national cities in English. These terms are officially used in the specialized literature in which similar problems are studied.

The term “binational city” is used for projects that unite two cities located on both sides of a state border. The idea behind such terminology is to maintain a balance between competition and cooperation between border cities located in two countries. Such projects are usually imposed by the political class (from the top down). In this case, it is important to specify that the population is integrated among themselves and no conflicts are foreseen. An example of such cooperation is Eurode (“Eu-Rode” is a made-up word created from the name Europa and the “Land of s'Hertogenrode” originating from early history. Already since the 12th century Herzogenrath and Kerkrade formed one unit on the administrative maps). This is the name of a project that includes the city of Kerkrade (Germany) and Herzogenrath (Netherlands). Such cooperation can be seen as the unification of two cities that are anchored in their own identity, but have never ceased contact with each other (Sohn & Lara-Valencia 2013).

As for projects that include twin cities, we can find them in the texts of a classic author such as Hartshorne, who explores the cities of St. Paul and Minneapolis, separated by the Mississippi River, although both belong to the state of Minnesota (USA). This cooperation is an example of strong strategic coordination on both sides of the border, that is, which corresponds to an urban structure in order to function in an integrated way. We will comment without going into details that the relationship between Mexican cities and Americans is based more on economic exploitation by the US (Sohn & Lara-Valencia 2013).

The types of cooperation that affect two border towns separated by an international border can be summarized in the following sequence:

a) twin/duplicated and split cities: these are those that present a high degree of continuity in the urbanized area; In fact, the line itself passes unnoticed and gives the impression that it is in a city. We will encounter the case of twin cities, when one of them is a product of the existence of the other, earlier in time (as happens with Mexican border cities in relation to the USA). On the other hand, there are cities that were divided as a result of wars. An example of this is the cities of Central Europe after the Second World War or just as happened in the Cypriot capital of Nicosia;

b) connected cities: these are cities that are not physically adjacent and that are connected by infrastructure (bridges, tunnels, roads). An example of such cooperation is Malmö (Sweden) and Copenhagen (Denmark);

c) neighboring or integrated cities that, through their cooperation, create the best tool to overcome economic problems.

Projects involving so-called “binational cities” or "binational agglomerations" despite cooperation and common project activities do not achieve community consolidation; they still have two different societies and mentalities on both sides of the border, which is why it is not possible to speak of one city (similar to Eurocity). The same author accepts that it is more correct to use the name “border towns” in this case. According to the author, projects that reflect cooperation between two cities that fail to overcome differences in values, mentality, etc. it is best to call them “border projects”, in fact they have contacts across the border but fail to overcome the “barriers between them”. Residents in these areas regularly cross the border for shopping, entertainment or employment (Sohn & Lara-Valencia 2013).

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The focus of the study is not one city located on both sides of the border, but two cities that actually cooperate but are part of two different countries. According to Buursink (2001), the conditions necessary for such cooperation are three: the existence of a shared territory; institutional framework and contacts between the population on both sides of the border.

According to the Mission Opérationnelle Transfrontalière 2006 (MOT) it is the main platform for exchange and reflection on cross-border cooperation, representing all political trends at national and European level.) cooperation requires: political and democratic clarity (inclusion of different territorial levels); operational efficiency at the technical level (joint commissions, studies); and active participation of civil society, the so-called "living forces" of the territory (companies, unions, associations, etc.) (/https://www-espaces--transfrontaliers-org.translate.goog/ 2023).

Ultimately, the goal is to create a sense of belonging to the cross-border territory. According to (MOT 2010), it is necessary for one of the local politicians to ensure adequate management of resources; to activate civil society, which must participate in the project, through dialogue measures, participation mechanisms, use of specific services, etc. In analyzing projects that include “cities that cross the border”, we will follow a sequence of the following four elements that are necessary:

a) Territory of common action, which will be shaped by the municipal conditions of the cities that participate in the cooperation;

b) An institutional framework in which experts (local individuals) participate, who carry out the cooperation, build the commissions, plans or studies in order to make the project effective;

c) Implementation of activities and initiatives aimed at the effectiveness of social services. It is necessary for citizens to actively participate in the implementation of the initiatives;

d) It is necessary to establish symbols and communication in order to build a vision of the project itself.

In our opinion, these elements can serve as reference points in the study of projects related to cross-border cooperation.

Some of the possible areas of cooperation could be in the direction of: territory management, planning, transport and mobility; economic development; employment, training; social and health issues; environment, tourism, culture, etc. Undoubtedly, administrative problems due to incompatible management policies make negotiations difficult.

Foresight and sound policy solutions are needed to overcome the disparities faced by “cities that cross the border”. An advantage of the EU is that, through cross-border financing projects, political alternatives are offered that actually legitimize cooperation - the Council of Europe, a similar structure is not found in North America (Velde 2000; Sohn and Lara-Valencia 2013).

The case of Eurocity Chaves - Verin

The cooperation project between the municipalities of Chaves and Verín officially launched at the end of 2007. The municipality of Verín has 20,000 inhabitants and is the second most populous municipality in the province of Ourense (Galicia). The municipality consists of 15 parishes. More than 70% or about 10,653 inhabitants are concentrated in the urban agglomeration of Verin. The fact is that it is a municipality

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with an urban appearance. The municipality of Shavesh has 40,903 inhabitants, covers 39 parishes and about 45% of the population. There are 18,118 inhabitants in the urban agglomeration of Chaves.

The city center of Chaves is 8 km from the border and Verin 14, so the distance between them is 22 km. Chaves and Verin have been suffering from depopulation and an aging population for many decades. The two towns are connected by a road, and since 2010 they are also connected to the A-75 (Verín-Feces de Baixo) and the A-24 from Portugal (from the border it goes to Vila Real).

As a result of the cooperation, foreign investment is increased, the labor market is significantly improved mainly due to improved infrastructure and improved communication channels. According to official statistics, there are 1,820 citizens who are Portuguese and live in Verín, while in Chaves only 85 Spanish citizens live within the municipality.

Labor mobility covers citizens who travel daily to work across the border, but there are also those who do not travel daily and aim for permanent settlement for long-term employment. Information on labor mobility is provided based on data from the municipal administration. Workers who live and work in the province of Oriense and are Portuguese citizens number 1,488, are socially insured according to Spanish legislation. In the municipality of Chaves, there are officially 80 Spanish workers who find employment in Vila Real. On the Spanish side, there are 69 cross-border workers with officially declared employment contracts from Portuguese employers. The number of Portuguese companies operating in Galicia is only 9. These are primarily intermediary companies that take advantage of the transport infrastructure and manage more easily to mediate commercial transactions.

In Eurocity Chaves-Verin, data on the number of all foreign workers can be obtained from the Observatorio Transfronterizo España-Portugal (OTEP) (This document is the result of the joint work of the Ministério das Portuguese Infrastructure and Habitação and the Spanish Ministry of Transport, Mobility and Urban Agenda. Its intention is to have variables that allow the characterization of cross-border transport flows, of passengers and goods, with a detailed analysis for the different modes of transport).

In the Spanish-Portuguese border, specifically Galicia - Northern Portugal, approximately 50% of the border points are concentrated, which are by road, which is largely explained by the dispersion of settlements characteristic of the area. The average daily traffic is 5,463 vehicles, which represents about 17% of the total number of border crossings between Galicia and Northern Portugal. This is about 60% of the total amount of this section of the border. A decrease in daily traffic has been observed in recent years, leading to a constant evolution over time since 2008, which can be interpreted as a consequence of the economic crisis in both countries, which weakens the capacity of relocations. In terms of HGVs, the average daily traffic is 830 vehicles.

Institutional framework and project objectives

The beginning of the Eurocity project is directly related to the inclusion of Verin (July 2007) in the association of municipalities Atlantic Axis, to which Chaves has belonged since 1992. However, his application for admission explicitly included the desire to form a specific union between the two cities in within the Atlantic axis (Campos & Pardo 2008). Soon after, a Working Group was also created, which aims

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to plan the Eurocity project, in the presence of the local regional authorities (Xunta, through its Consellería de presidency and the Northern Regional Commission for Coordination and Development – CCDR-N); provincialists, in this case Gallego (Deputación de Ourense); local (municipalities of Verín and Chaves); and the Atlantic axis itself. In November of the same year, an office was established, a person was appointed who initially performed technical functions for the Eurocity project, a plan for the activities planned for the project was published, an administrative act was drawn up and included representatives from the various mentioned territorial levels. The reasons documented for the constitution of the Eurocity project by the people responsible for their management are as follows:

- Proximity, affinity and historical connections;
- Opportunities for growth and economic development;
- Avoidance of duplicated administrative services and costs;
- Practical application of the principle of European integration.

In order to satisfy these intentions, the project managers are also developing a Strategic Program for Eurocity. This task is carried out by an outsourced consultant, specifically the Portuguese company Quaternaire and Servicio de Estudios del Eixo Atlántico (Domínguez, 2008).

Finally, the agenda was published in 2008 by the editors of the Association, under the coordination of Luis Domínguez in collaboration with other researchers.

The strategy is built around three main points:

- Striving for civil participation in local government in order to strengthen a sense of belonging to the common territory;
- Sustainable development in order to preserve the natural heritage, as well as to carry out a new arrangement of the territory, improvement of the transport infrastructure;
- Economic dynamics, creation of a competitive, entrepreneurial and value-generating economic structure.

These actions are included in an action plan and subdivided into different measures and actions that must be implemented within specific deadlines.

Economic support from European funds is extremely important for the realization of the project. The initial funds coming from the cross-border programs of the EU are worth a million euros, and the second tranche is worth 600,000 euros. The realization of these funds is aimed at sports activities and youth events.

Eurocity's management is located in a building that was the old customs border of Feces de Baixo (municipality of Verín) since April 2012. The organizational-management structure followed, which consists of 4 technical associates who work daily in the building, employed by the municipal administration of Verin and one of the hired persons, performs the functions of a POCTEP line coordinator. Various mixed sectoral commissions (tourism, sports, culture and education and healthcare) are formed to work in the specific areas. In July 2013, the statute was approved for the creation of the Group for European Territorial Cooperation (AECT) for Eurocity (AECT-ECV), whose seat is in the headquarters of Eurocity - Feces de Baixo (municipality of Verín).

The establishment of the Group for European Territorial Cooperation (AECT), in fact, institutionalized cooperation activities, organizing legal-political subjectivity. It is accepted that the organizational-management structure has a director, deputy

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director, secretary and general assembly. The main responsibilities of the AEST are, for example, direct recruitment of staff in order to participate in future calls for territorial cooperation funds. As for the specific objectives of the cooperation, the statute contains the following:

• Promote cross-border ties between its members based on complementarity, endogenous resources and a history of secular coexistence, by promoting a model of European citizenship;

• Promotion of institutional, economic, social, cultural and ecological convergence between cities, using the border effect as an opportunity for territorial development and socio-economic benefits;

• Creation of mechanisms for managing and reassessing the territory, opportunities to create and attract population, to create and consolidate employment dynamics and guarantee the creation of productive investments;

• Combining efforts and resources through planning and joint management of existing equipment, services and infrastructure in the territory;

Encourages its use as a tool to stimulate population coexistence;

• Cooperation with territorial units that have a regional scope and are known among the local community.

Activities and initiatives: a serious vision

One of the first initiatives associated with the Eurocity project is the publication of the Cultural Program, which since 2008 unites the cultural initiatives of the two municipalities - Verín and Chaves. Residents of the two municipalities organize themselves for joint initiatives in the field of culture, sports, training courses and education, these are the areas in which promoters are most actively involved in Eurocity. The aim of all these initiatives is to raise awareness and involve residents in the project so that they actively participate.

Some of the activities are the following - preparation of a monthly cultural program; Theater festivals; Traditional Folk Music Festival; Children's Song Festival; Youth Music Workshop; Children's Magic Festival; Exhibition of the artist; Creative Writing Course; Choir Festival; Photography competition; Mascot creation competition; Gastronomic festivals, etc.

Some of the sporting events are the following - indoor football tournaments; Football Marathon; beach games; Games without borders and more.

Projects with a training focus are the following: Education and road safety project; Tourism Resource Course; Travel Innovation in Tourism; Interactive workshops - tourist; Workshop on participation of young people in groups crossing borders; Meeting with young realized businessmen and entrepreneurs; Days to raise awareness on cross-border cooperation in emergencies; “Initiate and create” conferences; Live with tongues; Spanish and Portuguese language courses; School Library Meeting; Job fairs are organized with the participation of local businesses and young job seekers.

In the field of tourism, an initiative related to the preparation of the Eurocity Tourist Map is being implemented; Geoportal for tourist resources; Social programs – open trade border; A handbook of good practices for small businesses and more.

Initiatives in the field of tourism and trade, which aim to promote the economic activity of the population, are also being restored.

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In the field of commerce, it is envisaged that the Chamber of Commerce of Ourense will develop a voluntary database that gathers all companies from Verín and Chaves. The goal is to facilitate faster communication with job seekers. Eurocity Chaves-Verin also has a website, which is structured in several sectors - culture, tourism, trade and other activities. The cross-border cooperation program POCTEP, which is the main source of funding for Eurocity Shaves - Verin, also enables the partnership of the two municipalities in the field of mineral waters. The aim is to promote tourism by developing new tourist routes. Finally, and perhaps as the biggest practical application, there are project activities aimed at developing an up-to-date map that includes all the Spanish-Portuguese landmarks on both sides of the border.

In 2009, the Spanish Ministry, personally in the presence of the then Prime Minister, handed over to the municipality of Verin the installations that until then performed a control and defense function on the territory. The idea is to use these facilities in a completely different purpose.

The headquarters is open every day and welcomes residents of both municipalities as well as external visitors who visit Eurocity for tourism purposes. The building houses a counseling service for young people, which aims to support realization and more recent employment. A Eurocity Tourist Information Office has also been established. The old customs house is also the place where the Eurocitizen card is issued. This card is free for residents of both municipalities and offers a number of benefits to holders. They can be divided into two groups:

a) access to facilities in both municipalities under equal conditions (libraries, swimming pools, museums;

b) discounts for cultural, sports and entertainment activities organized by Eurocidade, with access to the mineral springs of Chaves, as well as shopping in stores and places associated with the brand. Therefore, the aim of this initiative is, in addition to increasing joint service provision and cost savings, to achieve a sense of belonging to a common space.

Symbol of Eurocity

Figure 2 Graphic identity of Chaves - Verín Eurocity
Source: http://www.eurocidadechavesverin.eu/eurocidade/identidade-grafica

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The logo presented above describes features such as the union of the two countries through the colors of their national flags, the ideal of a united Europe and the continuous progress of the project through a circle. The choice of the headquarters of the Euros has its symbolic meaning symbolic dimension - it was erected at a place where the two cities intersect. The card that Eurocity citizens receive seeks to raise awareness among the population of the value of cooperation and the enjoyment of services and initiatives. On the other hand, the various cultural, social, formative sports teams, which are financially secure, seek to expand the image of Eurocity. We can summarize the activities that are financed through the Eurocity Chavez - Verin project:

- Issuance of a monthly cultural calendar for Eurocity;
- Publication of a quarterly newsletter;
- Joint publications (Strategic program, tourist guides, brochures, etc.);
- General tourist strategy, around the Eurograd brand of the train;
- Dissemination of news through local and regional media.
- New technologies: Eurocity website, Facebook and Twitter. First, in addition to the information listed in Eurocity, you can access the company directory and the geoportal of tourist resources;
- Participation in fairs (Termatalia, Fitur), in open days and in networks, etc.

In management theory, however, the informal relationships between actors are considered as important as the formal relationships established within a system. In practice, this means that a joint body, even if based on legal or administrative agreements, does not function without a cooperative relationship per se.

In terms of day-to-day cooperation, the interviewees indicated that a shared project cannot be successful if the local authorities are not able to accept that certain policies must be coordinated with the population. In any case, the greatest difficulties in the implementation of the project according to the summarized data from the interviews would be in the implementation of the joint initiatives. On the one hand, the different Spanish and Portuguese politico-administrative systems, which oblige people to resort to different territorial levels on one side or the other due to the different performance of administrative services, Gallego over local level (Diputación de Ourense), state level (Instituto Português da Xuventude) passing through the region (Xunta de Galicia, CCDR-N). The other shared problem is state politics - the central government, which has a different attitude towards its borders. The local administration is finding it difficult to organize border control according to the requirements of the Central Governments.

The third element of the theoretical framework, referring to the participation of people and civil society in the cooperation project, the developed activities and initiatives, through which it is aimed to form a “community of interests”, a "free social zone", etc.

In the strategic plan for the development of the Eurocity project, the issuing of cards for the use of discounts and other privileges aimed at those living on the territory of Eurocity is foreseen. From April 23, 2012 to December 2014, 7,100 cards were issued. Of these, 3,137 are for residents of Shavesh municipality, and 3,963 are for citizens of Verin. For the municipality of Shaves, citizens who have received a Eurocard to use privileges are about 7.6%, for the municipality of Verin this value is 26.95%. This significant difference can be explained by the fact that the headquarters of Eurocity is located in the municipality of Verin, so a certain marginal effect can be observed in this sense. Practically all issued cards belonged to residents of Verin, but

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card holders from Shaves municipality are also gradually increasing. This initiative is supported by 12.5% of the total number of residents of both municipalities.

The Eurocidade project marks the realization of 242 events and activities since 2008. The realized events are also attractive to the citizens themselves and this is evident from the increased number of participants, which reached 63,184. The statistics note a lower number of participants in 2014. The reason, which explains the low values in 2014, is in the funding of POCTEP (Eurocity I and II) for the indicated year the priority is funding only for sports, educational and entrepreneurial activities. During this period, entrepreneurial initiatives are financially supported, which are related to the launch of small projects that facilitate contact between residents on both sides of the border.

In the interviews, some of the citizens shared that civil society is limited in its participation in the business sector, but has the opportunity to protect its own interests. Others of the interviewees warn that the leaders of the Eurocity project still have a sense of power, which is one of the reasons for the outflow of citizens. Eurocity Chaves-Verin is a project created and developed in the community before the initiative was taken by the political class and this is the most valuable lesson in the project.

Inferences and conclusion

According to the objectives of the Strategic Program, the best results were achieved in the direction of - confirmation of European citizenship, good results were found in the field of tourism, economy and sustainable development.

We can also highlight some of the weaknesses of the Eurocity Chaves-Verin project in our opinion:

- The lack of public transport connecting the two municipal centers with intermediate stops is a significant deficit because it limits citizens to the need for their own transport. Currently, there are bus lines that leave from the centers of Verin and Chaves, but go to the border;
- An international agreement is needed to attract established medical specialists to provide specialized services to the population on both sides of the border;
- It is necessary to build an emergency road to facilitate the passage of ambulances, firefighters or civil protection;
- In our opinion, it is also important to remove roaming from mobile phones;
- It is necessary that postal services be managed by the Eurocity administration, and not yet prioritized by state policy;

The project has a remarkable symbolic load represented by its logo, which is also presented in official media. The newsletter is distributed on Facebook (which has more than 5000 followers) or Twitter and other social networks. The official working languages are Spanish, Portuguese and Galician.

In conclusion, we can ask: are we facing a case of “cities that cross the border”? Even in a strictly geographical aspect (Zoido 2013), we cannot speak of the existence of a cross-border agglomeration, since the urban environment is limited to the centers of Verin and Chaves (the distance is 22 km) and there is no urban extension that reaches the border. The theoretical framework used allows us, in conclusion, to reflect that a political initiative promoted by the local authorities, which seeks to get closer to the inhabitants, both of the urban districts of the municipal centers and to the

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inhabitants of the villages directly involved in the project, has been successful. The Eurocity project is forward-looking, it seeks to consolidate the community by implementing new policies in the fields of transport, healthcare or telecommunications. In search of a sense of belonging to a common territory, however, we cannot ignore the fact that Chaves is a city in Portugal and Verín is a city in Spain, the differences in state-administrative activities are an indisputable fact and this is one of the reasons why some researchers use the concept of "cities that cross the border".

References

Buursink, J., (2001). "The binational reality of border-crossing cities". GeoJournal, 54 (1), 7-19.

Campos, A. L., & Pardo, Mª C., (2008). "Eurocidade Chaves-Verín, um instrumento de desenvolvimento económico e social". Revista da Eurorrexión Galiza-Norte de Portugal, 13, 81-99.

Dominguez Castro, L., (2008) "La Cooperación Transfronteriza entre Portugal y España". A Cooperação Transfronteiriça entre Portugal e Espanha. Biblioteca dos Estudos Estratégicos. Eixo Atlântico, 13-45.

Fernandes, G., (2004). Territórios e Culturas Ibéricas. *Capitulo II.* Centro de Estudos Ibéricos. 1-16.

Palmeira, A. J., (2008). "Governança na Euro Região". Revista da Euro Região Norte de Portugal – Galiza nº 8, Eixo Atlântico, 31-39.

Bouzova, P., (2021). Levels of security management in business Modernizacgia mizdeu prosperuta i destrukcjie, Tematski zbornik radova, red. Sl. Neskovic, CESNA-B, Beograd, 153-157.

Rodriguez, F., (2005). "Iberismo hoy: Posiberismo". Territórios e Culturas Ibéricas. Campo das Letras - Editores S.A. Porto, 251-261.

Sohn, C. & Lara-Valencia, F., (2013). "Borders and cities: perspectives from North America and Europe". Journal of Borderland Studies, 28 (2), 181-190.

Velde, M., (2000). "On the value of a transatlantic dialogue on border research". Journal of Borderland Studies, 15 (1), 281-290.

Wert, B., (2008). "Security Governance in the Largest border-metropolits of the Schengen Area: the Lille 'Eurodistrict' case study". Journal of Borderland Studies, 23 (3), 95-108.

http://www.eixoatlantico.com/ (accessed 21/09/2023).

https://www-espaces--transfrontaliers-org.translate.goog/ (accessed 24/09/2023).

http://www.eurocidadechavesverin.eu/eurocidade/identidade-grafica (accessed 29/09/2023).