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ECONOMIC AND
BUSINESS REVIEW

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ARE WE REVERSING THE TREND IN WASTE GENERATION: PANEL DATA ANALYSES OF MUNICIPAL WASTE GENERATION IN REGARD TO THE SOCIO-ECONOMIC FACTORS IN EUROPEAN COUNTRIES

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ABSTRACT: *The purpose of this research is to investigate whether there is a decline in the amounts of generated municipal waste that is influenced by the changes which cannot be attributed to the changes in the socio-economic variables and can therefore be ascribed to a changing behaviour and the effectiveness of the policies implemented with the aim of preventing generation of waste. The analyses in this paper cover the data of 30 European countries in the period 2002–2015. The method applied is the panel data analysis of the data on seven socio-economic variables by using both the fixed-effect and the random-effects models. The results of our research show that if we control the model for the socio-economic variables, a decline in the amounts of generated municipal waste can be observed in the period 2011–2015, indicating certain effectiveness of the implemented policies on waste prevention in Europe.*

Key words: *municipal waste generation, waste prevention policy, socio-economic factors*
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1 INTRODUCTION

The sustainability of Europe's growth in prosperity is challenged by an increase in the consumption of goods and services which generates large amounts of waste and drains the Earth's resources. Municipal solid waste management has emerged as one of the biggest challenges in many parts of the world in recent times (Kumar & Samadder, 2017). Human

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activities generate waste and the generated waste amount can reflect the socio-economic development, industrialization and urbanization, as it is a symptom of raw material and energy losses that lead to additional costs for society regarding waste collection, treatment and disposal (Ghinea et al., 2016).

The circular economy (CE) represents the main concept for the sustainability of the EU economy which tries to create minimum or no environmental negative impacts, thus respecting the triple bottom line, namely people, planet and profit (Tantau, Maassen & Fratila, 2018). CE preserves physical stocks by making things last. It results from concerns over resource security, ethics and safety as well as greenhouse gas reductions which are shifting our approach to perceiving materials as assets to be preserved rather than continually consumed (Stahel, 2016).

However, there is still no clear understanding what circular economy actually is. In their study, Kirchherr, Reike and Hekkert (2017) gathered 114 CE definitions which indicate that this term is most frequently depicted as a combination of reduce, reuse and recycle activities, whereas it is oftentimes not highlighted that circular economy necessitates a systemic shift. The authors state that the main aim of CE is considered to be economic prosperity, followed by environmental quality, while its impact on social equity and future generations is barely mentioned. Furthermore, the authors found that only one out of five definitions considers the consumer as a second enabler of CE and outlines consumption as a research gap for the CE community (Kirchherr, Reike & Hekkert, 2017).

Two of the main subjects of debate for the political, economic and social fields are the recovery efficiency concerns (especially for the municipal waste) and the circular material usage (Tantau, Maassen & Fratila, 2018). By making waste prevention the main priority, the policymakers in Europe have steered the waste management directive and policy making in the direction to break the link between population, affluence and the amounts of generated waste.

Research and management of processes that are as complex as the waste management system is are challenging tasks. On one hand, lacking and questionable reliability of the data available on waste is often a challenge in not only planning, but also in implementing the sorting technology and deploying the information systems that support waste management. Namely, waste is not measured on a detailed basis (at the level of every single generator of waste or at disaggregate levels) and is managed by different channels involving several stakeholders, making the necessary data collection and compilation difficult (Beigl et al., 2008; Kannangara et al., 2018). On the other hand, waste management involves sophisticated interactions and multiple feedbacks associated with environmental effects, economic development patterns, population, etc. (Chen, Giannis & Wang, 2012; Kollikkathara, Huan & Danlin, 2010). In order to be able to plan and efficiently manage urban environments, it is essential to determine the factors that affect the generation of municipal waste (Liu & Yu, 2007). Waste projections are an important part of waste

management as their results are often used to provide justification for a specific waste policy measure formulation and the planning of waste treatment and recycling facilities, including waste collection service. With them in hand, policymakers are able to better understand the dimension and scale of the problem and consequently make informed decisions (Shan, 2010).

The purpose of this research is to investigate whether there is a decline in the generated amounts of municipal waste influenced by the changes that cannot be contributed to the changes in the socio-economic variables, but rather to the influence of other factors such as improvements in the technology or pro-environmental behaviour stemming from the change in the environmental awareness of the European population. These factors are hard to define and quantify over time, however, they may have a considerable influence on the amounts of generated waste. As being distinct from most of the papers dedicated predominantly to finding the evidence of the Environmental Kuznets Curve or constructing predictive models, this study focuses on determining whether other factors affect the generation of municipal waste. The present paper contains a literature review of the field, a description of the definition and preparation of the data used in the study, an explanation of the methodology applied and closes with a discussion of the results.

2 LITERATURE REVIEW

Traditional models for the analyses of waste generation usually use socio-economic and demographic variables which typically include economic conditions, population growth, weather conditions, geographical situation, people hobbies and household size (Abdoli et al., 2011; Bach et al., 2004; Chang & Lin, 1997; Medina, 1997). While the existing household and community-level data allow for the examination of a number of important relationships in the area of solid waste, it is the use of macroeconomic data that can be applied to cast further light on a number of potentially significant factors, as are for instance the relative importance of economic growth and population density, as well as the demographic characteristics of households (Johnstone & Labonne, 2004). Indicators of decoupling are increasingly popular in detecting and measuring improvements in environmental and resource efficiency with respect to economic activity (Mazzanti & Zoboli, 2008). The traditionally used variables in the models analysing waste generation include GDP, consumption, population density, age, income, household size, education and employment, however, there are other variables, such as the pro-environmental behaviour and technology advances in favour of less waste, that can be leveraged through different policy measures. These variables are not part of the official statistics and are not easily incorporated in the analyses of waste generation.

The Environmental Kuznets Curve (EKC), named after Simon Kuznets (1955), hypothesizes that as a country becomes wealthier, at the beginning, its emissions to the environment increase, however, after a certain period, the emissions of the same country start to decrease as the country's economic prosperity continues (Kuznets, 1955; Stern,

2004). This indicates that certain pollutions follow the inverted U-curve in relation to the income per capita. Bruvoll, Fæhn and Strøm (2003) argue that even if this was true since the growth of income can ensure further progress in environmental protection, there are many other factors in play and there is therefore no guarantee that this trend will continue also in the future. In his paper, Stern (2004) concludes that the empirical analysis of EKC is not robust enough and should be tested with more rigorous time-series or panel data methods.

In respect to the aforementioned decoupling and the formation and implementation of environmental policies, the social aspects of waste management such as environmental attitudes become very important. Nevertheless, this aspect is poorly studied. Raising awareness on the understanding, protecting, and solving environmental problems through education has been universally recognized since 1970 (Shobeiri, Omidvar & Prahallada, 2006; Uzunboylu, Cavus & Ercag, 2009). The environmental awareness as such can be divided into two aspects, namely the perception of environmental problems that involves people's objective knowledge, perception and environmental realities on one hand, and on the other hand, the behavioural inclination to protect the environment (Desa, Kadir & Yusooff, 2011). The environmental awareness regarding the issue of waste is usually studied by surveying the opinions and attitudes of population (Follows & Jobber, 1999; De Feo & De Gisi, 2011; De Feo, De Gisi & Williams, 2013; Wassermann, et al., 2004; Salhofer, et al., 2008; Parfitt, Barthel & Macnaughton, 2010; MDNR, 2000; Ferrara & Missios, 2011; Taylor & Webster, 2004; Greenberg, et al., 2007). However, as most of these studies are cross-sectional, there is lack of research that would track the impact of the changing environmental attitudes on waste generation in a time perspective. Du et al. (2018) conducted a survey on the environmental behaviour, environmental perception and attitude towards environmental improvement in Beijing, China in the years 2006 and 2015. In case of attitudes towards the issue of waste, the results of Du et al. showed a decrease in the variable index by 33% caused by the local mismanagement of waste. In the study by Wray-Lake, Flanagan & Osgood (2010) conducted on high school seniors in the period from 1976 to 2005, the results showed not only an increase in the awareness on the resource scarcity in the period 1995-2005, but also a considerable decline in youth indicating that they mostly agreed or agreed with the resource scarcity from 81% in 1980 to only 46% of youth in 2004 (Wray-Lake et al., 2010). In their study of environmental attitudes, values and behaviour in Ireland, Motherway et al. (2003) compared the surveys from the years 1993 and 2002. The results showed that the reported recycling behaviour has increased significantly, reflecting increased accessibility of facilities. Hellevik's (2002) series of surveys on the environmental beliefs, attitudes and behaviour in the Norwegian population showed a decrease in the people choosing the option "very much worried" concerning the household waste from 10% in 1991 to 2% in 2001. However, attitude is something more but simple facts that may be judged against other data, as it also has an evaluation component (Heberlein, 1981).

Similar to the environmental awareness, the changes in processes caused by the technological advancements, especially in the field of waste prevention, are also hard to

measure directly and through time. The usual method of linking the amounts of waste to material inputs in the production as constants excludes the technological changes, as the material inputs needed for the production of a certain product change over time (e.g. the amount of input material or the type of input materials changes) (Alfsen, Bye & Holmøj, 1996; Bruvoll & Ibenholt, 1997).

The data on awareness changes in production and consumption and technological progress are therefore hard to define and measure. This creates a challenge for acquiring an insight on how changes in awareness and technological progress affect the changes in the generation of waste. Both effects are usually treated as an unexplained residual in traditional models rather than an economic production function (Ayres, 1998).

In traditional models, the data on the household and non-profit institutions serving households (NPISH) final consumption expenditure and income are often used in waste generation as explanatory variables by many authors (Mazzanti & Zoboli, 2008; Gawande, Berrens & Bohara, 2001; Dinda, 2004; Johnstone & Labonne, 2004; Abrate & Ferraris, 2010; Ichinose, Yamamoto & Yoshi, 2011). This is understandable since the level of consumption reflects the levels of generated municipal waste, and as income grows, consumption can grow too, while people can at the same time invest in higher levels of environmental protection.

Higher population density requires a lower cost of service for municipal waste collection, while higher unemployment can lower waste generation as it lowers the household income (Chen, 2010; Mazzanti & Zoboli, 2008; Beigl et al., 2004; Alvarez et al., 2008). Certain authors have linked waste generation to the level of education and age, since more highly educated people are expected to have higher environmental awareness as opposed to younger people who are expected to litter more (Abrate & Ferraris, 2010; Kinnaman & Fullerton, 1999; Ghinea et al., 2016; Sterner & Bartelings, 1999; Johnson et al., 2017; Beigl et al., 2004). Various authors provide evidence that the amount of municipal waste generated by a country is influenced by its population size, household income levels and other socio-economic factors like for example the number of persons per dwelling, cultural patterns and personal attitudes (Bandara et al., 2007). Nevertheless, the effects of the income level, household size and education status can differ in significance within countries, cities and regions. For example, income may have a positive impact on the waste generation rate in one location, while it may exhibit a negative or an insignificant impact in another location (Keser, Duzgun & Aksoy, 2012). The adaptation of the waste addressing policies, such as the environmental and taxation recycling policies, is something rarely included in the studies (Mazzanti & Zoboli, 2008). The extensive overview of studies analysing the socio-economic variables in regard to waste generation is listed in Table 1.

Table 1 *Overview of the studies analysing the socio-economic and policy variables in regard to the amounts of generated waste*

Variable	Considerable as an explanatory variable	Non considerable as an explanatory variable
GDP	Liu & Yu, 2007; Shan, 2010; Dai, Li & Huang, 2011; Chen, Giannis & Wang, 2012; Beigl et al., 2004.	Mazzanti, 2008; Sun & Zhang, 2015; Daskalopoulos, Badr & Probert, 1998.
Consumption	Mazzanti & Zoboli, 2008; Mazzanti & Zoboli, 2008; Sun & Zhang, 2015; Dai, Li & Huang, 2011.	Johnstone & Labonne, 2004.
Population/ Population density	Mazzanti & Zoboli, 2008; Johnstone & Labonne, 2004; Liu & Yu, 2007; Shan, 2010; Thanh, Matsui & Fujiwara, 2010; Abdoli et al., 2011; Dai, Li & Huang, 2011; Chen, Giannis & Wang, 2012; Daskalopoulos, Badr & Probert, 1998; Alvarez et al., 2008; Abrate & Ferraris, 2010; Dyson & Chang, 2005.	Ghinea et al., 2016; Hockett, Lober & Pilgri, 1995; Sun & Zhang, 2015; Keser, Duzgun & Aksoy, 2012; Azadi & Karimi-Jashni, 2016; Daskalopoulos, Badr & Probert, 1998; Johnson et al., 2017; Abrate & Ferraris, 2010; Liu & Yu, 2007.
Age	Mazzanti & Zoboli, 2008; Johnstone & Labonne, 2004; Ghinea et al., 2016; Kannangara et al., 2018; Sterner & Bartelings, 1999; Johnson et al., 2017; Chen, 2010; Beigl et al., 2004.	Johnstone & Labonne, 2004; Lebersorger & Beigl, 2011.
Income	Thanh, Matsui & Fujiwara, 2010; Abdoli et al., 2011; Kannangara et al., 2018; Kumar & Samadder, 2017; Bandara et al., 2007; Johnson et al., 2017; Chen, 2010; Alvarez et al., 2008; Abrate & Ferraris, 2010; Dyson & Chang, 2005.	Hockett, Lober & Pilgri, 1995; Liu & Yu, 2007; Sterner & Bartelings, 1999.
Household size	Thanh, Matsui & Fujiwara, 2010; Lebersorger & Beigl, 2011; Beigl et al., 2004; Abrate & Ferraris, 2010.	
Taxation	Mazzanti & Zoboli, 2008; Lebersorger & Beigl, 2011; Bandara et al., 2007.	
Education	Keser, Duzgun & Aksoy, 2012; Sterner & Bartelings, 1999; Chen, 2010; Alvarez et al., 2008; Abrate & Ferraris, 2010.	Kannangara et al., 2018; Kumar & Samadder, 2017; Johnson et al., 2017.
Employment/ Unemployment	Bach et al., 2004; Keser, Duzgun & Aksoy, 2012; Kannangara et al., 2018; Bandara et al., 2007; Chen, 2010; Alvarez et al., 2008.	Johnstone & Labonne, 2004.

3 METHODOLOGY

3.1 Data collection and preparation

As the first step in the analysis, we conducted a thorough investigation of the availability of the statistical data needed for the panel data analyses models in order to make solid

conclusions. As the main dependent variable, the generated amounts of waste were used while the decision on what variables to use as explanatory variables was made based on the extensive literature review (Table 1) and the availability of the statistical data. The data on the household and NPISH final consumption expenditure and income were chosen as the main explanatory variables. In order to better explain the differences between the analysed countries, we selected four structural and socio-economic variables: unemployment rates, population density, tertiary education graduates and the ratio of young people in the total population. In order to incorporate a certain measure of policy and having in mind the availability of the data and the fact that most of the analysed countries are the EU member states with a similar EU waste management legislative, the data on environmental taxes were chosen as a proxy for the policy variable. The above stated data were available for the period 2002-2015 for the following 30 European countries: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and the UK, all of which were thus included in the analyses of this paper.

The data were collected from the Eurostat database, from the "Economy and the finance" and "Environment and energy" data sets and cover the variables on the municipal waste generation (in kg per capita), the total environmental taxes (in millions of euro per capita with applied implicit deflator—year 2010 = 100), the household and NPISH final consumption expenditure (in real prices in euro per capita with applied implicit deflator—year 2010 = 100), the household and NPISH income (in real prices in euro per capita with applied implicit deflator—year 2010 = 100), the unemployment rates (in percentages), the population density (in inhabitants per km2), the tertiary education graduates (per 1000 of population), and the ratio of young people in the total population (in percentages) (Eurostat, 2019). Although the 30 European countries were chosen as having the most complete available data, certain parts of the data were still missing and had to be assessed. This was done by using the averages for the years for which the data were available. The data which were missing were the following: the data on the municipal waste generation for certain years for Croatia, Denmark, Ireland and Portugal; the data on the household and NPISH final consumption expenditure and income for certain years for Croatia, Iceland, Luxembourg, Malta and Romania; the data on tertiary education graduates for certain years for Croatia, Denmark, Estonia, France, Greece, Luxembourg, Iceland, Italy, Malta and Slovakia; and the data on the ratio of young people in the total population for certain years for Hungary, Iceland and Norway.

The total values of the municipal waste generation, household and NPISH final consumption expenditure and income, population density, tertiary education graduates, unemployment rates, ratio of young people in the total population, and the total environmental taxes for the selected 30 European countries in the period 2002-2015 are presented in Table 2.

Table 2 *Descriptive statistics of the total values of municipal waste generation, household and NPISH final consumption expenditure and income, population density, tertiary education graduates, unemployment rates, ratio of young people in the total population and total environmental taxes for 30 European countries in the period 2002-2015*

Variable	Mean	Minimum	Maximum	Standard Deviation	Kurtosis	Skewness	Unit of measurement
Municipal waste	14740.43	14036.00	15747.00	548.56	-0.66	0.49	Kg per capita
Consumption	384757.13	288344.56	448651.76	49999.33	-0.37	-0.88	Euro per capita
Income	392251.34	300043.94	452268.38	48278.64	-0.46	-0.89	Euro per capita
Environmental taxation	19756.96	14590.88	23896.16	2656.86	-0.15	-0.64	Mill. euro per capita
Education	1855.63	1303.46	2148.82	288.42	-0.90	-0.55	Total graduates per 1000 of population aged 20-29
Unemployment	18.43	13.03	22.91	3.23	-0.81	-0.36	Average %
Ratio of young people	42.64	39.57	44.84	1.72	-0.96	-0.49	Average % (from 15 to 29 years)
Density	4780.90	4640.70	4929.00	91.27	-1.18	0.03	Inhabitants per km^2

The development of a reliable model for the analyses of the economic trends and socio-demographic changes on solid waste generation is a useful progress in the practice of solid waste management (Dyson & Chang, 2005). The dependencies of the amounts of generated municipal waste to socio-economic variables are often analysed through the econometric models which combine economic modelling and data with mathematical statistics (Bruvoll, Fæhn & Strøm, 2003; Östblom, Söderman & Sjöström, 2010; Greyson, 2007; Hansen, 2014). There are two mostly used statistical models for this kind of analysis: the fixed-effect model and the random-effects model. In the former, we assume that there is one true effect size that underlies all the studies in the analysis, and that all differences in the observed effects are due to a sampling error (Borensteina et al., 2010). In the latter, i.e. the random-effects model, the effect sizes in the studies that actually were performed are assumed to represent a random sample from a particular distribution of these effect sizes (hence the term random effects) (Borensteina et al., 2010).

Having in mind possible correlation, in order to develop the panel data analyses models, all independent variables were tested for the variance inflation factor (VIF). We applied a benchmark of high correlation of VIF ≥ 5 (Marquardt, 1970; Neter, Wasserman & Kutner, 1989; Hair et al., 1995) and the results show very high VIF values for the variables of the household and NPISH final consumption expenditure and the household and NPISH income (> 20) meaning high correlation, while the rest of the variables scored much lower. Based on these results, two competing models were build:

1. The model with the data on the household and NPISH final consumption expenditure as the main independent variable and

2. The model with the data on the household and NPISH income as the main independent variable.

Both of these two models were analysed by using both the fixed-effects and the random-effects approaches by applying the following equations:

1. For the fixed-effects estimation model:

$$W_{Mcy} = \beta_0 + \beta_1 x_{1cy} + \beta_2 x_{2cy} + \beta_3 x_{3cy} + F_c + T_y + \varepsilon_{cy} \quad (1)$$

2. For the random-effects estimation model:

$$W_{Mcy} = \beta + \beta_1 x_{1cy} + \beta_2 x_{2cy} + \beta_3 x_{3cy} + T_y + \mu_c + \varepsilon_c \quad (2)$$

Where W_{Mcy} is an amount of municipal waste generated in a country c in a year y in tonnes. The variable x_1 represents the household and NPISH final consumption expenditure in a country c in a year y in millions of euro per capita—or in alternative represents the household and NPISH income in a country c in a year y in millions of euro per capita. The secondary explanatory variables are marked with x_{2cy} (the unemployment rates in %, the population density measured as inhabitants per km^2, the tertiary education graduates measured as total graduates per 1 000 of population aged 20-29, and the ratio of young people in % of the total population) and x_{3cy} the environmental taxation in million euro per capita. The two variables included in vectors x_{1cy} were tested in separate models. The variables F_c and T_y represent the dummy variables for the countries and year-specific effects, while ε_{cy} represents country and time-varying error term in fixed effects, while ε_c is a within-country error and μ_c is a between-country error.

4 RESULTS AND DISCUSSION

Having in mind that the variables are in different measures, the analyses were conducted on both standardised and not standardised coefficients. The fixed effect analyses were conducted by applying Equation (1). Both fixed-effects models (Model 1 with household and NPISH final consumption expenditure as the main independent variable, and Model 2 with household and NPISH income as the main independent variable) show very high R Square (0.93), implying a very high level of variance explained by the models (Table 3). If we look at the coefficients, all of the variables in Model 1 have significant coefficients except for the population density and the environmental taxation, while in Model 2 the variables education, unemployment and the ratio of young people prove significant at

5% and the other three not (Table 5). Model 2 shows that the income variable and the population density variable are significant only at a 10% significance level. For the dummy variables (countries and years) in both models, the 26 coefficients of a total number of 42 are significant, indicating a relatively good model, out of which the years dummy variables coefficients are negative and significant at 5% for the years 2011-2015 (Table 5).

The random-effect analyses were conducted by applying Equation (2). The results of Model 3 with household and NPISH final consumption expenditure as the independent variable show R Square within, R Square between and R Square overall with the values of 0.31, 0.34 and 0.33, respectively. The results of Model 4 with household and NPISH income as the independent variable show R Square within, R Square between and R Square overall with the values of 0.31, 0.34 and 0.33, respectively (Table 4). The Wald Chi-Square statistic tests for the 19 degrees of freedom (high because of the year dummy variables) for Model 3 and Model 4 had the values of 180.81 and 175.74 with the probability higher than 0.00, which indicate that at least one of the predictor variables in the models is significantly different from zero (Table 3). If we look at the coefficients in Model 3, three independent variables have significant coefficients at 5%—consumption, education and the ratio of young people, and three of the independent variables have insignificant coefficients at 5%—unemployment, population density and environmental taxation (Table 5). In Model 4, three independent variables have significant coefficients at 5%—income, education and the ratio of young people, and three independent variables have insignificant coefficients at 5%—unemployment, population density and environmental taxation (Table 5).

Table 3 *Results of the level of variance explained by the two fixed-effects models*

	Model 1	**Model 2**
R Square	0.9319	0.9310
p-value	1.8E-187	1.8E-186
Significance	yes	Yes

Table 4 *Results of the level of variance explained by the two random-effects models*

	Model 3			**Model 4**		
R Square	Within	Between	Overall	Within	Between	Overall
	0.3122	0.3450	0.3335	0.3034	0.3773	0.3608
Wald Chi-Square statistic 19 degrees of freedom		180.81			175.74	
Probability > chi2		0.0000			0.0000	
Significance		yes			Yes	

Table 5 *Results of the models analysing the data on household and NPISH final consumption expenditure and income, tertiary education graduates, unemployment rates, ratio of young people in the total population, population density and environmental taxation in regard to the data on generation of municipal waste*

	Model 1			*Model 2*			*Model 3*			*Model 4*		
	Stand. Coeff.	*Unstand. Coeff.*	*p-value*	*Stand. Coeff.*	*Unstand. Coeff.*	*p-value*	*Stand. Coeff.*	*Unstand. Coeff.*	*p-value*	*Stand. Coeff.*	*Unstand. Coeff.*	*p-value*
Intercept ***Standardized***	0.11	--	0.11	0.11	--	0.15	0.18	--	0.25	0.17	--	0.26
Intercept ***Unstandardized***	--	320.29***	0.00	--	321.74***	0.00	--	274.92***	0.00	--	269.58***	0.00
Consumption	0.22***	0.00***	0.00	--	--	--	0.27***	0.00***	0.00	--	--	--
Income	--	--	--	0.15*	0.00*	0.06	--	--	--	0.23***	0.00***	0.00
Education	0.16***	0.94***	0.00	0.16***	0.97***	0.00	0.14***	0.84***	0.00	0.14***	0.87***	0.00
Unemployment	-0.05**	-1.41**	0.05	-0.06**	-1.59**	0.03	-0.05*	-1.31*	0.07	-0.05*	-1.38*	0.06
Ratio of young people	0.13***	7.71***	0.00	0.14***	8.03***	0.00	0.10***	5.62***	0.00	0.10***	5.82***	0.00
Density	-0.77	-0.41	0.13	-0.85*	-0.45*	0.1	0.19	0.10	0.16	0.18	0.10	0.17
Environmental taxation	0.01	0.00	0.93	0.10	0.03	0.31	0.06	0.02	0.53	0.12	0.03	0.17
2003	-0.04	-4.48	0.62	-0.04	-4.48	0.62	-0.04	-5.30	0.56	-0.04	-5.35	0.56
2004	-0.03	-4.21	0.65	-0.03	-4.33	0.65	-0.05	-6.51	0.49	-0.05	-6.60	0.49
2005	-0.02	-2.85	0.77	-0.02	-2.42	0.81	-0.06	-7.16	0.47	-0.05	-6.73	0.50
2006	0.03	3.94	0.70	0.04	4.77	0.65	-0.01	-1.86	0.86	-0.01	-1.06	0.92
2007	0.04	4.81	0.67	0.05	5.84	0.60	-0.02	-3.04	0.78	-0.02	-2.11	0.85
2008	0.07	8.17	0.47	0.07	9.03	0.43	0.00	0.37	0.97	0.00	0.51	0.96
2009	-0.05	-6.7	0.54	-0.05	-5.87	0.6	-0.11	-13.56	0.21	-0.11	-14.02	0.2
2010	-0.16*	-19.72*	0.1	-0.15	-18.43	0.13	-0.23**	-28.43**	0.02	-0.23**	-28.3**	0.02
2011	-0.23**	-28.21**	0.03	-0.22**	-26.94**	0.04	-0.31***	-38.28***	0.00	-0.3***	-38.1***	0.00
2012	-0.3***	-37.76***	0.01	-0.29***	-35.74***	0.01	-0.39***	-49.08***	0.00	-0.39***	-48.29***	0.00
2013	-0.32***	-39.7***	0.00	-0.3***	-37.74***	0.01	-0.42***	-52.08***	0.00	-0.41***	-51.39***	0.00
2014	-0.31***	-38.5***	0.01	-0.29***	-36.72***	0.01	-0.42***	-52.46***	0.00	-0.41***	-51.85***	0.00
2015	-0.28**	-35.27**	0.02	-0.27**	-33.63**	0.02	-0.41***	-51.27***	0.00	-0.41***	-50.69***	0.00

*Stand. – standardized; Unstand. – unstandardized; Coeff. – coefficients; *significant at 0.1; ** significant at 0.05; *** significant at 0.01*

The results of the Hausman test and the robust Hausman test by using the Mundlak Device and in general a cluster-robust Wald statistic test (Mundlak, 1978; Wooldridge, 2010) show in Table 6 that only the results of the fixed-effects models are relevant for interpretation (Model 1 and Model 2).

Table 6 *Results of the Hausman tests on the random-effects models*

TEST	MODEL	Chi-square	p-value
Hausman	**Model 3**	17.19	0.0086
Hausman	**Model 4**	14.87	0.0213
Robust Hausman	**Model 3**	13.39	0.0372
Robust Hausman	**Model 4**	11.03	0.0795

Since we used models which have different main independent variables, namely Model 1 with the household and NPISH final consumption or Model 2 with the household and NPISH income, we compared the fixed-effects models through the Akaike Information Criterion (AIC) and Schwarz Criterion (SBC) (Akaike, 1973; Fabozi et al., 2014). The results of both of these criterions show that Model 1 is better fit than Model 2 (Table 7).

Table 7 *Results of the Akaike Information Criterion (AIC) and Schwarz Criterion (SBC)*

MODEL	CRITERION	VALUES Standardized	VALUES Unstandardized
Model 1	Akaike Information Criterion (AIC)	102.57	4159.12
Model 2	Akaike Information Criterion (AIC)	107.92	4164.48
Model 1	Schwarz Criterion (SBC)	183.37	4239.93
Model 2	Schwarz Criterion (SBC)	188.72	4245.23

If we look at the coefficients, for Model 1 the most significant variable at 5% is the household and NPISH final consumption expenditure with the standardised coefficient of 0.2227. The considerable and positive effect of this variable on the increase in the amounts of generated municipal waste is in line with the previous studies (Mazzanti & Zoboli, 2008; Mazzanti, 2008; Johnstone & Labonne, 2004; Sun & Zhang, 2015; Dai, Li & Huang, 2011). The results showed the tertiary education graduates as the second significant variable with a standardised coefficient of 0.1551, thus confirming the findings of some authors that this variable representing the educational level of the population has a significant positive influence on the amounts of generated municipal waste due to improved life standards of the population with higher education (Keser, Duzgun & Aksoy, 2012). However, this contradicts the conclusions of other authors (e.g. Kumar & Samadder, 2017; Johnson et al., 2017; Kinnaman & Fullerton, 1999) who find that higher education is related to higher environmental awareness, resulting therefore in lower amounts of generated waste.

Our results correspond to the findings of previous studies on the population age distribution as a significant explanatory variable in the case of waste generation. The statistically significant standardised coefficient of 0.1307 for the ratio of young people in the total population indicates that the younger is the population, the more waste is generated (Ghinea et al., 2016; Sterner & Bartelings, 1999; Johnson et al., 2017; Beigl et al., 2004). The unemployment rate variable has a negative and significant impact with the coefficient of -0.0491, meaning the higher the unemployment rate in economy, less waste is being generated possibly through changes in the structure of consumption. This is consistent with authors Keser, Duzgun & Aksoy (2012), Kannangara et al. (2018), Bandara et al. (2007), and Alvarez et al. (2008). Population density is one of the most frequently analysed variables in the literature, however, often with conflicting results. Namely, certain authors find this variable significant (i.e. Johnstone & Labonne, 2004; Alvarez et al., 2008; Thanh, Matsui & Fujiwara, 2010), while other authors find it insignificant, although the outcomes of certain analyses also depend on the method and type of waste analysed (i.e. Keser, Duzgun & Aksoy, 2012; Abrate & Ferraris, 2010). In any case, the results in this paper show that the variable population density is not significant at 5%. The few authors who used the environmental policy variable in their models found this variable to be significant which is contrary to the results of this paper (Mazzanti & Zoboli, 2008; Lebersorger & Beigl, 2011).

The results of Model 2 were similar to those of Model 1, with one big difference, namely the independent variable for household income does not seem to be statistically significant. This is in line with authors like Sterner & Bartelings (1999), however, Thanh, Matsui, & Fujiwara (2010) provide mixed results, while some researchers found this variable to be significant (Abdoli et al., 2011; Kannangara et al., 2018; Kumar & Samadder, 2017; Bandara et al., 2007; Johnson et al., 2017; Chen, 2010; Alvarez et al., 2008; Abrate & Ferraris, 2010; Dyson & Chang, 2005).

Regarding the possible evidence of the EKC forming, we expanded our models by incorporating the square of the income. The results show that in the fixed-effect Model 2 and the random-effect Model 4 the income coefficient has a negative value and the square of the income coefficient has a positive value which indicates that a regular U curve is formed (and not the inverted one) and thus no evidence of EKC can be established.

Especially interesting for the purpose of this paper are the coefficients of the year dummy variables which can imply whether the decline in the amounts of generated municipal waste occurred in a certain year independent from the changes in the explanatory variables used in the models. This would mean that this decline could be ascribed to other factors, like for example improving technologies, raising awareness and stricter policies. For the analysed European countries, the coefficients of the year dummy variables in the period 2011-2015 are negative (linked to the decrease in waste generation) and significant at 5% in both models which can be considered as a relatively robust evidence on the decline in the amounts of generated municipal waste independent of the socio-economic variables used in the model.

5 CONCLUSIONS

This paper demonstrates the possibility of the analyses of the statistical data on waste with the socio-economic variables. Departing from the majority of other papers centred on finding the evidence of the Environmental Kuznets Curve or on building the predictive models, the analyses in this paper were centred more on finding the evidence of the causes of the generation of municipal waste which cannot be attributed to the available explanatory socio-economic variables.

The panel data analyses were applied in order to investigate the causes of the possible decline in the amounts of generated waste in the 30 European countries. In the analyses, both the fixed-effect model and the random-effects model were used as a control of the robustness of the findings. Although the analysis covered the period 2002-2015, the results consistently show a statistically significant decline in waste generation for the period 2011-2015 which is independent of the socio-economic variables used in the model.

According to our results, three significant variables influence the increase in the amounts of waste—consumption, level of education and the age structure of the population, while only the unemployment level has a significant negative impact on the amounts of waste. Including more variables in combination with the ones suggested in this paper would certainly improve the results. As waste generation and management is a topical issue nowadays, the research in micro and macro aspects of it should be intensified in order to better understand the processes, as well as to monitor the effectiveness of the different policies on waste generation. In this paper, only one policy variable is used, thus the development of models which will include more variables which represent the effects of the implementation of different directives, national policies, and funds spent on implementing certain policies could be done to gain better insight. One of the ways that this can be done is to develop policy indicators which can be measured through time. This research was conducted on the amounts of municipal waste, however, the study can be deepened by analysing different waste materials within the municipal waste, for example paper, plastics, glass etc. In addition, an analysis of different countries grouped based on their similar characteristics (e.g. based on the level of their GDP) could provide interesting results.

The findings of this paper have importance for the national and international level policymakers as the findings enable quantification of the level of changes in the socio-economic fluctuations which influence the desired change in the municipal waste generation. This feedback allows decision makers to learn from past experience and evaluate the implemented measures. Political decisions and policies without a doubt influence the changes in the socio-economic conditions, namely the conditions which are used as explanatory variables for waste generation in panel data analyses models. Environmental policies should not distort markets, but rather increase the competitiveness and improve the environmental protection. Policymakers have to balance between the

immediate benefits for companies gained from cutting their environmental costs and the positive results of implementing environmental policies which generally take longer to be observed. Thus, not determining the time frame for obtaining the results or deeming them to be too far in the future can shift the policies towards being short-termed with easily observable results instead of being more profound and far reaching ones bringing the benefits in a more distant future. The panel data analysis provides a better understanding of the drivers of municipal waste generation and assesses the potential for its reduction by adopting and efficiently implementing waste prevention measures. Certainly, obtaining data of higher quality and quantity would allow for better analyses of the effects which environmental policies have on waste generation. However, certain influences as are the pro-environmental behaviour and technology advances prove hard to quantify, although they are a strong driving force behind the waste prevention processes.

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Surveying the Methodological and Analytical Foundations of the New Institutional Economics: A Critical Comparison with Neoclassical and (Old) Institutional Economics

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ABSTRACT: *The purpose of this article is to review the methodological and analytical foundations of the New Institutional Economics by implying a critical comparison with the Neoclassical and (old) Institutional Economics. After a discussion of the fundamental definitions and concepts of the New Institutional Economics, I turn to the critical comparison with other schools of thought. It is shown that the New Institutional Economics does not break fundamentally from the neoclassical economics. To the contrary, it can be fairly argued that the New Institutional Economics is a research program which is developed within and around the dominant neoclassical paradigm. On the other hand, it is argued that the Old and New Institutional Economics constitute two distinct approaches to the analysis of institutions, stemming from different paradigmatic viewpoints that produce and nurture contrasting perspectives on how to theoretically tackle institutions.*

Key words: *institutions, organizations, Neoclassical Economics, Institutional Economics*

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1 INTRODUCTION

In recent years, the concept of "institutions" has become central in scientific and political discourse. This reflects a renewed awareness of the role of institutions in the functioning of (market and non–market) economies and in economic development more generally. In the light of today's economic turbulence and financial meltdown, the "big–bang" transition programs in the former socialist countries and the various structural adjustment programs in developing countries, politicians, economists and businessmen (from neoliberals to "new" leftists) very often converge to the fundamental idea that the "right" institutional framework constitutes a *sine qua non* condition to enhance economic growth and promote development. For instance, the International Monetary Fund (IMF) puts great emphasis on reforming corporate governance and financial institutions as a response to the 2008

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financial meltdown. Moreover, the poor economic performance of developing countries is explained in terms of the lack of a clearly defined and secure private property rights system. According to the mainstream idea, this is because in the absence of a guarantee that people can appropriate the fruits of their sacrifices, they would not take the initiative to invest, whatever the policies regarding macroeconomic balances, trade and industrial regulations may be. It is further believed, continuing this line of thinking, that effective incentives have to be privately appropriable and predominantly materialistic, and that therefore-paripassu- no form of property rights other than private property rights can provide adequate incentives for good performance.

This emphasis on institutions and (private) property rights raises the need for a scientific theorization of the issues involved, while also bringing to the fore some fundamental questions with regard to the origin and nature of different institutions, and to their desirability or otherwise, thus also raising the question of institutional change. Within economics, the new institutional economics has become well established. This trend in economics deals with the origin of (mainly capitalist) institutions within the mainstream tradition. Many of the catchphrases articulated within the new institutional economics, such as "institutions", "organizations", "transaction costs", "property rights" and "contracts", have become very common in orthodox economics discourse. This development is intellectually stimulating and interesting because it raises some fundamental issues with regard to the role and functioning of institutions.

In November 2009, Oliver Williamson was awarded the Swedish Central Bank 'Nobel' prize in economics.[2] This follows the award to Ronald Coase in 1991 and to Douglass North in 1993. Between them, Coase, Williamson and North, are the founders and most important representatives of the new institutional economics. This third Nobel prize is symbolic of the continuing vitality of the new institutionalist research program within, and around the borders of, the mainstream economics reflecting the idiosyncratic nature of the so called 'Nobel Prize in Economics'.[3]

2 NEW INSTITUTIONAL ECONOMICS: DEFINITIONS AND CONCEPTS

The new institutional economics as a body of theory emerged in the 1970's and 1980's, although its roots lie further back in time. It seeks to incorporate the theory of institutions into economics by internalizing their study in a manner compatible with the core tenets of the neoclassical economics. In this way, new institutionalism seeks to fill a gap in the mainstream (neoclassical) economic theorizing, where institutions, even when implicitly present, play virtually no role as exemplified by the examples of welfare economics and the Walrasian general equilibrium model. The common denominator of all institutionalists, old and new, is that institutions matter for economic performance, and that institutional

2 Alongside Elinor Ostrom, a political scientist.

3 On the other hand, in 1972, Gunnar Myrdal who in many ways reflects the spirit of the Old Institutional Economics was awarded the Nobel prize.

structures exert an important influence on economic behavior. According to the new institutionalists, the determinants of institutions can be analyzed with the aid of the neoclassical economic theory. In particular, their aim is to explain what institutions are, how they emerge, what purposes they serve, how they evolve and how—if at all—they should be reformed.

The new institutional economics is a research program which includes various theoretical trends, such as transaction cost economics (Ronald Coase, Oliver Williamson), property rights theory (Ronald Coase, Armen Alchian, Harold Demsetz), new institutional economic history (Douglass North, Robert Thomas), and the economic analysis of law (Ronald Coase, Richard Posner) to name but a few. Other theoretical approaches close to the new institutional economics, and sometimes defined as being within this research program, include public choice theory, constitutional economics, the theory of collective action and the principal–agent approach (Furubotn&Richter, 1998; Schotter, 1981; Richter, 2005; Menard & Shirley, 2008).

The term "new institutional economics" was coined by Williamson (1975), however, its origins can be traced back to Coase's classic 1937 article on the "Nature of the Firm". In his seminal analysis of the firm, through the introduction of the concept of (but not the term) transaction costs which a few decades later became the foundation of the new institutional economics, Coase attempted to answer the question "Why do firms exist?". Until then, within the neoclassical theory, the firm was merely treated as a production function which transforms inputs into outputs, thus representing what came to be known as the "black box" of the neoclassical theory—the firm.

All institutionalists see institutions as governing social interactions, or in North's terms, "by providing a structure to everyday life" (North, 1990). North (1990) went on to say that "institutions are the rules of the game in society or, more formally, are the humanly devised constraints that shape human interaction (…) in the jargon of the economist, institutions define and limit the set of choices of individuals. Institutional constraints include both what individuals are prohibited from doing and sometimes under what conditions some individuals are permitted to undertake certain activities", otherwise, "in the absence of constraints, we exist in a Hobbesian jungle and civilization is impossible" (North, 1990). For the new institutionalism, much more simply, institutions are formed to reduce uncertainty in human exchange.

Further, according to North (1990), there is a clear demarcation between the "institutional environment" and "institutional arrangements", and between "formal rules" and "informal constraints". For North (1990), the institutional environment or framework provides the "rules of the game" affecting and shaping behavior, while institutional arrangements include the "players of the game" or organizations—what Williamson calls "governance structures". "What must be clearly differentiated," North (1990) says, "are the rules from the players". "If the institutions are the rules of the game, organizations and their

entrepreneurs are the players. Organizations are made up of groups of individuals bound together by some common purpose to achieve certain objectives" (North, 1994). Thus, for North, the institutional framework represents the "constitutive rules" of the game where various organisations interact. Williamson (2000) appeals to this distinction and argues that the transaction costs economics is predominantly concerned with institutional arrangements, or governance structures.

There are, however, some major stumbling blocks in trying to sustain such a clear–cut distinction between the institutional environment and organizations. For one thing, the institutional environment of organizations includes other organizations, such as the state. Moreover, organizations themselves are made up of rules. Organizations and institutions are interlinked or vested within one another. They are not entirely separable species. Hodgson (2006) has argued that treating organizations simply as individual actors is problematic to the extent that organizations are defined as actors. If, however, it simply represents an abstraction from the internal relationships and mechanisms within organizations, he considers the treatment of organizations as individual players a legitimate analytical exercise. This abstraction, according to Hodgson, is legitimized by North's "primary interest in economic systems" and "on interactions at the national and other higher levels" (Hodgson, 2006).

Concerning the second demarcation, North (1994) exemplifies that "formal rules" are "(property) rules, laws, constitutions", and that "informal constraints" refer mainly to "norms of behavior, conventions, self–imposed codes of contact". This suggests that an alternative is to view the formal–informal distinction as similar to the distinction between explicit and tacit rules.

Hodgson (2006) has tried to clarify this distinction further through a comprehensive discussion of the different definitions and the problems involved in defining terms, such as rules (formal and informal), institutions, organizations conventions, habits, etc., and attempts to provide some tentative definitions himself. He defines institutions as "systems of established and embedded social rules that structure social interactions", and rules as "socially transmitted and customary normative injunctions or immanently normative dispositions, that in circumstance X do Y". Organizations, in turn, "are special institutions that involve a) criteria to establish their boundaries and distinguish their members from non–members, b) principles of sovereignty concerning who is in charge, and c) chains of command delineating responsibilities within an organization." Formal institutions are generally meant as institutions that are explicit, written or legal, whereas by informal institutions we generally mean non–formal, non–legal or inexplicit.

3 NEW INSTITUTIONAL VERSUS NEOCLASSICAL ECONOMICS

On the first page of his 1975 book *Markets and Hierarchies*, Williamson argues that the new institutional economics is based on the view "that received microtheory (…) operates at a too high level of abstraction", that "the study of 'transactions' (...) is really a core matter", and that "what they (i.e. new institutionalists are doing is complementary to, rather than a substitute for, conventional analysis".

One obvious idea delivered above is that the neoclassical theory is too abstract and does not encompass the reality and efficacy of transaction costs. The traditional microeconomic theory does not consider the set of activities that normally precede, accompany and follow market transactions and the associated transaction costs. Within the new institutional economics, the concept of transaction costs has become the center of Coase's and Williamson's analysis of the firm and is the basis of an approach to the theory of institutions and property rights linked mainly with the works of Alchian (1965), Demsetz (1967), Alchian and Demsetz (1973), and North (1981, 1990). Williamson (1985) argues that the neoclassical theory is similar to physics which studies a frictionless world, with friction being the analogue to transaction costs. By excluding transaction costs, the neoclassical theory also excludes institutions from its theoretical corpus. On the other hand, the inclusion of transaction costs in the theory makes it capable of dealing with institutions and reduces its level of "abstraction".[4]

However, the new institutional economics does not attempt to overturn or replace the neoclassical theory, but instead serves as "complementary to (…) the conventional analysis" (Williamson, 1975). The new institutional economics builds on, modifies and extends the neoclassical theory to permit it to come to grips and deal with institutions heretofore beyond its scope (North, 1995). In particular, the new institutional economics adds institutions as a critical constraint and analyses the role of transaction costs in the emergence and development of institutions and property rights. In this direction, the new institutionalists take a step away from the neoclassical economics by modifying the instrumental rationality assumption of the neoclassical theory through the adoption of Simon's (1961) concept of bounded rationality and Williamson's (1975, 1985) concept of opportunism. This is how Williamson (1975) delineates the principal differences between the neoclassical theory and his approach: "I expressly introduce the notion of opportunism and am interested in the ways that opportunistic behavior is influenced by economic organization and (…) I emphasize that it is not uncertainty or small numbers, individually and together, that occasion market failure but it is rather the *joining* of these factors with bounded rationality on the one hand and opportunism on the other that gives rise to exchange difficulties".

4 In his second book, Williamson (1985) concentrates on what he later on referred to as the "transaction cost economics", which, according to him, comprises "part of the new institutional economics".

Bounded rationality, for Simon (quoted in Williamson, 1985) denotes that "human behavior is *intendedly* rational but only *limitedly* so". Individuals are not omniscient and have real difficulties in processing information, in addition, they have restricted ability to handle data and formulate plans. Hence, Williamson (1975, 1985) assumes individuals to be only bounded rational, while North (1995) suggests that "the place to begin a theory of institutions (…) is with a modification of the instrumental rationality assumptions". Coase (1984), on the other hand, regards the assumption of "a (perfectly) rational utility maximizer" as both "unnecessary and misleading". Note that bounded rationality does not replace the assumption of instrumental rationality, but instead only relaxes the heroic assumption of perfect information. This means that being confronted with limited calculatory power, costly provision of information and a complex and uncertain world, the individual is not capable of acquiring perfect information, but nevertheless behaves in a rational manner, maximizing his/her utility.

Williamson (1985) defines opportunism as "self–interest seeking with a guile". What sets opportunism apart from the standard economic assumption of self–interest seeking behavior is the notion of guile, which includes individuals' inclination to "lying, stealing, cheating, and calculated efforts to mislead, distort, disguise, obfuscate, or otherwise confuse". The existence of such behavior is important because, while bounded rationality prevents the writing of complete contracts, opportunism raises the transaction costs of negotiating and enforcing a contract even further.

Thus, Furubotn and Richter (1998) conclude that the new institutional economics is an amalgam of a critique of the standard neoclassical economics based on the absence of transactions costs, and an apparent move towards greater realism through a shift to a more empirically relevant model. This is achieved primarily by mellowing the concept of a fully rational "economic man", acting with full knowledge and certainty, into a concept of a "boundedly rational" individual acting upon limited knowledge.

However, the new institutional economics does not break fundamentally from the neoclassical economics. To the contrary, the new institutional economics is a research program which is developed within and around the dominant neoclassical paradigm. Although new institutionalists start by acknowledging the deficiency of the neoclassical economics in recognizing the effect of positive transaction costs and the role of institutions in economic development, they end up erecting a theory that tries to accommodate institutions within a neoclassical framework. While new institutionalists feel uncomfortable with the theory that seems to ignore institutions, they restrict themselves to a neoclassical attempt to deal theoretically with the fact that institutions matter. Institutional arrangements in this view are the result of rational responses to changes in the underlying economic conditions on the basis of the efficiency criterion. Consequently, the framework is built on the orthodox microeconomic theory, using the marginalist analysis, general equilibrium theory and the principles of methodological individualism, individual self–interested rationality and economic efficiency.

More specifically, according to North (1995), the new institutionalist approach "begins with the scarcity and hence competition postulate, it views economics as a theory of choice subject to constraints, it employs price theory as an essential part of the analysis of institutions, and it sees changes in relative prices as a major force inducing change in institutions".[5] These are the basic ingredients of the marginalist choice–theoretic approach and the static equilibrium theory of price (Coase, 1988).

Thus, the new institutional economics retains the neoclassical principle of methodological individualism, always couching its explanations in terms of the goals, plans and actions of individuals, and proposes an instrumental view of the emergence and change of institutions, i.e. all institutions have been consciously created in order to reduce the transaction costs of economic exchange and production. The result is that "the foundation stones of the NIE (New Institutional Economics) are the same as those of the neoclassical economics: methodological individualism and individual rational choice given as a set of constraints" (Richter, 2005). Similarly, "... (T)he exponents of modern institutional economics apply the analytical apparatus of the neoclassical theory (and newer techniques) to explain the workings and evolution of institutional arrangements, and thus expand the scope and predictive power of microeconomics (Furubotn & Richter, 1998).

Using the Lakatosian (1970) terminology of "hard core" and "protective belt" as the essential parts of research programs,[6] Fine and Milonakis (2009) argue that the new institutional economics retains the "hard core" of the neoclassical economics, i.e. maximizing behavior, market equilibrium, and stable preferences. On the other hand, there is a modification in the "protective belt" in the form of information and transaction costs, making property rights indispensable for the analysis of economic organizations.[7]

To sum up, the new institutional economics is not a development away from the neoclassical theory. Rather, it is best viewed as a demonstration of the use of the neoclassical conceptual

5 From the central behavioral postulate of individualistic rational maximization, the new institutional economics constructs an (ahistorical) framework centered on the importance of relative prices. These are the main economic incentives to which individuals respond, and it is this rational response to prices that gives the approach its predictive potential. As North (1990, p. 84) puts it, "institutions change and fundamental changes in relative prices are the most important source of that change". It should be noted, however, that in addition to the role of relative prices, North (1981, 1990) recognizes the importance of ideology, culture and norms as crucial factors in the explanation of institutions. This suggests a form of eclecticism and allows North to avoid an overreliance on the rationality postulate of the neoclassical school. For a critique of North's theory see Milonakis and Fine (2007).

6 According to Lakatos (1970), a research program is an ensemble consisting of a hard core and a protective belt. The hard core is composed of the fundamental presuppositions of the program. It defines the program and its elements are treated as irrefutable by the program's practitioners. Hence, to participate in the program is to accept and be guided by the program's hard core.

7 Eggertsson (1990) also applies Lakatos' terminology to distinguish between a neoclassical–based "neo–institutional economics" based on optimising models, and the "new institutional economics" based on the idea of bounded rationality.

apparatus in explaining the emergence and evolution of institutions.[8] In this vein, the new institutional economics aims to fill a vacuum in the neoclassical theory without denouncing its theoretical basis, especially the model of (bounded) rational maximizing individuals, acting within given constraints (Furubotn & Richter, 1991). Thus, the analysis of institutions, as well as the impact of institutions on the behavior of economic actors are reduced to a cost–benefit calculation of (more or less) rationally acting individuals. Institutional arrangements are deliberately chosen by individuals on the basis of efficiency criteria. Hence, the emergence and evolution of institutions is viewed as the result of rational responses to changes in the underlying economic conditions. It can thus be suggested that the new institutional economics has grown mainly out of developments at the heart of the modern orthodox theory itself. As Simon (1991) remarks, "the new institutional economics is wholly compatible with and conservative of the neoclassical theory".

4 NEW VERSUS OLD INSTITUTIONAL ECONOMICS

The new institutional economics is contrasted with the "original" (or "old" or "American") institutional economics. The first explicit attempt to integrate institutions into economics can be found in Veblen's (1898, 1899, 1919, 1932) writings. He set out to turn economics into an evolutionary science and was highly critical of the static and mechanistic approach of the neoclassical economics.[9] Veblen is now widely acknowledged as the father of the "old institutional economics".[10] This tradition was influential in the USA in the 1920's and 30's headed by Veblen, Commons (1931, 1934), Mitchell (1913, 1914), and Ayres (1927, 1936, 1944).[11] Following this tradition, Galbraith (1952) uses the notion of power to explain the evolution of large firms in advanced economies. It was then seriously weakened and has slowly begun a recovery from the 1960's onwards when the Association for Evolutionary Economics was founded as a platform. The first attempt to revive the Old Institutional Economics was made by Grunchy (1987), however, Hodgson (1998, 1999a, 1999b, 2001, 2004) has been a prominent figure in the recent revival of the old institutional economics, mainly in the tradition of Veblen.

Old institutionalism rejects the mechanistic notion of individual agents as utility–maximizing in the pursuit of given preferences. To the contrary, it does not take the

8 For this reason, Fine and Milonakis (2009) describe the new institutional economics as being part of the process of the "economics imperialism", by extending the concepts of the neoclassical economics beyond its traditionally conceived "economic" spheres.

9 For an extensive overview of institutional economics see Hodgson (2004a).

10 The term "old" does not imply that the tradition is dead, dying or old–fashioned. It is used here simply to denote a demarcation line from the new institutional economics.

11 The rise to prominence of the institutional economics in the USA during the interwar period was the result of two weaknesses: first, of new microeconomics, which was professionally not strong enough to stand on its own feet, and second, of the failure of Marxism to get a hold on this part of the world as much as it had in various parts of Europe, thus leaving ground for a heterodox and critical school, such as institutionalism, to flourish (Milonakis & Fine, 2009; Hodgson, 1994; Fine & Milonakis, 2009).

individual as given in the orthodox version of the "economic man". For Veblen (1919), this is the basis for a fundamental critique of the mainstream economics which he describes as "the wants and desires, the end and the aim, the ways and the means, the amplitude and drift of the individual's conduct are functions of an institutional variable that is of a highly complex and wholly unstable character". The economy (and the market) is viewed by institutionalists as an open and dynamic system, affected by technological changes and embedded in a structural context comprising of social, cultural, political and power relationships. Old institutionalism emphasizes the importance of institutions in the economy and attempts to understand their role and their evolution. In doing so, it develops a theory of institutions and of human behavior by combining and developing methodological and analytical tools from psychology, sociology and anthropology (Hodgson, 2000).

New institutionalists do not see their work as a continuation of the endeavors of old institutionalists, but as a distinct effort to apply economic approaches to institutions.[12] As Coase (1984, p. 230) characteristically argues, "the phrase, 'the new institutional economics' was coined by Oliver Williamson. It was intended to differentiate the subject from the 'old institutional economics'. John R.Commons, Wesley Mitchell, and those associated with them were men of great intellectual stature, but they were anti–theoretical, and without a theory to bind together their collection of facts, they had very little that they were able to pass on". Williamson (1996), arguing in similar vein, points out that "where they differ is that older style institutional economics was content with description, whereas newer style institutional economics holds that institutions are susceptible to analysis".

Furubotn and Richter (1998) describe the division of the two approaches as follows: "At first glance, it might seem that exponents of the new institutional economics would show some interest in the work of the old institutionalists (…). Such concern with past work, however, is not found in the attitudes of neoinstitutionalists. While there may be some exceptions to the rule, most neoinstitutionalist scholars have been at pains to disassociate themselves from the central ideas put forward by the old institutionalists. What gave the original NIE advocates such confidence that they could disregard the older work on institutions was the belief that the standard neoclassical analysis could be readily *generalized or 'extended' to treat institutional problems*". In other words, as already mentioned, new institutionalists analyze institutions within the framework of the neoclassical economics, given the assumption of self–interest seeking individuals, attempting to maximize an objective function subject to constraints. In this light, institutions are incorporated as an additional constraint under the new institutionalist framework. As Langlois (1986) puts it, "the problem with many of the early institutionalists is that they wanted an economics with institutions but without

12 On the other hand, in the old institutional camp, one encounters voices calling for dialogue and reconciliation with the new institutional economics. For instance, Rutherford (1994) suggests that "(…) the OIE (Old Institutional Economics) and NIE (New Institutional Economics) could speak to each other to a much greater extent than is commonly recognized, and that there could be significant gains from such a conversation, particularly if the similarity of the problems being faced and the areas of complementarity that exist were to be the focus of the discourse".

theory; the problem with many neo–classicists is that they want economic theory without institutions; what the New Institutional Economics tries to do is provide an economics with both theory *and* institutions".

In short, the main differences between old and new institutionalists rest on the methodological and analytical grounds.[13] Old institutional economics underlines the role of habits, norms, culture and institutions in directing human behavior, without totally discarding rationality in individual behavior which is, however, constrained by the social and economic environment. On the other hand, the point of departure of new institutional economics is the individual itself. In the new institutional analysis, institutions are derived from an individual action, through interaction among individuals, hence remaining faithful to the neoclassical theoretical premises. As Hodgson (1993a) puts it, "the individual, along with his or her assumed behavioral characteristics, is taken as the elemental building block in the theory of the social or economic system (…) it is thus possible to distinguish the new institutionalism from the 'old' by means of this criterion". In this vein, new institutionalists use basically the deductive method as does the neoclassical economics. Their point of departure is always the individual together with some behavioral assumptions from which they go on to build a theory of institutions, property rights, the state, and so on.

Although both approaches recognize the role of institutions and agree that institutions matter, they nevertheless have distinct conceptualizations of institutions. As already mentioned (section 3), for new institutionalism, institutions are viewed as an additional constraint on human behavior, based on the standard neoclassical maximization subject to the constraints principle. According to Veblen's (1919) definition, however, institutions are "settled habits of thought common to the generality of men". Ayres (1962), on the other hand, underlines the role of culture in shaping institutions, while Commons (1990) proposes his definition of institutions as "collective action in control, liberation, and expansion of individual action". Thus, within the old institutional economics, institutions are viewed first and foremost on social and collective entities without, however, totally neglecting the role of individual action, as Commons underlined, while emphasizsing collective processes. On the other hand, the coordination of different individuals is explained not simply through reference to institutional structure, but also through the agent–level properties of shared habits (Spong, 2019).

The new institutionalist perspective on institutions has been developed on the basis of the transaction costs theory, where institutions are explained in terms of themaximizing behavior of individual agents, as outcomes of a conscious design. Institutional arrangements, in this view, are deliberately chosen by individuals on the grounds of their efficiency properties, and the basic source of institutional change is the substantial and persistent changes in relative prices. Hence, the emergence and change of institutions is viewed as the result of rational responses to changes in the underlying economic conditions.

13 On old institutionalism and its relation to new institutional economics see Langlois (1986), Rutherford (1994) and Hodgson (2004a).

In this way, the dynamics of the emergence and evolution of institutions are traced back to the cost–benefit calculations of rationally acting individuals. Generally speaking, new institutionalists adopt, explicitly or implicitly, a contractarian approach, explaining institutions as the intentional product of free and voluntary exchange. Contracts reflect the rules produced by social actors to facilitate the achievement of socially beneficial outcomes. The key point is that the resulting institutions are the product of voluntary agreement. Individuals create these institutions because they can benefit more than they would in their absence. The underlying motivation of institutional formation is individual utility and the concomitant pursuit of self–interest and, as such, the new institutionalist approach is heavily based on the principle of methodological individualism.

On the other hand, old institutional economics is based chiefly on the Veblenian evolutionary approach drawing upon the Darwinian analogy in biology.[14] Economics, Veblen (1898) argues, should focus on explaining evolution and change, rather than remaining stuck to a static equilibrium framework. Veblen, then, utilizes a Darwinian analogy in economics, arguing that institutional evolution is a process governed by natural selection. In his classic book, *The Theory of Leisure Class*, Veblen (1994) states in typical Darwinian fashion that "the life of man in society, just as the life of other species, is a struggle for existence, and therefore it is a process of selective adaptation. The evolution of social structure has been a process of natural selection of institutions". In this vein, institutions are seen as the unintended result of individual actions, and institutional evolution proceeds according to a logic paralleling the logic of biological evolution. Hence, institutions are not explained by recourse to some economizing mechanism, such as the new institutionalist transaction cost minimization mechanism.[15] On the contrary, more contemporary ideas search the basis for the evolution of institutions in the evolution and competition of ideas in the public sphere (Markey–Towler, 2019).

Given their methodological and analytical differences, it becomes apparent that the old and new institutional economics constitute two distinct approaches to the analysis of

14 Veblen was the first to use the biological metaphor in economics. In recent years, a growing number of economists stress the importance of the biological evolutionary metaphor in explaining social and economic phenomena. As a result, forms of evolutionary theory with reference to evolutionary arguments stemming from biology have acquired great prominence within economics. See Hirshleifer (1977), Nelson & Winter (1982), Witt (1993), Vanberg (1994), Vromen (1995), and Hodgson (1999a, 2004) for such attempts.

15 There are some instances of evolutionary arguments within new institutional economics, as in the work of Alchian (1950). Alchian attempts to incorporate the biological evolutionary perspective and the natural selection argument in the theory of firm. He proposes a view that the market economy, through its competitive process, is a system of selection that selects those agents whose mode of activities fit the environment. Specifically, those firms which fit well into the environment are more likely to earn positive profits, and earn, therefore survive. On the other hand, those firms which do not fit into the environment are more likely to make losses, and can therefore be removed from the economy. Consequently, the existing population of firms consists of those whose mode of activities fits with the environment. Similarly, although in less explicit fashion, Williamson (1985) seems to make reference to competitive pressures of selection and to evolutionary explanations of the organization of firms. However, evolutionary arguments within new institutional economics are quite rare and not very influential. On the other hand, Hodgson (2011) provides a concise history of evolutionary economics stressing the different approaches existing within the Old Institutional Economics.

institutions, stemming from different paradigmatic viewpoints that produce and nurture contrasting perspectives on how to theoretically tackle institutions.

5 IN PLACE OF CONCLUSIONS

Built on the premises of marginalism, methodological individualism and micro–rationality, the new institutional theory provides an analytical framework that fails to incorporate in a comprehensive manner any reference to social structures and relations, power and conflict. As such, this theoretical framework does not sufficiently take into account the dynamic historical evolution, removing in this way history from economic theorizing. New institutional economics tries to establish universal laws based on human nature, irrespective of place and time, and, as a result, portrays individuals as asocial self–interested creatures, as embodied in the 'homo economicus' postulate. Thus, the emergence and evolution of institutions, as well as the impact of institutions on the behavior of economic actors, is causally associated with the cost–benefit calculations of (more or less) rationally acting individuals. In this vein, any attempt to explain institutional formations suffers from the substantial problems that the new institutional economics has inherited from the asocial and static equilibrium approach of the neoclassical economics.

Both in society in general and in the scientific community, the advent of the New Institutional Economics and its focus on institutions have lead some scholars to argue for a possible reconciliation, for a potential convergence between the two paradigms, i.e. between the New and Old Institutional Economics. For instance, Pessali and Fernandez (1999) argue that Old Institutional Economics can and should build bridges with Williamson's Transaction Cost Economics research program. In similar vein, Hodgson (2004) views the development of North's thought from the neoclassical economic history of *The Rise of the Western World* to his current institutionalism as a steady–paced move from the preconception of orthodoxy. Thus, the suggestion is that the seemingly fundamental methodological and analytical differences between the New and Old Institutional Economics are not so fundamental after all. Rather the opposite. Since the New Institutional Economics, mainly by North, has already absorbed into its analysis many elements of the Old Institutional Economics, i.e. the notions of culture, habits, power and ideology, a "building bridges" perspective between the two paradigms is proposed. Although this idea seems viable, on the other hand, it may lead to a theoretical apparatus that could become somewhat of a paradise for the eclectic (Meramveliotakis, 2020).[16]

In order to avoid the potential problem of eclecticism, an alternative theoretical framework for the analysis of the origins and development of institutions in general, and of property rights in particular, shouldreturn to the basic questions, problems and conceptions of the

16 This was, for instance, Veblen's ultimate appraisal of the economics of Marshall, who tended to give great concessions as to the limits of the neoclassical economics, yet keeping it as a basic framework anyway.

classical political economy (Meramveliotakis, 2018).[17] In such a framework, the social should be taken as the point of departure in the form of social relations, structures, interests, power and conflict. One has to move beyond the one–sided solution to the problem of how social structures and actions are related, as offered by methodological individualism, towards a more dialectical mode of analysis of this relationship. Such a conception does not exclude human actors as subjects of history, but neither are they entirely free agents, able to shape their destiny irrespective of the existing structural conditions. In this vein, concerning the totality of society, individuals enter into social relationships that are partly independent of, and partly depended on, their will. Human history is guided by dialectical relationships of social structures and individual action. Reducing this complex dialectical relationship into a one–way process, as new institutionalists have done, will result in a reductionist conception according to which all social change is considered the result of individual action.

All institutions involve social structural properties and as such, an alternative theoretical framework must fully integrate the totality of social relations, including collectivities, such as classes. Thus, we have to move away from the new institutionalist conceptions of social relations formed exclusively at the level of individual exchange, and where classes are considered as mere aggregations of individuals, towards a deeper analysis of the structural elements of the societal whole as an essential starting point for a coherent theory of institutions. In this vein, the issues of power and power relations must become *sine qua non* conditions for a comprehensive analysis of institutional arrangements.

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17 In classical political economy, the notion of equilibrium is viewed as an endless evolutionary process in terms of production and reproduction of the capitalist system. In this context, the capitalist institutional framework is analyzed through an evolutionary–dynamic perspective. Despite its realism, the classical conception of equilibrium was gradually replaced by the neoclassical scarcity approach, according to which equilibrium is an end–static state, rather than a description of the way in which the institutional framework of capitalism organizes and reproduces itself.

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The Status Quo Bias of Students and Reframing as an Educational Intervention towards Entrepreneurial Thinking and Change Adoption

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ABSTRACT: *The purpose of this research study is to examine the status quo bias and reframing interventions among business students in an attempt to understand their role in the students' entrepreneurial decision making, aiming eventually to find out whether we can affect students' entrepreneurial thinking by using an educational intervention towards innovation and change adoption. Though these research topics have previously been examined separately and mostly in a non-entrepreneurial context, this research paper aims to integrate them into one laboratory experiment study in an educational context, considering business students at the university. The experimental study is conducted on a sample with more than 200 undergraduate university students in their third or fourth year of studies of the Management study program at the Ss. Cyril and Methodius University in Skopje. Overall, we find that students are significantly biased towards status quo in 7 out of 18 cases, demonstrating a moderate level of status quo bias. The results from the second part of our study evidence a strong effect of the reframing intervention on overcoming the status quo bias. In any case, the research paper adds a unique practical contribution by offering an actual entrepreneurship learning approach, as an intervention towards the innovation and change adoption among students at business schools and universities.*

Key words: *status quo bias, reframing, entrepreneurship, decision making, students, learning, innovation, change adoption*

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1 INTRODUCTION

The existence of specific entrepreneurial cognition has been pointed out as what differentiates entrepreneurs from other individuals. In understanding entrepreneurs as individuals who discover or create an opportunity, it is expected that their cognition would be less prone to the status quo cognitive bias–the tendency to repeat a previous choice overly often (Burmeister and Schade, 2007).

Sticking to the status quo bias might seem reasonable for decisions where economic consequences are not much differentiated between the options. Nevertheless, entrepreneurs should try to put effort into unsticking the status quo bias when changes in competition, demand, new product technology, or product innovations are concerned (Burmeister and Schade, 2007). Status quo also affects the search processes of individuals and firms as the core of the models of innovations by leading them to search less than would be optimal (Samuelson and Zeckhauser, 1988). Regarding the common inertia in disinvestment and exit decisions as an important realm of entrepreneurial decision making, managerial and policy implications depend on whether it is an economically rational form of waiting or waiting as a bias at the core of these decisions (Sandri et al., 2010).

The status quo bias has received attention from economic psychology, marketing, and public health literature. Samuelson and Zeckhauser (1988) were the first economists to apply an experimental setup to test students for the status quo bias, while the study of Burmeister and Schade (2007) is a pioneering one in the entrepreneurship literature since it investigates the status quo bias among entrepreneurs (Burmeister and Schade, 2007). Unlike the overconfidence bias, which is extensively investigated in entrepreneurial decision-making research, the status quo bias is among the several cognitive biases which have received only limited attention in empirical entrepreneurship studies (Cossette, 2014). In this direction, little work has been done to examine the status quo bias among (innovative) entrepreneurs (Dyer et al. 2008). Although research on the status quo bias in entrepreneurial context is limited, it provides a challenge for entrepreneurship research, which is increasingly focused on studying the components, determinants, and results of the entrepreneurial cognition (Shepherd and Patzelt, 2018).

Despite the limited attention of status quo bias in the empirical entrepreneurship studies (Burmeister and Schade, 2007; Cossette, 2014; Dyer et al. 2008; Shepherd and Patzelt, 2018), also little work has been done to examine the status quo bias among student at business school and universities. Among the few research efforts in this field (Burmeister and Schade, 2007; Marin, 2017), students have been more treated as a group for comparison with real entrepreneurs than as a subject of primary research interest. In addition, the literature in this field is limited, without theoretical rationale about status quo bias among students, particularly those at business schools and universities, with educational interest focused on entrepreneurship programs as a very potential pool of future entrepreneurs. What we know very little of is whether their cognition is prone to the status quo cognitive

bias, or whether they are susceptible to a cognitive bias that is inherent to innovative thinking and change adoption.

Two questions arise from this discussion, the first 'Can we affect their mindset with educational interventions towards entrepreneurial thinking and change adoption?', and the second 'How can we encourage innovation orientation behaviour?'. Research shows that cognitive biases, which may be barriers towards transformation, can be reframed through strategic interventions. Framing and reframing are related to choice architecture, which refers to the practice of influencing choice by changing the manner in which options are presented to people (Samson, 2018). Martin (2017) makes a novel contribution in designing/testing a new frame for systematic resistance, presenting that same frame of the status quo as the losing prospect. Within the mentioned frame, the perceived loss is in the choice not to change, while loss aversion proves to be an effective tool for facilitating systematic change.

The purpose of this research study is to examine the status quo bias and reframing interventions among business students in an attempt to understand their role in the students' entrepreneurial decision making, aiming eventually to find out whether we can affect entrepreneurial thinking by using educational intervention towards innovation and change adoption. Though these research topics have been previously examined separately and mostly in a non-entrepreneurial context, this research paper aims to integrate them into one laboratory experiment study in an educational context, considering business students at university. This gives us an additional opportunity to get some insights, whether the entrepreneurial mindset of business students can be affected by using the reframing interventions in designing educational programs and teaching activities and methods. The research paper adds a unique practical contribution by providing an actual entrepreneurship learning approach as an intervention towards the innovation and change adoption at business schools and universities.

2 LITERATURE REVIEW

Theoretical rationale

Judgment and decision making are well-established topics of interest in many fields, including management, psychology, sociology, and political science, primarily focusing on understanding how individuals make decisions under conditions of uncertainty (Shepherd et al., 2015). Focusing on decision making in conditions of uncertainty, this issue is of great importance to entrepreneurship researchers who study how, when, where, and by whom opportunities to bring future goods and services into existence are discovered, evaluated, and exploited under uncertainty (Shane & Venkataraman, 2000).

The existence of a specific entrepreneurial cognition has been pointed out as what differentiates entrepreneurs from other individuals. Entrepreneurial cognition

encompasses all the cognitive aspects which play a potential role in the entrepreneurial process, from the opportunity identification and the entry decision to complex decisions and unexpected problems, which entrepreneurs face running the business (Baron and Ward, 2004). Mitchell et al. (2002) have defined the cognitive aspects more systematically and divided them into three groups: arrangement cognitions—mental frameworks concerning the resources, relationships, and assets needed to engage in entrepreneurial activity; willingness cognitions—mental frameworks that support commitment to starting a new venture; and ability cognitions—mental frameworks concerning the skills, knowledge, and capacities needed to create a new venture.

Contrary to the rational information processes, decision making is often strongly affected by errors and biases that can lead to faulty decisions (Baron and Ward, 2004). While cognitive biases refer to the systematic deviation from rationality or norms in judgment and decision making (Zhang and Cueto 2015) or mental processes that involve erroneous inferences and assumptions", heuristics are the rule-of-thumb decision-making processes that ignore part of the information. (Forbes, 2005).

Zhang and Cueto (2017) organize biases in three types based on the mechanisms by which they depart from normative models. The status quo bias is categorized as a sketchy-attribute type of bias, which describes the behaviours of attending to one attribute when other attributes are more relevant. This type of bias is evident when people prefer things to stay the same by doing nothing or by sticking with a decision previously made, deciding for a status quo option disproportionately often (Samuelson and Zeckhauser, 1988). Instead of considering all available information in the decision-making process, people tend to rely on what they have chosen before, what represents the current state, or even what someone else has chosen for them, the consequence of which is the status quo (Burmeister and Schade, 2007).

Generally, status quo bias is consistent with loss aversion and could be psychologically explained by previously made commitments and sunk cost thinking, cognitive dissonance, the need to feel in control and regret avoidance (Samson, 2016). The latter is based on Kahneman and Tversky's observation that people feel greater regret about bad outcomes that result from new actions taken than about bad consequences that are the consequence of inaction (Kahneman & Tversky, 1982). This may happen even when only small transition costs are involved and the importance of the decision is great. Kahneman et al. (1991) point at the status quo bias as an implication of loss aversion, since the disadvantages of leaving the status quo loom larger than its advantages. Literature suggests there are rational and non-rational routes to status quo maintenance (Eidelman and Crandall, 2012). Rational routes include no change in preference or the choice set, transaction costs, the superiority of status quo to other alternatives, cognitive limitations (status quo alternatives often need less mental effort to maintain), and informational limitations (decision outcomes and the utility they might bring are rarely certain). Non-rational routes include loss aversion and regret avoidance, mere exposure, rationalization, the existence bias, and 'longer is better'.

The research on bias is gaining relevance in entrepreneurship research, providing an empirically testable perspective on decision making in entrepreneurship (Zhang and Cueto 2015). Research in the field of entrepreneurial cognition suggests that entrepreneurs are not resistant to errors and different forms of bias, such as overconfidence bias (an unrealistically high belief in the accuracy of one's judgments) or illusion of control (unjustified belief in the capacity to influence one's outcomes) (Baron and Ward, 2004).

A significant number of studies have found that entrepreneurs are more biased in their decision making than non-entrepreneurs. In this direction, entrepreneurs tend to evaluate business situations more optimistically, overestimate their ability to make correct predictions as they overgeneralize based on the limited information they have at hand, focus more on their own competencies while neglecting the competitive environment, select previously chosen alternatives disproportionally more often (i.e. status quo bias), and expand their firms despite negative market feedback (Shepherd et al., 2015). This can be due to various factors including, but not limited to, high uncertainty, information overload, velocity, lack of historical information and organizational routines, as well as time pressure.

Besides the cognitive heuristics and biases, research on decision making is also concerned with the concept of framing. When making quick decisions based on limited information, we subconsciously evaluate each option within a frame of reference. This frame is focused on a reference point that acts as an inferred measuring stick against which each prospect, or option, is evaluated (Kahneman and Tversky, 1979 in Martin, 2017). People underweight outcomes which are probable, versus certain outcomes. This behaviour leads to being risk-averse when choices involve sure gains, and risk-seeking when choices involve sure losses (Kahneman and Tversky 1979, in Barbosa and Fayolle, 2007). Framing is also understood as the way of presenting a choice or a situation–it can be framed in positive or negative terms. Different types of framing include risky choice framing (e.g. the risk of losing 10 out of 100 lives versus the opportunity to save 90 out of 100 lives), attribute framing (e.g. beef that is described as 95% lean versus 5% fat), and goal framing (e.g. motivating people by offering a $5 reward versus imposing a $5 penalty) (Levin, Schneider and Gaeth, 1998 in Samson, 2018). Effortful thought, however, can eliminate the framing bias (Hodgkinson et al., 1999). Zhang and Cueto (2017) categorize framing effects for gains/losses as a "psycho-physics" type of bias, related to individuals' sensitivity, which usually diminishes as intensity increases. The "psycho-physics" type of bias is considered particularly relevant for entrepreneurship, but within the so far literature, it has only been on the margins of entrepreneurship research.

Conceptual Development

When understanding entrepreneurs as individuals who discover or create an opportunity, it is expected that their cognition is less prone to the status quo cognitive bias–the tendency to repeat a previous choice overly often. Given the frequency with which innovative

entrepreneurs indicated a desire to change the world relative to managers, they should have been less susceptible to the status quo bias. They seemed to be actively engaged in information search, looking for opportunities to change the status quo (Dyer et al., 2008). Entrepreneurs are often associated with the Schumpeterian innovator, demonstrating openness to new options, and are hence expected to be less status quo biased than others (Burmeister and Schade, 2007).

Investigating the status quo bias among entrepreneurs, Burmeister and Schade (2007) found that entrepreneurs are not more status quo biased than students, but are less influenced by this bias than bankers. Participants in this study were exposed to both business and consumer scenarios, and the results showed that the status quo bias was stronger in the consumer than business scenarios. Another study somewhat related to challenging the status quo bias found that innovative Canadian law firm founders were more likely to challenge the ethicality of prevailing legal practices than imitative firm founders (Cliff et al., 2006). The results from the study of Dyer et al. (2008) also provide support for the assumption that innovative entrepreneurs are more likely than managers to engage in questioning, observing, experimenting, and idea networking behaviours, challenging the current state and status quo thinking.

Besides the limited attention on the status quo bias in empirical entrepreneurship studies (Burmeister and Schade, 2007; Cossette, 2014; Dyer et al., 2008; Shepherd and Patzelt, 2018), also little work has been done to examine the status quo bias among the student population. Among the few research attempts in this field (Burmeister and Schade, 2007; Matin, 2017), students have been treated rather as a group used for comparison with real entrepreneurs than as a subject of primary research interest. What we know very little of is whether their cognition is prone to the status quo bias that after all inherits the innovation thinking and changes adoption.

In the first part of the experiment study, we measure the strength of the status quo bias in business students' decisions, by using the experimental design of Burmeister and Schade (2007).

The research question that arises from this part of the study is as follows:

RQ1: Are business students status quo biased?

Research shows that cognitive biases, which may be barriers towards transformation, can be reframed through strategic interventions. In this vein, Martin (2017) tests framing interventions designed to harness cognitive biases through choice architecture. This author makes a novel contribution in designing/testing a new frame for systematic resistance and to change that frame of the status quo as the losing prospect. In this frame, the perceived loss is in the choice not to change, and loss aversion proves to be an effective tool for

facilitating systematic change. Martin (2017) conducted two studies related to a telework context: quasi-experiments with senior business students and field experiments with senior decision makers. The findings of these studies are that although cognitive biases can hinder change management efforts, innovation adoption or transformation strategies, they can be reframed through strategic interventions.

In the second part of the paper, following Martin's (2017) experimental design, we test the interventions of reframing designed to prevent the status quo bias among business students.

The research question that stems from this part of the study is as follows:

RQ2: Can the reframing interventions be applied as an educational tool to deal with the status quo biases of business students?

According to the methodology and experiment design of Martin (2017), our research puts forward the following hypotheses:

H1: Stating traditional work as status quo will affect more respondents to choose the non-adoption option for telework compared to a control group that has no additional information.

H2: If an explicitly stated status quo is telework, more respondents will choose the adoption option than the control group that has no additional information.

H3: If telework is presented as familiar and/or similar to traditional work, more respondents will choose the adoption option than the control group that has no additional information.

3 METHODOLOGY

Sample

The quasi-experimental study was conducted in laboratory conditions on a sample with more than 200 undergraduate university students in their third or fourth year of studies of the Management study program at the Ss. Cyril and Methodius University in Skopje. These were the students that followed subjects related to entrepreneurship, which is what made them suitable as the subject of our primary research interest, as well as a very large pool of potential entrepreneurs. However, for the reasons of relying on a quasi-experimental design, we could not randomly assign participants to the treatment and comparison conditions. Consequently, we could not control for fundamental initial differences

between the two groups. Further, following the experimental design of Burmeister and Schade (2007) and Martin (2017), the participating students were not asked about their demographic background or any other individual characteristics.

Experimental design

Within the first part of the experiment, we follow Burmeister and Schade (2007), which is based on the work of Samuelson and Zeckhauser (1988). The status quo bias is investigated in three decision scenarios (determining the margin in a tender offer, purchasing an MP3 player, and buying business software). Different respondents across all groups of individuals face different versions of the scenarios. Within each scenario, the individuals have to choose from three options. Across the treatment groups of the decision scenario, a particular option occupies three possible positions: as a neutral option (NEUT), as the status quo option (SQ), and as an alternative to the status quo option (ASQ). The basic features of each scenario are kept identical across all treatments. After randomly receiving a neutral or one of the other treatments, each individual makes one choice per scenario. No individual deals with different treatments from the same scenario. It is expected that the percentage response rate is highest when the specific option is in the SQ position, lower in the NEUT position, and lowest in the ASQ position (Samuelson and Zeckhauser, 1988; Burmeister and Schade, 2007). Hence, the research hypothesis is as follows: certain option is selected more frequently if it is the status quo. An example of one of the status quo treatments can be found below for the tender offer scenario:

An international research centre has presented the contract for setting up its technical equipment for tender. As an entrepreneur, you would like to take part in the tendering procedure. Therefore, you would like to hand in an offer. The committee responsible for awarding the contracts will favour the company with the most attractive offer. Completing the order (if you get it) will cost your company EUR 100,000. You are aware that there are numerous competitors who will hand in offers for this same project. From your experiences with other tendering procedures, you can derive probabilities for you to be awarded the contract. ***In former offers, you always calculated a margin of 15% above your cost. Which offer will you make?***

- *You submit a proposal at a price of EUR 115,000. The chances that you will be awarded the contract are around 70%.*
- *You submit a proposal at a price of EUR 120,000. The chances that you will be awarded the contract are around 60%.*
- *You submit a proposal at a price of EUR 125,000. The chances that you will be awarded the contract are around 50%.*

Within the second part of the experiment, we follow the procedure as proposed in the experimental study of Martin (2017). The independent variable is related to **changing the frame of reference** (explicitly stated referent material: traditional work as a status quo; telework as a status quo; and telework similar to traditional work), and the dependent variable is related to the adoption of new business concepts. The hypotheses refer that a change in the frame of reference of the new business concept proposition would show an effect on the adoption rates of the new business concept. The groups of respondents in the second part of the experiment are exposed to differently framed new business concept presentations and asked to make an immediate decision, indicating whether they would adopt a new business concept. Each presentation is based on a case vignette describing a hypothetical role and situation. This vignette prompts participants to imagine themselves as organizational decision makers, considering the adoption of a new business concept.

The script for the traditional work as a status quo is as follows: *A telework program involves the substitution of communication technology for work-related travel. Although your company does not offer any telework programs, you are considering it for your department. Your department will be different from the other departments as your employees will work 1-2 days a week at the central office and work remotely outside the main office for the rest of the week. Unlike other managers in your company, if you adopt a telework program, it is recommended that you personally model teleworking and work away from the central office at least three days per week. Other managers in your company typically work at the central office five days per week.*

The script for the telework as a status quo is as follows: *A telework program involves the substitution of communication technology for work-related travel. Your company has offered telework programs for years in many departments. If you choose to become one of the many teleworking departments, your employees will work 1-2 days a week at the central office and remotely outside the main office for the rest of the week. As is the standard practice in your company, if you adopt a telework program, it is recommended that you personally model teleworking behaviour by working away from the central office at least three days per week. The other managers in your company also telework, on average, three days per week.*

4 RESULTS

Analysis of the Status Quo Bias

To examine the status quo bias, we compare the respondents' choices for each given option between the treatment groups: the status quo treatment group (SQ) and the neutral treatment group (NEUT), as well as between the status quo treatment group (SQ) and the alternative to status quo treatment group (ASQ). Samuelson and Zeckhauser (1988) have only used the second comparison, whilst Burmeister and Schade (2007) have extended the analysis with both comparisons.

Table 1 *Relative frequencies and the Chi-squared statistics*

Scenario	Options	Treatment group			Chi square statistics	
		NEUT	SQ	ASQ	p-level SQ-NEUT	p-level SQ-ASQ
Tender	115.000	20/50=0.40	41/66=0.62	44/101=0.43	**0.08**	**0.02**
	120.000	22/50=0.44	25/53=0.43	29/114=0.25	0.95	**0.03**
	125.000	8/50=0.16	15/48=0.31	15/119=0.13	0.03	**<0.01**
MP3 player	Panasonic	28/48=0.58	34/57=0.60	52/112=0.46	0.97	**0.10**
	Phillips	9/48=0.19	19/59=0.32	23/110=0.21	**0.07**	0.17
	iRiver	11//480.23	14/53=0.26	27/116=0.23	0.42	0.87
Software	Software A	46/70=0.66	24/45=0.53	74/104=0.71	0.12	**0.02**
	Software B	22/70=0.31	11/51=0.22	35/98=0.36	**<0.01**	**0.04**
	Software C	2/70=0.03	2/53=0.04	3/96=0.03	0.91	0.87

Significant p-levels ($p < 0.10$) and directions in accordance with the status quo bias are indicated by using bold fonts.

Table l presents selected responses to the questions for the three scenarios. The first three columns show the percentage response rate for each option in each of the three treatment groups: the neutral (NEUT), status quo (SQ), and alternative to status quo (ASQ). The fraction represents the number of respondents choosing the specific option from among the total number of respondents in the specific treatment group. For example, 40% of the respondents chose the option "EUR 115,000" in the tender when it is the neutral option (NEUT), 62% of the respondents when it is the status quo option (SQ), and 43% of the respondents when it is alternative to the status quo option (ASQ).

Firstly, in the analysis, we search for the status quo bias by comparing the percentage response rates within each scenario for each option between the different treatment groups. It is expected that the percentage response rate is highest when the specific option is in the SQ position, lower in the NEUT position, and lowest in the ASQ position (Samuelson & Zeckhauser, 1988; Burmeister & Schade, 2007). For example, the percentage response rate for the option "EUR 125,000" is highest when this option is in the SQ position (31%), lower in the NEUT position (16%), and lowest in the ASQ position (13%).

Secondly, we carry out a chi-square test to examine the statistically significant differences between the SQ and NEUT response rates, as well as between the SQ and ASQ response rates. The researched hypothesis is that a certain option is selected more frequently if it is the status quo. For example, we find that despite the percentage, the response rate for the option "Panasonic" is higher when this option is in the SQ position (60%) than if in the NEUT position (58%) where the difference is not statistically significant ($N=105$, $\chi 2 =0.029$, $df=2$, $p=0.986$, $\varphi=0.017$). However, when we compare the percentage response rate when the option "Panasonic" is in the SQ position (60%) with it when in the ASQ position

(46%), the difference becomes significant (N=201, $\chi 2$ =4.502, df=2, p=0.10, φ=0.150). The p-values for this test are listed in the last two columns of Table 1.

Entirely, we find that students are significantly biased towards the status quo in 7 out of 18 cases. If we compare our results with those of the research of Burmeister and Schade (2007), also conducted within the student sample where a significant level of status quo biased was found in 10 out of 18 cases, we find the students within our research to be moderately status quo biased.

Analysis of the Reframing Intervention

To examine the status quo bias and the effect of reframing, we compare the responses of respondents between three treatment groups: the control (neutral) group versus traditional work as status quo position group (SQ-traditional work), control group versus telework as status quo position group (SQ-telework), and the control group versus familiarity/ similarity bias (Martin, 2017).

Table 2 *Relative frequencies and significance levels of the Chi-squared statistics*

Scenario	Decision	Control/ Neutral	SQ Traditional Work	Reframing		p-level Control-Traditional	p-level Control-Telework	p-level Control-Similarity
				SQ Telework	Familiarity/ Similarity			
Telework	**Adoption**	29/44=0.66	32/48=0.67	32/39=0.82	34/41=0.83	0.94	**0.09**	**0.07**
	No adoption	15/44=0.34	16/48=0.33	7/39=0.18	7/41=0.17			

Significant p-levels ($p < 0.05$) and directions in accordance with the reframing effect are indicated by using bold fonts.

Firstly, we examine the status quo bias by comparing the responses of the participants between the control (neutral) group and traditional work as a status quo position (SQ-traditional). Practically, we examine the H1 assuming that stating traditional work as status quo will affect more respondents to choose the non-adoption option for telework, compared to the control group that has no additional information.

According to Table 2, the control group has a non-adoption rate of 34%, while traditional work as a status quo group has a non-adoption rate of 33%. Hence, the status quo bias has no effect, resulting in a decrease in the non-adoption option by 1 percentage point. However, in order to test whether the two treatment groups are statistically different, the chi-square analysis is carried out. The outcome is no found statistically significant difference between the control group and the traditional work as status quo group (N=92, $\chi 2$ =0.069, df=1, p=0.939, φ=-0.008). Consequently, the H1 hypothesis is not accepted.

Secondly, we shift the referent point to the telework work as a status quo position and compare the responses of the participants between the control group and the telework work as status quo group (SQ-telework). The H2 hypothesis is examined, assuming that if an explicitly stated status quo is telework, more respondents will choose adoption than the control group that has no additional information. Table 2 shows that there is a clear shift in preference, where 82% of respondents select the adoption option, unlike the 66% of respondents within the control group, indicating on the contrary an increased preference for the adoption option by 16 percentage points. To test if there is a statistically significant difference between these two treatment groups, we carry out the chi-square analysis. In this case, the chi-square statistics indicated a statistically significant difference ($N=83$, $\chi 2 = 2.765$, $df=1$, $p=0.09$, $\varphi=-0.183$), thus confirming the H2 hypothesis as accepted.

Finally, we examine the effect of reframing as a tool for unsticking the status quo and resistance to change, by comparing the responses of respondents between the control group and familiarity/similarity to the traditional work group. In this case, we examine the H3 hypothesis, assuming that if telework is presented as familiar and/or similar to traditional work, more respondents will choose the adoption option than the control group that has no additional information.

Table 2 shows that once again, there is a clear shift in preferences very similar to those when telework work is the status quo position. The adoption rate of this treatment group is 83%, indicating an increase of 17 percentage points in telework adoption ($N=85$, $\chi 2 = 3.204$, $df=1$, $p=0.07$, $\varphi=-0.194$). Thus, the H3 hypothesis is accepted.

5 DISCUSSION

In the first phase of the experiment study, we measured the strength of the status quo bias in the students' decisions, finding the students within our research to be moderately status quo biased.

One possible perspective to interpreting our findings is the *effects of experience*. According to Shepherd et al.'s (2003) study, an experience can have two opposite effects on the status quo bias. The first effect assumes that people acquire knowledge as a result of repeated decision making in their professions and develop specific expertise that may lead to more systematic decision making. According to the other effect of experience, "thoughts may tend to become increasingly channelled by their past experience" (Shepherd et al., 2003). This means that individuals tend to repeat the same decisions because they face identical decision settings in their regular daily activities. This could imply that the more experienced individuals should be more affected by the status quo.

When status quo bias is examined in a standard setup, as in our study that follows the methodology of Samuelson and Zeckhauser (1988), and Burmeister and Schade (2007), knowledge and systematic decision making do not play an important role in decision

making, however, decisions do reflect the preferences of the respondents. Hence, past experiences should lead to an increased susceptibility to the status quo bias.

In our study, it is interesting that the students are more status quo biased in the two business scenarios where they do not have any or have insignificant job experience, unlike in the consumer scenario (the case with MP3 players which is related to the most possible field of interest and experience of students) where they are less affected by the status quo bias. Consequently, our findings do not support the assumption that 'past experiences should lead to an increased susceptibility to the status quo bias', nevertheless. Hence this finding could be related to the first effect of experience where specific knowledge could lead to more systematic decision making and less status quo biased behaviour.

In addition, we can analyse the possible effects and explanations of the status quo, from the perspective of rational decision making in the presence of *transition costs and/or uncertainty*. The effect of "thoughts channelled by the past experience" could probably be explained and evidenced in independent and identical decision settings. In such circumstances, rationality leads decision makers to make identical choices. But what happens when the sequential decisions are not independent, i.e. the individual's initial decisions affect the subsequent decisions as a result of transition costs. According to Samuelson and Zeckhauser (1988), "transition costs introduce a status quo bias whenever the cost of switching exceeds the efficiency gain associated with a superior alternative." Besides the effect of switching costs, according to psychological commitment, individual choices can also be affected by sunk costs (retrospective costs). The decision makers may be motivated to stick to previous choices in order to either reduce the losses or justify previous decisions by making subsequent commitments (Brockner et al, 1982).

In our study, this presence of possible transaction, as well as sunk costs, can be related to choosing the software scenario. However, the results do not show the presence of the status quo bias, and the transaction or sunk costs do not seem to be any factor in decision making. Even more, the status quo option is the least selected answer in all three treatment groups, i.e. the students prefer switching to new software, different from the current one. This could be a consequence of how this scenario is formulated, where it is clearly stated that "the company is currently using an older version of software package X (this is the status quo option), which does not comply with the present requirements anymore", which explicitly implies the decision that results in selecting the other software package.

The phenomenon of 'loss aversion', as well as regret avoidance could also be the reason for the status quo bias. Kahneman and Tversky (1984) have evidenced that people weigh losses heavier than gains in making decisions. Practically, as a result of the effect of loss aversion, the decision maker is more biased in favour of the status quo. Also, there are situations where individuals find themselves in the position of regretting the outcomes of their previous decisions, which can lead to avoidance of regrettable consequences possibly related to new decisions.

In our results, loss aversion appears to be the factor in the scenario where students need to determine the profit margin in a tender offer. The students demonstrate the highest level of the status quo bias particularly in this scenario (in five out of six cases), most probably because they weigh losses heavier when changing the status quo margin and thus risk losing the tender, instead of the possible gains if they change the offer and win the tender. This result can also be related to the phenomenon of the physiological commitment of regret avoidance.

The self-perception theory suggests that people are likely to rely on their past decisions as a guide to their present and future choices. People perceive that if some choice was good for them in the past, then it should as well as be good for them now. Practically, this is the way people explain to themselves the status quo decision. This theory should explain the decision making of the students in the scenario where they are deciding on buying a new MP3 player between three popular brands, where one of the options is their previous choice. The results show that the students stick to their previous choice with two of the brands, which confirms the rule of this theory: "If it was good enough for me then, it is (must be) good enough for me now." It is also important that the results from this scenario show the presence of the status quo bias even when there are no explicit gain/loss framing effects. Furthermore, it should be noted that in this specific scenario, the effect of brand recognition can play a substantial role in predicting the choice of decision makers as customers with their own brand preferences.

The results from the second part of our study have evidenced a strong effect of the reframing intervention on overcoming the status quo bias. Namely, the results approve the effect of the reframed status quo condition on adoption preferences. In both treatment groups (telework is status quo and telework is similar to status quo), there is a statistically significant increase in adoption. These changes in preferences are practically caused by changing the way telework is presented. According to the phenomenon of 'loss aversion', losses are heavier evaluated than gains in decision-making processes, and thus the decision makers are more biased in favour of the status quo (Kahneman and Tversky, 1984). Hence, if we present the telework as a status quo or as similar to the status quo position, we then reduce the uncertainty as a barrier for choosing the telework as a new option. Simply put, it can be very effective if we frame change so that the current way of doing things is perceived as less optimal than the new alternative (Martin, 2017).

The practitioners who attempt to introduce changes in their organizations should consider the role of the status quo as a facilitator or barrier. Incorporating strategic frames of reference within communications strategies can be a powerful instrument in shifting preference and resistance to change Martin (2017). It is also noted that, although these findings are related to the telework context, there is potential to apply this strategic instrument to other contexts of change management, innovation adoption, and transformation strategy.

6 CONCLUSION

This paper aims at discovering whether business students, as prospect entrepreneurs, can be considered status quo biased, which is contrary to the main Schumpeterian perspective of the entrepreneur who is always challenging the status quo. It could be argued that scholars are setting their focus on behavioural intention rather than the actual behaviour. Still, there is strong support that intent transcends into behaviour. Hence, students who are interested in courses related to starting a business are viable in their intention to engage or start their business venture, but still this study has no capability of predicting how many students will emerge into actual entrepreneurs. However, our research does provide a solid base for evaluating entrepreneurial educational interventions among business students. We are well aware of the potential limitation of our research and foresee a future, more longitudinal research as the next step towards acquiring a better understanding of some of the mentioned issues. Aiming at contributing in this direction, this paper has integrated two different approaches not only diagnosing but potentially offering a number of solutions in overcoming these biases where necessary.

The results make various indications. Hence, responses proposed by the participating students pursuing potentially a career in business in either their own or in the existing company suggest a moderate level of the status quo bias (i.e. in 7 out of 18). This is an overall result and should be considered consciously. In this sense, the argument that 'past experiences should lead to an increased susceptibility to the status quo bias' cannot be confirmed in our current research. Results lean more towards the first effect experience where specific knowledge can lead to a more systematic decision making and a less status quo biased behaviour. Consequently, the outcomes provided do not confirm the presence of the status quo bias precisely, and what is more, the transaction or sunk costs do not seem to be a factor in decision making.

On the other hand, *loss aversion* appears to be a factor in some of the scenarios related to the tender offer. What is more, students demonstrate the highest level of the status quo bias particularly in this scenario (in five out of six cases), probably because they weigh losses heavier if they change the status quo margin and thus risk losing the tender, instead of acquiring the possible gains if they change the offer and win the tender. This result can also be related to the phenomenon of the psychological commitment to regret avoidance.

Related to the aspects of the self-perception theory, results indicate that students stick to their previous choice which confirms the rule of this theory, namely "If it was good enough for me then, it is (must be) good enough for me now." It is also important that the results from this scenario imply the presence of the status quo bias, even when there are no explicit gain/loss framing effects.

The second part of the study proves the actual effect of the reframed status quo condition on adoption preferences. In both treatment groups, namely telework is status quo and

telework is similar to the status quo, there was a statistically significant increase in adoption. These changes in preferences are practically caused by changing the way telework is presented. Hence, if we present the telework as a status quo or as similar to the status quo position, we then reduce the uncertainty as a barrier for choosing the telework as a new option. Simply put, it can be very effective if we frame change, setting it in a manner so that doing things is perceived as less optimal than the new alternative. This provides solid bases for considering the benefits of using framing interventions for mitigating the potential downsides of status quo biases at an entrepreneurial level.

In the past two decades, major research and discussions have emerged related to education, where in this line there are many distinguished significant variables influencing the learner development. Apart from the extensive number of programs related to entrepreneurship education available at universities, the introduction of various subject courses in secondary education, and the different non-formal types of training, there is an ongoing discussion whether and under which circumstances this type of education contributes to students or even to entrepreneurial thinking. Hence, understanding how education can systematically contribute towards building a mindset of potential entrepreneurs is our main starting point in the role of researchers and educators. The process of decision making is vital in an entrepreneurial career, starting with the decision to "get started" and consequently ending with many other decisions. In this perspective, combining the reframing interventions with entrepreneurial decision making opens up a new field for understanding entrepreneurial thinking. Linking all these aspects could trigger more coherent processes and approaches in entrepreneurial education, thus bringing us one step closer to the answer of whether entrepreneurs could be made or at least inspired to get involved.

Limitations and future research

Our work opens up new perspectives for understanding entrepreneurs and entrepreneurial education, raising questions for further research. There are only a few papers contributing to the discussion related to entrepreneurship and biases, especially the status quo bias. This fact could be subject to more complex discussions, whereas research would definitely benefit more from more longitudinal studies which monitor the outcomes. In addition, including a more diversified sample would potentially raise the option for introducing control groups as well, which could offer a more profound understanding of the entrepreneurial cognition and behaviour. As mentioned, a longitudinal study is probably more complex but at the same time a more efficient approach to providing firstly, better information on whether students might engage in actual entrepreneurial behaviour, and secondly, whether potentially the educational process could be altered in this direction.

As concerns future research attempts, it could be proposed to actually consider the impact of some of the most commonly known framing interventions based on effective frames. The extensions related to this research would have to include wider perspectives of reframing considerations in an entrepreneurial setting. Also, in this respect, in order to

use proper reframe approaches, we would have to carefully evaluate further the frame of reference, i.e. in order to discover the actual causes of the cognitive bias.

The aim of understanding entrepreneurs is to create a setting and an educational outline of favouring entrepreneurs. Finally, the perspective of understanding entrepreneurial learning can on one hand offer a base for investigating new types of moderators influencing entrepreneurial education, which would on the other hand open new considerations for the viability of different approaches regarding teaching. All these should be driven towards finding new grounds in entrepreneurial education, and followed by amended and improved curricula.

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KNOWLEDGE MANAGEMENT IN SOCIAL WORK: MANAGEMENT SUPPORT, INCENTIVES, KNOWLEDGE IMPLEMENTATION, AND EMPLOYEE EMPOWERMENT*

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ABSTRACT: *In this article, we build on the current research about knowledge management in social work settings to demonstrate that knowledge management has the potential to enable social work organizations to influence public policies and improve the quality of their services. By increasing awareness and information about knowledge management in the field of social work, our goal is to examine a direct positive relationship between management support and incentives and knowledge implementation. In addition, as we wanted to explore the moderating effect of employee empowerment on knowledge implementation, we define and test several hypotheses in order to discover how management support, incentives and employee empowerment impact knowledge implementation in social work settings. We use moderation regression to test our hypotheses with a sample of 98 managers and employees of social work organizations in Slovenia who completed a questionnaire specifically prepared for the study. The study results support the existence of a significant and positive relationship between management support and incentives with knowledge implementation. Employee empowerment also acts as a moderator in the relationship between incentives and knowledge implementation, however, the interaction term is negative. In any case, the highest levels of knowledge implementation occur when employee empowerment is high as well. In the conclusion of the paper, we discuss the theoretical and practical implications derived from the research study.*

Key words: *knowledge management, social work, management support, incentives, knowledge implementation, employee empowerment*

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1 INTRODUCTION

"*Knowledge and the way it is managed has been with humankind since the beginning of time*" (Jashapara, 2011). In today's knowledge economy, an organization's ability to manage knowledge effectively is becoming increasingly crucial (Dalkir, 2005). Nowadays, many public organizations orient themselves towards becoming truly knowledge-based organizations (Willem & Buelens, 2007). In this effort, the adaptation and implementation of knowledge management practices is considered beneficial (Špaček, 2016) in any type of an organization, whether private or public (Arora, 2011), and has the potential to play an important role in improving their operations (Wiig, 2002). Previous research has established four basic knowledge management process stages: (1) creating knowledge, (2) storing and retrieving knowledge, (3) transferring knowledge, and (4) implementing knowledge (Alavi & Leidner, 2001). More than simply increasing profit and competitive advantages, the benefits of knowledge management in social work organizations include adding value to services, as well as increasing wellbeing, societal effectiveness, and general welfare (Myers, 2014; Örtenblad & Koris, 2014). Management support (Yew Wong, 2005), incentives (Ajmal, Helo & Kekale, 2010), and employee empowerment (Akbari & Ghaffari, 2017) have been explored in the existing literature and have come to be recognized as the organizational factors that influence the success of knowledge implementation. The implementation phase is perhaps the most important part of the knowledge management process as it contributes the most to value creation (Haamann & Basten, 2019), and yet paradoxically it has received relatively little research attention (Alavi & Tiwana, 2002).

Therefore, we believe it is of crucial importance to develop a better understanding of knowledge management in general and knowledge implementation in the particular context of the public sector, including individual social work organizations. Effective knowledge management enables organizations to influence public policies through the more systematic and effective capture, dissemination, transfer, and implementation of knowledge (Riege & Lindsay, 2006), and consequently has the potential to improve the quality of social work services and programs (Ukil, 2016). Unfortunately, the most frequent discussions about knowledge management do not specifically address the social work sector (Leung, 2007). Moreover, there exists a certain scepticism in the social work sector regarding more "quantocentric" cultures and approaches (McCoyd et al., 2009), as well as a growing discontent among social work professionals that has occurred with the increased formalization of social work practices (Broadhurst et al., 2010). A further difficulty of implementing knowledge management in social work settings arises from the fact that social work organizations have a tendency to rely on the existing knowledge and practices, and are reluctant to embrace new solutions for managing and collecting data (Barrett, 1999). Consequently, what is needed for a successful implementation of knowledge management in the public sector is the development of a research area that has been largely unexplored (Špaček, 2016). Information and understanding about knowledge management in social work remains scarce (Austin et al., 2008; Leung, 2014). Not surprisingly, there is also a lack of substantive discussion about knowledge management in the existing social work literature (Edge, 2005).

Previous research has established the positive effects of management support (Yeh, Lai & Ho, 2006) and incentives (Yew Wong, 2005) on knowledge implementation. However, the combination of those constructs represents an innovation in the context of knowledge management practices in social work settings and therefore requires additional empirical research. It has also been established that employee empowerment has a positive effect on knowledge management practices (Hasan, 2012; Muhammad, 2006), nevertheless, the impact of employee empowerment as a moderator variable has not yet been studied in the context of knowledge implementation in the social work sector. Therefore, we focus our research on the examination of a direct positive relationship between management support and incentives and knowledge implementation. Moreover, we explore the moderation effect of employee empowerment on the relationship between management support and incentives and knowledge implementation. We test our hypotheses in the social work centers of Slovenia, conducting a quantitative analysis of the data collected from 98 social work managers and employees in the Slovenian social work centers. Since all of our data for these variables come from single respondents in a one-time survey, we recognize that the common method bias may influence certain relationships within our model and may therefore pose a methodological problem.

The primary goal of our study is to contribute to the underdeveloped literature about knowledge management in the public sector (Špaček, 2016) and especially in social work settings (Austin et al., 2008; Leung, 2014). The intent of our research is to partially fill this gap by providing a theoretical analysis followed by an empirical examination that links management support and incentives to knowledge implementation, and finally, an analysis of this relationship by considering the moderating mechanism of employee empowerment. In this way, we respond to certain shortfalls in the existing research and contribute to the theoretical advancement of the field (Al Ahbabi et al., 2019). In line with the knowledge-based organizational view (Grant, 1996; Hislop, Bosua & Helms, 2018; Kogut & Zander, 2003) that recognizes the important role of knowledge in organizations, our study assumes knowledge to be the primary source underlying the functioning of social work centers. This paradigm shift has already been recommended by several social work researchers (Edge, 2005; Fitch, 2006). The second goal of our research is to continue in the tradition of Kahn (1993) who began to explore how professional caregivers can organize in more effective ways, in particular, how they can share (or transfer) and implement knowledge in order to deliver higher-quality services. This new focus on knowledge management in social work settings is extremely promising as an area of exploration in the context of the broader public sector (Henttonen, Kianto & Ritala, 2016). Moreover, by focusing on social work organizations, our research goes beyond previous studies on knowledge management in the public sector which were typically conducted within the education and research sectors (Massaro, Dumay & Garlatti, 2015). The third goal of our research is to use a quantitative approach as a way to provide a new methodological framework. Most previous studies researching management topics in the social work sector tend to use exclusively qualitative approaches (Downes, 2014), mainly case studies. Our quantitative approach builds on Soydan's suggestion (2008) that since the scope of social work research is broad and multidisciplinary, it should include methodological diversity.

2 THEORY

2.1 Enhancing the implementation of knowledge management in the public sector

Knowledge management is a managerial activity that develops, transfers, stores, and implements knowledge. Moreover, it aims to equip employees with real time information so that they can react appropriately and make decisions that will allow them to successfully fulfil organizational goals (Hicks, Dattero & Galup, 2006). In recent years, knowledge and knowledge management have become increasingly important in the operation of public organizations (Willem & Buelens, 2007). Key factors that enable the implementation of knowledge management are organizational culture, leadership, management support, information-communication technologies, incentives, and performance measurement (Lee, Kim & Kim, 2012). In the context of the public sector and social work organizations, modifying organizational culture is considered especially important because it is the main driver for successful implementation of knowledge management in general (Riege & Lindsay, 2006). However, barriers that prevent successful implementation differ in the public and private sectors. The reduced ability to plan strategically (Ragsdell, 2013) resulting from regular political changes, the lack of operational maturity, and the constant battle between altruistic and organizational objectives (Hume & Hume, 2008) have been identified as barriers specific to the public sector and social work organizations.

As mentioned above, the four basic knowledge management process stages (knowledge creation, knowledge storage and retrieval, knowledge transfer, and knowledge implementation) have been clearly established in previous research (Alavi & Leidner, 2001; Hicks et al., 2006). Knowledge implementation is defined as the final stage of a knowledge seeker's quest to solve a problem (Bock, Kankanhalli & Sharma, 2006). More importantly, knowledge implementation is the stage that creates real value for the organization by making knowledge active and relevant (Downes, 2014). In other words, problems are only really solved if and when knowledge is applied in practice (Bierly, Damanpour & Santoro, 2009). The additional value of knowledge implementation also involves providing feedback information to organizations, feedback that can subsequently be used as a source for continual learning (Grah et al., 2016). It must be recognized that the mere existence of knowledge will not impact an organization's activities. Further, it is of paramount importance to actually use newly gained knowledge in daily practices and routines (Alavi & Leidner, 2001). Ranjbarfard et al. (2014) identify both the lack of management support and the lack of incentives as significant barriers impeding knowledge implementation. Because of this, we include in our research these two crucial organizational factors as predictors of knowledge implementation.

2.2 Management support and knowledge implementation

The first organizational factor identified above is management support that focuses on openly supporting and encouraging knowledge management (Downes, 2014). Management support can be perceived as the degree to which management understands the importance

of knowledge management and the extent to which it participates in its implementation and activities (Lin, 2011). In previous research, management support has been defined as both a facilitator (Lee et al., 2012) and a generic critical factor of success (Yew Wong, 2005) in knowledge management. The support and active involvement of managers can have a significant impact on the positive outcomes of knowledge management in organizations (Azmee, Kassim & Abdullah, 2017). Such support from top management should be ongoing and delivered in a practical manner (Storey & Barnett, 2000). The lack of management support for knowledge management in general can negatively impact the overall success of specific knowledge management initiatives (Akbari & Ghaffari, 2017).

It follows therefore that management support is one of the most important organizational components of knowledge management infrastructure and it is an essential factor for all knowledge management processes (Kulkarni, Ravindran & Freeze, 2007). As such, the knowledge management infrastructure, including management support, has the potential to improve knowledge implementation (Hoffman, Hoelscher & Sherif, 2005). In their study, Lee et al. (2012) predict and empirically support that management support positively affects knowledge process capabilities. One of the knowledge process capabilities they examine is the implementation of knowledge that also enables the realization of its practical values. In a similar vein, Kamhawi (2012) establishes and supports a positive relationship between management support and knowledge management activities. Yeh et al. (2006) also identify management support as an important factor that promotes knowledge implementation. Akbari and Ghaffari (2017) posit that the supportive behavior of management is of paramount importance in creating a workplace environment where employees are motivated to actually apply and implement their knowledge in their work. Although research on the relationship between management support and knowledge management does exist, these factors have not been pursued in combination in research studies on knowledge management in the social work setting. In light of the above, the following is our first hypothesis:

Hypothesis 1: Management support is positively related to knowledge implementation in social work.

2.3 Incentives and knowledge implementation

In addition to openly encouraging and supporting knowledge management, managers should also be aware of the need to recognize and reward contributions made by their employees (Downes, 2014). Because of this, our research also focuses on incentives and the impact they have on knowledge implementation. We especially focus on how incentives influence the amount of knowledge implemented in the practices of an organization. In general, incentives are regarded as a reflection of the worth an organization gives to their knowledge workers (Cabrera & Bonache, 1999). Both management support and incentives have already been established as organizational factors that have a positive impact on knowledge management (Svetlik, Stavrou-Costea & Lin, 2007). Ajmal et al. (2010) suggest

that incentives for knowledge efforts in general have the potential to positively influence the success of specific knowledge management initiatives.

In the opinion of Yew Wong (2005), establishing the right levels of recognition, incentives, and rewards is one of the most important factors that shifts employees in the direction of knowledge implementation. Employees must be motivated (Cho & Korte, 2014) and their participation rewarded (Paroutis & Al-Saleh, 2009) in order to encourage behaviors that are related to knowledge management. Organizations should provide additional support for employees to improve their ability in this area (Černe, Jaklič & Škerlavaj, 2013) and enable them to respond to challenges (Škerlavaj et al., 2007). Incentives are viewed as the most effective mechanism encouraging employee participation in such activities and clearly demonstrating that they are valued. Incentives also show employees that their actions are seen and recognized by the organization and its management (Razmerita, Kirchner & Nielsen, 2016). Ho (2009) similarly claims that incentives positively influence levels of knowledge implementation in organizations. As is clear from this discussion, previous research has examined the benefits derived from the relationship between incentives and knowledge implementation. However, this combination of constructs has not been explored in the context of knowledge management in social work settings. In light of the above, the following is our second hypothesis:

Hypothesis 2: Incentives are positively related to knowledge implementation in social work.

2.4 Moderating role of employee empowerment

Employee empowerment is an integral part of the successful functioning of organizations (Hunjra et al., 2011). It is considered an effective motivational tool that will influence the behavior and outcomes of individuals by facilitating their participation and involvement in decision-making processes (Meyerson & Dewenttinck, 2012). Bowen and Lawler (1992) developed one of the most globally recognized conceptualizations of employee empowerment. The latter defines employee empowerment as a multifaceted approach to service delivery in which managers share with their employees the following key organizational components: (1) information about the organization's performance, (2) rewards based on the organization's performance, (3) knowledge that allows employees to understand and contribute to organizational performance, and (4) the power to make decisions that influence organizational direction and performance. Their conceptualization follows that organizations with the goal of implementing knowledge-based management should invest in employee empowerment strategies (Akbari & Ghaffari, 2017).

Today employee empowerment is considered an important research topic and has gained significant attention in the context of studies on knowledge management (Akbari & Ghaffari, 2017). Employee empowerment occurs and can be analyzed on many different levels and affects employees differently in different contexts (Amichai-Hamburger, 2008). The study of moderator effects has a long and important history in many different research

areas (Aiken & West, 1991), including management studies. Contemporary researchers have become increasingly interested in examining the complex relationships between variables, including moderating effects (Fassot, Henseler & Coelho, 2016). Dawson (2014) defines a number of statistical models that include moderation effects as one of the most important factors in management and organizational literature.

Previous research supports the proposal that empowerment plays a significant part in influencing knowledge management practices (Hasan, 2012; Muhammad, 2006). It is also important to recognize that employees take into account their expectations and evaluate their experiences in relation to their empowerment. For this reason, it is important to develop clear empowerment-related expectations. In the case of under-fulfilled and/or unclear empowerment-related expectations, employees might become confused about their role in decision making. This can lead to poor judgement in their work activities (Wong & Kuvaas, 2018) and can also hinder their perception of competence mobilization (Wong, Škerlavaj & Černe, 2017). To sum up, how employees evaluate the utilization of their competence is less dependent on the actual level of autonomy and more dependent on their expectations (Wong et al., 2017).

Management can enhance employee empowerment by modifying organizational structures that support empowerment (Leitch et al., 1995). Any significant increase in employee empowerment requires management support (Yukl & Becker, 2006). Akbari and Ghaffari (2017) propose a significant and positive relationship between management support and employee empowerment. They conducted one of the few applied studies that aimed to fill the gap between knowledge management and employee empowerment, and established the relationship between knowledge management initiatives and employee empowerment. Using a theoretical approach, Ahmed, Rafiq, and Saad (2003) discovered that employee empowerment had a strong connection to management and that management support is integral to its successful implementation. To the contrary, the failure of organizations to implement successful empowerment practices is often caused by the lack of management support (Cunningham & Hyman, 1999).

Similarly, the idea that employee empowerment endorses knowledge implementation has emerged in many different research fields (Wall, Cordery & Clegg, 2002). Moreover, employee empowerment represents the potential structure within which knowledge can actually be implemented in practice (Blumberg & Pringle, 1982). Ahmadi et al. (2012) suggest and empirically support that there is a direct relationship between employee empowerment and knowledge implementation. Significant relationships between dimensions of knowledge management, including knowledge implementation, are also reported in the research of Hasani and Sheikhesmaeili (2016). Empowered employees perceive that they have the power to deal with complex situations, events, and various users by drawing on the knowledge and skills they possess (Conger & Kanungo, 1988). In conclusion, when employees feel empowered, they tend to be more committed to using their knowledge for the general good of the entire organization (Chong & Choi, 2005).

Nevertheless, research thus far has failed to provide a comprehensive understanding of how employee empowerment influences the relationship between management support and knowledge implementation in the context of knowledge management in social work settings. Previous research focusing on knowledge management has neglected the interaction effect of employee empowerment and management support. It should be noted, however, that while employee empowerment, management support, and knowledge implementation have been considered extensively in the existing literature, these concepts and the relationships and interaction effects require further conceptual development. In light of the above, the following is our third hypothesis:

H3: *Employee empowerment moderates the positive relationship between management support and knowledge implementation: specifically, the positive relationship becomes stronger when levels of employee empowerment are high.*

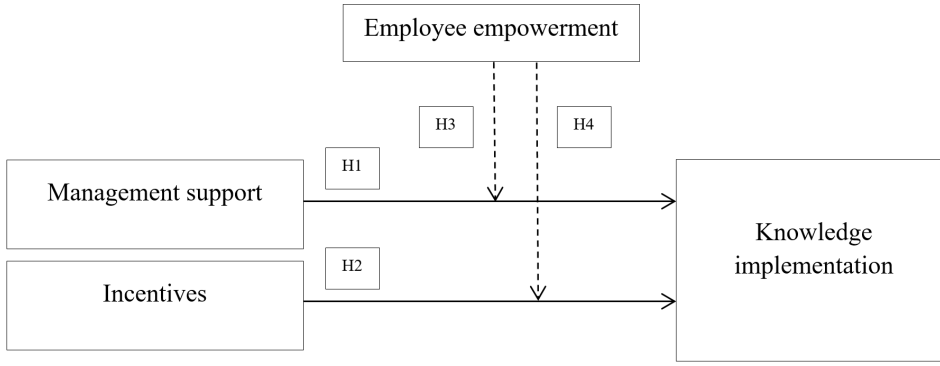
Previous research indicates that to implement employee empowerment within an organization, management must provide appropriate incentives that are linked to the desired employee behavior. In other words, it is necessary for management to link employee behavior to incentives, possibly in the form of financial benefits or promotion opportunities that will encourage further empowerment within the organization. Empirical research also supports the finding that incentives are positively related to the extent of employee empowerment in an organization (Baird & Wang, 2010). In addition, the provision of incentives is crucial in the context of empowerment, as employee empowerment increases risk and responsibility for individual employees and raises the demands for them to perform (Goldsmith et al., 1997). Recognition and financial incentives are positively correlated to enhancing employee empowerment (Gkorezis & Petridou, 2008). According to Spreitzer (1995), incentives are an essential factor in the work context determining employees' feelings of empowerment.

Following this argument, we identify another potential research opportunity. Namely, there is a shortage in the existing literature of models that combine various streams of research including knowledge management and social work as well as different methods and tools that include moderator variables. Combining these streams could lead to a more in-depth understanding of relationships between the constructs of employee empowerment, incentives, and knowledge implementation. Although employee empowerment, incentives, and the knowledge implementation have been extensively covered individually in the literature, the combination of these concepts has not been fully explored. Understanding the interaction effect between empowerment and incentives, as well as the relationships between these constructs requires additional research. In light of the above, we propose the following hypothesis:

H4: *Employee empowerment moderates the positive relationship between incentives and knowledge implementation in such a way that the positive relationship is stronger with high levels of employee empowerment*.

Our conceptual model with hypotheses is presented in Figure 1.

Figure 1: *Conceptual model of the relationships between management support, incentives, knowledge implementation and employee empowerment*



3 METHODOLOGY

3.1 Sample and data collection procedure

We used an adapted online and in-person questionnaire to collect primary data from respondents in the period from May 2018 to January 2019. The questionnaires were filled out by 98 managers and employees in Slovenian social work centers that employ approximately 1,250 people (Ministry of Labor, Family, Social Affairs and Equal Opportunities, 2018). The Slovenian government maintains a network of social work centers, giving them the central role for coordinating social protection and the delivery of welfare services (Kuzmanič Korva et al., 2004). Social work centers are the institutions on the national level that introduce measures and deliver services for basic social security and protection. For our sample, the Social Chamber of Slovenia provided us with the e-mail contacts of employees and we later established personal contacts with individual respondents. The Social Chamber of Slovenia invited all of the employees for whom they had e-mail contacts to participate in our research and we later contacted additional individuals through personal contacts.

The largest share of respondents work in organizations with 26 to 50 employees (33.3%) or in organizations with 50 or more employees (33.3%). The next largest share of respondents work in organizations with 11 to 25 employees (29.2%). The largest share of respondents (more than 40.0% of the total age structure) belongs to the age cohort from 40 to 49 years old. Two-thirds of respondents (71.3%) are aged from 30 to 49 years. Of the 98 respondents, 80.2% are women, 11.5% are men, and 8.3% of respondents did not provide their gender. The high proportion of female respondents is consistent with McPhail's observation (2004) that social work is predominantly a female profession. In accordance

with the decree on the introduction and use of the classification system of education and training in Slovenia, more than half of our respondents (64.5%) had successfully acquired level 7 in the Slovenian education system. 15.7% of respondents had acquired level 6/2 in the education system and 10.5% level 8/1. Almost four-fifths of respondents (78.7%) have been employed in their organizations for at least six years, over half of the respondents (58.5%) have been employed in their organizations for at least 11 years, and 24.5% of the respondents have been employed in their organizations for at least 21 years.

To avoid non-response bias, we developed personal relationships with many of the individuals employed in social work centers and sent them several reminders to respond to our questionnaire. Because the data for all our model variables came from individual respondents in a one-time survey, the common method bias might have influenced certain relationships in our model. To test for the potential existence of common method bias, we first applied Harman's single factor test (1976). The first factor accounted for 82.3% of the overall variance, which is above the 50.0% threshold recommended by Podsakoff et al. (2006) and suggests that the common method bias is indeed an issue in this study. However, as Harman's single factor test has a number of limitations (Kemery & Dunlap, 1986), we also adopted the common latent factor (Liang et al., 2007) and marker variable approach (Lindell & Whitney, 2001). [3]Both approaches can be used to indicate the presence of common method bias in a study (Podsakoff et al., 2003). The entire questionnaire was filled out by 98 respondents. Our response rate was 7.9%. We edited the data in the SPSS 24.0 program.

3.2 Measures

For individual constructs, we selected the measurement instruments that are used in the scientific environment. (1) We used well-established measurement instruments that have been developed and/or used by key authors of the studied topics. (2) We used frequently-used measurement instruments that are often cited in scientific papers. (3) We used up-to-date and relevant measurement instruments that have been used in the latest research. We used the five-point Likert scale ranging from 1 (I completely disagree) to 5 (I completely agree) to assess the respondents' level of agreement with the statements about what level of management support, incentives, employee empowerment, and knowledge implementation are present in their organizations.

3 For the marker variable, we chose a construct that is theoretically dissimilar to the principle constructs used in our study: namely, our marker variable is organizational infrastructure. The marker variables correlations with our principle constructs are as follows: marker and management support -.469; marker and incentives -.830; marker and knowledge implementation -.857, and; marker and employee empowerment -.177. High correlations among items of the study's principle constructs and the marker variable are an indication of the common method bias issue.

Management support. We used the three item scale (α = .79) that Downes (2014) adapted from the already existing literature to measure management support.[4] The questionnaire includes statements such as: "My organization has a designated manager for administering knowledge management processes."

Incentives. We used the five item scale (α = .90) that Marsick and Watkins (2003) developed to measure how much incentives were used in the respondents' organizations. The questionnaire includes statements such as: "My organization rewards employees for new ideas."

Knowledge implementation. We used the five-item scale (α = .90) that Downes (2014) adapted from the already existing literature to measure knowledge implementation in respondents' organizations.[5] The questionnaire includes statements such as: "My organization has mechanisms for converting knowledge into action plans," and "My organization uses lessons learned or best practices from projects or tasks to improve subsequent projects or tasks."

Employee empowerment. We used the six-item scale (α = .87) derived from one of the best-known conceptualizations of employee empowerment developed by Bowen and Lawler (1992) to measure employee empowerment in respondents' organizations. We used this instrument to focus on the extent to which managers share information about the organization's performance. This is the information that enables employees to understand and contribute to organizational performance, and endows them with the power to make decisions that influence organizational direction and performance and to give rewards based on the organization's performance. The questionnaire includes statements such as: "My organization has information in a form that is readily accessible to employees," and "In my organization managers regularly involve staff in decision-making."

Control variables. We controlled for the following five variables: size of organization, age of respondent, gender of respondent, highest level of education, and average tenure in the respondents' organizations. We used these control variables because their inclusion or exclusion can have important consequences on the substance of research conclusions (Bernerth & Aguinis, 2016). Organization size as a control variable may affect the ability of an organization to implement knowledge (Aragon-Correa, Garcia-Morales & Cordon-Pozzo, 2007). The age (Radaelli et al., 2011), gender (Feingold, 1994) and highest level of education (Srivastava, Bartol & Locke, 2006) of respondents are included as control variables because they may have a significant influence on the overall level of knowledge implementation in an organization. The average tenure of respondents in their organizations was used as a control variable in research related to knowledge management conducted by Jain and Moreno (2015).

4 Debowski (2006), Fahey & Prusak (1998), Marsick & Watkins (2003), Riege (2005).

5 Fahey & Prusak (1998), Lawson (2003), Marsick & Watkins (2003).

3.3 Methods

We analyzed our data and the interaction effects using hierarchical linear regression in the SPSS 24.0 program. We also applied the confirmatory factor analysis (CFA), using the lavaan version 0.6-3 (Rosseel, 2012) of the programming environment R – version 3.5.2 (R Core Team, 2018) with the R studio interface. The purpose of applying CFA was to make the designed model sufficiently fit the data. We checked convergent validity by examining the factor loadings of all items in the questionnaire, and verifying that they were statistically significant and above the 0.50 threshold (Hair et al., 1998). The CFA analysis indicated that the factor loadings of all four constructs were statistically significant and above the 0.50 threshold. This further supported the convergent validity of our constructs. The standardized loadings for management support were within the range of .63 to .76. The standardized loadings for incentives were within the range of .73 to .79. The standardized loadings for knowledge implementation were within the range of .75 to .91. The standardized loadings for employee empowerment were within the range of .60 to .87. As a result, no items in the questionnaire (measurement variables) were excluded from further analysis in the iterative process of purifying the scale. In our model, the 19 items in the questionnaire were used to measure the four constructs.

We also calculated the composite reliability index (CRI) and the average variance extracted (AVE) to test for composite (construct) reliability (Fornell & Larcker, 1981). There is no universally accepted standard for appropriate values of CRI, but we decided to follow the suggestion of Diamantopoulos and Siguaw (2000) that researchers should be satisfied with results above the 0.60 threshold.[6] We similarly followed the suggestion of Diamantopoulos and Siguaw (2000) regarding a cut-off value for AVE of 0.40.[7] All of our constructs fell within the suggested CRI and AVE cut-off values found in the literature. A number of fit indices exist for the purposes of evaluating model fit (Škerlavaj, Song & Lee, 2010). The results of CFA (expected four factor solution) achieved the following results: CFI = 0.90; chi-square = 294.013; RMSEA = 0.12; df = 125.[8] The CFI indicator displayed a good fit with the data while the RMSEA indicator was below acceptable values.

6 CRI for our constructs is as follows: Management support 0.75, Incentives 0.88, Knowledge implementation 0.91 and Employee empowerment 0.90.

7 AVE four constructs is as follows: Management support 0.50, Incentives 0.60, Knowledge Implementation 0.68, Employee Empowerment 0.61.

8 Within construct items (i.e. items corresponding to the knowledge implementation scale with other items pertaining to the same scale), residuals were allowed to correlate. Without those modification indices, the results of the model fit are: CFI = 0.82; chi-square = 442.181; RMSEA = 0.15; df = 146.

4 RESULTS

4.1 Descriptive statistics

Table 1 presents descriptive statistics for all variables analyzed in the research study. We can see from the results in Table 1 that the respondents on average give the best evaluation to employee empowerment (2.98), closely followed by their evaluation of knowledge implementation and incentives (2.84 and 2.83). The lowest mean value is assigned to management support (2.63). Correlation coefficients between the measured variables are mostly moderately or strongly positive with ranges between 0.2 and 0.6. There is a significant positive correlation between incentives and management support (.71; $p < 0.01$) and between incentives and highest level of education (.24; $p < 0.05$) that additionally explains the correlations. Knowledge implementation showed a significant positive correlation with management support (.80; $p < 0.01$) and incentives (.84; $p < 0.01$). Employee empowerment showed a significant positive correlation with management support (.66; $p < 0.01$), incentives (.84; $p < 0.01$), knowledge implementation (.80; $p < 0.01$), and the highest level of education of respondents (.21; $p < 0.05$). Employee empowerment showed a significant negative correlation with organization size (-.25; $p < 0.05$). Among the control variables, average tenure is significantly and positively correlated to age (.45; $p < 0.01$).

Table 1: *Mean Values, Standard Deviations and Correlations*

Variable	Mean	SD	1	2	3	4	5	6	7	8	9
1. Organization size	3.96	0.89	-								
2. Age	3.98	0.91	-.15	-							
3. Gender	1.97	0.45	-.11	-.08	-						
4. Highest level of education	3.80	0.78	.05	-.01	-.02	-					
5. Average tenure	3.98	1.78	-.02	.45**	-.04	-.07	-				
6. Management support	2.63	1.07	-.14	.03	-.15	.11	-.07	(.79)			
7. Incentives	2.83	1.02	-.14	-.03	-.13	.24*	-.14	.71**	(.90)		
8. Knowledge implementation	2.84	0.97	.19	.00	-.12	.16	-.12	.80**	.84**	(.90)	
9. Employee empowerment	2.98	0.91	-.25*	.11	-.12	.21*	-.06	.66**	.84**	.80**	(.87)

Note: n = 98 managers and employees employed in Slovenian social work centers. Reliability indicators (Cronbach's alphas) are on the diagonal in the parentheses. *$p < 0.05$ **$p < 0.01$

4.2 Hypotheses testing

In our research paper, we test the direct relationship between management support and incentives with knowledge implementation in the social work sector, as articulated in hypotheses H1 and H2. We also include the construct of employee empowerment as a moderating mechanism, as articulated in hypotheses H3 and H4. We use a series of hierarchical regression analysis with centered variables to test our hypotheses. In the first regression model (Model 1), we include five control variables with management support as the independent variable. In the second regression model (Model 2), we include the same five control variables with incentives as the independent variable. In the third model (Model 3), we enter a two-way interaction (management support X employee empowerment). Similarly, in the fourth model (Model 4), we enter a two-way interaction (incentives X employee empowerment). The results of all four models are presented in Table 2.

Table 2: *Hierarchical regression analysis predicting knowledge implementation – Models 1-4*[8a]

Variables	Model 1				Model 2				Model 3				Model 4			
	b	s.e.	ß	t	b	s.e.	ß	t	b	s.e.	ß	t	b	s.e.	ß	t
Organization size	-0.01	0.06	-0.01	-0.15	-0.03	0.07	-0.03	-0.42	-0.01	0.06	-0.01	-0.21	-0.04	0.07	-0.03	-0.54
Age	-0.05	0.07	-0.05	-0.74	-0.01	0.07	-0.01	-0.17	-0.06	0.07	-0.05	-0.83	-0.02	0.07	-0.02	-0.23
Gender	0.01	0.12	0.01	0.11	-0.02	0.13	-0.01	-0.12	0.01	0.12	0.01	0.10	-0.04	0.13	-0.02	-0.30
Highest level of education	0.01	0.07	0.01	0.11	-0.05	0.08	-0.04	-0.71	0.01	0.07	0.01	0.16	-0.06	0.07	-0.05	-0.82
Average tenure	-0.02	0.03	-0.04	-0.62	-0.01	0.04	-0.02	-0.30	-0.02	0.03	-0.04	-0.59	-0.01	0.04	-0.02	-0.32
C_Management support	0.43	0.07	0.48	6.55**					0.45	0.07	0.49	6.38**				
C_Incentives					0.56	0.11	0.59	5.22**					0.56	0.11	0.58	5.31**
C_Employee empowerment	0.52	0.08	0.48	6.33**	0.33	0.12	0.31	2.67**	0.50	0.09	0.46	5.68**	0.33	0.12	0.30	2.73**
C_MSxC_EE									-0.04	0.06	-0.04	-0.72				
C_INCxC_EE													-0.14	0.06	-0.13	-2.31*
R^2	0.767				0.737				0.769				0.754			
F(df)	37.70(80)				30.39(76)				32.85(79)				28.79(75)			
ΔR^2	0.767				0.737				0.002				0.017			

*p < 0.05
**p < 0.01

8a As gender is not a dichotomous variable, we also rerun a regression analysis without this control variable and achieve the following results:
Model1: R^2: 0.767 F(df): 44.52(81) ΔR^2: 0.767
Model 2: R^2: 0.737 F(df): 35.91(77) ΔR^2: 0.737
Model 3: R^2: 0.769 F(df): 38.01(80) ΔR^2: 0.002
Model 4: R^2: 0.754 F(df): 33.29(76) ΔR^2: 0.017

In Model 1, we find a positive and significant relationship between management support (β = .48; exact p = .000) and knowledge implementation in the social work sector. Therefore, hypothesis H1 is supported by the data. In Model 2, we use the hierarchical regression analysis and find a positive and significant relationship between incentives and knowledge implementation in the social work sector (β = .59; exact p = .000). Therefore, hypothesis H2 is also supported by the data. Models 3 and 4, which test employee empowerment as a moderator of management support (Model 3) on incentives (Model 4) and knowledge implementation, show minimal added value in comparison with the direct effect models (ΔR2 in comparison with Models 1 and 2).

The results of the hierarchical regression analysis applied in Model 3 do not show a significant relationship between the two-way interaction of management support and employee empowerment on knowledge implementation (β = -.04; exact p = .476).[9] In other words, on the basis of our sample data, we do not find sufficient evidence to support the interaction between management support and employee empowerment.[10] Therefore, hypothesis H3 is rejected. The results of the hierarchical regression analysis applied in Model 4 show a significant negative relationship between the two-way interaction of incentives and employee empowerment with knowledge implementation (β = -.13; exact p = .023). The resulting negative interaction coefficient indicates that the effect of the combined action of the two predictors is less than the sum of their individual effects. The graphic interpretation of this model is best represented by a simple slope analysis. The analysis of the simple slope[11] represents high levels of employee empowerment, suggesting it is significant (exact p = 0.001). The interaction between incentives and employee empowerment as they influence knowledge implementation is shown in Figure 2.

9 The p-value failed to reach the defined threshold. The absence of the interaction effect indicates that there is also no moderation between the observed variables. The size of the interaction found is not far enough from zero to assertively claim an interaction effect (at least not with a type I error of 0.05 and a reasonable type II error = 1 – β). It is more reasonable to conclude from the data that management support and employee empowerment have individual, additive effects on knowledge implementation.

10 The lack of the interaction effect tells us that the simple slopes are not different from each other. In other words, the lines are parallel. To avoid misleading the readers of our paper, we did not include the simple slope analyses because of the statistically non-significant interaction effect.

11 We included the following in the two-way unstandardized simple slope analyses: Unstandardized Regression Coefficients (independent variable, moderator, interaction, and intercept/constant), Means and SDs of Variables (mean and SD of independent variable, mean and SD of moderator) and Simple Slopes Analysis (variance coefficient of independent variable and interaction, covariance of coefficients of independent variable and interaction, value of moderator at which to evaluate slope, sample size, and number of control variables).

Figure 2: *Interaction between incentives and employee empowerment in influencing knowledge implementation*

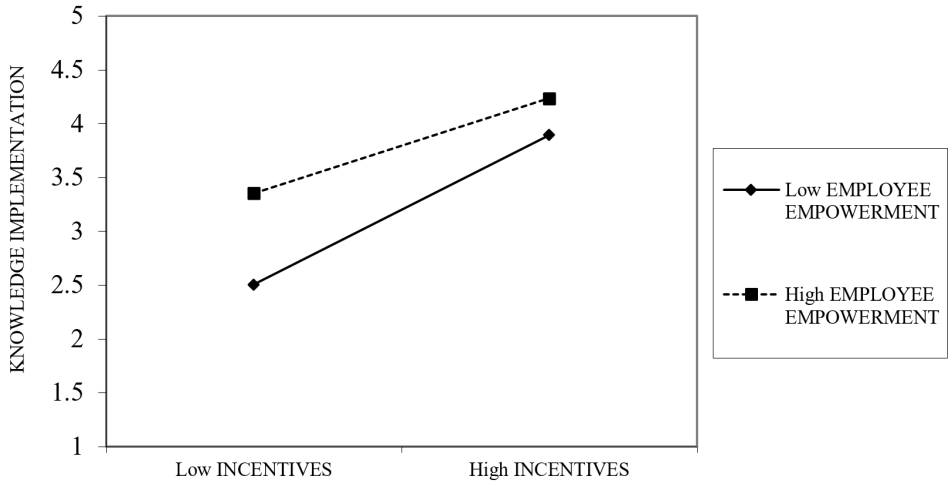


Figure 2 illustrates that the highest levels of knowledge implementation are achieved when employee empowerment is high. We also find that the level of incentives influences knowledge implementation both when employee empowerment is low and when it is high. In both cases, incentives influence the higher levels of knowledge implementation in practice. Hypothesis H4 predicts that employee empowerment is a moderator of the relationship between incentives and knowledge implementation. It can be concluded from our research that the influence of incentives on knowledge implementation is stronger when the level of employee empowerment is higher. Thus, the results provide support for hypothesis H4 in cases of both low and high levels of process incentives. However, when the levels of incentives are higher, the contribution of employee empowerment to higher levels of knowledge implementation is smaller.

5 DISCUSSION

Our study examines the role of employee empowerment and its moderating effect on the direct relationship between management support and incentives with knowledge implementation. Notably, management support has a positive and significant influence on knowledge implementation in social work settings (Hypothesis H1). In addition, incentives also have a positive and significant relationship with knowledge implementation in social work settings (Hypothesis H2). The moderating effect of employee empowerment on the relationship between management support and knowledge implementation is not significant (Hypothesis H3). While the relationship between incentives and knowledge implementation is further moderated by employee empowerment (Hypothesis H4), the

interaction term is negative. Specifically, the highest levels of knowledge implementation occur when employee empowerment is high.

5.1 Theoretical implications

The concept of knowledge management is relatively new and remains largely unexplored in the public sector (Špaček, 2016). Moreover, knowledge management is particularly neglected as a research topic in the field of social work (Austin et al., 2008; Downes, 2014; Leung, 2014). In this paper, we make three important theoretical contributions to this area.

Our first theoretical contribution to the literature of knowledge management research is simply applying and testing components of knowledge management to the public sector. Svetlik et al. (2007) propose that management support and incentives are organizational factors that impact knowledge management practices. In our study, we provide a theoretical explanation and an empirical examination of how management support and incentives directly and positively influence the implementation of knowledge management in the context of the Slovenian social work centers. Previous studies established that knowledge management practices can help organizations to impact public policies through a more systematic and effective capture, dissemination, transfer, and implementation of knowledge (Riege & Lindsay, 2006), and in this way improve the quality of their services and programs (Ukil, 2016). However, these studies did not examine the relationship between the previously defined constructs that we explored in our research. Thus, our study provides a relevant contribution to the literature because we show how management support and incentives have the potential to shape knowledge implementation in social work centers and how this can influence the aforementioned organizational goals.

Moreover, our study emphasizes the significance of employee empowerment as a moderator that is present in the relationship between incentives and knowledge implementation. Knowledge implementation in cases of both low and high levels of employee empowerment proves to be sensitive to changes in the amount of incentives. The significance of the role of incentives is discernible in cases of both high and low levels of employee empowerment. Specifically, incentives tend to lead to higher levels of knowledge implementation in practice. In the case of higher levels of employee empowerment, the role of incentives appears to be less significant. However, because the interaction term is negative, the interaction between employee empowerment and incentives may have the effect of reducing the overall knowledge implementation in practice. Therefore, we recommend that social work centers do not simultaneously focus on employee empowerment and incentives as this might have the unintended effect of reducing knowledge implementation. Based on our results, we also believe that enhancing simultaneously the efforts in employee empowerment and incentives might confuse employees in social work centers. Finally, we note that this first contribution to the theory in the literature was in part a response to the need expressed by several researchers to advance the theoretical foundations in the field of knowledge management specifically in the public sector (Al Ahbabi et al., 2019).

Our second theoretical contribution to the literature involves the knowledge-based view of the organization (Grant, 1996; Hislop et al., 2018; Kogut & Zander, 2003). Our study seeks to draw attention to the importance of knowledge management in social work centers by identifying the primary components that underlie their functioning. This research orientation is in agreement with social work researchers who recommend a shift in emphasis to the knowledge-based view of social work organizations (Edge, 2005; Fitch, 2006). We aimed to conceptualize and empirically validate how knowledge and knowledge management can help social work centers deliver higher quality services. As Massaro et al. (2015) note, previous research on knowledge management in the public sector primarily focused on the education and research settings. By focusing our research on social work centers, we aim to go beyond the typical framework of knowledge management research in the public sector.

Our third theoretical contribution to the literature is to respond to the need for more methodological diversity in the scope of social work research and provide a new methodological foundation (Soydan, 2008). In our study, we add to the previous research by applying quantitative research methods to a sample of the Slovenian social work organizations. Quantitative research methods significantly contribute to both understanding and effectively responding to the existing challenges encountered by social work organizations (Teater et al., 2016). In our research, we identify a sample of managers and employees working in the Slovenian social work centers and measure their individual perceptions of different aspects of knowledge management.

5.2 Practical implications

We use the results of our study to generate a number of important practical recommendations for managers and employees in social work organizations. Although social work centers are not-for-profit enterprises, they can nevertheless benefit from our findings by understanding the positive potential of knowledge management techniques for improving the quality of their services. Social work organizations have the obligation to provide high-quality services to their users and in this way enhance the wellbeing of society at large (Bloice & Burnett, 2016). Managers of social work centers have become increasingly aware that, like other public organizations, they must respond to the growing needs of the users of their services combined with a diminishing amount of resources to meet such demands. As a result, they will have to make internal improvements in order to successfully maximize the existing resources (Dimovski et al., 2017) and continue delivering their mission to their clients (Miller & Whitford, 2007) in the highest quality way possible.

The mean values of the four measured constructs in our research are at best moderate in practice and can at times be considered low. The moderate to low mean values indicate that social work centers are not realizing the many potential benefits of knowledge management practices. Small increments of improvement are therefore possible in all of

the four constructs that were examined in our study to assess the current condition of knowledge management practices in the Slovenian social work centers. The following is a review of the four constructs and suggestions of practices that could be undertaken. First, social work centers should ascertain whether their management supports knowledge management and the implementation of knowledge management practices. This is crucial because management support has been defined as a critical success factor (Azmee et al., 2017; Yew Wong, 2005) for knowledge management (Lee et al., 2012). If organizations neglect the aspect of management support, the probability of successful implementation of knowledge management practices significantly deteriorates (Akbari & Ghaffari, 2017). Second, social work centers should ascertain that appropriate incentives are being provided when employees make positive efforts toward knowledge implementation. Providing appropriate incentives is an integral part of the success of the knowledge management initiative (Ajmal et al., 2010). Moreover, incentives should be made to encourage employees to use their knowledge (Yew Wong, 2005) and positive recognition should be clearly expressed when such efforts are made (Razmerita et al., 2016). Third, social work centers should focus on employee empowerment as this can also be a significant factor in encouraging knowledge implementation and determining its long-term success (Ahmadi et al., 2012; Hasan, 2012). However, as the interaction term in our study is negative, there should also be an awareness that simultaneously endorsing employee empowerment and incentives could have a detrimental effect on the overall levels of knowledge implementation. In other words, employee empowerment and incentives are more effective when used separately. Fourth, social work centers should determine the extent to which knowledge is implemented in practice. Only when knowledge is applied in practice can it help social work organizations to actually solve their problems (Bierly et al., 2009). The sole existence of knowledge per se is not enough (Alavi & Leidner, 2001). Therefore, managers must consider how to improve knowledge implementation, which aspects of knowledge management are most effective in practice, and what role these practices might have on stimulating higher levels of knowledge implementation. Finally, we believe it is important to carry out an ongoing discussion with policy and decision makers at the national level about the potential use of knowledge management practices in the social work sector in order to achieve an overall improvement of services.

5.3 Limitations and future research directions

Despite the new information about knowledge management practices in the Slovenian social work centers generated by our research, our study is not without limitations. The first limitation relates to the size of the study's sample. Due to the implementation of the GDPR Act in May 2018, the number of our potential respondents was small. We were able to collect data from only 98 managers and employees, which represent a small proportion of the whole population of employees working in the social work centers in Slovenia (1,250).

The second limitation is related to common method bias as defined in Harman's single factor test (1976), the common latent factor (Liang et al, 2007), and the marker variable

approach (Lindell & Whitney, 2001). Ideally, we would deal with common method bias by obtaining data from our respondents in three phases during which we would measure independent, moderating, and dependent variables at separate points in time at least two weeks apart (Podsakoff et al., 2003). The failure to find an interaction effect of employee empowerment on the relationship between management support and knowledge implementation may also be the result of our common method bias issue (Jakobsen & Jensen, 2015). Another potential factor that could explain the lack of moderation effect is the misfit between empowerment and related expectations. As emphasized in previous research (i.e. Wong & Kuvaas, 2018; Wong et al., 2017), unclear empowerment expectations might result in employees' confusion related to their decision-making roles, which in turn leads to poor judgement on work-related activities and can negatively impact their perception of competence mobilization.

The third limitation of our study is that we cannot make a general conclusion about the proposed relationships because we included only a proportion of social work centers in our study. Thus, the generalizability of our current findings across all social work centers or the whole social work field is not clear. Consequently, the future direction of research would be to include more social work centers in subsequent studies with the aim of generating more conclusive results. Researchers could potentially also involve other social work organizations to study additional aspects of knowledge implementation. This is an important opportunity as the whole topic of knowledge management is still fairly innovative and unexplored in social work settings and thus offers potential for future exploration for both researchers and practitioners.

The fourth limitation of our study is that we did not control for the geographic location of the respondents in our research. As indicated informally by some respondents, there are significant differences in the Slovenian municipalities that are also apparent in the field of social work. Therefore, we could explore whether there are variances in the level of knowledge management practices in social work centers across (statistical) regions.

In future research, we would like to gain a more in-depth understanding of how individual employees perceive knowledge management in relation to their daily work routines. This would require a combination of quantitative and qualitative research approaches. In particular, follow-up, open-ended, face-to-face interviews would strengthen our quantitative findings. Such additional research would generate greater insights into specific topics related to knowledge management practices and allow the researchers to overcome the limitations caused by our reliance on questionnaires, using only Likert scale ranges. We would also encourage researchers to re-examine our results of the two-way interaction effects. It would be interesting to gain additional insight on why the interaction effect between management support and employee empowerment is statistically not significant. Likewise, it would be beneficial to further explore why the interaction effect between incentives and employee empowerment is negative.

Future research could also encompass new constructs. We suggest linking management support and incentives with knowledge creation, knowledge storage and retrieval, and knowledge transfer. Moreover, the leadership style of managers in social work centers would be an interesting independent or moderating variable. In addition, gaining insight about whether the novel and interesting stream of knowledge hiding (Connelly et al., 2019) is relevant for social work might be another promising avenue of future research. As our present study was based on the perception of individual employees, a promising opportunity for future research on knowledge implementation would be to investigate the same constructs on the team and organizational levels. To conclude, there remain many areas still to be explored in the field of knowledge management in the public sector and specifically in social work settings. We believe that the current research offers useful theoretical and practical contributions and encourages more research into other aspects of knowledge management in social work settings.

6 CONCLUSION

Our research study focuses on understanding how individuals employed in the Slovenian social work centers perceive various aspects of knowledge management in their organizations. In our study, we combine the constructs of management support, incentives, knowledge implementation, and employee empowerment. Using questionnaires filled out by 98 respondents, working as managers or employees in social work centers, we find that management support and incentives positively and directly influence levels of knowledge implementation. We also find that employee empowerment acts as a moderator of the relationship between incentives and knowledge implementation, but that the interaction term is negative. Knowledge implementation tends to be highest when employee empowerment is also high. Based on these results, this paper could be used as an important building block to improve our understanding of how knowledge management works in the social work sector and how it is best implemented in specific social work organizations. In the future, it would be necessary to include national policy and decision makers in the discussion of our findings as social work centers function in the framework of the public sector and outcomes are in many cases determined by state employees. We hope that at the very least our research sparks additional interest and debate in the area of knowledge management in the social work sector and specifically in social work organizations in Slovenia.

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REVISITING THE COOPERATION MATRIX FOR CLASSIFYING CASES OF PORT COOPERATION — CASE STUDY: NORTHERN ADRIATIC PORTS

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ABSTRACT: *The maritime industry has witnessed transformational changes due to the structural developments in the competitive landscape among maritime stakeholders. These trends lead to cooperation between ports, particularly those sharing common hinterland. This paper extends the existing frameworks for analysing cases of port cooperation among adjacent ports by exploring the relevance of the presence or absence of a national border, thus proposing an upgraded version of the matrix for classifying cases of port cooperation. We operationalize our theoretical findings with a case study of the North Adriatic (NAPA) ports. We conduct in-depth, semi-structured expert interviews with relevant port stakeholders in order to position the NAPA ports within the matrix, as both a group of ports and individual port-pairs.*

Key words: *port cooperation matrix, Northern Adriatic ports, port cooperation, cross-border cooperation, port stakeholders*

JEL classification: L90; L9; R40

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1 INTRODUCTION

According to Robinson (1998, p. 32), 'Port growth is a function of the production outcomes of firms in the port's adjacent space—or of that space to which it is linked, either in landward space or in areas linked across water or ocean', which implies that the location is central to the development of port growth. This paradigm may have changed significantly in the last two decades. Many scholars recognize that ports can no longer rely on the loyalty of their users, since ports face increasingly international users that may switch ports relatively easily. This has been caused not only by the increasing containerization of cargo, which has in turn enabled greater intermodality of the seaborne trade (Malchow & Kanafani, 2004), but also by the concentration and consolidation of the shipping industry,

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which has created large, vertically and horizontally integrated, global shipping lines (Seo & Ha, 2010). Recent developments, such as the 'Belt-and-Road Initiative' (BRI) reviving the old land trade route – Silk road – by rail between Asia and Europe and the new shipping routes in the Arctic (Hong, 2012), additionally affect the competitive landscape among ports. In any case, all these trends lead to cooperation between ports, particularly those sharing common hinterland.

The majority of global seaborne trade by containers is now controlled by the ten largest vertically and horizontally integrated container shipping lines (UNCTAD, 2018; Alphaliner, 2019). Furthermore, the use of containers as a transportation unit is markedly increasing each year, due to the obvious benefits of standardization in transportation.[4] More recently, it has become apparent that the shipping lines are not only controlling the transportation by sea, port and terminal operations and hinterland delivery operations, but also the activities that were traditionally provided by the freight forwarders. These include, among others, customs processes, warehousing, cargo manipulation and last-mile delivery. Considering the trajectory of these trends, it has become imminent that the key decision making in routing of container traffic has shifted to shipping lines. For ports and port authorities this should be the key strategic consideration.

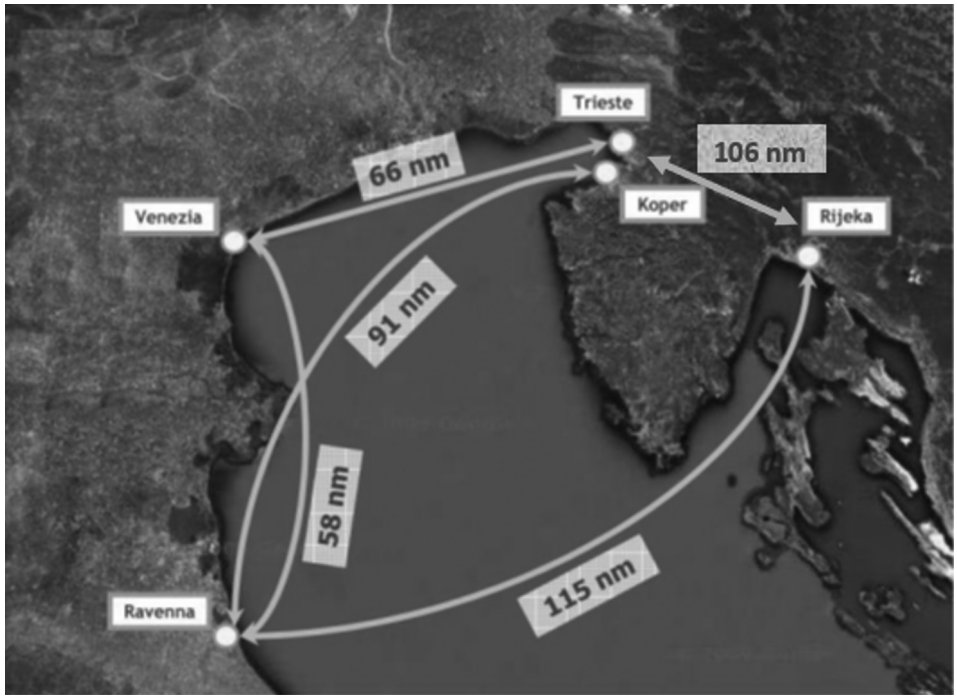
Cooperation among ports has been mentioned by many authors as one of the possible forward going trends in the maritime industry (Notteboom, 1997; Wang, 1998; Park et al., 2006; Li & Oh, 2010; Hwang & Chiang, 2010). Most research describes and explains context-specific cases of port cooperation (Song, 2002; Yap & Lam, 2006; Seo & Ha, 2010, Wang et al., 2012 or more recently Wu & Yang, 2018; Trujillo et al., 2018; Huo et al., 2018). Some studies have categorized and classified types of possible port cooperation strategies (De Langen & Nijdam, 2009; Freemont & Lavaud-Letilleul, 2009). However, limited research has been made on providing an overarching understanding of port cooperation, which would not only help better assess the extent of port cooperation, but also shed more light on the options and possibilities for its improvement (McLaughlin & Fearon, 2013; Stamatović et al., 2018). The existing research frameworks are therefore of limited use in explaining varying levels of port cooperation or even absence thereof in regions where various ports serve a shared hinterland. This paper attempts to build on the current understanding of port cooperation among adjacent ports by extending the existing framework for classifying cases of port cooperation and applies the new framework to the ports in the North Adriatic region.

The North Adriatic region is represented by five ports from three different EU member states: Ravenna, Venice, and Trieste in Italy, Koper in Slovenia, and Rijeka in Croatia. As of late 2017, all five of them are also members of the North Adriatic Port Association (NAPA) and are hereafter referred to as the NAPA ports. These ports serve as an excellent, perhaps even unique, example for demonstrating a case of cross-border cooperation among ports in vicinity. The distance between the most distant ports Rijeka and Ravenna is 115 nautical

4 from approximately 200 million TEU in 2000 up to 750 million TEU in 2016 (World Bank, 2019)

miles. The shortest distance is the one between Trieste and Koper, which is merely 13 nautical miles (Figure 1).

Figure 1: *NAPA ports by nautical distance (source: Ports of NAPA, 2017)*



These adjacent ports lie in three different countries which, despite all of them being members of the EU, have different approaches to port governance, transport infrastructure strategies and national agendas on development priorities. NAPA ports rely, largely, on serving contestable hinterlands of the CEE and SEE region, aspiring to become the gateway to the afore mentioned regions. This is however complicated by the fact that, despite the substantial geographical advantages of the area, NAPA face scale differences to the North European hub ports (Notteboom & De Langen, 2015). The infrastructure capacity represent a large impediment and is unable to cope with the existing and growing throughput, which manifests itself in railroad bottlenecks (Koper, Trieste, Rijeka), insufficient terminal quay capacity (Koper), or even lack of space for terminal expansion (Rijeka), and shallow shore unable to accommodate ultra large vessels (Venice), among others. Not only do NAPA ports face inter-range competition from the Hamburg-Le Havre region, they also face inter-port competition, due to the dyssynchronous port policies and incongruent port management models (service port Koper vs. landlord ports Trieste, Rijeka, Venice). Finally, initiatives to connect the port of Piraeus to the CEE region by rail via Serbia up to Budapest in Hungary further endanger their ambitions. Also, since the NAPA region is a

turnaround region for the shipping lines (Stamatović et al., 2018), this requires additional economic justification of making a port call to NAPA. Finally, as already mentioned, given the omnipotent position of the shipping lines, the bargaining power of each individual port is severely limited. Given the plethora of challenges upon them, the NAPA ports seem a clear case of adjacent ports which would benefit from multilateral, cross-border cooperation. In addition, the NAPA ports as an example allow us to evaluate national and cross-border perspectives simultaneously.

This paper attempts to build on the current understanding of port cooperation among adjacent ports by extending the existing framework for classifying cases of port cooperation. First, we review the main literature on port cooperation in general, and more specifically the theoretical conceptualizations of port cooperation that have been introduced thus far. Second, we observe several cases of port cooperation in adjacent ports in both national and cross-border contexts. Third, we propose an upgraded version of the matrix for classifying cases of port cooperation and propose a research design to evaluate the positioning of the NAPA ports within the matrix. Fourth, we present the NAPA ports in greater detail, summarize the findings of our research and elaborate on the positioning of NAPA within the matrix, from both national and cross-border contexts. The final section summarizes our findings and suggests areas for further research.

2 LITERATURE REVIEW

2.1 Port cooperation as a survival strategy

Malchow and Kanafani (2004) claim that port activity no longer depends on port's immediate hinterland, due to the development of intermodal transport. Fageda (2005) confirms this claim and adds that intermodal transport has enlarged the gravitational centres of ports and in many cases has given rise to competition between ports, where it was previously non-existent. De Langen (2007) goes further by saying that captive hinterlands have diminished, and that huge competition is in fact happening in the contestable hinterlands, i.e. "those regions where there is no single port with a clear cost advantage over competing ports". Acciaro et al. (2017) also find that port competition takes place on both sides: maritime and inland. Additionally, the rapid development of international container and intermodal transportation has drastically changed the market structure from one of monopoly to one of fierce competition in many parts of the world. Ports, especially those in the same region, became more substitutable, which has intensified competition between them for greater market share. On the other hand, while port competition is fierce, ports are not perfect substitutes, i.e. they are not perfectly interchangeable or at least not without a cost (OECD, 2008). Gateways still have a strong position in at least some of their service area as hinterlands never overlap completely. De Langen (2007) confirms this notion by exemplifying that Southern European ports clearly have a distance advantage for cargo from Asia, however, the majority of cargo is still routed via the Northern European ports. Notteboom (1997, 2010) reports similar findings.

In times when shipping lines are becoming large logistics conglomerates, amassing logistics assets both vertically and horizontally and thus controlling supply chains door to door, cooperation between ports is imminent. The global top ten shipping lines now control over 75% of the global container market share and thus have strong leverage in negotiations with ports and terminals on terms and conditions. Furthermore, shipping lines deploy ever-larger ships to increase container-per-vessel utilization and thus reduce overall costs per unit carried. A weekly call of a 20.000 TEU vessel translates into about 300.000 TEU per year (Notteboom, 2010), hence winning or losing a weekly call service can have a considerable influence on port's yearly throughput. This shows the impact of shipping lines on ports.

Considering the above described trends, there is a general consensus in the literature that port cooperation is a potentially beneficial strategy for ports. Cooperation between ports in adjacent areas can be instrumental both to attract shipping lines and to consolidate the bargaining power of ports vis-à-vis shipping lines. Notwithstanding all these potential benefits, we nevertheless observe only a few examples in the world where cooperation actually does take place. Moreover, what can also be observed is that these cases normally happen within the same country and rarely across borders. A theoretical framework of port cooperation strategies should therefore attempt to encompass the observed varying levels of the port cooperation strategies among adjacent ports. In the next section, we explore the existing conceptualizations of port cooperation frameworks.

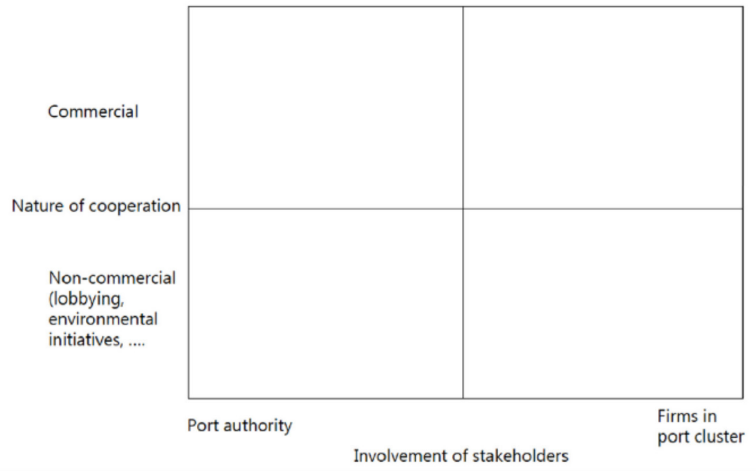
2.2 Current conceptualizations of the port cooperation framework

De Langen and Nijdam (2009) propose three levels of cooperation, namely port authorities that have developed strategic cooperation with other port authorities in their vicinity in forms of joint holdings, investments and acquisitions, port authorities that do have some form of cooperation but not at a strategic level, and port authorities that do not have any form of cooperation with ports in their vicinity, beyond being members of port associations or networks (e.g. ESPO, Ecoports). Freemont and Lavaud-Letilleul (2009) provide a more detailed classification of cooperation by registering different types of ports. They posit that the type of cooperation depends on the port profiles in the sense that the strategy of cooperation is not universal for all ports in proximity. This is a sensible conclusion, since ports which specialize in RO-RO[5] cargo are not in competition with ports that specialize in container traffic. By analogy, then adjacent ports which both specialize in container traffic are in competition. The authors therefore distinguish between ports linked in a strait or an island, ports with different profiles and ports with similar profiles. They go further in their proposal of the framework by claiming that ports may even change their profiles in cases when adjacent ports would consider building a complementary relationship. Authors also provide good examples of mutually beneficial cooperation strategies, for example where one port has better nautical accessibility due

5 Roll-On, Roll-Off (RO-RO): self-propelled vehicles which are loaded on and off vessels using their own wheels or a purpose-built tow vehicle.

to deep berth, while another has better terrestrial accessibility. Instead of each making individual investments to overcome these hindrances, ports could coordinate resources in a way to complement each other in their respective hindrances, thereby reducing the necessary investments. The ports that we analyse later in this paper fit perfectly to such example, for example, Venice port has shallow berthing while Trieste has natural deep-water access. Mclaughlin and Fearon (2013) provide a comprehensive framework for assessing the extent of cooperation among ports by postulating a cooperation-competition matrix, which discriminates between the level of cooperation on one axis and the degree of competition on another axis. This framework enables the assessment of how different forms of cooperation reduce competition. Authors argue that ports should move towards the lower right-hand side of the matrix with a higher degree of cooperation, higher private sector drivers and low competitive rivalry. This conceptual framework is useful for analysing ports with similar profiles (as per Freemont & Lavaud-Letilleul, 2009) sharing common hinterland, as it considers cooperation not only from a public but also commercial perspective. More recently, Stamatović et al. (2018) developed a cooperation matrix for classifying cases of port cooperation (Figure 2), which distinguishes between the depth of cooperation (commercial vs. non-commercial) and the level of involvement of stakeholders (port authority vs. firms in port cluster). The direction in which ports should consider moving is towards the upper-right quadrant, in which private firms in port cluster engage in commercial type of collaboration with joint collective action. All other quadrants are less attractive, due to the limited influence of port authorities on commercial decision, and on the other hand, due to the limited incentives for private firms to engage in a non-commercial type of initiatives, such as lobbying or environmental initiatives. However, authors also draw another important conclusion not mentioned in the literature before, namely for port cooperation to be effective, ports must first be complementary. As authors postulate, ports can be considered complementary when port A benefits from the improved competitive position of port B and vice versa. Complementarity thus becomes a necessary condition prior to evaluating port cooperation level among ports in vicinity. In other words, for the evaluation of their potential cooperation strategies to be sensible, ports must first be classified as complementary.

Figure 2: *Cooperation matrix for classifying cases of port cooperation (source: Stamatović et al., 2018)*



2.3 Examples of national and cross-border cooperation strategies

The following recapitulation of some examples of national and cross-border port cooperation aids in better understanding of the triggers and drivers behind cooperation strategies. One well documented example is that of the Copenhagen-Malmö port, which resulted from a merger of two ports, Copenhagen and Malmö, in 2001. Admittedly, the merger happened as a survival strategy due to the opening of the Öresund bridge connecting Denmark and Sweden, which in turn meant loss in passenger traffic, putting both ports to existential jeopardy. Nonetheless, the merger was completed and many new opportunities in logistics opened up for the merged port. As De Langen and Nijdam (2009) document, success factors that led to the successful merger were a mix of commercial (leadership by port's CEOs, momentum due to the opening of the Öresund bridge, focus on cost reduction, better utilization of sources) and institutional (political and societal support, cultural commonalities) factors. Another example of a successful cross-border merger is a more recent one, between Ghent in Belgium and the Zeeland ports in the Netherlands, which happened at the end of 2017 and is now called the North Sea Port. The idea behind merger was very simple–efficiency, better economies of scale and removing overlapping activities with an increased possibility of optimizing cargo flows within the ports. Also, in Belgium, the ports of Antwerp and Zeebrugge established a commercial type of cooperation, whereby both ports offer the option of using Zeebrugge as the import and Antwerp as the export point. In addition, in times of congestion in Antwerp, vessels could be diverted to Zeebrugge. Finally, they also cooperate on joint commercial activities like fairs, visits etc. (Hope, 2015), however, a merger, as the ultimate form of cooperation, has been ruled out so far (Pieffers, 2019). Another example is the Ningbo-Zhoushan port merger which happened in 2015, whereby two competing ports merged into the world's

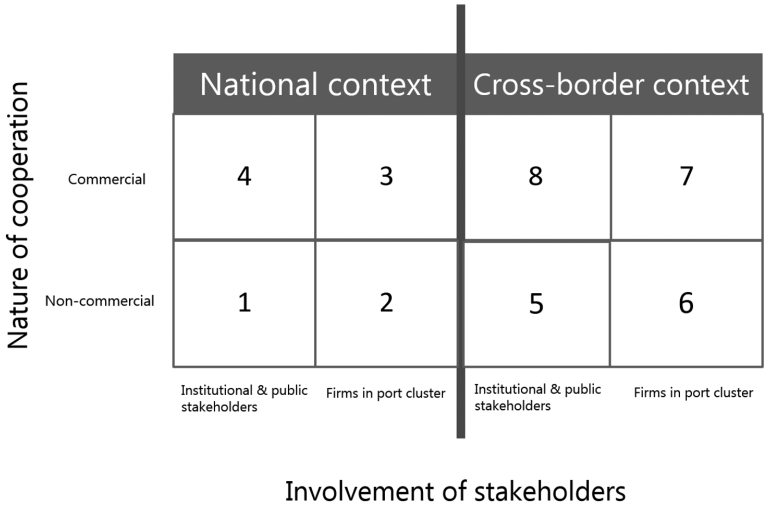
busiest port by tonnage handled. The Ningbo port specialized in container cargo, while the Zhoushan port specialized more in the general and bulk cargo. By combing their port specialization portfolios, they are today able to provide a competitive offer, serving the same clients without competing against each other. In general, the Chinese national and provincial governments are able to facilitate mergers among ports where it appears to make sense, arguably with lesser difficulty, due to the centrally, state-planned economy (for a comprehensive list of port cooperation examples in China see Huo et al., 2018). A slightly different type of cooperation is that of Seattle and Tacoma in the US, now joined in the Northwest Seaport Alliance, where the governing party is a port development authority led by two ports respectively as equal members. Reasons for this strategic cooperation are broadly identical to the previous examples given – efficiency, economies of scale, better profitability and utilization of resources (see Yoshitani, 2018). On the other hand, there is also a handful of failed port cooperation attempts, e.g. Los Angeles-Long Beach (see Knatz, 2018) or Houston-Galveston (see Galvao et al., 2018).

3 METHODOLOGY

3.1 Revisiting the matrix for analysing cases of port cooperation

The non-exhaustive brief review of the actual examples of port cooperation discussed in the previous section indicates that there are both 'domestic' and cross-border cases. Intuitively, overcoming certain obstacles in both commercial and institutional sense is easier with a common political and legal framework. This is in line with Mclaughlin and Fearon (2013) who posit that mergers, as the ultimate form of cooperation, are more likely when they are a part of national economic agendas. The existing frameworks assume, ceteris paribus, that the national political agendas and legal frameworks do not influence the likelihood and depth of cooperation, particularly at the institutional level. We believe however that the distinction between the national and cross-border contexts is pivotal in understanding the complex dynamics of port cooperation between adjacent ports, hence we propose an upgraded version of the matrix originally postulated by us (Stamatović et al., 2018). This version of the matrix clearly distinguishes between national and cross-border contexts (see Figure 3). We apply this matrix in our analysis of the NAPA ports in the later section.

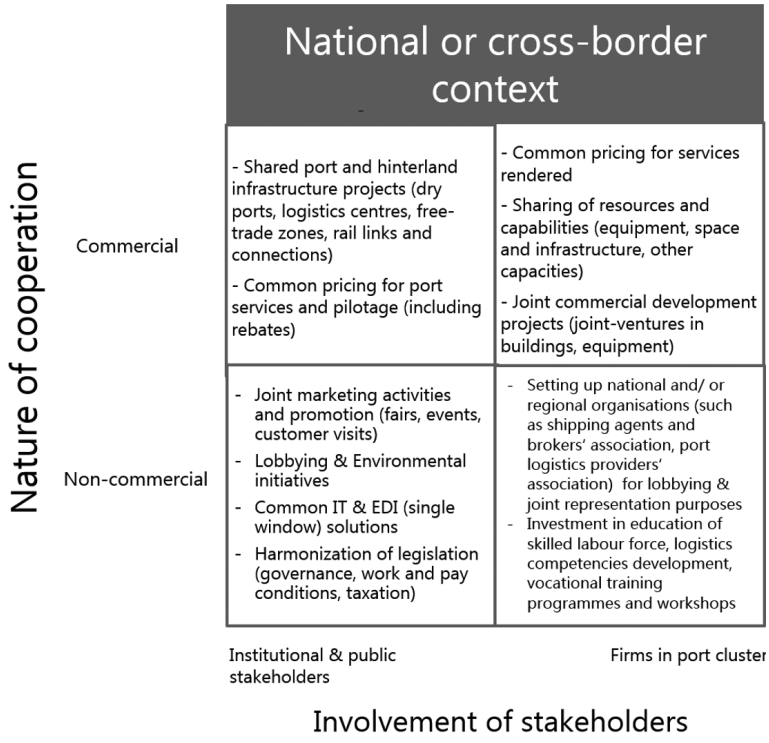
Figure 3: *An upgraded cooperation matrix for classifying cases of port cooperation*



Furthermore, we expand the original explanation of the types of activities that can be classified in each quadrant of the matrix. This improves the value of the framework as a decision-making tool. Figure 4 suggests certain examples of what could pertain to each quadrant. The list is by no means exhaustive, but instead provides some specific examples of such strategies. In this context, quadrants 1-4 are equal to 5-8 in terms of port cooperation strategies and initiatives. As a general guidance in terms of classifying cooperation strategies, we propose considering the following. Non-commercial quadrants represent the types of cooperation where benefits do not directly translate into monetary terms. From the perspective of firms in port cluster, this would mean for example better work conditions, improvements in legislation, and general representation initiatives which stand for the cooperating ports and which lobby for improvements towards relevant institutions where benefits are spread towards all stakeholders. From the perspective of institutional stakeholders, non-commercial initiatives mean common marketing campaigns which promote an entire region and not only a particular port, joint lobbying activities with relevant national and supra-national legislative bodies, and various environmental initiatives where there are benefits also for the ''public good". In general, the effects of the non-commercial activities do not have a directly measurable monetary value, but instead have an overall positive effect on improving the general position of the stakeholders in question. On the other hand, commercial quadrants represent the types of cooperation which have direct monetary impacts that will have value directly (and only) for the stakeholders involved in a certain initiative. From the perspective of firms in port cluster, the commercial type of cooperation means sharing certain resources or making joint investments (e.g. shared warehousing capacities, shared development of IT solutions) or

even common pricing strategies or guidelines on services rendered[6] (e.g. freight forwarding services, terminal handling services, etc.). However, from the perspective of institutional stakeholders, the commercial activities mean developing infrastructure projects that benefit more ports, a common pricing strategy on port and pilotage services, and even, as Stamatović et al. (2018) suggest, introducing quantum rebates on terminal handling costs to attract more shipping lines to a certain region. In conclusion, joint commercial efforts have a direct (positive) monetary impact for the stakeholders (institutional/public or commercial) involved in such common strategies.

Figure 4: *Examples of the cooperation strategies among stakeholders involved for each quadrant.*



3.2 Research design

We conduct in-depth, semi-structured expert interviews to assess the level of cooperation, and in particular to position the NAPA ports within the matrix proposed in the previous

6 Without suggesting any cartel-like agreements on pricing, but more as a general guidance type of initiatives, e.g. a minimum rate for rendering a certain service in the logistics industry. This is common e.g. in the IT or legal industry, where official representative bodies publish guidance on minimum hourly rates for lawyers, IT specialists, etc.

section. For our research project, we conducted a total of 15 interviews, part of which were executed in person and the other part by phone. Expert respondents were selected based on their position in their organization and their length of tenure. We thus gathered views from country managers or commercial managers of five major shipping lines for the NAPA region, four port authority representatives, C-level managers of two rail operators and of four forwarders from Italy, Slovenia and Croatia. The questions that were prepared in advance were personalized for four categories, namely carriers, forwarders, intermodal operators and port authorities.[7] All respondents were asked to assess the current level of cooperation among stakeholders in order to point out the benefits of cooperation and most importantly, to highlight the hurdles preventing higher levels of cooperation. Finally, we challenged the respondents to provide potential solutions in overcoming these pitfalls, by asking them to consider several hypothetical NAPA port situations, such as "*Would your answer differ, if all NAPA ports were located within the same country?*". The respondents' answers were marked, after which an oral summary of their replies was provided to confirm that our understanding of their answers is correct. In addition, respondents were kept anonymous, since if they were cited formally, they would have to obtain approvals from their organizations, which could have limited our findings. The interviews usually lasted 1-2 hours and took place between May and July in 2017.

There are a few clarifications that need to be made to our analysis. First, our research (both its preparation and execution) was done during the first half of 2017, during which the Ravenna port was not yet (again) a member of the NAPA organisation. Since it rejoined the organization in the late 2017, it was consequently not part of our analysis. We nevertheless acknowledge that future research on this topic could provide insightful results, if Ravenna, as the third Italian port in the NAPA organization, was included. Second, our focus is entirely on container traffic and throughput. Not only is the container traffic growing globally as a transport unit segment, but it is also the most important market segment for the NAPA ports, in terms of both profitability and future development and expansion plans. Finally, the interview transcripts and notes that were used as research material in this paper were part of a larger research project conducted by the authors of this paper (for the other publication of this research project see Stamatović et al., 2018).

4 EVALUATING THE PORT COOPERATION STRATEGIES IN NAPA

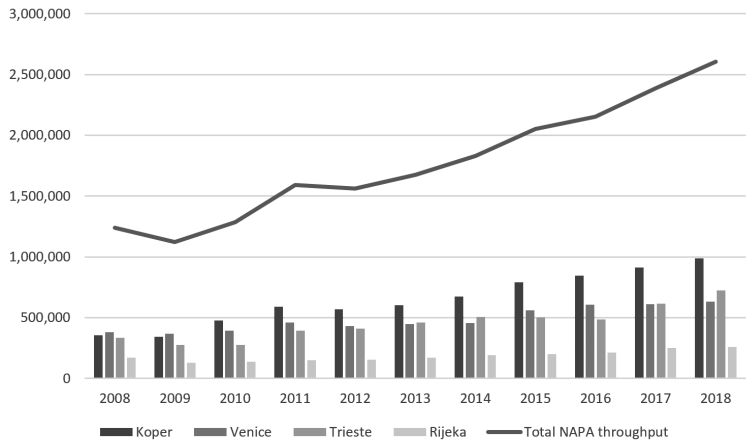
4.1 NAPA ports: brief introduction

The NAPA region consists of five ports, namely Ravenna, Venice, Trieste, Koper and Rijeka. However, since Ravenna rejoined the NAPA organisation only in late 2017, as explained in the previous section, we consider only Venice, Trieste, Koper and Rijeka for the purposes of our analysis. The NAPA ports aspire to become a regional gateway for the Central with Eastern and South Eastern European region, however, arguably Venice mainly serves the Veneto region in Italy, while the other three ports do indeed serve several markets,

7 See the full set of relevant questions per group category in Appendix 1.

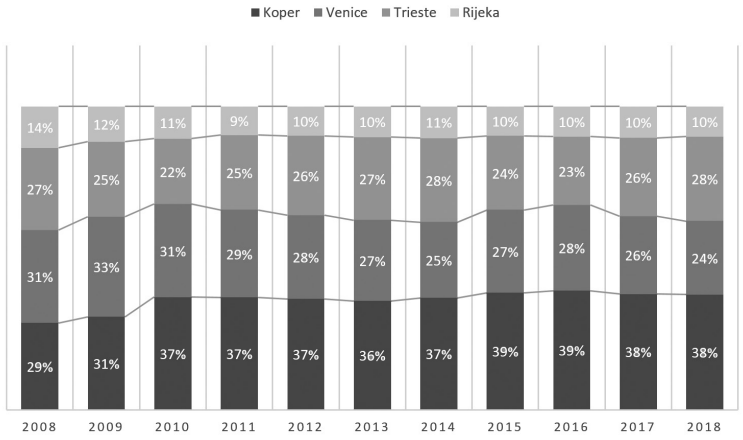
with some degree of overlap. In total, the NAPA region has more than doubled its total container throughput in the last decade, exceeding 2.5 million TEU (see Figure 5).

Figure 5: *NAPA container throughput during the 2008-2018 period in TEU (source: Port of Koper, 2019a; Port of Rijeka, 2019; Port of Venice, 2019; Port of Trieste, 2019).*



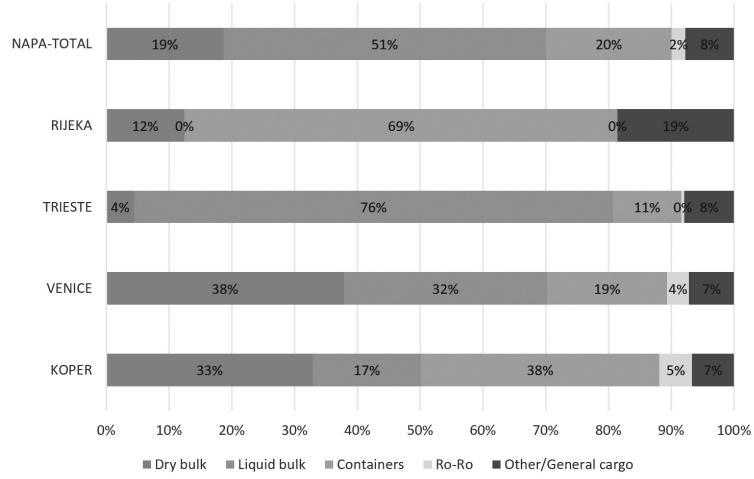
Among them, Koper maintains the largest market share (40%), Rijeka the smallest one (10%), while Venice and Trieste share the remaining half in about equal shares (see Figure 6).

Figure 6: *NAPA ports container throughput market share during the 2008-2018 period in % (source: authors' own elaboration).*



In terms of cargo type handled by weight[8] by the NAPA ports, we observe that liquid cargo is predominant in Trieste and containers in Rijeka, while Venice and Koper have a more evenly spread distribution between dry, liquid and container cargo (see Figure 7).

Figure 7: *Cargo type throughput split in percentages of total tonnage throughput in a single port and the NAPA as an entire region in 2017 (source: Eurostat, 2019).*



All the studied ports are multi-purpose ports with general emphasis on container handling. It has been posited by Stamatović et al. (2018) that firstly, NAPA serves as a turnaround region for the shipping lines' service loops, i.e. NAPA ports are the last and first calls in a service loop connecting two regions, and secondly, that the NAPA ports are broadly complementary. The growth in the NAPA ports' throughput in the last decade has been attributed to attracting cargo that has previously been routed via Hamburg-Le Havre range ports (Notteboom, 2010), as a consequence of its shorter nautical route from the Far East via Suez Canal which in turn gave rise to the introduction of the direct deep-sea service loops with the Far East. All major alliances are calling the NAPA ports, whereby the Mediterranean Shipping Company (MSC) also owns the majority share in Trieste's main container terminal. A sizable amount of infrastructure projects co-funded by the EU institutions have taken place particularly in developing the hinterland railroad network, expanding and enlarging container handling capabilities and coastal dredging, necessary

8 However, the cargo split per weight basis is partly biased in favour of heavy cargo–liquid and dry bulk–since containers are limited in terms of weight they can carry, while RO-RO cargo is by definition the per unit basis and is limited in weight as well. In other words, such comparison indicates port specialization, but cannot be entirely conclusive

to accommodate the largest vessels. Despite all the developments, the scale gap with the Northern European ports is still significant[9] (Noteboom & De Langen, 2015).

The NAPA ports have a shared exposure to risks brought about by the promotion of new routes serving the same hinterland, i.e. the railroad to CEE from Piraeus, railroad from Mainland China to CEE, etc. This implies that all stakeholders in the region would benefit from a joint market approach.

4.2 Positioning of the NAPA ports in the upgraded port cooperation matrix

Observing the cooperation efforts in the NAPA region in the past two decades, we see the emergence of various cooperative initiatives and projects. The biggest cooperative achievement represents the North Adriatic Port Association (NAPA) established in 2010. All five ports, i.e. Ravenna, Venice, Trieste, Koper and Rijeka, are now active members of it, with the Ravenna port's brief departure for a certain period[10] and the Rijeka port joining a few years after the association was established. Prior to the association's existence, there were some cross-investment and concessionary attempts between Koper and Trieste (see Port of Koper, 2019c and OECD, 2011, p.125), however, without significant results. Theoretically, on paper, the purpose of the association is to coordinate joint marketing activities in promoting the NAPA ports, obtaining EU funding and partaking in various environmental and IT projects (e.g. single window, MOS4MOS, Fresh Food Corridor NAPA4CORE). The association is also tasked with coordinating the development of a common infrastructure, nevertheless, this part has not had fruitful results. One such initiative was to connect Trieste and Koper by rail, as an alternative to Slovenia building itself a second rail track between Divača and Koper, otherwise the main bottleneck area in the Slovenian railway network. The possibility of building a second rail track from Divača to Koper has received lots of public attention and been politically debated, as it is a relatively large infrastructure project development for the Slovenian economy, assessed to be worth over 1 billion € in investment. As a potentially cheaper alternative, a rail connection between Koper and Trieste was put forward, where Koper would then also be linked to the Italian rail network. This proposal never obtained sufficient political momentum, particularly from the Slovenian side. There are more indications that the activities of the NAPA ports are still rather individual than joint efforts. For example, the Italian government is investing heavily in the railway network development towards Austria, and consequently also Germany. Slovenia aimed for building the second rail track mentioned before, partly with a loan from Hungary, until the newly elected government discontinued these efforts not long ago. The Rijeka port aims to serve the Hungarian hinterland, as being the closest to it. However, so far it has been unsuccessful[11] due to underdeveloped railway capacity. More recently, with the Belt and Road Initiative (BRI),

9 3 million TEU (NAPA) vs. 34 million TEU (Rotterdam, Amsterdam, Hamburg) (Port of Koper, 2019b).

10 Ravenna left NAPA due to the disputes over funding the Venice port's offshore terminal (Ship2Shore, 2017).

11 The current market share of Koper in the Hungarian container throughput is estimated to be at 60-70% (Port of Koper, 2018b, slide 5).

Trieste has been singled out as the beacon of the Silk Road into the CEE region directly by the Chinese government and with, so it appears, the support of the Italian regional and national governments (Scimia, 2018). Koper has, meanwhile, signed a Memorandum of understanding (MoU) with the Ningbo port (Port of Koper, 2018a), while the other two ports do not seem to have gotten involved with the BRI at all.

This variety of initiatives, ranging from infrastructural development to general sales and marketing activities, could have been done jointly and more coordinated. If it had been done differently, it could have brought benefits to the entire NAPA region, especially since NAPA is a turnaround region for carriers, meaning that carriers decide to make the call due to the potential of the region as a whole and not due to the individual port (Stamatović et al., 2018). Finally, there is also the issue of different port governance models in the ports concerned, namely Italy uses the landlord model, while Slovenia and Rijeka operate under the service port model. This prevents effective communication between various stakeholders due to the different legislature and decision-making authorities, including the responsibilities among the communicating parties.

The executed expert interviews confirm the absence of any deep joint strategic type of cooperation between the NAPA ports. From the perspective of port authorities, we gather that some pre-competitive levels of cooperation indeed exist. These are mostly due to and on behalf of the North Adriatic Ports Association. Port authorities acknowledge that since the introduction of the Association, cooperation has improved and many successful projects were materialized, but at the same time they explain that the Association is underfinanced and not autonomous. Namely, the presiding party rotates every 6 months between presidents of each member's port authority. In this way, it is hard to assure autonomous and independent running of the organization and our respondents claim that they are considering changing the governance structure and framework in the future. In terms of successful projects, they list obtaining EU funding for various projects in the fields of environmental and IT initiatives, common marketing activities such as participation in logistics industry themed fairs (Munich, Shanghai), exchanging and monitoring statistics, market analysis and R&D projects. The representatives of the Italian ports admit that cooperation between them is now much better and more coordinated as a result of the initiatives made by the central government in Rome. They advise that infrastructural projects are now considered for the benefit of all ports involved. They do admit however that provincial governments still cater more for the benefit of province (Friuli-Venezia Giulia and Veneto respectively) and not necessarily for the national benefit. On the other hand, cross-border cooperation on infrastructural questions is non-existent. Another area for potential cross-border cooperation could be some level of port specialization, which is potentially attractive due to the already existing complementarities in cargo handling types among the NAPA ports (as already depicted in Figure 7). Nevertheless, this would necessarily mean, as explained by our respondents, that some ports would have to forgo the most profitable categories – containers and RO-RO cargo – which is unlikely to go forward, not on national level and even less on cross-border level. They conclude that more cooperation, particularly on the level achieved by the Copenhagen-Malmö port,

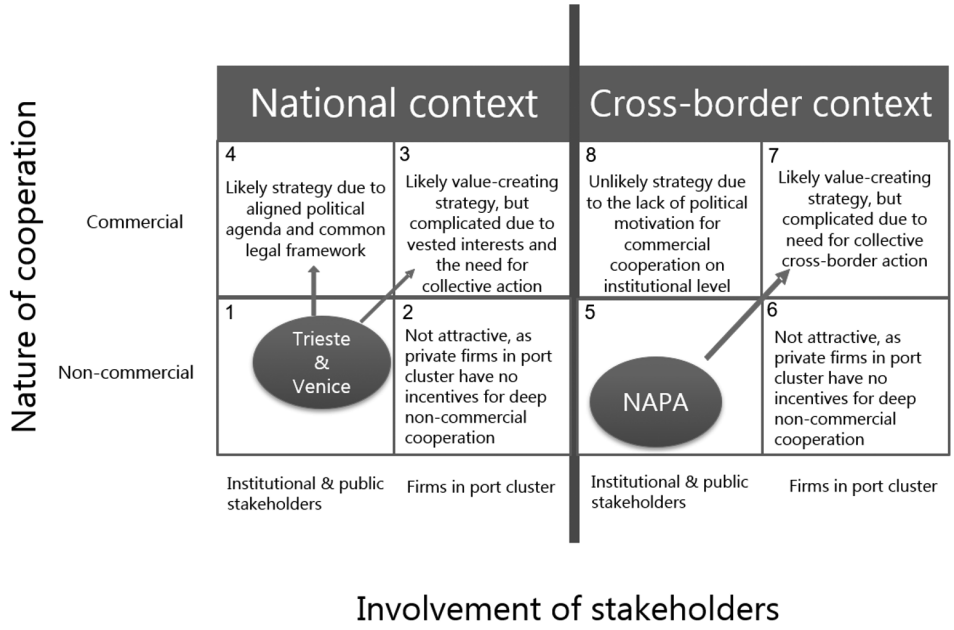
would only be possible with radical political and strategic changes, which none of them consider realistic in the foreseeable future. The major obstacle is that national, and even provincial in this case, governments pursue national political and economic agendas which, due to the short-sightedness and even the frequent-changing nature of political leaderships in the respective countries, makes any kind of supra-national coordination and cooperation on deep strategic level virtually impossible. This is partly understandable, but at the same time also problematic since the main point of the EU is cross-border, supra-national economic cooperation. Concerning the latter, port authority representatives also raise concerns regarding unequal legislative frameworks, work and pay conditions, thereby causing uneven costs in running the ports, pilotage and nautical services in each respective country.

From the perspective of commercial stakeholders (carriers, forwarders, rail operators), we gather that they are purely profit led and that they are willing to partake in initiatives which are expected to generate commercial benefits. Forwarders in all three countries have representative bodies, which have general lobbying and representation functions, but these bodies do not cooperate cross-border. Carriers, on the other hand, follow regional guidelines issued by their respective headquarters, which do not discriminate between nor have preference for different countries but instead consider market requirements and potential only. Those carriers, notably MSC, who have a vested interest in Trieste, have a natural preference for Trieste in terms of calling patterns and since MSC and Maersk are part of the 2M alliance, the same applies for Maersk. Therefore, it is not surprising that for the service loop from Far East to NAPA and vice versa, the first and last call of the loop is Trieste. Similarly, for forwarders that act in both or all three countries will follow strategies which bring them the biggest profits, regardless of via which port in particular their controlled cargo is routed. Rail operators inform that they simply follow cargo demand, as routed by the carriers and from this perspective, they have no deciding power over creating favourable conditions for all ports concerned. In summary, the firms in the ports cluster do not follow non-commercial strategies, neither on the national nor the cross-border level. On the other hand, commercial initiatives can and do take place when profit interests are aligned. In this case, there is no difference between the national or cross-border context, because firms do not orient themselves by the national borders, but purely by economic motivation.

Positioning of the NAPA ports within the newly proposed matrix for classifying cases of port cooperation is therefore summarized in Figure 8. From the national context, we position Trieste and Venice in quadrant 1, but slightly higher towards quadrants 3 and 4, given that our findings suggest better and higher likelihood of cooperation among institutional and commercial stakeholders, as compared to the NAPA as a whole. For that reason, we position NAPA lower in the quadrant 1, since there are only limited, pre-competitive cooperation strategies and initiatives from both institutional and commercial stakeholders taking place. With respect to the potential directions within the matrix, Venice and Trieste can consider moving towards quadrants 3 and 4, due to the, on the one hand, aligned national legislation framework and political agenda, and on the other hand,

higher likelihood of aligned vested commercial interests of the firms in the port cluster. The latter is also valid for NAPA, since commercial stakeholders do not limit themselves by the national borders, as instead their interests are purely profit led.

Figure 8: *Position of Trieste & Venice and the NAPA ports in the upgraded matrix for classifying cases of port cooperation.*



5 CONCLUSIONS AND FURTHER RESEARCH SUGGESTIONS

There is a growing academic literature supporting the notion that adjacent ports, provided they are complimentary, should develop common cooperation strategies. For our case study, we chose the Northern Adriatic ports (NAPA), which appear to be a clear case where cross-border cooperation would benefit all ports involved. This is supported not only by their complementarity, but also since the NAPA region is a turnaround region for ocean carriers, meaning shipping lines will consider the justification of a NAPA port call due to the economic potential of the whole region and not due to the individual port. Furthermore, the NAPA ports face inter- and intra-range competition, spurred by a variety of initiatives competing for the same catchment area.

In this paper, we first evaluate the existing models and frameworks for assessing port cooperation strategies. We note that while the existing models enable classification and evaluation of cooperation strategies, there is a gap in discriminating between national

or cross-border contexts. Second, we observe several actual worldwide examples of port cooperation strategies in order to derive new theoretical conclusions. This leads us to propose an upgraded version of the matrix for classifying cases of port cooperation originally postulated by Stamatović et al. (2018). The new matrix distinguishes between cases of national and cross-border port cooperation strategies. Furthermore, we provide general guidance for different quadrants of the matrix, by supplying examples of strategies that pertain to each quadrant. Third, we explain our research method for obtaining relevant information, which enables us to position and evaluate the cooperation level among the NAPA ports. Another case in point in favour of the NAPA ports is that it allows us to evaluate national and cross-border strategies simultaneously. We use in-depth, semi-structured expert interviews with relevant stakeholders (port authorities, ocean carriers, freight forwarders and rail operators) to gather insight and understanding on port cooperation strategies. Fourth, we introduce the NAPA ports and proceed to analyse the insight gained from the expert interviews. We find that on the cross-border level, the NAPA ports are still at a very basic, arms-length type of cooperation, while on the national level (that is between Venice and Trieste) we observe a slightly more coordinated and deeper level of cooperation, though still in the very early stages of development. In evaluating the potential future movements within the matrix for both Trieste and Venice and NAPA as a whole, we find that Trieste and Venice have the potential to move towards a commercial level of cooperation for both port authorities and firms in the port cluster, while NAPA only in the direction of the commercial level for firms in the port cluster.

This paper adds to the existing and growing literature on port cooperation by proposing an additional dimension, which has not been considered before – that is the factor of the national and cross-border context. We believe there is a marked difference between the possibilities and extents of cooperation in these two separate contexts. The premise here is that given the large involvement of governments in the national infrastructure development agendas, drivers for enabling a deeper and far-reaching cooperation among ports is far more likely in national than in cross-border situations. This is confirmed by our analysis of ports and the insight gained with the expert interviews. Due to the dynamic nature of the maritime industry, further fine-tuning of the existing models for assessing port cooperation strategies is recommended. Finally, further research is also needed to explore additional cooperative market approach strategies with a further analysis of the successful and failed cases of port cooperation, in order to increase the understanding of success and failure factors when implementing port cooperation strategies among ports in vicinity.

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APPENDIX 1: INTERVIEW QUESTIONS

A) Questions for the port authorities

1. Do you believe the NAPA ports cooperate well enough? If not, can you advise what is missing?
2. How restricted is the cooperation between the NAPA ports given that ports are located and governed by three different countries and also different types of organizational structures (i.e. service port, landlord port, port authorities, etc.)?
3. If any of the members changed this, do you believe it would be easier to cooperate?
4. If we isolate container cargo only, could you describe how far-reaching is the level of cooperation between NAPA ports?
5. Do you believe the NAPA ports are substitutable or complementary?
6. What are your future plans? Are they aligned with the strategies other ports have?
7. Specific: there is criticism that since for example Venice is battling with the issues of shallow sea, while Trieste has a naturally deep sea, that there could be better alignment of development strategies? Trieste is also very strong in liquid cargo, while Venice is stronger in dry bulk cargo.
8. Could you describe in more detail what exactly NAPA association does?
9. Do you see benefits of NAPA as an association and if so, can you specifically describe them?
10. What could the NAPA organization do more in your opinion?
11. What is in your opinion the key obstacle in increasing the current cooperation level?
12. Do you believe there is more cooperation between for profit stakeholders like forwarders, rail operators etc. than it is on the level of port authorities?
13. Do you believe, if all ports lied in the same country as the Shanghai, Ningbo or Guangzhou ports do, that there would be more cooperation?
14. Trieste has an advantage on liquid cargo. Koper clearly has advantage of RO-RO cargo. For Rijeka, we cannot emphasize any specific advantage. Do you believe ports could agree on which commodity group to specialize in and thus not compete?
15. Academics argue that in the current world, where shipping lines are stronger than ever, cooperation makes more sense than competition, particularly in adjacent ports and particularly in complementary ports. Do you agree with that statement?
16. Would you rather see that major shipping lines divided ports, for example Trieste with MSC, Koper with Maersk, Rijeka with Cosco and Venice with CMA, thereby solving the issue of competition between ports?

17. Actually, growth of container cargo in some ports has not been very significant. To what would you attribute that?
18. Is there anything else you would like to tell us that will help us better understand the level of cooperation in the NAPA region?

B) Questions for the shipping lines

1. Do you see benefits of NAPA as an association and if so, can you specifically describe them?
2. What could the NAPA organization do more in your opinion?
3. Do you agree that the NAPA region is a turnaround region?
4. Is it different compared to other European regions? If so, how?
5. Do you consider the NAPA ports complementary or substitutable?
6. If you had a dedicated terminal (either your own or a preferred partner/alliance), would you consider the NAPA region more important than it is right now? If so, what is the potential of the NAPA region compared to that of the Northern ports?
7. If NAPA ports cooperated by means of assigning one or two strategic ports for container cargo, would you see this as more or less beneficial? Should they do that?
8. What is the main obstacle to more cargo not being routed via NAPA ports? How would NAPA ports convince you to bring larger ships to the region?
9. If NAPA ports assigned one port to handle all region's containers, would this mean any particular changes from your perspective? Would you be able to include this single port in a different type of rotation where it would just be part of another loop, or would it still mean a turnaround point?
10. As a carrier present in all NAPA ports, do you coordinate your commercial activities for each port-market internally? How about within alliance members?
11. Are you part of any local/regional associations which lobby and cater for better conditions, infrastructure, customs procedures, etc.? If yes, how successful is the organization/association in achieving results? What could be improved?
12. What would you suggest to ports to do to protect themselves from the rapidly changing dynamics of supply chains in the region (Piraeus, rail connection with China…)?
13. Is there anything else you would like to tell us that will help us better understand the level of cooperation in the NAPA region?

C) Questions for the rail operators

1. How well are the strategies among rail operators that operate in the NAPA region aligned?

E/B/R

POVZETKI V SLOVENSKEM JEZIKU

Are We Reversing the Trend in Waste Generation: Panel Data Analyses of Municipal Waste Generation in Regard to the Socio-Economic Factors in European Countries

Ali Spreminjamo Trend v Nastajanju Odpadkov: Analize Panelnih Podatkov o Nastajanju Komunalnih Odpadkov glede na Socialno-Ekonomske Dejavnike v Evropskih Državah

Predrag Korica, Andreja Cirman, Andreja Žgajnar Gotvajn

Namen te študije je raziskati, ali je prišlo do upada v količinah nastalih komunalnih odpadkov, na katerega vplivajo spremembe, ki se jih ne da pripisati spremembam v socialno-ekonomskih spremenljivkah in se zatorej lahko pripišejo spremenjenemu vedenju in učinkovitosti politik, ki se izvajajo z namenom zmanjšanja količin nastalih odpadkov. Analize znotraj študije zajemajo podatke 30 evropskih držav v obdobju 2002-2015. Uporabljena je metoda panelne analize podatkov s sedmimi socialno-ekonomskimi spremenljivkami z uporabo tako modela s fiksnim učinkom, kakor tudi modela z naključnimi učinki. Rezultati naše raziskave pokažejo, da v primeru kontroliranja socialno-ekonomskih spremenljivk zaznamo upad v količinah nastalih komunalnih odpadkov v obdobju 2011-2015, kar nakazuje na določeno učinkovitost politik, izvedenih za preprečevanje nastajanja odpadkov v Evropi.

Ključne besede: *nastajanje komunalnih odpadkov, politika preprečevanja nastajanja odpadkov, socialno-ekonomski dejavniki*

Surveying the Methodological and Analytical Foundations of the New Institutional Economics: A Critical Comparison with Neoclassical and (Old) Institutional Economics

Pregled Metodoloških in Analitičnih Temeljev Nove Institucionalne Ekonomije: Kritična Primerjava z Neoklasično in (Staro) Institucionalno Ekonomijo

Giorgos Meramveliotakis

Namen članka je podati pregled metodoloških in analitičnih temeljev nove institucionalne ekonomije, ki je nakazan na primeru kritične primerjave z neoklasično in (staro) institucionalno ekonomijo. Po obravnavi temeljnih opredelitev in pojmov nove institucionalne ekonomije, se usmerim na kritično primerjavo z drugimi strujami mišljenja. Izkaže se, da se nova institucionalna ekonomija v osnovi ne loči dosti od neoklasične ekonomije. Ravno nasprotno, lahko se zanesljivo potrdi, da je nova institucionalna ekonomija raziskovalni program, ki je razvit znotraj in okoli prevladujoče neoklasične paradigme. Po drugi stani je bilo ugotovljeno, da staro in novo institucionalno ekonomijo sestavljata dva različna pristopa k analizi institucij, ki izhajata iz drugačnih paradigmatskih vidikov, kateri vodijo do in spodbujajo kontrastna stališča glede načina, kako teoretično obravnavati institucije.

Ključne besede: *institucije, organizacije, neoklasična ekonomija, institucionalna ekonomija*

The Status Quo Bias of Students and Reframing as an Educational Intervention Towards Entrepreneurial Thinking and Change Adoption

Nagnjenost Študentov k Ohranjanju Obstoječega Stanja in Preoblikovanje kot Izobraževalni Ukrep v Smeri Podjetniškega Razmišljanja in Sprejetja Sprememb

Stojan Debarliev, Aleksandra Janeska-Iliev, Viktorija Ilieva

Namen raziskave je pregledati nagnjenost k ohranjanju obstoječega stanja in ukrepe za preoblikovanje med študenti poslovnih ved, v poskusu, da bi razumeli vlogo teh ukrepov na podjetniško odločanje študentov, ter s končnim ciljem, da bi ugotovili, ali lahko z uporabo izobraževalnega ukrepa v smeri inovativnosti in sprejemanja sprememb vplivamo na podjetniško razmišljanje študentov. Čeprav so navedene raziskovalne teme že bile obravnavane ločeno in pretežno v nepodjetniškem kontekstu, je cilj naše raziskave povezati te enake teme v skupno študijo z laboratorijskim poskusom v izobraževalnem kontekstu, ki vključuje univerzitetne študente poslovnih ved. Eksperimentalna študija vključuje vzorec več kot 200 dodiplomskih študentov tretjega ali četrtega letnika študijskega programa menedžment na Univerzi Svetega Cirila in Metoda v Skopju. Na splošno ugotovimo, da so študentje v 7 od skupno 18 primerov znatno nagnjeni k ohranjanju obstoječega stanja, kar nakazuje na zmerno raven ohranjanja obstoječega stanja. Rezultati drugega dela naše študije pokažejo močan vpliv preoblikovalnega ukrepa na premagovanje pristranskosti do ohranjanja obstoječega stanja. V vsakem primeru naša raziskava predstavlja edinstven prispevek, ki ponudi praktičen primer pristopanja podjetniškemu učenju v obliki ukrepa v smeri inovativnosti in sprejemanja sprememb med študenti poslovnih šol in univerz.

Ključne besede: *nagnjenost k ohranjanju obstoječega stanja, preoblikovanje, podjetništvo, odločanje, študenti, učenje, inovacije, sprejetje sprememb*

Knowledge Management in Social Work: Management Support, Incentives, Knowledge Implementation, and Employee Empowerment

Management Znanja v Socialnem Delu: Podpora Managementa, Spodbude, Implementacija Znanja in Opolnomočenje Zaposlenih

Simon Colnar, Vlado Dimovski

V članku gradiva na sedanjih raziskavah o managementu znanja v okolju socialnega dela, da bi prikazala kako lahko management znanja organizacijam v okolju socialnega dela pomaga pri oblikovanju javnih politik in izboljša kakovost njihovih storitev. S povečevanjem znanja in ozaveščenosti o managementu znanja na področju socialnega dela, je najin cilj preučiti neposredno pozitivno povezavo med podporo managementa in spodbudami ter implementacijo znanja v praksi. Poleg tega, sva želela raziskati moderacijski učinek opolnomočenja zaposlenih na implementacijo znanja. Definirava in testirava več hipotez, da bi ugotovila kako podpora managementa, spodbude in opolnomočenje zaposlenih vplivajo na implementacijo znanja v okolju socialnega dela. Za preizkus hipotez, uporabiva moderacijsko regresijo na vzorcu 98 managerjev in zaposlenih v centrih za socialno delo v Sloveniji, ki so izpolnili vprašalnik, posebej pripravljen za potrebe študije. Rezultati raziskave potrdijo statistično značilno in pozitivno razmerje med podporo managementa in spodbudami ter implementacijo znanja. Opolnomočenje zaposlenih je moderator razmerja med spodbudami in implementacijo znanja, a velja izpostaviti, da je interakcijski učinek negativen. Rezultati študije prikažejo, da se najvišje stopnje implementacije znanja v praksi pojavijo, ko je tudi opolnomočenje zaposlenih visoko. V zaključku prispevka, obravnavava teoretične in praktične implikacije, ki izhajajo iz najine raziskave.

Ključne besede: *: management znanja, socialno delo, podpora managementa, spodbode, implementacija znanja, opolnomočenje zaposlenih*

Revisiting the Cooperation Matrix for Classifying Cases of Port Cooperation — Case Study: Northern Adriatic Ports

Ponovni Pregled Matrike za Razvrščanje Primerov Sodelovanja med Pristaniščі - Študija Primera: Severno-Jadranska Pristanišča

Kristijan Stamatović, Peter de Langen, Aleš Groznik

Pomorska industrija je doživela korenite spremembe zaradi strukturnega razvoja v konkurenčnem tekmovanju med deležniki v pomorstvu. Ti trendi so spodbudili pristanišča k sodelovanje, zlasti tista, ki si delijo skupno zaledne trge. Naš članek razširja obstoječe okvirje za razvrščanje primerov sodelovanja med sosednjimi pristanišči na način, da obravnava pomembnost prisotnosti oz. odsotnosti državne meje med obravnavanimi pristanišči. To naredimo tako, da predlagamo nadgrajeno različico matrike za razvrščanje primerov sodelovanja med pristanišči. Teoretične ugotovitve uporabimo na študiji primera severno-jadranskih pristanišč. V raziskavi opravimo poglobljene, delno strukturirane strokovne razgovore z relevantnimi deležniki v prej omenjenih pristaniščih, da bi lahko z uporabo novo-predlagane matrike klasificirali njihovo sodelovanje, tako za severno-jadranska pristanišča kot skupina in kot posamezne pare pristanišč.

Ključne besede: *Severnojadranska pristanišča, matrika sodelovanja, čezmejno sodeovanje, port cooperation matrix, Northern Adriatic ports, port cooperation, cross-border cooperation, port stakeholders*