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GOOD NEIGHBOURLINESS IN NIGERIA-BENIN TRANSBORDER TRADE RELATIONS FOR ECOWAS INTEGRATION

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ABSTRACT

Nigeria is a country with a geographical landmass of about 923,768 square kilometers (sq kms). With a population officially put at 180 since 2006, Nigeria is undoubtedly the most populous not only in West Africa, but the continent. It is the driving force not only in the establishment, but sustainability of the Economic Community of West African States (ECOWAS), a 15-nation sub- regional group. What makes this more important is that millions of Nigerian nationals are permanently resident in West and Central African countries of Togo, Benin Republic, Ghana, Liberia, Sierra Leone, the Gambia, Guinea, and Cameroon as well as in Chad, Niger Republics and Central African Republic among others. Several other Nigerians based at home are itinerary traders; artisans and other unskilled workers engaged in temporary migrations to make a living in many West African countries. Since independence, Nigeria has developed a foreign policy philosophy that dovetails around being a 'brother's keeper' to fellow African countries. It is a known fact that especially in the West African sub-region, any crisis that affects Nigeria will affect the economic and political landscape of her neighbours. It has the capacity to act as a sub- imperial power in the sub-region; its foreign policy posture has demonstrated since independence that it has not been designed with expansive territorial interest at the expense of its smaller immediate neighbours. But while ECOWAS offers a better option for integration for countries like the smaller Francophone countries in West Africa neighbouring Nigeria, many of them were

influenced by France to view Nigeria with a mask of covetousness and a potential threat to their territorial integrity. Nigeria has eschew the display of imperial power over weaker, but mostly Francophone speaking neighbours, which France has not been comfortable with, thus making relations between Nigeria an Anglophone speaking power and the Francophone neighbours so difficult.

The paper examines Nigeria-Benin Transborder relations, which has in spite the huge challenges have remained peaceful and rewarding and how such could serve as a good example for increased thrust towards minimizing the challenges in economic integration in the 15-naton economic sub-regional organization in West Africa.

Keywords: Nigeria, Benin, Relations, ECOWAS, Transborder trade, Smuggling, Transnational Organized Crime

MANAGEMENT OF ICT IMPLEMENTATIONS IN ENTERPRISES IN POLAND

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ABSTRACT

In order to develop and be competitive, modern enterprises, which function in an environment that is globalised, dynamic and subject to strong digitalisation pressure, need to implement information technologies in a way that will allow them, as they achieve further levels of virtualisation, to maintain, and even enhance, their ability to create value added. As business activity is moved to a space shaped by computers and IT networks and distance communication tools and forms are developed, the importance of establishing contacts and relations in the organisation and execution of value-creation business processes increases. Digitalisation of the economy and society is one of the most dynamic changes of our times, opening up new opportunities to create business models, while bringing uncertainty and various threats connected, among other things, with social consequences of the automation of production processes and security in a broad sense.

The aim of the presentation is to indicate areas of activity in which information technologies are most often implemented in enterprises in Poland as well as managers' strategic approach to this problem in the face of digital transformation.

The paper presents the level of Polish enterprises' engagement in the process of digital transformation and shows how the progress in terms of implementation of modern ICT in the

aspect of customer contacts, managing and executing contacts with suppliers and recipients and resource configuration, impacts the effectiveness of the enterprises surveyed.

Keywords: management, ICT, enterprise

Introduction

Digitalisation as a continuous process of convergence of the real and virtual worlds is becoming the main driving force for innovations and changes in most sectors of the economy. Currently, the main factors driving the development of the digital economy include:

- the Internet of Things (IoT) and the Internet of Everything (IoE),
- hyperconnectivity,
- applications and services based on cloud computing,
- big data Analytics (BDA) and Big-Data-as-a-Service (BDaaS),
- automation and robotisation,
- multi-channel and omni-channel models of the distribution of products and services.

What is especially important is that current changes are radical, and in some cases even disruptive, bringing completely different values to market players and consumers. In order to cope with these changes, individual enterprises and whole sectors, public administration, society and national economies need to undertake digital transformation.

Digital transformation and management of innovative implementations in enterprises

Industry 4.0 is a relatively new concept and refers to an enterprise's production system that is composed of an information system and numerically controlled machines, which work autonomously and display elements of artificial intelligence. (Lee, 2013)

Other authors argue that since production processes are differently organised and run differently in different industries, the concept of Industry 4.0 should not be generalised in this way. (Kagermann, Wahlster and others, 2013) There is an increasingly widespread view that the scope of the definition of Industry 4.0 should be

considered on an individual basis, depending on the needs of a particular enterprise. (Lasi, Fettke and others 2014). At the same time, the nomenclature of this new concept of an enterprise management changes, as the way of defining it evolves, with ever new terms introduced to refer to the phenomenon observed, e.g. Industrial Internet or Digital Factory. (Schmidt, Möhring and others, 2015)

“According to experts from industry and research, the upcoming industrial revolution will be triggered by the Internet, which allows communication between humans as well as machines in CPS throughout large networks. It introduces customized and flexible mass production technologies fostering once again novel interaction between technological change and industrial organization. Machines will operate independently or cooperate with humans in creating a customer-oriented production field that constantly works on maintaining itself. The machine rather becomes an independent entity that can collect, analyze, and offer advice based upon data. The idea behind Industry 4.0 is to create a social network where machines can communicate with each other, called the Internet of Things, and with people, called the Internet of People.” (Trento, Bannò and others, 2018).

According to Hermann M., Pentek T., Otto B. (Hermann, Pentek and others, 2015), the concept of Industry 4.0 encompasses areas that involve numerous technologies and related paradigms. Accordingly, the main elements that are closely connected with the idea of Industry 4.0 include: Industrial Internet of Things, cloud-based production, smart factories and cyber-physical systems.

The Internet of Things was first defined by Kevin Ashton in 1999. The author proposed the use of data transmission over the Internet using RFID to control the supply chain in the company Procter & Gamble. Currently, the Internet of Things encompasses all types of equipment, e.g.:

- domestic equipment (household appliance and multimedia equipment),
- security and health and life protection systems,
- automation systems, - passenger cars and lorries,
- production and logistics systems of an enterprise.

The idea of IIoT, like that of IoT, is to collect a large amount of data. In the case of the Industrial Internet of Things, data is collected from production processes and sent to data processing centres.

Cyber-Physical Systems (CPS) are defined as a combination of the computing layer and physical processes. (Lee, Bagheri and others, 2015) The integration most often takes the form of embedded systems and networks for monitoring and controlling physical processes. The control system of a production process works in a feedback loop. In this case, physical processes constitute the source of data for computing a signal controlling selected executing entities. The development of CPS can be divided into three phases:

first generation of CPS – includes RFID technology,

second generation of CPS – systems are equipped with sensors and actuators with a limited range of functions,

third generation of CPS – systems are able to store and analyse data.

Smart Factory is a leading component, one of the main concepts of Industry 4.0. It is defined as a factory that purposefully supports human resources and machines in the execution of their tasks based on elements of a cyber-physical system and the Internet of Things. This means that the factory „will be aware and intelligent enough” to control the production process or keep machines and devices in a proper technical condition. Thus, there will be integration at all levels of production resources, e.g. sensors, actuators, machines and devices, robots, conveyors, etc. (Kagermann, Wahlster and others, 2013)

Social Product Development (SPD) is a relatively new concept in the world of product development. Without a clear definition as yet, the concept is assumed to mean engagement of a team of people within or/and beyond an enterprise in the development of a product (qualified group of people). For that purpose, technologies, social tools and media are used in a way that allows users to have an impact on the product’s life cycle at every stage of its design process. (Peterson, Schaefer, 2014).

An important element that can support the implementation of the concept is virtualisation of processes occurring in an enterprise. By means of virtualisation elements, it is possible, using sensors, to monitor physical processes occurring in a organisation. Based on obtained data, it is possible to map physical processes and simulate how they work.

A virtual organisation is identified with a continuous process of organising in a highly computerised environment, involving a virtual space, a parallel reality created by computers, their software, network connections and communication technologies.

According to Niedzielska, (Niedzielska, 1997) the idea of a virtual organisation is manifested in the form of multi-faceted and multi-factorial system transformations that take place in various economic entities in order to eliminate inefficient input channels, limit the routes of information stream flows and to convert heavy architectures into flexible organisational units characterised by high autonomy and high standard of

operation.. „A virtual organisation is an organisation that uses communication technology as a substitute of material structures to enable diffusion and decentralisation of work and make an organisation more flexible and indefinite.” (Warner, Witzel, 2005). Virtualisation of enterprises shifts value creation processes into virtual space, where it is possible to offer intelligent products online. An intelligent product offered online in a virtual form is so constructed that a customer can choose such a part of it, an option of the offer, that best meets his/her expectations.

The value added contained in an intelligent product is usually high, as it is a product with a large potential of knowledge and technology, so large that not every customer can fully appreciate or take advantage of it. For a customer receiving a product with high value added when his/her expectations are significantly lower, the perceived value of such a product will be lower compared to the value perceived by the customer with higher expectations. In a network, the value of a product can be disassembled into its components, and a customer can choose the ones that he/she needs while resigning from the others, which, though valuable for other customers, are worthless to him/her. (Tapscott, 1999) The concept of an intelligent product facilitates

the process of optimising relations between the value offered and the value expected by the customer.

Methodology

The first stage involved a study using a survey questionnaire carried out among enterprises in Poland. A total of 346 enterprises participated in the study, including 143 micro enterprises, 104 small enterprises, 48 medium-sized enterprises and 51 large enterprises; Including:

245 service enterprises and 101 manufacturing enterprises;

318 privately owned, 9 state-owned, 11 cooperative, and 4 employee ownership enterprises;

61.2% - self-employed economic activity; 22.8% – capital companies, including 28 joint-stock companies and 51 private limited companies.; 4.6% partnerships

60.1% enterprises operating 5 to 15 years; 5.2% – up to 1 year; 33.8 % - over 15 years, of which 24 (6.9%) operating over 30 years.

The second stage in order to assess the degree of enterprises' engagement in the process of implementing modern information technologies, a survey was conducted which covered 143 managers: 119 worked for companies from the SME sector, with the remaining respondents employed in managerial roles in large enterprises (24). The survey questionnaire consisted of a dozen questions concerning the perception of the issue of digital transformation and its inclusion into key strategic and organisational documents, enterprises' readiness to implement modern technologies, organisational culture, ICT use and achieved effectiveness.

Results of research: The use and objectives of application of information technologies in enterprises in Poland

In order to assess the importance of virtualisation of contacts with customers in value creation in the analysed enterprises, the question about the impact of IT technologies on the quality of relations with enterprises' customers was posed. Larger enterprises much more often declared higher expectations regarding the level of virtualisation of contacts with customers (Table 1).

Table 1. Values of χ^2 and Yule's ϕ coefficient for the use of information technologies and level of customer service

Problem	χ^2	p	ϕ
The use of information technologies vs. level of customer service	46.793	0.000	0.392

Moreover, a clear positive correlation was observed between the achieved level of virtualisation of contacts with customers in enterprises and their economic and financial situations (Tab. 2).

Table 2. Values of χ^2 and Yule's ϕ coefficient for information technology employed in enterprises and assessment of the economic and financial situations

Problem	χ^2	p	ϕ
The information technology employed in an enterprise in the area of customer service vs. an enterprise's economic and financial situation	28.807*	0.000	0.288

A higher level of virtualisation of contacts with customers comes with a better assessment of an enterprise's economic condition (higher capacity for generating value added).

The study confirmed a significant relationship between an enterprise's size and the degree of technological advancement in configuration of assets (Table 3).

Table 3. Values of χ^2 and Yule's ϕ coefficient for an enterprise size and the level of employed information technologies

Problem	χ^2	p	ϕ
The level of employed information technologies vs. the size of an enterprise	58.247	0.000	0.446

The bigger the enterprise, the higher the level of information technologies used to acquire resources.

In order to assess how virtual sourcing impacts an enterprise's capacity for value generation, correlation was examined between the degree of virtualisation of the configuration of assets in enterprises and their assessments of their economic and financial situations (Table 4).

Table 61. Values of χ^2 and Yule's ϕ coefficient for virtualisation level and enterprises' economic and financial situations

Problem	χ^2	p	ϕ
Level of virtualisation of the configuration of assets vs. assessment of an enterprise's economic and financial situation	26.983*	0.001	0.279

The study confirmed a positive, statistically significant moderate relationship between the level of virtualisation of the configuration of assets and the assessment of the economic and financial situation. The higher the level of information technology and tools used in establishing and maintaining contacts with suppliers, the better the assessment of the enterprise's economic and financial situation. (Ziółkowska, 2013)

Results of research: Managers' decisions and strategic actions in the face of digital transformation

Asked about the key characteristics defining digital transformation, Polish managers indicated above all digitalisation, virtualisation and optimisation of the existing business processes (58% of those surveyed), increased productivity of employees thanks to modern IT tools and implementation of digital channels of access to services (45%). Other areas associated with digital transformation of enterprises included: improvement of managers' capabilities thanks to data analysis, contextualisation of contacts with customers and bringing IT departments closer to business.



Figure 1. Digital Transformation According to Polish Managers

Resource: own study own study Digital transformation in Polish companies, Computerworld 2018

Whatever the IT architecture model adopted and developed in a company, ensuring scalability and easy management of services boils down to a common denominator: implementation of solutions in which the basis is programmable resource pools - whether in the form of services provided by external providers or a private cloud or various intermediate models (hybrid, multi-cloud ones).

For the purpose of the study, a list was prepared containing technological solutions whose presence in an enterprise's IT environment is necessary or at least highly desirable in digital transformation processes. Next, participants of the survey were asked to indicate which of the solutions on the list had been implemented in the technological environment of their organisations.

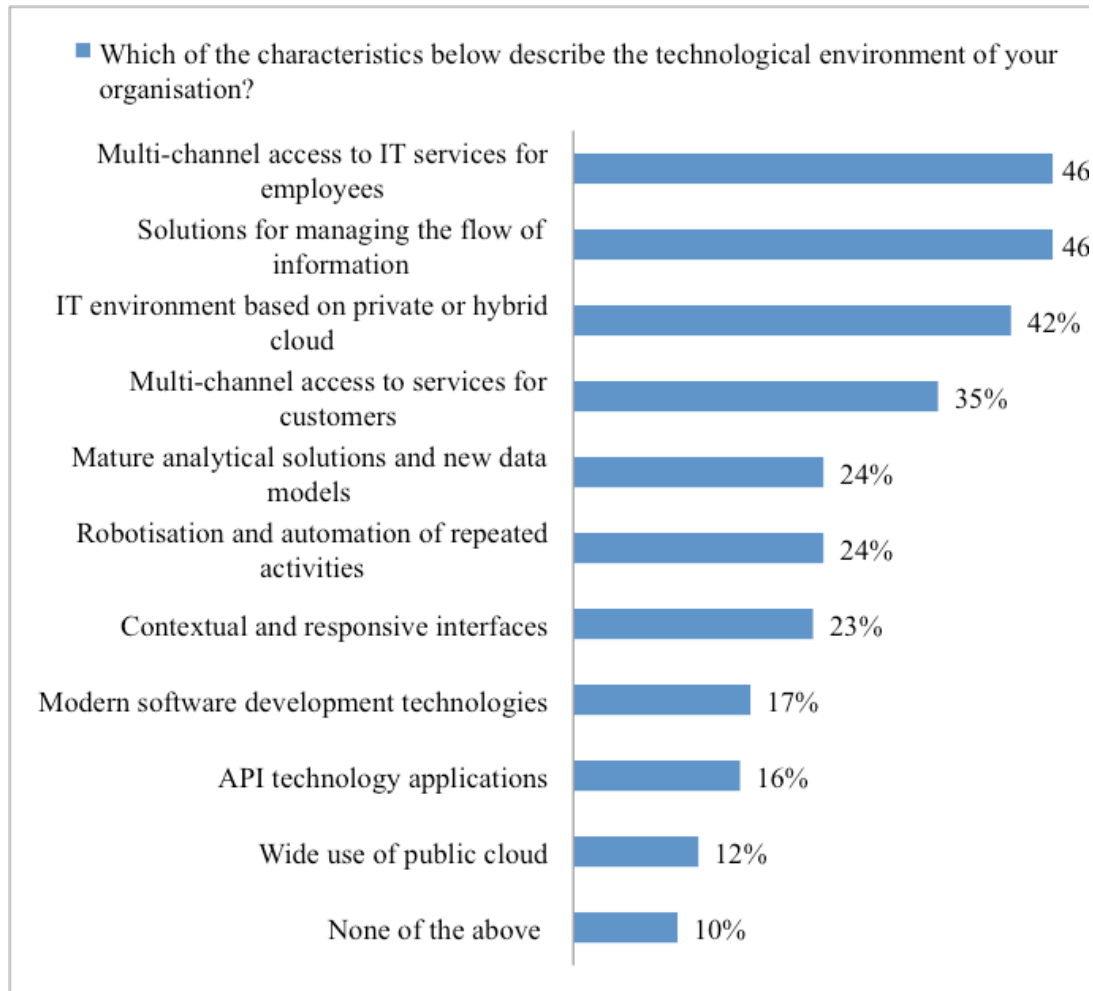


Figure 1. Technological Environment of Polish Enterprises

Resource: own study Digital transformation in Polish companies, Computerworld 2018

More than four out of ten respondents (42%) declared that private or hybrid cloud constituted the technological basis in their company. Some companies were able to proceed to create private clouds based on programmable solutions, such as VMware, Nubium or OpenStack. Even though some of the implementations classified as private or hybrid cloud are not pure resource pools but virtualised individual elements of infrastructure (most often servers, more and more often mass storage devices and networks), it is evident that the popularity of systems with software tier is increasing.

On the other hand, the share of public cloud in IT environment was once again lower than in the West - merely 12% of those surveyed declared a widespread use of

services of this type. According to this year's TOP200 report by Computerworld, in 2017 the market of public cloud in Poland was worth PLN 860.8 million, i.e. it increased by almost 18% compared to 2016 (PLN 731.6 million). As impressive as this increase may seem, it still accounts for merely 6.1% of the whole market of IT services (PLN 14 billion) and 1.4% of the value of IT market (PLN 60.7 billion). Strikingly, relatively few enterprises (16%) use API interfaces or tools for cloud environment management. This means that the implemented cloud solutions are often of silo type and are only limited to selected areas of an enterprise's activities. (Pietruszyński, 2018)

Technological elements that are most often implemented in Polish organisations include: solutions ensuring a multi-channel access to IT services to employees (46%) and customers (35%) and systems for managing the flow of documents and information (46%).

Conclusions

Knowledge of digital transformation and key elements of this process seems to be widespread among Polish companies. 55% of Polish managers think that digital transformation requires huge expenditure on infrastructure. Even more (57%) do not plan digital transformation. Only 20% of Polish companies developed detailed transformation plans. In the context of the development of technological infrastructure in view of digital transformation, it is worth stressing that only 10% of Polish organisations have a strategic document in place addressing this issue. Another 10% addressed this phenomenon in detail in the organisation's overall strategy. Further 22% of enterprises and institutions mentioned digital transformation in strategic documents without giving more attention to it. The remaining participants of the survey - almost six out of ten companies (57%) - did not even mention digital transformation, of which more than every fifth company (22%) did not possess any documents describing organisation strategy. Among the biggest threats posed by digital transformation, those surveyed indicated above all high costs of building modern IT environments (55%), ensuring appropriate level of security (42%) and difficulties with managing ever more

complex IT environments (41%). More than a quarter (28%) of the respondents participating in the survey considered the lack of strategic documents that take into account digital transformation as one of key barriers. Other important problems included: legacy IT environment with old architecture (31%), lack of sufficient knowledge and competencies (26%), and difficulties with describing performance indicators (23% - which is a result of the lack of the strategy) and problems with attracting employees (23%). Developing modern IT environments requires huge investments, as older, legacy equipment and systems prevent implementation of a uniform system for managing resources. The architecture of traditional monolithic applications often requires a lot of resources for single instances of an operating system. Replacing solutions of this type involves high financial investments and organisational efforts.

Summary

Enterprises that engage in cooperation in a networked environment see it as a possibility of creating a greater business potential and generating a greater value as part as cooperation systems. The value generated in a network should be distributed among the partners proportionally to their contributions. However, the practice shows that this is rarely the case. Thus, the issues connected with co-creation of value in a networked environment should be addressed along with the issues of effective retention of value.

Efficiency and effectiveness of the functioning of enterprises in a networked environment depends on the network architecture and the use of modern ICT solutions and tools. It is especially creation of wireless networks and provision of access to business applications from mobile devices that creates a range of possibilities of value adding and increasing security of the functioning in a network as well as improving the process of value retention.

Bibliography

Lee J., (2013). Industry 4.0 in Big Data Environment, *German Harting Magazine*, pp. 8 – 10.

Kagermann, H., Wahlster W., Helbig J., (2013). Recommendations for implementing the strategic initiative Industrie 4.0: Final report of the Industrie 4.0 Working Group.

Lasi H., Fettke P., Kemper H., Feld T., Hoffmann M., (2014). Industry 4.0. *Business & Information Systems Engineering* 6, pp. 239 – 242.

Schmidt R., Möhring M., Härting R. C., Reichstein C., Neumaier P., Jozinovi P., (2015). Industry 4.0 - Potentials for Creating Smart Products: Empirical Research Results, in: W. Abramowicz (Ed.) *Business Information Systems*, Springer International Publishing, pp. 16 – 27.

Trento S., Bannò M., D'Allura G. M., (2018). The Impact of the 4th Industrial Revolution on SMEs' High-Tech Industry. *Symphonya. Emerging Issues in Management*, No.2.

<http://symphonya.unimib.it/article/view/12932/11744> (15.01.2019)

Hermann M., Pentek T., Otto B., (2015). Design Principles for Industrie 4.0 Scenarios: A Literature Review, Technische Universität Dortmund, No. 01.

Ashton, K. (2009). That 'Internet of Things' Thing In the real world, things matter more than ideas. *RFID Journal*. <https://www.rfidjournal.com/articles/view?4986> (7.02.2019).

Lee J., Bagheri B., Kao H., (2015). A Cyber-Physical Systems architecture for Industry 4.0-based manufacturing systems, *Manufacturing Letters*, Volume 3, 1, pp. 18 – 23.

Wittbrodt P., Łapuńska I., (2017). Przemysł 4,0 – Wyzwanie dla współczesnych przedsiębiorstw produkcyjnych.

http://www.ptzp.org.pl/files/konferencje/kzz/artyk_pdf_2017/T2/t2_793.pdf (18.01.2019)

Peterson A., Schaefer D., (2014). Social Product Development: Introduction, Overview, and Current Status, In: D. Schaefer (Ed.): *Product Development in the*

Socio-sphere: Game Changing Paradigms for 21st Century Breakthrough Product Development and Innovation, Springer International Publishing, pp. 63 – 98.

Niedzielska E., (1997). Wirtualne organizacje gospodarcze, [in:] Zarządzanie przedsiębiorstwem w teorii i praktyce, ed. M. Przybyła, *Prace Naukowe AE*, Wrocław No. 754.

Warner M., Witzel M., (2005). Zarządzanie organizacją wirtualną, Oficyna Ekonomiczna, Kraków, p.183.

Tapscott D. ed.. (1999). Creating Value in the Network Economy, *Harvard Business Review Book 1999*

Ziółkowska B. (2013). Zarządzanie procesami tworzenia wartości w przedsiębiorstwie. Perspektywa wirtualizacji, Wydawnictwo Politechniki Częstochowskiej, Częstochowa.

Pietruszyński P., (2018). Cyfrowa transformacja bez strategicznej wizji celu.

Computerworld,<https://www.computerworld.pl/news/Cyfrowa-transformacja-bez-strategicznej-wizji-celu,410986.html> (16.12.2018)

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DOUBLY ENHANCED ANNUITIES: THE ANNUITY PUZZLE AND LONG TERM CARE IN THE US

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ABSTRACT

A 2018 Willis Towers Watson study of global pension assets covering 22 major pension markets shows a staggering total of US\$41,355 billion in pension assets with the U.S. accounting for 61% of these assets. While this total demonstrates a high degree of participation in the accumulation of assets intended for retirement, the U.S. market for voluntary individual immediate life annuities is small relative to other financial investment outlets competing for retirement savings. The relatively small size of the U.S.'s voluntary immediate life annuity market seemingly contradicts Yaari's (1965) assertion that, under certain conditions, utility maximizing retirees should annuitize all of their wealth upon retirement. This apparent contradiction contributes to what is called the "annuity puzzle." The one of the main explanations for the annuity puzzle is adverse selection, whereby insurers' fear of annuitants living well beyond their life expectancy makes insurers price voluntary annuities so high that they become unattractive to the general retiree population. However, in the U.S. there is another dimension to the puzzle, which involves access to long term care. U.S. retirees' long term care costs are, in general, not covered by the Government and are the responsibility of each retiree. We develop a hybrid annuity product called a doubly enhanced annuity that protects against adverse selection, provides a long term care benefit, and satisfies a bequest motive. We use multi-state Markov model of future mortality and morbidity that includes an extra component that models the impact of the quality of long term care on future life expectancy. This approach that explicitly models quality of long term

literature. We explore the optimal doubly enhanced annuity (i.e., life annuity and long term care) contract for retirees.

Keywords: retiree type, quality of long term care, multi-state model, quasi-frailty model, enhanced annuity, bequest motive

CURRENT ISSUES IN ECONOMICS AND FINANCE RELATED TO PENSION SYSTEMS: A DOCUMENTAL ANALYSIS SUPPORTED BY IMPORTANT INTERNATIONAL AGENCIES

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ABSTRACT

This documental, non-experimental and descriptive research has been for academic purposes to identify current issues in economics and finance related to pension systems.

Pension systems are changing worldwide to respond to the challenges they face. Around the world, the pension landscape is changing due to several factors, such as the aging of the population, the repercussions of the financial and economic crisis, and the current context with low economic growth and low interest rates.

It is necessary to establish a coherent system for retirement in order to adapt and help people to mitigate their financial situation in the future and longevity. The pension systems in the future also need suitable regulatory framework to adapt to innovations in the design of products and encourage the suitable risk management. It is necessary for public policy makers to ensure that pension system users receive an adequate financial advice for their retirement.

The objective of this research is to analyze some of the most important issues in economics and finance related to Pension Systems. According to the theoretical framework analyzed, this document identify the main characteristics that affects the

considering aspects as the current situation in the pensions systems in developed and developing countries, the risk as a consequence of aging unequally, and inequalities at older ages. In addition, this document identify situations that have to be attended by governments and policy makers in order to avoid that some groups of aged people face a high risk of poverty in coming decades.

Keywords: pensions, outlook, international perspective

1 INTRODUCTION

The pension system in long term is supposed to be financially unsustainable according to the current pace of economic evolution and life expectancy. In the last 100 years, life expectancy has increased by 40 years and half of the children born in developed countries now will have the chance to live at least 80 years in the future. In this context, it is necessary to prolong the working life and take drastic measures such as new taxes. As a result, the pension system faces the challenge of maintaining and consolidating the benefits of the elderly.

A few years ago, nobody thought that it would be necessary to delay the retirement age and consider that the amount of benefits can change, or that it would be necessary to allocate part of our savings to a private fund to maintain our standard of living for the future.

After having worked for a large part of their lives, people expect to achieve a retirement pension at the age of 64 years old or later, that allows them to enjoy a stage in their life in which they can rest or meet other challenges. To reach that crucial moment in the lives as older people, it is important to take early action and guarantee a suitable pension for the future.

In the nineteenth century, the pension system model emerged with the general objective to provide for the population a suitable mechanism to ensure that people, in the long term, have the necessary income to cover their expenses and life.

2 GENERAL OBJECTIVE

Identify strategic situations to be taken into account in order to attend the future in the pension systems in any country, in order to avoid that some groups of aged people face a high risk of poverty in coming decades.

3 THE PENSION SYSTEM

On May 26, 2017, the World Economic Forum published an interesting document entitled "We'll Live to 100: How Can We Afford?" which talks about the medium-term challenge of the global crisis in the pension system, emphasizing in this regard the following [1].

First, this document states that all the people who are currently in their work stage should ask themselves two questions for the retirement: at what age do you want to retire? In addition, if you have saved or are you saving enough for it? In this sense, the document states that both questions are not easy to answer.

Second, the World Economic Forum highlights that a challenge for the pension system worldwide is the fact that people are living longer and this high life expectancy represents an important concern if the authorities does not take into account this situation, in the design of the pension systems that currently functions in a large part of the planet. In this sense, the document explains that the average retirement age worldwide is between 60 and 65 years, but life expectancy reaches 80 to 85 years in countries such as Australia, Canada, Japan, Netherlands, United Kingdom and the United States.

Third, another challenge to the pension system that the World Economic Forum highlights is the fact that currently what is saved compared to what will be needed by the time of retirement is not enough; that is, there is a gap between what we will need at the time of retirement and what we will have available.

Fourth, the document states that in this challenge, women have more disadvantages due to the wage gap, which causes woman be less remunerated when they perform a similar job or equivalent to that of men.

Therefore, less income results at the same time with less saving their pension fund. In this sense, the study indicates that at the time of retirement, for a work life reasonably comparable in terms of

position and functions, at the time of retirement a woman will receive a pension between 30% and 40% lower than that of men.

Fifth, the document highlights that this gap between savings and the amount necessary in the future for the retirement it is increasing due to the next reasons:

- The increase in life expectancy that will continue increasing in coming years.
- Combined this situation to the aging of the population with fewer and fewer workers of active working age to support the pension systems with their contributions.
- In the developing and underdeveloped economies, another situation is the increase in real wages. These economies are in the process of industrialization, so, the current salaries will be much lower in the future than the financial needs at the time of retirement. That is, by then the current pension savings will tend to be insufficient because of the high cost of living estimated for that moment of retirement, in the future.

4 AGEING UNEQUALLY

On October 18, 2017, the Organization for Economic Cooperation and Development (OECD) issued a study entitled Preventing Aging Unequally, emphasizing in this regard the following [2].

In this document, the OECD shows that the younger generations of the present face greater risks of inequality in old age than current retirees and generations born from the 1960s to the year 2000. Therefore, in this document the OECD states that it is very likely that the experience in old age for young people today will change drastically from what their parents and grandparents usually experienced.

In addition, in this OECD emphasizes that due to the decrease in the size of families since the second half of the 20th century, an effect has been to manifest a greater inequality in working lives (the retirement age has been increasing in recent decades). In this context, reforms to retirement fund systems have reduced pension income in the future, so, the OECD warns in this document that some groups of aged people will face a high risk of poverty in coming decades.

Specifically, in this study the OECD highlights that these "problems of inequality in old age" are even more acute in emerging economies. In this context, the greater risk have been mentioned in the cases of Brazil, China and India, which face a rapid aging in a relatively early stage of development; in addition, they currently have health inequalities wider than the OECD countries (considered as developed) and less effective social security systems. Consequently, to address these challenges, the OECD recommends adopting an approach focused on three areas:

- Prevent inequality before it accumulates over time. The OECD recommends public policies that provide good quality early childhood care and education, as well as help disadvantaged youth access decent employment, and increase health expenses in addition prevention for groups of young people.
- Mitigate entrenched inequalities. OECD recommends promoting public policies that allow a health system that is more inclusive and focused on the patient, and strengthen employment services in such a way as to make it easier for the unemployed to return to work.
- Address inequalities at older ages. It OECD recommends promoting reforms to pension systems to provide decent retirement quotas at the end of working life, taking into account that it is not possible to eliminate 100% inequality among older people, but it is possible to do efforts to mitigate economic inequality in old age. For these purposes, it is recommended to establish "first-floor pensions" (pensions with a minimum amount), and help people to face the poverty risk that especially women have. Women represents a group of people who are widely susceptible to lack a pension fund for having dedicated 100% of their life to the care of the home and not have had the opportunity to develop a productive working life between 25 and 64 years of age.

5 PENSIONS AT A GLANCE IN OECD COUNTRIES

On December 5, 2017, the Organization for Economic Cooperation and Development (OECD) published in that moment its most recent economic analysis on the pension system in the countries of the region and the G20 countries, document entitled "Pensions at a Glance 2017", emphasizing in this regard the following [3].

The document notes that public spending on pensions for the OECD region as a whole has increased around 1.5% of annual GDP since 2000 to present, but it is expected that the rate of growth of spending will decrease substantially after 2018 and years later. In this sense, the study states that, as a result, the challenges of financial sustainability and the adequacy of pensions for the coming decades requires a strong action by governments and policymakers.

So, in this context, governments and policymakers must make sure that the decisions made today take into account the long-term effects on pension systems and ensure in a sustainable way the social security and retirement systems for the next generations of workers.

In addition, the document highlights statistical data on the rate of adulthood (old age dependency ratio), which refers to the proportion between the dependent population, usually older than 64 years susceptible to being pensioned, and the active labor force that sustains the pension system with its social security contributions for these purposes. Consequently, the document indicates that the OECD countries that show a higher "rate of dependency" and that in coming years will face greater pressure in their pension system are:

- First, Japan with a 46% rate in 2015 but estimated at 78% by 2050.
- In second place Italy with a rate of 48% in 2015 but estimated at 72% for the year 2050.
- Third, Finland and Germany with a rate of 35% in 2015 but estimated between 50% and 58% by 2050 in both cases.

In contrast, the OECD countries that show a lower rate of dependency and that "apparently" in coming years will face less pressure in their pension system are:

- First, Mexico with a rate of 12% in 2015 but estimated at 33% for the year 2050.
- Second, Turkey with a rate of 14% in 2015 but estimated at 37% for the year 2050.
- In third place, Chile with a rate of 17% at 2015 but estimated at 45% for the year 2050.

6 A GUIDELINE TO ADDRESS THIS CHALLENGE: SUSTAINABLE DEVELOPMENT BONDS

On January 9, 2018, the World Bank issued a statement explaining that in recent days issued a "sustainable development bond" to raise awareness of how to empower women and girls, as one of the most effective ways to accelerate economic development, reduce poverty, and build sustainable societies, emphasizing in this regard the following [4].

This bond generated financing for 1 billion Canadian dollars, through institutional investors represented mainly by insurance companies and pension funds (42%), banks (34%), and Central Banks (24%). The World Bank seeks to contribute to achieving gender equality in line with the 17 Sustainable Development Goals of the United Nations (SDG). This bond was issued considering that "gender equality" is one of the five fundamental issues that in the year 2018 presidency of Canada in the group of seven (G7), topic considered as a main concern in the agenda.

Therefore, this "sustainable development bond" marks the return of the World Bank in the issuance of bonds for the market of Canadian dollars in two years, and this financial instrument, in addition to offering high quality returns, will provide financing for projects related to sustainable

development and gender equality, representing an attractive opportunity to align financial and social objectives.

Some of the main features of this bond are the following:

- Geographical distribution of the investors in this bond: 55% in Canada, 24% in Europe and the Middle East, 11% in Asia, and 10% in the United States.
- Issuing institution: the World Bank, formally known as International Bank for Reconstruction and Development or IBRD.
- Rating or qualification for this bond: Aaa / AAA.
- Value: 1 trillion (1 billion) Canadian dollars.
- Due date: January 17, 2023.
- Issuance and coupon price: 99.433% and 2.25%

7 BENEFITS FROM TAXATION OF HOUSEHOLD SAVINGS

On April 12, 2018 the Organization for Economic Cooperation and Development (OECD) issued a publication entitled "Taxation of Household Savings", emphasizing in this regard the following [5].

First, in the document the OECD points out that the taxes on personal savings and wealth vary widely and offer ample room to carry out tax reforms that simultaneously improve the efficiency and fairness of the tax systems. In this document it is argued that taxes represent one of the most effective tools that governments have in the task to reduce inequality and achieve more inclusive growth. In this sense, this document offers a detailed analysis of the manner in which savings are taxed in the 35 OECD countries and five associated strategic countries (Argentina, Bulgaria, Colombia, Lithuania and South Africa), and large differences are detected among the countries in the region.

Regarding the tax treatment of various assets, such as bank accounts, bonds, stocks, private pensions and housing, the study indicates that people are more likely to base their decisions regarding savings based on tax regulations and not in the rates of return before taxes.

This document also points out that although countries do not necessarily have to increase taxes on savings to make their tax collection more efficient, there are many possibilities to improve the way in which they collect tax revenues in such a way as to allow an effective control of capital without affecting the levels of economic inequality among the population. Therefore, for these purposes it is necessary to promote the efficiency and justice of the tax systems.

In addition, this document contains data about the OECD countries analyzed and the 5 key partners with respect to the levels of tax rates for different types of savings and domestic assets, highlighting the following examples:

- In Argentina, while bank deposits are taxed 0%, residential properties under lease face an average tax rate of up to 60%, while capital gains and dividends from investment in shares are of so much 40%.
- In Mexico, capital gains and dividends from investing in shares face an average tax rate of up to 20%.
- In the United States, while bank deposits taxes range from 20% to 60%, residential properties under lease face an average tax rate of up to 60%, while capital gains and the dividends coming from the investment in shares is at 30%.
- In Colombia, while bank deposits are taxed at 5%, residential properties under lease face an average tax rate of up to 40%, while capital gains and dividends from investment in shares are considered 0% or tax free rates.

8 THE GLOBAL FINANCIAL AND MONETARY SYSTEM IN THE FUTURE

On June 25, 2018 the World Economic Forum published an interesting document entitled "The Global Financial and Monetary System in 2030", emphasizing in this regard the following [6].

This Agency, through its Council on the Global Future of Financial and Monetary Systems, developed this report highlighting three key aspects of the risks and challenges associated with the design of the international financial architecture in the future: the regulatory challenges; the transformation of the financial system through digitization; and the current macroeconomic risks.

With respect to regulation, one of the conclusions of this document is that the leadership of the G20 is relevant to ensure the stability of the international financial system, by the guidelines stipulated by this group of countries for these purposes. G20 must also promote efforts to prevent conditions for any period of crisis with a solid supervision of the financial system at the international level and encouraging the efficient capitalization for the banking industry.

With respect to the digitalization of the financial system, due to the increasingly widespread use of mobile digital systems, the document emphasizes that future finances should emphasize three specific issues. First, the disintermediation in payment systems that will result in less financial costs for users. Second, the increasingly widespread use of artificial intelligence to provide financial services. Third, the development of cryptocurrencies.

About macroeconomic risks, the document highlights the evolution of interest rates. In this sense, it is explained that although it is currently considered, despite some increases, that real and nominal interest rates worldwide are at historical lows in advanced economies, it is explained that the relatively low interest rates on a sustained basis can have a negative impact on the financial system in the future through two channels:

- Causing problems for financial stability through of greater risk taking or less risk aversion, that means looking for greater returns.
- Through its adverse impact on the sustainability of commercial models of financial intermediaries such as banks, insurance companies and pension funds. It is possible that the future of the macroeconomic conditions reflected in the evolution of interest rates could have an important adverse impact in the structure of the financial system. Therefore, if the context of low interest rates persists, this situation could open the door to potential adverse effect in financial markets in the future.

This document states that by the year 2030, financial services will be transformed requiring substantial security measures for users, consideration that must be taken in to account immediately by this industry. In addition, in the future, there will be new participants in the context of "digital finance" and this requires that regulators must guarantee an efficient performance of the financial digital transformation that is just beginning.

Consequently, the document warns that "if this process is not controlled", the impact of these forces of technology on financial services will affect in a disorderly manner the financial system. That is, aspects such as the choice of customer services, the exponential increase in the range of providers of financial services based on technology, and the level of market risk in the absence of efficient control over the financial system based largely on the use of digital technologies.

9 GLOBAL INSURANCE MARKET TRENDS

On June 18, 2018, the Organization for Economic Cooperation and Development – OECD - issued a publication entitled "Global Insurance Market Trends 2017", emphasizing in this regard the following [7].

It is noted that most of the countries analyzed (43 among members and associated to OECD) experienced growth premiums in life and non-life insurance in 2017. The OECD indicates that the preliminary data for 2017 shows an increase in gross life and non-life insurance premiums of national insurance companies in 40 of the 43 analyzed countries, in comparison with 2016.

In this sense, the document mentions that the gross premiums of insurance companies increased in real terms in 15 countries in both the life and non-life insurances, mentioning that in this group are among others the countries of the United States, Poland, Portugal, Denmark, Israel, Iceland and Luxembourg.

Next, the document mentions that in 10 other countries only the life insurance sector showed growth, among them the countries of Brazil, Greece, Singapore, Turkey and Russia. In addition, the document highlights that in other countries the "non-life" insurance sector (cars, medical expenses, among other insurances) increased in the countries of Mexico, Spain, Italy, Austria, the Czech Republic and India. In addition, these statistics in this document indicate that in the cases of Belgium, Finland and Norway, they were the only three countries analyzed where insurance premiums decreased in both sectors (life and non-life) in real terms.

Finally, another fact to highlight in this document is that government treasury bonds represents the largest proportion of investments by insurers. Government bonds represents more than half of the investments of insurance companies in 34 of the 43 countries analyzed in 2017, highlighting that this feature exceeded 80% of investments in the countries of Brazil (83.5%), Hungary (82.2%), Mexico (82.0%) and Greece (81.1%).

10 THE SUSTAINABILITY OF PENSION SCHEMES

In 2012 the Bank for International Settlements published an interesting document entitled "The sustainability of pension schemes", emphasizing in this regard the following [8].

This document explains that, on the one hand, poor performance in financial markets and low long-term real interest rates in recent years have created challenges for the sponsors of defined benefit pension plans. On the other hand, the document points out that macroeconomic aspects such as the reduction of the tax revenues by payroll in a period of high unemployment, as well as the increase of the fiscal deficit in many advanced economies as the economic activity has diminished, they are factors that test the sustainability of public long-term pension plans.

The document also explains that in many countries the provision of pensions by a mandatory public regime is covered, generally called the social security scheme, which is by private pension plans complemented. In this sense, the document explains that in emerging economies access to any form of pension coverage among the working population is quite limited, only around 10% to 25%.

Finally, the document also explains that among the pension schemes, there are some financed or capitalized, that is, the pension assets supports the pension liabilities. However, on the other hand, other pension schemes do not receive financing, model known as pay-as-you (PAYG) systems. In this case, the pension system consists of having a retirement plan in which the beneficiaries decide how much they want to contribute and can determine an amount deducted from their salary on a regular basis. In this context, the current pension payments depends on contributions or payroll taxes paid by current employees.

11 THE LONG VIEW: SCENARIOS FOR THE WORLD ECONOMY TO 2060

The Organization for Economic Cooperation and Development or OECD published on July 12, 2018, an interesting research entitled "The Long View: Scenarios for the World Economy to 2060", emphasizing in this regard the following [9].

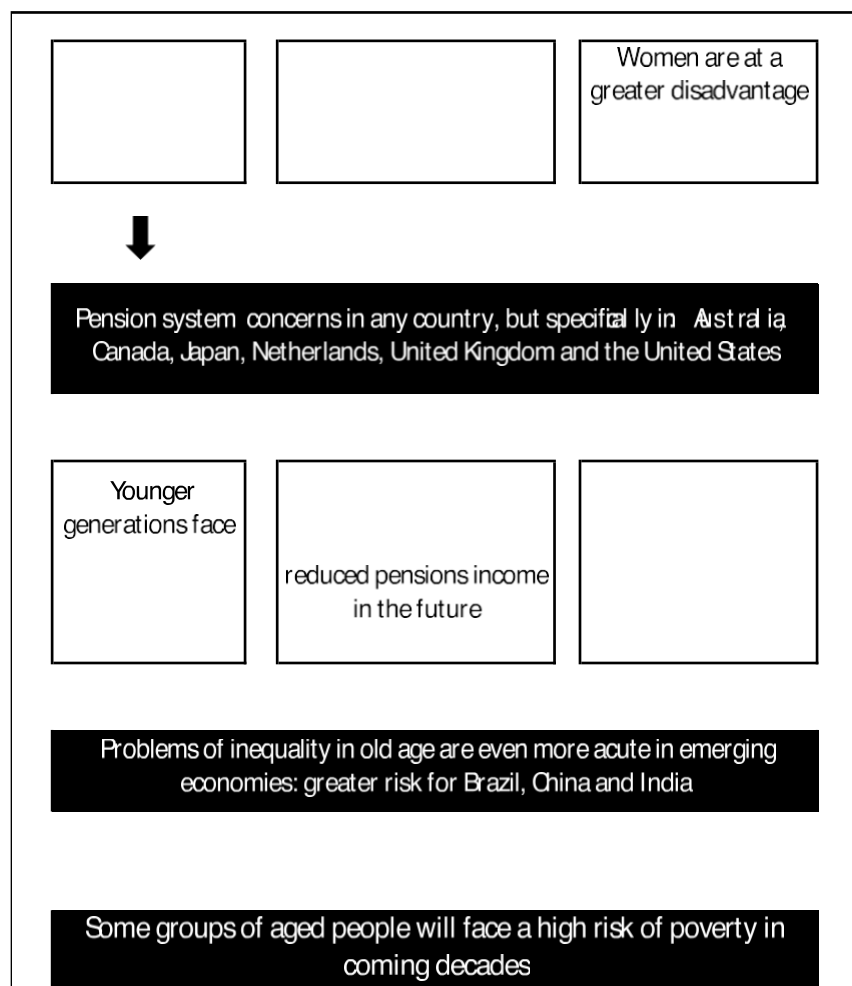
This document extends the usual short-term horizon of economic forecasters to better illustrate the potential benefits of education reforms, governance, labor market policies and product market regulations, whose effects may last for decades. Therefore, among the main aspects that this document concludes, it remarks the next four aspects:

- First, the study argues that "without changes", without significant reforms, according to the current status, the levels of life measured in terms of GDP per capita in the OECD countries is estimated to improve between 1.5% and 2% per year in the next 40 years.
- Second, living standards in the BRIICS countries (Brazil, Russia, India, Indonesia, China and South Africa) tend now to grow faster, but will tend to slow down in coming years from the 6% annual growth reached in the last decade to little more than 2% in 2060. This is explained by downward trends or cooling in economic growth for the coming decades, especially in big emerging economies such as China and India.
- Third, the document highlights the forecast by 2060 that India and China will absorb an increasing share of world production by 20-25% of world GDP by 2060, bigger than 40% that will correspond to OECD countries, in a context in which in the coming decades the center of global economic gravity will continue to move towards the Asian continent.
- Finally, another aspect highlighted in this document is that demographic change will weigh significantly on living standards in advanced countries. This situation will create substantial fiscal pressures, forcing the governments in coming decades to increase, according to current levels, tax revenues in around 6.5% of GDP to meet the needs primarily in terms of health and pensions, while avoiding the increase in public debt.

12 CONCLUSIONS AND DISCUSSION

Therefore, because of this research, as a result the proposal shown in the following table (Table 1) include the main conclusions useful to take into account and deepen in the future this kind of analysis, with some guides to identify current issues in economics and finance related to pension systems, according to the following model:

Table 1. Current Issues in Economics and Finance related to Pension Systems



Source: Own elaboration

REFERENCES

- [1] World Economic Forum (2017). We'll Live to 100: How Can We Afford It?. Genève, Switzerland: World Economic Forum. Retrieved on March 30, 2018 from: http://www3.weforum.org/docs/WEF_White_Paper_We_Will_Live_to_100.pdf
- [2] OECD (2017), Preventing Ageing Unequally, OECD Publishing, Paris. <http://dx.doi.org/10.1787/9789264279087-en>.
- [3] OECD (2017), Pensions at a Glance 2017: OECD and G20 Indicators, OECD Publishing, Paris. http://dx.doi.org/10.1787/pension_glance-2017-en
- [4] World Bank (2018, January 9). World Bank Sustainable Development Bond Raises Awareness for Women and Girls' Empowerment [Press Releases]. World Bank. Retrieved on March 30, 2018 from: <http://treasury.worldbank.org/cmd/htm/World-Bank-Sustainable-Development-Bond-Raises-Awareness-for-Women-and-Girls-Empowerment.html>
- [5] Organisation for Economic Co-operation and Development (2018). Taxation of Household Savings. Paris: Organisation for Economic Co-operation and Development (OECD). OECD

- Tax Policy Studies. Retrieved on June 30, 2018 from: <http://www.oecd.org/tax/taxation-of-household-savings-9789264289536-en.htm>
- [6] World Economic Forum (2018). The Global Financial and Monetary System in 2030. World Economic Forum Publishing: Davos. Retrieved on June 30, 2018 from: http://www3.weforum.org/docs/WEF_Global_Future_Council_Financial_Monetary_Systems_report_2018.pdf
- [7] Organisation for Economic Co-operation and Development (2018). Global Insurance Market Trends 2017. Paris: Organisation for Economic Co-operation and Development (OECD). OECD Insurance and Pension Studies. Retrieved on June 30, 2018 from: <http://www.oecd.org/daf/fin/insurance/Global-Insurance-Market-Trends-2017.pdf>
- [8] Srichander, R. (2012). The sustainability of pension schemes (No. 368). BIS Working Papers. Retrieved on June 30, 2018 from: <https://www.bis.org/publ/work368.pdf>
- [9] Guillemette, Y. and D. Turner (2018), "The Long View: Scenarios for the World Economy to 2060", OECD Economic Policy Papers, No. 22, OECD Publishing, Paris, <https://doi.org/10.1787/b4f4e03e-en>.

INTERNSHIP PROCESS – THE CRUCIAL PART OF A CURRICULUM: THE EXAMPLE OF RESCUE COLLEGE OF ESTONIAN ACADEMY OF SECURITY SCIENCES

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ABSTRACT

Rescue services – fire fighters, Emergency Response Centre dispatchers, Rescue Unit Leaders – is the crucial workforce that comes to mind in an emergency. As their field of work so is their education crucial for the population of any country. As crucial as the theoretical background, is the practice or internship they need. As the Estonian Academy of Security Sciences (EASS) is the only educational institution in Estonia that educates fire and rescue personnel on vocational and higher education level, it is important to understand how the internship process works, who are involved in that process and how can it be improved.

This study is focused on vocational and higher education students in Rescue College of the EASS. Through longitudinal cohort survey the students have given feedback on all aspects of the process: self-evaluation on preparing for the internship; preparation from school; feedback for the internship facilitation in the workplace; feedback for the internship learning outcomes; evaluation of the workplace-mentor.

The analysis has shown that improving one component of the whole process the feedback on all aspects gets higher (statistically). On the other hand, evaluating mentors is statistically not

related to any improvements as this is regardless of the level of education or internship focus always near to maximum score.

The main conclusion is that improving organisational components of the internship process the overall satisfaction shall be greater (result statistically higher).

Keywords: Internship, apprenticeship, rescue services, cohort longitude survey, internship process

Introduction

Internship can be seen as an apprenticeship or purposeful activity organised to achieve learning outcomes in presence of a supervisor or mentor. (Estonian Government, 2018) Although in today's educational area the education always has a theoretical study period in school and then an internship at workplace, we cannot decrease the importance of a good and purposeful internship and professional and motivated supervisor. (Collins, Brown, & Holum, 1991) As the experience on the workplace gives the interns a sense of "how the world of work" works and what are the skills desired on the field. (Wu, 2017; Taylor, 1988)

As in the world of education there is some difference whether you have an internship or an apprenticeship, in rescue field in EASS we have a clear difference as the vocational students have longer and more focused on learning specific work methods and one certain speciality – apprenticeship; higher education needs to have a clear overview of all career possibilities in the field (Ebenehi, Rashid, & Bakar, 2016) of rescue services so they have several weeks in different departments of the Rescue Board – internships. (Frenette, 2015) In some cases the internship in Rescue Board can differ from the nature – participatory internship (learning by doing) or observant internship (learning by looking and discussing, also defined as peripheral internship) (Sorensen, Haugbolle, Herborg, & Tomsen, 2005).

The Estonian Academy of Security Sciences (EASS) is the only educational institution in Estonia that educates fire and rescue personnel on vocational and higher education level (firefighters, rescue unit leaders, Emergency response personnel on vocational education level and on higher education level rescue services). EASS teaches also police and border guard personnel, prison personnel and customs and tax inspectors. This article is based on only the rescue college, its internships and students.

The aim of this article is to understand how the internship process works, who are involved in that process and how improvements influence the feedback students give.

1. Internship process and involved parties

If one tries to map the relevant parties involved in an internship one might get three – The educational institution (School); Placement or site of the internship and intern/student. (Sweitzer & King, 2014, pp. 3-5; Sorensen, Haugbolle, Herborg, & Tomsen, 2005; Vahtramäe, et al., 2011, lk 8) But when one starts to look closely, more than one additional factor or person can be found that has part in the internship process. To put the needed process on a timeline one can see, that it can be divided into three parts: activities before, during and after the internship (Vahtramäe, et al., 2011, lk 9-11):

- Before the actual internship is starting the future intern has to study theoretical part of the needed subjects and maybe also do some practical work at school. The internship curator (school mentor) has to organize and plan the internship so that it's content and placement in the curricula and on timeline is logical and most suitable for the students. Important is to consider not only the study-flow in school but also the workflow in the placement so that the needed skills can be practiced at the definite period. (Vahtramäe, et al., 2011; Ebenehi, Rashid, & Bakar, 2016; Virtanen, Tynjälä, & Eteläpelto, 2014)
- During the internship, it is crucial to assign a mentor or instructor who is motivated and has needed expertise for the specific internship, keeping in mind also the type of internship (participatory or observant). Also, there are organizational aspects in the placement that varies from institution to different departments inside one establishment. The 3rd parties or clients are also a factor to address during the internship. (Vahtramäe, et al., 2011; Virtanen, Tynjälä, & Eteläpelto, 2014; Sorensen, Haugbolle, Herborg, & Tomsen, 2005) According to the feedback from the students it is essential to stress the importance of the balance of work and personal life and time management (Ümarik, 2006, lk 71-72).

- After the actual internship, the report has to be submitted by the intern and mentor has to give an evaluation. Also the student has to defend the report or pass an evaluation at school to get a grade. After all that is done the student gives feedback on different parts of the internship to complete the PDCA (plan-do-check-act) cycle. (Vahtramäe, et al., 2011; Collins, Brown, & Holum, 1991; Aas, 2015; Knight & Allen, 2012)

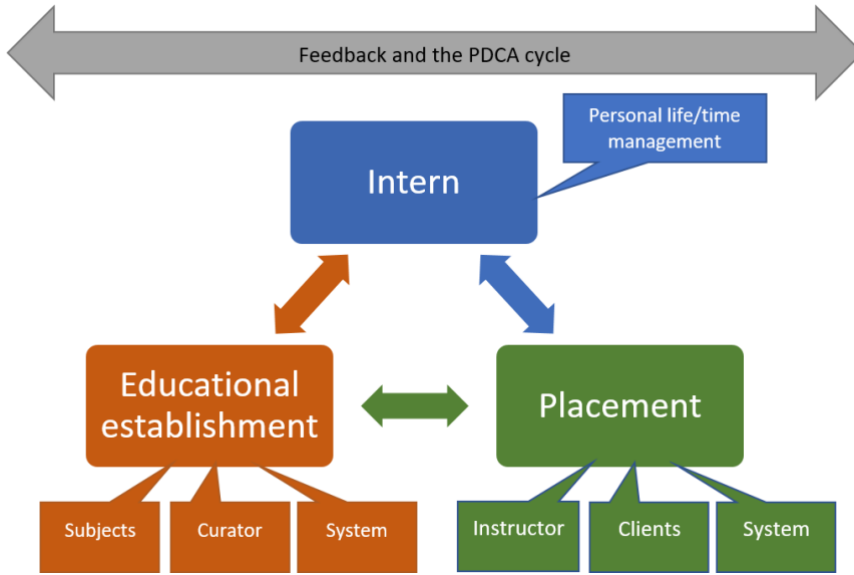


Figure 1 Participants and factors in the internship process in the EASS

To ensure the quality of the internship process one can reference the internship process to the PDCA cycle. Then it is seen that the Planning phase is mostly the role of the educational establishment i.e. School. The Doing phase collaboration between the intern and the mentor on site. The Checking phase is mostly working the reports, feedbacks and other notes from interns and mentors. Acting phase means to improve or adjust the process according to the feedback from different parties. (Vahtramäe, et al., 2011, lk 10-12; Ripamonti, Galuppo, Bruno, Ivaldi, & Scaratti, 2018; Motley, Reese, & Campos, 2014; Kaldas & Titov, 2018)

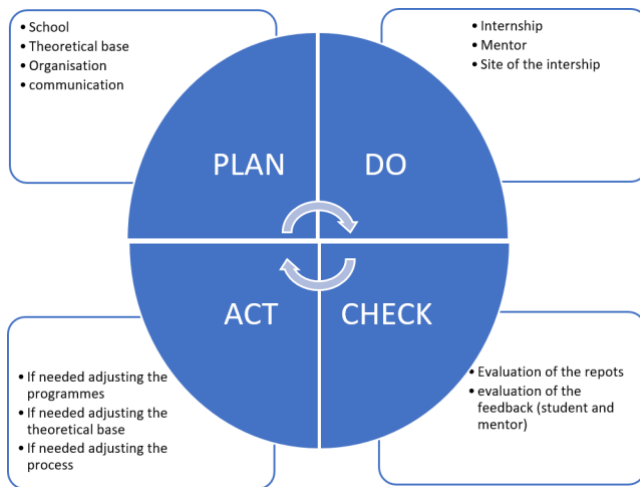


Figure 2. Reference of the PDCA cycle to the intership process

The quality of the internship is determined by content, procedures, monitoring, resources and evaluation (Garcia & Puig, 2011). Although the feedback for internship process is collected regularly there are factors that affect the quality or content of the submitted feedback. (Kaldas & Titov, 2018) In different researches the main factors influencing satisfaction or feedback can be divided into five categories (Douglas, Douglas, McClelland, & Davies, 2015; Alemu & Cordier, 2017; Kaldas & Titov, 2018; Vahtramäe, et al., 2011):

1. Theoretical preparation – how well were the theoretical lessons able to prepare the student for the internship.
2. School organisation and communication – was the needed information available; was the communication clear; are the needed documents understandable for students.
3. The internship site – were the site ready for interns; was the organisation from the site clear; were needed equipment or workplaces arranged for the interns.
4. The content of the internship – did the internship follow the internship programme; were all needed learning outcomes achievable.
5. The mentor(s) – was the mentor professional; did the mentor have time for the student; did the mentor give feedback on intern's activities of achievements.

EASS has done several changes to the curriculum and consequently to the internship process. The main changes in the curriculum was made on the higher education level. The class of 2013 had specialisation on operational internships (rescuer, shift-officer and team leader) and prevention (prevention, fire safety and crisis management). From class of 2014 there was no specialisation and students had to pass all internships operational as well as prevention oriented. In 2017 there was change in

Material and methods

Participants

Totally 269 students in Rescue College of the EASS on vocational education level (39 PKS; 56+14 P and 23+19 PMJ) and on higher education (118) level rescue services. On vocational level the students have up to 2 internships and on higher education one student can have up to 8 different internships. Therefore, the total number of answers (n=466) differs from the total number of participants (n=269).

Procedure

This study is a cohort survey as a design. (Lodico, Spaulding, & Voegtle, 2010, p. 200) the cohort in the study is the experience of an internship during educational experience in the Rescue College of the EASS. The study is also a longitudinal study (Nardi, 2006, p. 121) as the same questionnaire has been used for all internships and study-groups for 3 consecutive years. Socio-cultural background of the respondents has never been part of the questionnaire as the school educates rescue field specialists regardless of the age and gender.

Questionnaires

The survey instrument is a questionnaire worked out in cooperation with the department of academic affairs of the EASS. Responses are measured with a 5-point scale ranging from *I strongly disagree* to *I strongly agree*. It has been the same questionnaire for the last consecutive three years and all rescue college students (higher and vocational education) have the obligation to give feedback to the internship in their curricula. The data presented in this study was collected as part of standard quality assurance/regular feedback and therefore there are some limitations in the data. Giving feedback is compulsory for the students and therefore they can rush with the answers not concentrating on the questions in hand.

Through longitudinal cohort survey the students have given feedback on all aspects of the process: self-evaluation on preparing for the internship; preparation from school; feedback for the internship facilitation in the workplace; feedback for the internship learning outcomes; evaluation of the workplace-mentor. The reliability, mean and standard deviation is shown below in the Table 1.

Table 1. Reliability, mean and standard deviation of the feedback categories

Category	Number of questions and example	Reliability and mean
Self-evaluation	4 items on self-evaluation on preparing for the internship. I.e. "I was actively involved in the internship tasks."	$\alpha=0,66$; mean=4,6; SD=0,41
School	4 items on preparation from school. I.e. "The internship documentation was understandable."	$\alpha=0,71$; mean=4,3; SD=0,59
Internship site	4 items on feedback for the internship facilitation in the workplace. I.e. "The internship site was prepared for receiving interns."	$\alpha=0,75$; mean=4,6; SD=0,46
Content of the internship	4 items on feedback for the internship learning outcomes. I.e. "Activities on the internship supported the achievement of the needed learning outcomes."	$\alpha=0,79$; mean=4,6; SD=0,50
Mentor	4 items on evaluation of the workplace-mentor. I.e. "I got enough feedback from the tutor on my own activities."	$\alpha=0,85$; mean=4,8; SD=0,43

Statistical analysis

For data analysis, SPSS 20.0 was used. Variables are described by percentages or by means and standard deviations. Values of $p < 0,05$ is considered statistically significant. To determine significant difference between the means of groups T-test (for two groups) or ANOVA (more than two groups) was used.

Results and Discussion

In the EASS Rescue college there is 5 different curricula, where the feedback is collected: 3 curricula in vocational level, 2 curricula in higher education level. In total, there are 20 different internships to be compared: 5 in vocational level and 15 in higher educational level. There are two internship establishments – Estonian Rescue Board and Estonian Emergency Response Centre. The choice, that the students have to make is only geographical (North Estonia, South Estonia, East Estonia or West Estonia), but the establishments stay the same, as there is no other organisation that can ensure the implementation of the needed learning outcomes. Usually there is only one mentor per intern on vocational level. On higher education level, there can be up to 3 mentors per intern on one internship. The distribution of the respondents between the different internship placement sites is shown in the Table 2.

Table 2. Number of respondents in different placements

Intership Site	Interns	Mean for Site	Std. Deviation	Mean for Mentor*	Std. Deviation
Estonian Rescue Board Northern Rescue Center	104	4,66	0,49	4,81	0,38
Estonian Rescue Board Eastern Rescue Center	65	4,68	0,42	4,76	0,41
Estonian Rescue Board Western Rescue Center	125	4,62	0,49	4,77	0,42
Estonian Rescue Board Southern Rescue Center	93	4,69	0,39	4,83	0,32
Emergency response Center Northern Center	14	4,64	0,34	4,96	0,09
Emergency response Center Western Center	6	4,67	0,20	4,33	0,86
Emergency response Center Eastern Center	4	4,69	0,24	5,00	0,00
Emergency response Center Southern Center	5	4,60	0,52	4,60	0,76

As the distribution of the respondents was uneven, it was decided that the comparison between regional centres is statistically not rational and therefore the statistical analysis was done in larger groups (education levels, higher education different groups on same internships etc.). The students gave feedback on five different categories (shown in Table 1) where the highest mean (4,8) was on the category of mentors. It can be explained by the fact that the mentor is to be the future colleague or boss of the intern and therefore giving lower points is not something they want to do. Also the mentor is one person with whom the interns have the most contact, and therefore giving lower points to the one person who has been there every day, seems not the alternative choice. The lowest score is for the school category (mean 4,3), as this is the factor that is not related to the intern's own actions. But this is also the category most likely to be improved and altered throughout the years. Statistically the differences between the means (shown in Table 1) is not relevant, but the statistical differences in smaller groups and within the categories are relevant and are discussed further on.

Comparison of the feedback between education levels

T-test shows significant differences between higher and vocation education level, and that on vocational education level the scores are statistically higher (see Figure 3). I.e. content of the internship higher educational level mean=4,5 and vocational level mean=4,7. This can be explained due to the fact, that on vocational level the internship is more of an apprenticeship and on the higher education level internships can have less involvement and more observation. The only category where there is no difference is the mentor (mean=4,8). Although the internship process in school does not depend on the educational level, the vocational students are significantly more satisfied with the school support than higher education level students. Relied on the open answers it is possible to say, that as the vocational level apprenticeship learning outcomes are more clear and practical the support is seen to be better as on the higher education level.

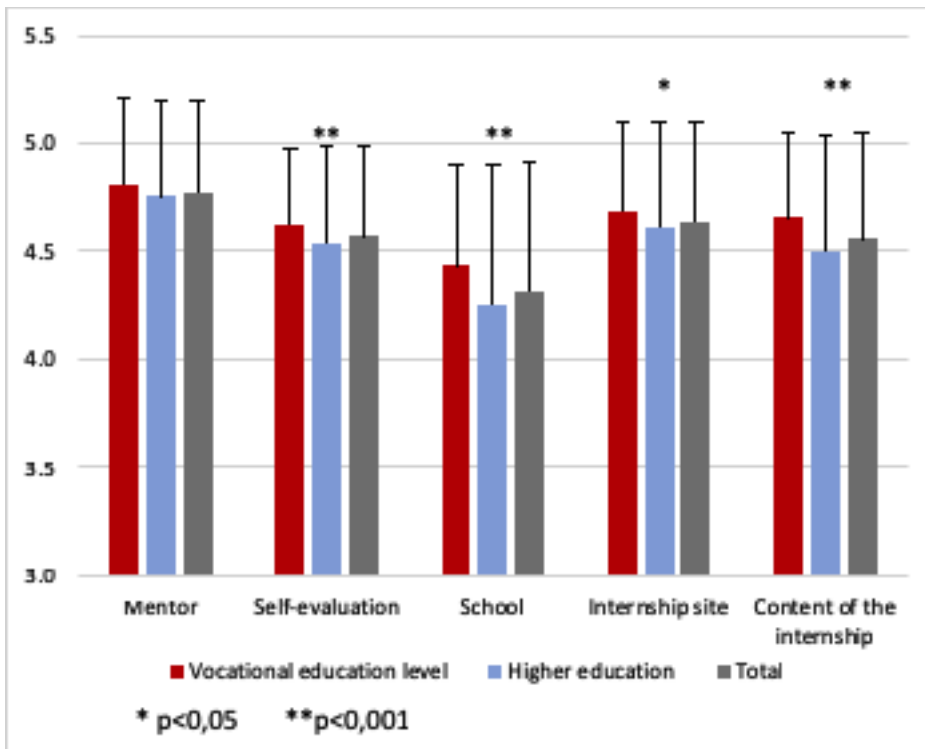


Figure 3. Comparison of satisfaction of the higher and vocational education level

Feedback by internship type

Although there are 20 different internships during the period under observation, they can be divided into two types of internships – participatory internship (apprenticeship) and observant internship. When one compares the different types of internship, one can see, that the overall rating of the participatory internship is higher than on the observant internship. I.e. the scores in the internship site category are respectively 4,7 (participatory internship) and 4,6 (observant internship). But regardless of the internship type the lowest scores are in the school category (mean=4,4 and mean=4,3).

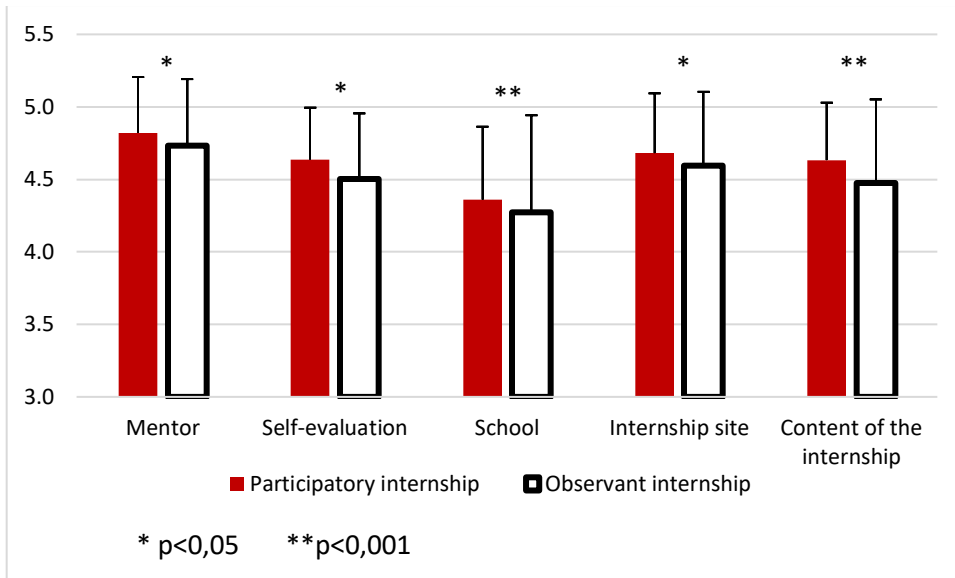


Figure 4. Comparison of different types of internship

If one looks closely only on higher education, it is seen that the same trend is present, as the participatory internship has higher scores than the observant internship (i.e. self-evaluation participatory internship mean=4,7 and observant internship mean=4,5). Although it is not statistically significant, the score for the school category is on higher education level on the observant internship slightly higher (mean=4,3) than on the participatory internship (mean=4,2).

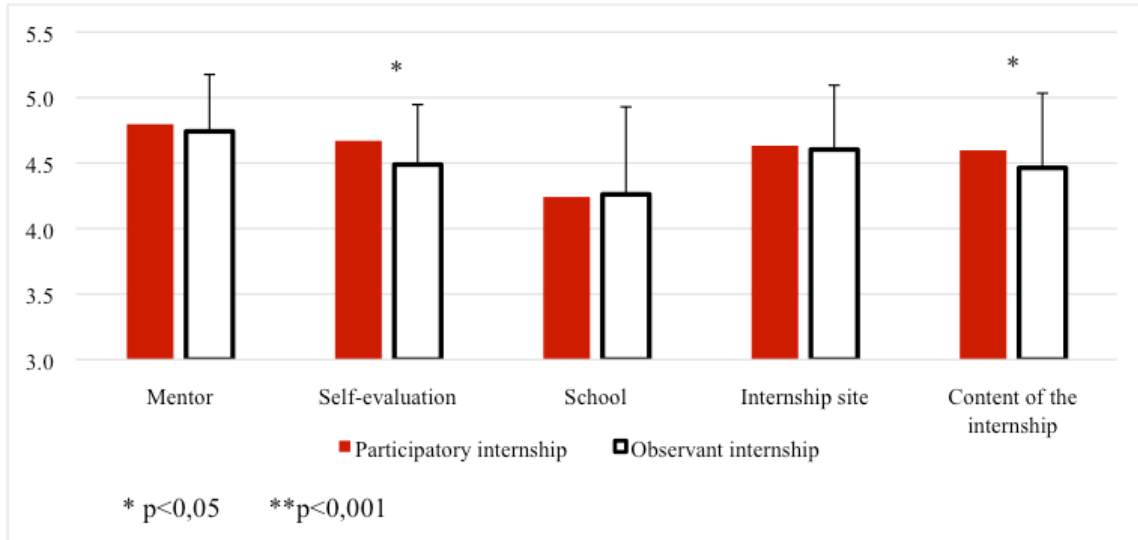


Figure 5. Comparison of different types of internship on higher education level

Feedback longitudinally in higher education

If one looks closer on feedback from higher education level on all internships (n=15), one can see a definite rising trend. The x-axes show the year the group of students started studying, and the study period is three years. The groups vary on size (i.e. class of 2013 n=30; class of 2016 n=11) and the internships where there were less respondents than 30% of the group were excluded. With those limitations one still can see, that the least improved category of the feedback is internship site and mentors (Figure 6). The most improved categories are school and content of internship. That can be explained with extensive work on the internship system and student support system in school: internship seminar, online support documentation, personal counselling and feedback, revising the school documentation in accordance with internship site etc. Although the additional training for mentors has begun in 2016 it has not affected significantly the scores of the mentors, and for that matter the scores for mentors have been near maximum level throughout the years. It can be explained with the fact that usually one mentor has only one intern and he/she is likely to be a future colleague (as the Rescue Board of Emergency Response Centre are the future employers for the alumni) or is already working in the same establishment. Interns are not likely to score the mentor below of the score 4, to be in good relationship at work.

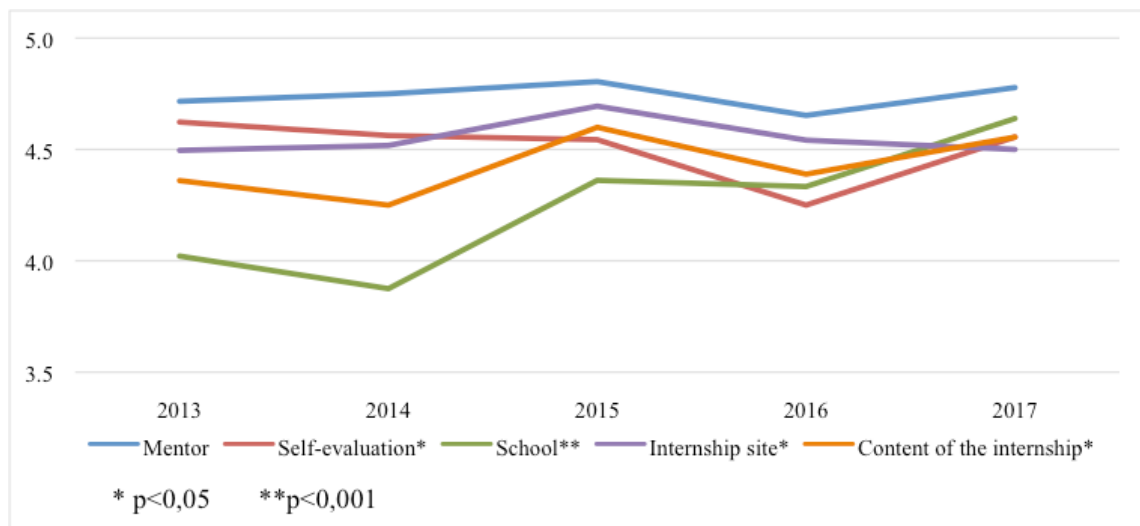


Figure 6. Feedback trend in higher education

As some of the internships in higher education level have remained the same through the years it is possible to look for trends within one internship. Internship in Rescue prevention is one of such, as it has changed in words, the activities have remained the same. If one looks at the Figure 7, one can clearly see, that only category changing is the school. Being significantly lower with the class of 2014 (mean=3,8) and higher with classes of 2013 (mean=4,4) and 2015 (mean=4,5). If one wants to get clear knowledge of why such decrease has occurred, it is necessary to look behind the numbers and look to the written comments. The class of 2014 had a yearlong gap between the theory and internship. That mistake was corrected with the class of 2015 which shows clearly also in the feedback. Class of 2016 has been removed due to small number of respondents.

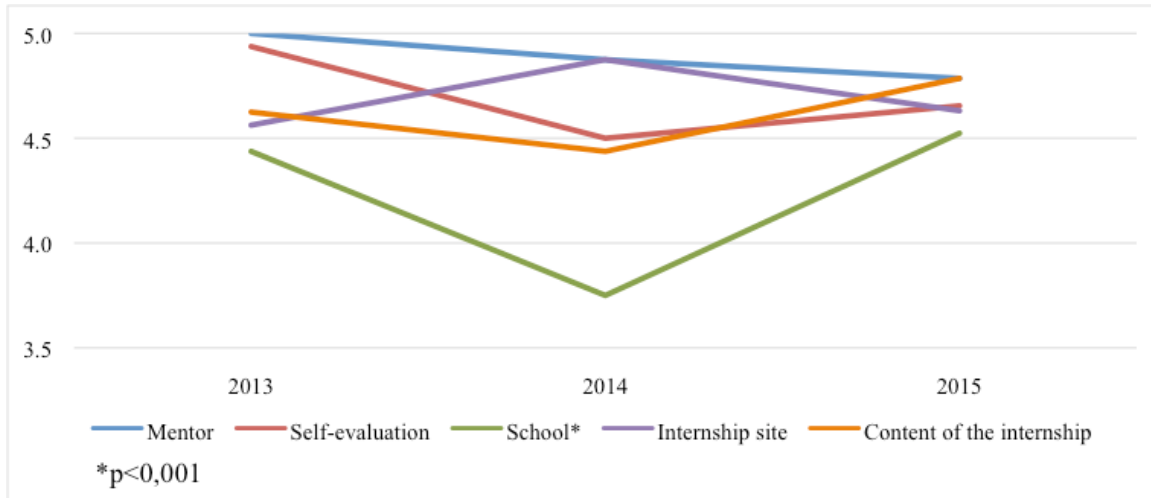


Figure 7. Feedback trend in Prevention internship

When one looks at the feedback for internship in Crisis Management, one can see a distinctive decrease of scores on all categories on the class of 2014. When the written comments are worked through it seems that most of the mentors on that class were new employees who were in process of learning themselves. Also the system of crisis management in Estonian Rescue Board was changed during the year of internship so the documentation and real life situation weren't compliant and therefore conducting an internship was somewhat difficult. For the class of 2015 the documentation was adjusted and brought into accordance with the existing system in the Rescue Board.

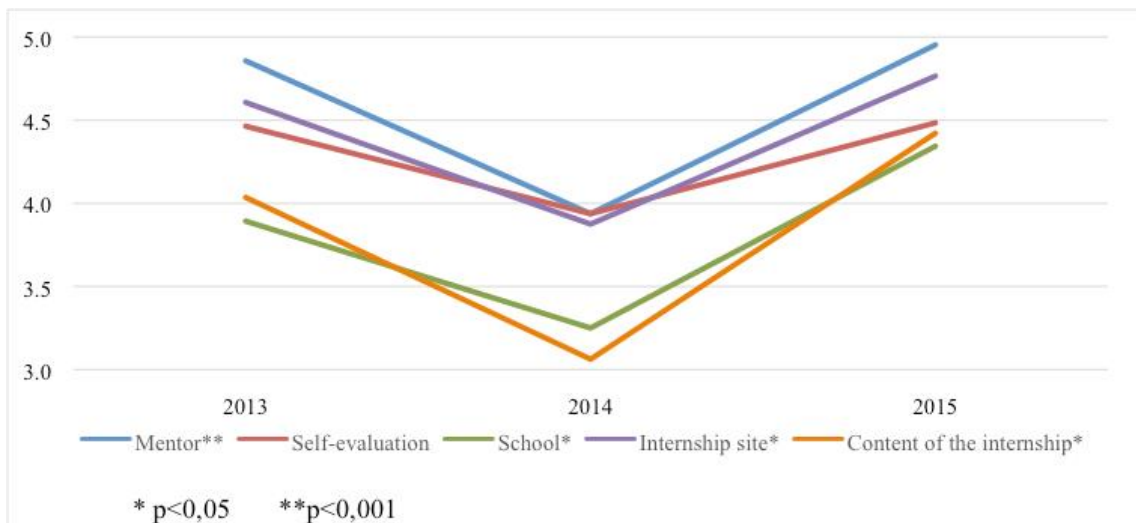


Figure 8. Feedback trend in Crisis Management internship

Feedback longitudinally in vocational education

The vocational level and its internships (n=5) it is relevant to point out that in total, there were 163 respondents (rescuer n=92; rescue team leader n= 32; dispatcher n=39). The x-axes show the year the group of students started studying, and the study period is one year. Although the differences between higher education and vocational education were statistically significant (see Figure 3), the same can not be said if comparing the vocational education amongst itself.

In the curricula of Emergency Response Centre Dispatcher there are two internships – observant internship in emergency services (Police and Boarder guard, Rescue and Medical first responders) and apprenticeship in the Emergency Response Centre. As the respondents were unevenly distributed between the regional centres, it is not statistically correct to compare different regional feedbacks. But overall feedback is seen below on Figure 9. Statistically the only categories that are significant are the school and content of the internship. The ascent of the score in the school category can be explained (based on the open comments) by the clear communication in the internship seminar and revision of the documentation. The content of the internship has not been changed and therefore the ascent of these scores is not possible to ground. Also there are no comments to base any explanations on.

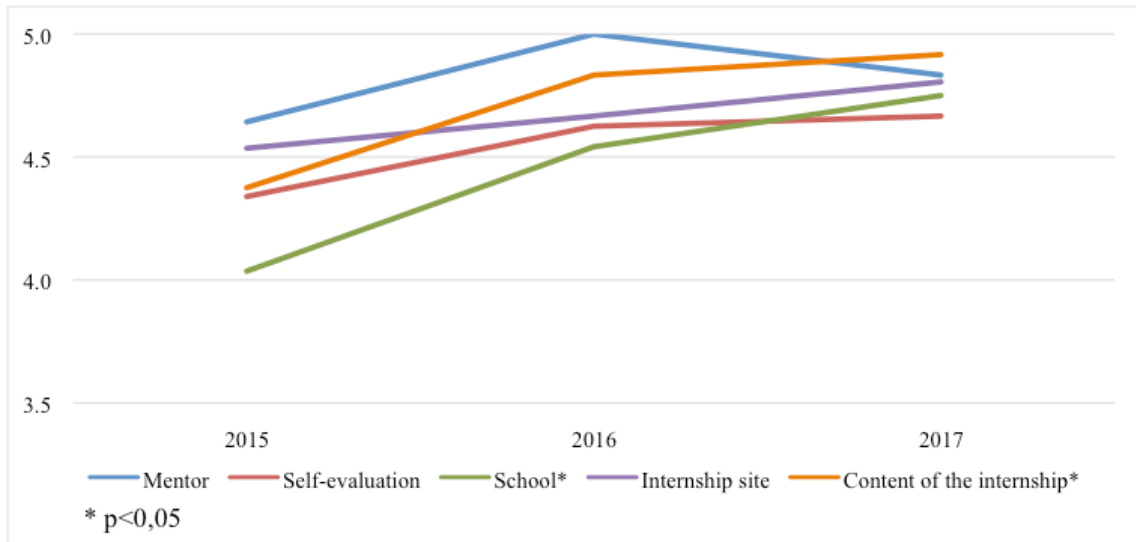


Figure 9. Feedback trend in Emergency Response Center Dispatch curriculum

The feedback on the rescuer curriculum has statistically not changed during the years, although visually one can see a slight ascent in the class of 2017 (see Figure 10). Also as the statistical analysis and graphs throughout the study have shown the highest score has been given to the mentors (in 2017 mean=4,9) and the lowest in the school category (in 2017 mean=4,5).

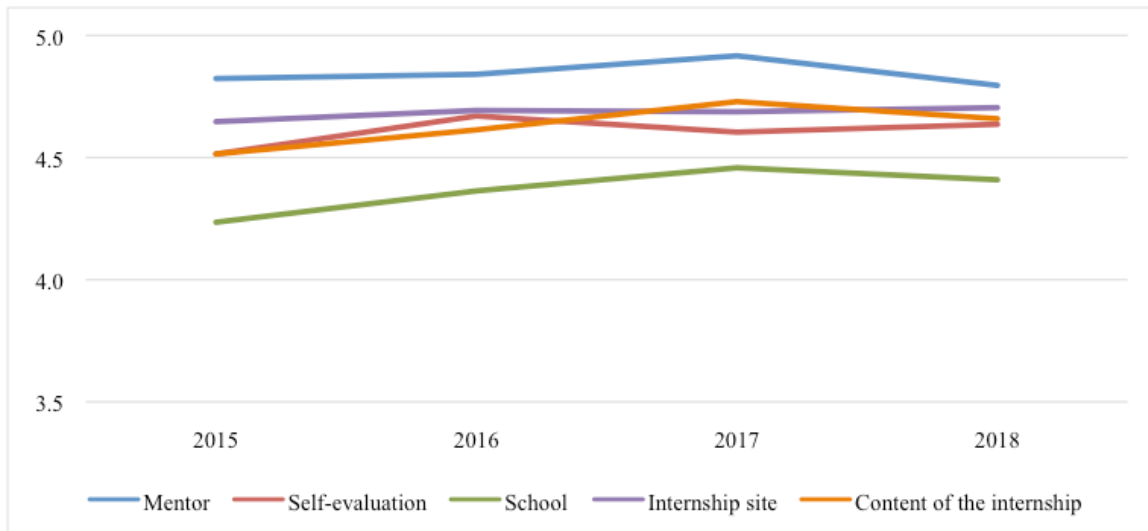


Figure 10. Feedback trend in Rescuer curriculum

Conclusion

As the PDCA cycle, the perfecting and improving of the internship process and its relevant parties is a never-ending process. With the internship process one has to ensure that it is updated and in accordance with the changes in the field of rescue and emergency response. As the research has shown even some minor changes in documentation or changing the sequence of subjects and internship can make significant changes in the feedback. The analysis showed that there are some limitations in the questionnaire itself and the way the feedback is collected which has to be dealt with in the upcoming academic year.

References

- Aas, T. (2015). *Internship in Estonian Academy of Security Sciences' Rescue College – analysis and suggestions. Diploma paper*. Tallinn: Estonian Academy of Security Sciences.
- Alemu, A. M., & Cordier, J. (2017). Factors influencing international student satisfaction in Korean Universities. *International Journal of Educational Development, 57*, 54-64.
- Collins, A., Brown, J. S., & Holum, A. (1991). Cognitive Apprenticeship: Making Thinking Visible. *American Educator, 15*(3), 6-11.
- Douglas, J. A., Douglas, A., McClelland, R. J., & Davies, J. (2015). Understanding student satisfaction and dissatisfaction : an interpretive study in the UK higher education context. *Studies in Higher Education, 40*(2), 329-349.
- Ebenehi, A. S., Rashid, A. M., & Bakar, A. R. (2016). Predictors of Career Adaptability Skill among Higher Education Students in Nigeria. *International Journal for Research in Vocational Education and Training, 3*(4), 212-229.
- Estonian Government. (1. August 2018. a.). Standard of Higher Education. Tallinn.
- Frenette, A. (2015). From Apprenticeship to Internship: The Social and Legal Antecedents of the Intern Economy. *tripleC: Communication, Capitalism & Critique. Open Access Journal for a Global Sustainable Information Society, 13*(2), 351-360.
- Garcia, R., & Puig, J. (2011). A model for improving the quality of student internship placements in engineering degrees. *International Journal of Advanced Corporate Learning (iJAC), 4*(1), 4-11.
- Kaldas, H., & Titov, E. (2018). *Feedback report of the project "Recognition of the Internship Process in Vocational and Higher Education"*. Tallinn: SA Innove.
- Knight, J. E., & Allen, S. (2012). Applying the PDCA Cycle to the Complex Task of Teaching and Assessing Public Relations Writing. *International Journal of Higher Education, 1*(2), 67-83.
- Lodico, M. G., Spaulding, D. T., & Voegtle, K. H. (2010). *Methods in Educational Research. From Theory to Practice* (2nd ed.). San Francisco: Jossey-Bass.
- Motley, V., Reese, M. K., & Campos, P. (March 2014. a.). Evaluating Corrective Feedback Self-Efficiency Changes Among Counselor Educators and Site Supervisors. *Counselor Education & Supervision, 53*, 34-46.
- Nardi, P. M. (2006). *Doing Survey Research*. Boston, New York, San Francisco, Mexico City Montreal, Toronto, London, Madrid, Munich, Paris, Hong Kong, Singapore, Tokyo, Cape Town, Sydney: Pearson Education, Inc.
- Ripamonti, S., Galuppo, L., Bruno, A., Ivaldi, S., & Scaratti, G. (2018). Reconstructing the internship program as a critical reflexive practice: the role of tutorship. *Teaching in Higher Education, 23*(6), 751-768.
- Sorensen, E. W., Haugbolle, L. S., Herborg, H., & Tomsen, D. V. (2005). Improving situated learning in pharmacy internship. *Pharmacy Education, 0*(0), 1-11.
- Sweitzer, F. H., & King, M. A. (2014). *The Successful Internship. Personal, Professional, and Civic Development in Experiential Learning* (4 ed.). Belmont: Brooks/Cole.
- Taylor, S. M. (1988). Effects of College Internships on Individual Participants. *Journal of Applied Psychology, 73*(3), 393-401.
- Vahtramäe, A., Sikk, J., Kaldma, M., Reva, E., Koit, K., & Varendi, M. (2011). *Internship in higher education*. Tartu: SA Archimedes.

- Virtanen, A., Tynjälä, P., & Eteläpelto, A. (2014). Factors promoting vocational students learning at work: study on student experiences. *Journal of Education and Work, 27*(1), 43-70.
- Wu, S.-L. (2017). The Planning, Implementation, and Assessment of an International Internship Program: An Exploratory Case Study. *Foreign Language Annals, 50*(3), 567-583.
- Ümarik, M. (2006). Best Practice in the Evaluation of Practical Training in Europe. *2nd science conference of vocational education: From going to internship to learning on site* (lk 67-73). Tallinn: Institute of Education of Tallinn University.

DOES EXPERIENCE IMPACT THE INTEGRATION OF SUPPLY CHAIN?

KHALID ALOMARI

ABSTRACT

1. Introduction

Several studies have addressed the concept of supply chains and their vital importance in building a competitive advantage for organizations. New concepts had appeared- supply chain management, supply chain management practices, supply chain integration, green supply chain, etc., altogether against improving the organizational performance, enhancing the ability of reducing costs to minimal.

This study aims to appeal a research gap into three approaches:

The direct effect of supply chain integration(SCI) on operational performance(OP), (Villena et al. 2009; Flynn et al.2010; Devaraj et al.2007; Das et al.2006)

The direct effect of supply chain management practices (SCMP's) and operational performance (OP). (Das et al. 2006; Devaraj et al. 2007; Villena et al. 2009; Liu et al. 2012)

The addition in this study was the investigation of the mediating role of the SCI on the relation between SCMP's and OP.

The strategic nature of SCMP's is able to explain the dual purpose of SCM:

Improve the performance of the organization itself, and improve the entire supply chain (Wong et al. 1999). While literature provided us with clear and comprehensive understanding of the relation between SCMP's and organization's performance, little knowledge is available about the mediating role of SCI on the relation between SCMP's and OP (Veerna et al. 2011; Khan et al. 2009). While other researchers tried to fulfil the gap among SCMP's, SCI and supply chain performance (Veera, 2016).

Moreover, the population researchers targeted (Al-Hassan Industrial Zone), which was established mainly for foreign direct investments (FDI), imports its raw material globally, also, exports its final products worldwide. That means, an intensive reliability on effective and efficient SC, SCM, SCMP's and SCI in enhancing their operational performance(OP).

CRITICISM OF BEHAVIOURAL ECONOMICS: ATTACKS TOWARDS IDEOLOGY, EVIDENCE AND PRACTICAL APPLICATION

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ABSTRACT

During the last few decades the field of behavioural economics has been forming incorporating insights from psychology in economics. Behavioural economics has been growing and gaining increasing importance both as an academic discipline and a practically applicable approach suggesting the use of nudging technique. However, rise of the field is accompanied with criticism towards the field. This study explores the existing criticism of behavioural economics: summarizes, structures, offers brief analysis of the criticism and some possible responses.

Ideological criticism, evidence suspicious criticism and criticism concerning practical application of behavioural economics in public policy by nudging has been covered. An overview of the criticism has been presented.

According to the analysis substantial part of the criticism towards behavioural economics does not endanger general validity and significance of the field. This refers to criticism addressed towards field-specific characteristics, which are logical at the stage of the development, criticism towards “bad behavioural economics” or simply weak criticism. Though, several issues raised against behavioural economics require careful further investigation and improvements. Most notably, further studies regarding different aspects of perception of what is rational behaviour, evidence suspicious approach regarding possibly overstated research results, and development of a clear framework for usage of nudges in public policy would be of value.

The present study is contextual, based on literature review, and attempts to add value by offering an analytical overview about the criticism of behavioural economics and enlightening possible areas for further improvement.

Keywords: behavioural economics, experiments, nudging, libertarian paternalism, criticism

INTRODUCTION

Since the end of the 20th century there has been a comeback of interconnectedness of economics with other social sciences. More specifically, there has been an attempt to merge economics with psychology back again. An interdisciplinary field, behavioural economics, has been developing as a reaction of incompleteness of traditional economic models (Rehman, 2016; Sent, 2004). In contrast with traditional economics, behavioural economics does not make any strong assumptions about human rationality. Just the opposite, behavioural economics is descriptive and experimental by approach and enlightens systematic deviations from rationality in decision-making and systematic deviations from efficiency in markets. Behavioural economics covers topics like heuristics and biases as well as other cognitive, emotional and social factors in decision-making. It analyses values, preferences, choices, beliefs, expectations and proposes alternative decision-making theories, like the prospect theory (Wilkinson & Klaes, 2018). Regarding the public policy formation, behavioural economics offers the so-called libertarian paternalism or nudging, “choice architecture that alters people’s behaviour in a predictable way without forbidding any options or significantly changing their economic incentives” (Thaler & Sunstein, 2008). Fundamental differences of the approach of the traditional mainstream economics and behavioural economics are presented in Figure 1.


Traditional economics <i>(based on classical and neoclassical thought)</i>		Behavioural economics <i>(interdisciplinary, based on psychology)</i>
People – rational -Rational agent theory, <i>homo economicus</i> - Expected utility theory		People - not always rational, there are systematic deviations from rationality -Bounded rationality, heuristics and biases -Prospect theory
Markets – efficient -Efficient market hypothesis -Capital asset pricing model -No free lunch		Markets - not always efficient, there are systematic deviations from efficiency -Empirical evidence on overreaction, underreaction, market bubbles, market crashes -Crowd psychology, collective behaviour
World - calculable		World - complex
Approach - mostly normative, methodology-wise - often mathematical		Approach - mostly descriptive, methodology-wise - mostly experimental
Policy tool – nonspecific, typically legislative enforcement		Policy tool – nudging, libertarian paternalism, choice architecture

Figure 1. Traditional economics versus behavioural economics
 (self-made summary, revised version; first presented in Pūce, 2018a)

In general, the field of behavioural economics has tried to bring more realism to the economic theory. This effort has been acknowledged. The field blending psychology

with economics has been rising academically. Starting from the 1990s, the number of scientific papers containing or referring to behavioural economics has increased (Geiger, 2017) and now there are high quality academic journals containing articles in the field of behavioural economics (Azar, 2007; Samson, 2018a). Universities, including the world's best ones according to rankings, are providing education and/or carrying out research in behavioural economics (Samson, 2018b), and behavioural scientists have lately been awarded Nobel prizes in economics, most notable of which were to Daniel Kahneman in 2002 and Richard Thaler in 2017 (Nobelprize.org). Behavioural economics has also become influential among practitioners. It has been applied by introducing nudging technique in public policy. Indirect suggestions as a tool to influence behaviour and decision making have gained popularity: all over the world policy makers have been forming "nudge units" applying behavioural insights to the public policy, UK and US being pioneers, (OECD.org; OECD, 2017) and nudging techniques have been used by variety of organisations (more detailed evidence about the rise, acknowledgements and application of behavioural economics available at: Pūce, 2018b).

Currently the insights of behavioural economics have been applied in the fields such as savings and retirement, consumer protection, health behaviour, environmental protection, development and education (Sunstein & Reisch, 2017). Classical examples of application of behavioural economics in the public policy includes nudges like automatic enrolment into a retirement savings plan (unless employees choose to opt out); inclusion of neighbours-comparing information in tax authorities official communications (like "the great majority of people in [the taxpayer's local area] pay their tax on time"); initiative that people obtaining drivers licenses by default enrol in organ donation system thus agreeing to become organ donors under hopeless medical conditions (unless they choose to opt out); food labelling including colour codes or exercise equivalents in terms of calories burned, and many other interventions. According to behavioural economics, some kind of nudge policy may be appropriate in order to encourage people to act in their own best interests (Thaler & Sunstein, 2008).

Although being acknowledged and applied widely, the field of behavioural economics meets some important criticism. And the body of criticism is rather substantial and might raise some doubts regarding credibility of the field as such. Therefore, this study is intended to summarise, structure and briefly analyse the existing criticism towards the growing field of behavioural economics aiming to answer the research question: what is the existing criticism of behavioural economics and what are the possible responses (if there are some)?

Although this research is focusing on deficiencies of behavioural economics, it is not intended to devalue behavioural economics. Just the opposite, it is carried out with the belief that scientific criticism, if it is justified, might enlighten some reasonable deficiencies and guide towards further improvements of the field. In addition to the prior motivation of this study to contribute to the existing literature by creating an overview of the criticism of behavioural economics, there has been an extra motive – willingness to acquire understanding and raise awareness about the possible weaknesses of the field, to approach them carefully in any possible further research.

After this “Introduction”, presenting context and motivation of the study, further article is structured as follows. Next section of the article, titled “Research methodology”, provides information about methodological approach and research limitations of this study. Afterwards, the main body of the article lies in section “Criticism of behavioural economics and the possible responses”, which is divided in several sub-sections describing issues the criticism is targeting; at the end of each criticism comments about the possible responses are provided. It is followed by section “Results: an overview” where the essence of the criticism is summarised and presented in an overview figure that serves as an outline of the whole article. In this section summarising comments regarding the nature of criticism, enlightened deficiencies and the possible further improvements of the field are also included. Lastly, the article is finalised with a few general considerations represented in the section “Concluding remarks”.

RESEARCH METHODOLOGY

The present study by its nature and the addressed matter is contextual and theoretical. The quality method was used as the research methodology investigating the existing literature about the criticism of behavioural economics. Information was gathered from secondary data, including books, scientific articles and credible online sources. The existing body of knowledge about criticism of behavioural economics has been summarized, structured and examined by using descriptive and analytical approach. Thus, this study introduces an overview about the topic.

Criticism towards behavioural economics has been systemised by approaching it on three levels according to a mind-set called “the pyramid of criticism” (see Figure 2.; a self-made approach offering how criticism of any sub-field of economics or possibly other fields of science could be structured and analysed). The base level is ideology, representing fundamental theoretical issues. The next level is evidence, representing issues of credibility of the research results gathered in the field, including methodological considerations. The upper level is practical application, representing issues regarding use of knowledge gained from the field of science in real life. The lower the level of pyramid, the more valid scientific criticism of corresponding issues might endanger trustworthiness of the whole field of science.



Figure-2. The pyramid of criticism: possible areas of attack (self-made approach)

Although substantial criticism of behavioural economics was gathered and systematised regarding attacks against its ideology, evidence and practical application, it is important to note that research is limited in amount, variety and depth of criticism covered. This article surely does not cover all existing criticism of the field. Methodology-wise the focus has been mostly on criticism towards experimental approach (other methods evolve but have been less extensively used yet and face way less criticism so far). Regarding practical application, the focus has been on criticism concerning practical application of behavioural economics in public policy by nudging (criticism towards nudging in the private sector is not covered due to its less controllable nature and commercial motives; it is questionable if it is even nudging by definition). Some attempts to criticise behavioural economics was subjectively skipped, if considered as irrelevant, not worth discussing, too narrow or too technical and lacking fundamental concerns. Criticism was gathered with respect to the whole field of behavioural economics, not regarding specific theories within the field (for example, criticism regarding prospect theory, though being significant, was skipped). Also, this study offers indication of the areas attacked and only very limited analysis of each criticism included. Each section and even sub-section of this article might be a topic for deeper and more detailed scientific discussion. Thus, this overview should not be interpreted as all-inclusive. Furthermore, it is important to note that the analysis of the possible responses and reasonability of the criticism overviewed is an object of subjectivity. One more research limitation is that information was accessed mostly in English, thus it cannot be excluded that some ideas of outside the English-speaking scientific communities might not be covered.

CRITICISM OF BEHAVIOURAL ECONOMICS AND THE POSSIBLE RESPONSES

Criticism of behavioural economics has been addressed towards (1) ideological concerns, (2) evidence suspicious concerns, and (3) concerns regarding practical application in the public policy. The following sub-sections aim to provide brief and structured description of these issues.

1. Ideological criticism

Ideological criticism is addressed towards conceptual, theoretical and fundamental concerns of behavioural economics. It includes criticism that is questioning scientific significance and verity of the field.

1.1. Lack of unified theory

Behavioural economics has been criticised for having too many behavioural models and lack of unified explanations for a wider range of phenomena (Fudenberg, 2006). This criticism addresses the issue that behavioural economics contains wide collection of observations; there are contradictory theories and models relating to the same phenomenon and lack of guidelines for when each model should be applied. Some of biases recognized in behavioural economics are opposites and it is difficult to distinguish, which of the contradicting biases is dominating in decision-making. For example, are people more influenced by what they saw first (“priming” or “anchoring” effect) or what they saw last (“recency” effect) (Smets, 2018). Lack of elegance and generality that characterize traditional economic theory has been stated as an important drawback (Rubinstein, 2006). From the scientific point of view the field lacks consistent foundational theory.

Response. This criticism is reasoned but can be well responded. Behavioural economics, indeed, lacks unified theory and it is rather “a collection of tools or ideas” (Camerer & Loewenstein, 2004). But it is understandable and acceptable as in economics different models are appropriate for different people in different decision situations (Wilkinson & Klaes, 2018). What is more, contradictory theories relating to the same phenomena are a feature of many fields in science and often ideological conflicts continue for decades. Given the fact that behavioural economics is a relatively new field and thus still is in the process of formation, it is likely that in further development of the field some theories will fade out due to lack of support, whereas other theories will be conformed and strengthened (Wilkinson & Klaes, 2018). To advance further, testing large number of replications in larger number of properties for each person might be valuable (Birnbbaum, 2008).

1.2. Lack of normative status

Behavioural economics is also criticised for absence of normative theories (McChesney, 2014). Instead, behavioural models attempting to reflect reality better are almost purely descriptive and are mostly used to demonstrate “how people do act”. But normative

theories are surely needed in science, as they are prescriptive, able to suggest “how people should act” helping to identify the best decisions to make.

Response. This criticism about the lack of normative status is reasoned, but also can be well responded. Firstly, being normative a theory does not imply being better. “[T]here should be no prior supposition that the best models will be ones based on the principles of rational choice, no matter how appealing those may seem from a normative point of view” (Starmer, 2000). Normative models are often created at the cost of their ability to explain reality. Secondly, although behavioural models, indeed, are mostly descriptive and clearly fail to be normative, exactly the approach to observe the world as it is has led to accumulation of knowledge necessary for making behavioural interventions like “nudging”: indirectly suggesting people to make preferable choices (Thaler & Sunstein, 2008). Thus, the applied version of behavioural economics - nudging - has brought out the field from pure descriptiveness and contributed also to “how to act” vision by offering nudging techniques and helping to form behavioural interventions in public policy.

1.3. Lack of predicting power

The third criticism of behavioural economics results from the previous two: since there are too many behavioural models and they are descriptive, the field meets criticism also about the lack of predicting power (McChesney, 2014; Gigerenzer, 1996). “[W]hether the theory yields sufficiently accurate predictions” (Friedman, 1953) has been stated as value in economics long ago.

Response. Indeed, different models and different biases from traditionally assumed rationality makes it difficult to directly take one of the many behavioural models and without analysing context use it to make predictions in economics. Thus, from this point of view criticism of the lack of predicting power holds true. However, some biases observed in decision making are systematic and thus in some cases predictable, which is why lessons from behavioural economics in applied form of nudges have been increasingly used in policy formation (Pūce, 2018b). Behavioural concepts are seen as valuable for prescriptive policy purposes having an ability to make an impact in predictable way (Thaler & Sunstein 2008; Amir, O., Ariely, D., Cooke, A. et al., 2005).

1.4. Not being true

Another bunch of criticism against behavioural economics is addressed towards suspicions that behavioural theories are fundamentally not being true. Issues have been raised about the ability to hold true both on the market level and regarding individual decision-making.

1.4.1. Market is efficient

On the asset market level, behavioural theories describe market inefficiencies (for example, under-reaction, over-reaction, market bubbles) and claim that these inefficiencies are caused by normative irrationality (for example, overconfidence, over-optimism, herding, loss aversion and other behavioural biases) (Ricciardi & Simon, 2000;

Andrikopoulos, 2007; Muradoglu & Harvey, 2012). Instead, critics of behavioural economics and more specifically, behavioural finance, argue that behavioural theories cannot be considered valid because market is efficient: in the long run Efficient Market Hypothesis (developed by Eugene Fama; Fama, 1970) is believed to hold up rather well. Irrationality of individuals is believed to be nullified by group response. Overreaction or under-reaction appears from time to time, but anomalies on both sides appear in random split, none of them being the dominant phenomenon (Fama, 1998). Though some behavioural biases and related inefficiencies do appear from time to time, it is believed that market forces will always bring prices back to rational levels, implying that irrational behaviour in asset markets is irrelevant (Lo, 2005). Hence, this criticism lies on position that cognitive theories are more suitable for modelling decision making not generalized economic behaviour.

Response. This criticism is not unequivocal as the existence of anomalies on both sides and tendency for market to correct them does not cancel out the fact that systematic deviations from market efficiency occur. “[T]oday’s standard finance is no longer unified because wide cracks have opened between its theory and the evidence” (Statman, 2018) and that’s where behavioural finance takes place.

1.4.2. People are rational

Another criticism towards ideology of behavioural economics is addressed to the rationality/irrationality issue. Studies show that people have their own individual limits of brainpower, cognition, and self-control, hence, decisions in normative sense are boundedly rational due to those limitations (Mullainathan & Sharif, 2013). However, acting normatively irrationally, what is often documented by behavioural economists, can actually be rational. People use heuristics in decision making, but it doesn’t imply they are irrational; rather they are making their best choice based on accuracy-effort trade-off and heuristics are short-cuts that trade less effort for less accuracy (Gigerenzer, 2008). The brain’s fast, automatic, intuitive approach often works instead of the mind’s slower analytical mode (according to Kahneman’s terminology: system 1 thinking replaces system 2 thinking; Kahneman, 2011) and that might be rational as it helps to save mental resources. In some cases, heuristics make more accurate decisions with less effort presenting “less-is-more effect”, contradicting the traditional view that more information is always better (Schooler & Hertwig, 2005; Gigerenzer, 2008).

An individual’s perception and definition of basic decision-making concepts (risk, gains, losses, utility etc.) can differ by person and situation. It can include non-monetary components like economy of time and effort, consequences in collaboration opportunities with business partners, changes in society’s attitude, changes in regulations and many other factors. (For example, for different possible perceptions and definitions of utility concept like expected utility, discounted utility, remembered utility, social utility, etc., see Samson, 2018c). Thus, it is possible that decisions, which are normatively irrational, are actually based on differently defined decision-making concepts, in the result of what decisions might be rational.

What is more, there is a lack of comprehensive evidence that deviation from normative rationality leads to economically significant losses. “Despite producing prolific documentation of deviations from neoclassical norms, behavioral economics has produced almost no evidence that deviations are correlated with lower earnings, lower happiness, impaired health, inaccurate beliefs, or shorter lives” (Berg, Gigerenzer, 2010). Even if some irrationalities appear from time to time, it is believed that generally learning opportunities provide at least a decent approximation of normative rationality (Sunder, 1995; Myagkov & Plott; 1997). Also, rationality concept, including definition and measurability, is a debatable issue by itself (Hammond, 1997).

Response. The criticism concerning possible “hidden-rationality” is fundamental. The question - do systematic deviations from normative rationality imply irrationality of economics agents and are not they swiped out by learning opportunities and competition, - remains open. There is a need for further investigation of these inquiries as well as of the issue how to define and measure rationality.

1.5. Lack of novelty

Behavioural economics has been criticized for the lack of novelty in its ideology. Variety of psychological aspects in decision making and economics in general has been discussed before the rise of behavioural economics. Criticism is based on the opinion that behavioural economics is only offering “new names for concepts already well understood” (McChesney, 2014). An example offered by critics is “bounded rationality”, a fundamental concept in behavioural economics used to describe limits to our thinking capacity, available information, and time (proposed by Simon, 1982). It has been recognized in the mainstream economics long ago that information is costly, individuals might not have all of it, and at some point, further information will not be demanded as the value of it is worth less than the costs of acquiring (Stigler, 1961). This consideration is recognized in the mainstream economics with no special intention to change the existing models. Also issues like “irrational consumer preferences” (Galbraith, 1938), “animal spirits” (Keynes, 1936), “moral sentiments” (Smith, 1759) were proposed in economic literature long before the rise of behavioural economics. Similarly, other concepts including several heuristics and biases have been referred to before formation of behavioural economics.

Response. This criticism concerning the lack of novelty of behavioural economics can be responded. Some ideas incorporating concepts, which resemble those of behavioural economics, are not purely novel and have been on air long ago. But it surely does not correspond to the whole field of behavioural economics. Moreover, exactly in line with formation of the field of behavioural economics during the last few decades, formalization of psychological insights in economics has become significant and acknowledged both among the academics and practitioners (Pūce, 2018b).

2. Evidence suspicious criticism

Evidence suspicious criticism is questioning the quality of evidence supporting behavioural economics research. It is addressed towards methodological deficiencies in extensive experimental research and possibly overstated evidence.

2.1. Methodological deficiencies in extensive experimental research

Methodology used in behavioural economics is empirical, experimental and consists mostly of laboratory experiments (including hypothetical choice studies and experiments with actual outcomes), field studies (including field experiments and randomized controlled trials) and methods of neuroeconomics (including process measures like brain scans with magnetic resonance imaging) (Wilkinson & Klaes, 2018; Angner, 2016; Angner & Loewenstein, 2010). There is criticism towards the research methodology used in the field. Behavioural economics has been criticized for being based extensively on experimental research that often faces important shortcomings and does not represent real economics. Wide criticism has been addressed towards deficiencies of experimental research and especially towards laboratory experiments. Criticism includes methodological problems with data, experimental design and delivery, interpretation and presentation of results. The following issues have been raised.

2.1.1. Lack of sufficient incentives

Hypothetical choice studies often used in behavioural economics research (and included in some important early studies, e.g. Kahneman & Tversky, 1979) lack incentives for participants in their experiments to provide truthful, carefully considered responses and thus it is possible that the observed anomalies could be artefacts (Angner & Loewenstein, 2010). Criticism is addressed towards the possible differences between hypothetical choices and actual outcome choices as well as the effect from changes in financial incentives in experiments (Parco, Rapoport & Stein, 2002; Holt & Laury, 2002). The observed behaviour and outcome in the laboratory might not be realistic even in the experiments with some incentives introduced. Typically, there are small stakes involved in the decision dilemmas, thus experiments do not cause lasting financial consequences for participants. Therefore, according to this criticism, it is unreasonable to generalize results from laboratory experiments to the real world economics.

Response. This criticism concerning the lack of sufficient incentives in behavioural economics experiments is understandable as the incentives, indeed, might have an impact on choices. Actual outcome experiments with sufficient stakes might have greater conformity to reality than hypothetical choice studies. However, researchers are not unanimous about the issue and some indicate that the steak-size effect is surprisingly weak (Camerer, 2003). What is more, even with insufficient incentives it might be considered as valuable and in the same time recourse-saving approach to run experiments for initial theory testing purposes in “*ceteris paribus*” environment.

2.1.2. Participants know they are being watched

As participants in laboratory experiments know they are being watched, there is a problem that preferences observed in an experiment do not necessarily match the revealed actual preferences. Methodology used in experimental research imply the risk that participants might have a feeling of being judged by an experimenter and thus might be influenced by the fact that they know they are making decisions in an artificial environment. Participants might be tended to behave in line with researchers' expectations (Zizzo, 2010). Some researchers have pointed out that lack of anonymity between the experimenter and participants, and among participants themselves have an impact on the concern, what others might think and might contribute to pre-social behaviour (Levitt & List, 2007). Due to these issues, the results from laboratory experiments are criticized for being just "classroom findings" not applicable to real economics.

Response. This criticism is reasoned. However, the possible effect from participants being watched can be captured as laboratory experiments allow variation of the degree of anonymity, for example, explicit observation of participants in video experiments, single anonymous experiments with participant-participant anonymity and and double anonymous experiments with full anonymity between participants and experimenter (Falk & Heckman, 2009).

2.1.3. Narrowly-representative participants

Participants of laboratory experiments have been an object of debate (Levitt & List 2007; Camerer et al., 2015). Laboratory experiments are typically conducted using the so called "WEIRD" cohort – participants from Western, Educated, Industrialized, Rich, and Democratic societies (Henrich, Heine & Norenzayan, 2010). Thus, the critics argue that results from laboratory experiments cannot be generalized without caution. "[T]here are no obvious *a priori* grounds for claiming that a particular behavioural phenomenon is universal based on sampling from a single subpopulation" (Henrich, Heine & Norenzayan, 2010). What is more, rather often participants in laboratory experiments of behavioural economics are students and there might be self-selection of particular participants for the experiments (Frechette, 2011; Ball & Cech, 1996; Harrison, Lau & Rutström, 2009). The self-selecting nature of participants (undergraduate or graduate students, volunteers interested in the subject, etc.) limits the representativeness of the experiment results. Thus, generalizability of findings of a substantial part of laboratory experiments in behavioural economics is questionable due to criticism addressed towards narrowly-representative participants.

Response. This criticism is reasonable. Behavioural economics experiments could, indeed, benefit from widening the participant scope. But it is possible to collect detailed data about participants to control the selection, and explicitly study it in a controlled way (Falk & Heckman, 2009).

2.1.4. Sensitivity towards delivery of experiments

Diverse criticism is addressed towards sensitivity towards delivery of experiments. Experimental research has been criticized for "lack of control, resulting in mis-

interpretation or confounding of effects” (Wilkinson & Klaes, 2018). Problematics of delivery of the experiments and the actual complexity of experimental design has been raised (Obergruber & Hrubcova, 2016). Critics argue that results gained from experiments can be confounded with framing of the experimental task and interpretation errors of participants in understanding the task. The possibility that slight changes of the experimental process (for example choice of words used in experiments such as "opponent" instead of "partner") can get participants to act in a certain way and thus the possibility that experimenters can unintentionally or on purpose have an impact on results (Gintis, 2001) has been criticised. “If there is value in doing experiments [...] it is only when they are done and assessed very carefully” (Rubinstein, 2006).

Response. This is very important criticism. Probably, not all behavioural studies are of the brightest quality and some, indeed, might include misinterpretations and fail to properly design or deliver experiments. But this is not the main problem. In every field there are studies with rather diverse quality. To my concern the main problem is that studies often lack reporting about exact details how experiments were carried out, thus it is difficult to separate credible, carefully retrieved experimental evidence from cursory experimental attempts. If experiments are done carefully, questionable nuances of the delivery of experiments can be identified and rechecked and experiments are replicable to increase credibility of the observed phenomenon.

General response. Regarding criticism towards methodological deficiencies in the extensive experimental research it is important to note that:

1) behavioural experiments can provide hypotheses that can be tested in real economics (it was especially important in the initial phase of behavioural economics); “For social scientists, experiments are like microscopes or strobe lights. They help us slow human behavior to a frame-by-frame narration of events, isolate individual forces, and examine those forces carefully and in more detail.” (Ariely, 2010).

2) the quality of evidence in behavioural economics is increasing: recently behavioural economics has moved beyond lab experimentation and there has been an increasing use of other methods and consequently decent contributions (Camerer & Loewenstein, 2004). Field research, randomised controlled trials and methods of neuroeconomics providing more complex understanding of the brain behaviour have taken place among the methodological arsenal of behavioural economics.

2.2. Overstated evidence

Even assuming that some studies are carried out accurately methodology-wise (with respect to the previous section: having sufficient incentives, capturing effect of the degree of anonymity, having wide and diverse participant scope, proper experimental design and careful delivery) there is another issue concerning evidence suspicious criticism addressed towards behavioural economics, i.e. criticism towards overstated evidence.

Behavioural economics has been criticized about the tendency to be overenthusiastic in finding supporting evidence for behavioural economics. It has been stated that “intuitive and “sexy” results are gladly accepted by behavioral economists

without sufficient criticism” (Rubinstein, 2006). The field has been criticized for “cherry-picking” of results, an error of inductive inference towards confirmation of the hypothesis under study. It has been claimed that there is a tendency in experiments to use theory-supporting data sets, ignoring other data, and report theory-supporting conclusions, ignoring conclusions where results are inconsistent with theories (Binmore & Shaked, 2010). There have been indications for existence of “confirmation bias”, a tendency to search for or interpret information in a way that confirms one's preconceptions. “One of the reasons the science literature gets skewed is that journals are much more likely to publish positive than negative results” (Ball, 2015). That is the so called “publication bias”, a situation where research with non-significant results is less likely to be published (Rothstein, Sutton & Borenstein, 2005), which goes hand in hand with “selective outcome reporting bias”, a situation where only the significant outcomes out of many are being reported (Sterne, Egger & Moher, 2008). Thus, researchers more likely “cherry-pick” evidence that support their theories, and scrutinize findings that do not. Consequently, numerous results in scientific journals might be exaggerated or even false (Ioannidis et al., 2014). This applies also to behavioural economics. Classic findings having insights in psychology have been reevaluated recently and found being difficult or impossible to replicate, thus indicating “replication crisis” (Resnick, 2018). It has been suggested to adopt “more skeptical attitude when far-reaching claims about human behavior are extrapolated from very slender data” (Binmore & Shaked, 2010).

Response. This evidence suspicious criticism towards overstated evidence caused by “cherry-picking” of results in behavioural economics is significant. It endangers credibility of studies in the field and should be taken into account when creating meta-analysis in behavioural economics. This criticism can only be replied by pointing to general tendency of science to self-correct when the weight of the evidence demands it (Ball, 2015). It is nothing extraordinary that there are deficiencies in evidence reporting in behavioural economics, but as in any other field of science it should be able to self-correct when proved begin wrong.

3. Criticism concerning practical application of behavioural economics in public policy

Criticism concerning practical application of behavioural economics in public policy is questioning use of nudging in public policy. Issues regarding risks, limits, effects and ethical issues of nudging by policy makers have been raised.

3.1. Risk of further undesirable tendency towards paternalism

Criticism has been raised towards the risk that if nudging is accepted as a policy tool representing modest paternalism, intrusive interventions representing more paternalistic policies in the future will follow (this is the so called “slippery slope” criticism in Thalers and Sunsteins terminology; Thaler & Sunstein, 2008). It is seen as a threat that policy makers in protecting people from their errors will eventually go from easily avoidable directed way in choice architecture to high-cost opt-out choice architecture or even prohibition to step out of the governments directed way. The worry is that “the wolf of

hard paternalism may appear in the clothing of soft-paternalist sheep” (Angner, 2016). What is seen as a threat is also that acceptance of nudging in public policy will lessen opportunities to make decisions by ourselves (Jespersen, 2018). Escalation of the state intervention is seen as a risk.

Response. This criticism can be considered as hypothetical. Criticism has been responded by indicating that “it does not say that there is anything wrong with libertarian paternalism or nudging per se, but rather with the harder forms of paternalistic intervention that will likely follow. But why should we think that they will?” (Angner, 2016). Indeed, this criticism is expressed without evidence that nudging makes paternalistic policies more likely or even inevitable. This criticism can be responded by suggesting resisting hypothetical “slippery slope” reasoning as such (Blackburn, 2001). Furthermore, it has been responded also by noting towards freedom of choice that underlies nudging ideology. According to nudging ideology, low-cost opt-out options must be always available. Thus, it actually might be vice versa: nudging approach opposes the most objectionable forms of policy makers intervention (Thaler & Sunstein, 2008). For this reason, some economists are very much in favour of nudging, preferring gentle persuasion and suggesting substitution of softer for harder forms of paternalism (Caplan, 2013).

3.2. Risk of unfavourable nudges

There is criticism towards applying behavioural insights by policy makers as there is risk of unfavourable nudging. The addressed issue includes intentionally unfavourable nudges caused by policy maker self-dealing and unintentionally unfavourable nudges resulting simply from lack of competence in nudging. Both forms of unfavourable nudges are discussed.

3.2.1. Risk of intentionally unfavourable nudges

The critical concern is whether we can know that policy makers undertaking the nudging are in fact nudging us to our best choices as “[c]hoice architects in all walks of life have incentives to nudge people in direction that benefit the architects” (Thaler & Sunstein, 2008). The risk of policy maker self-dealing and being affected by private sector interests, lobbying or even corruption has been addressed raising criticism towards the possible intentionally unfavourable nudges.

Response. This criticism has been responded, by pointing out that “publicity principle is good guideline for constraining and implementing nudges”, nudges should not be secretive, policy makers have to answer to voters and that the goal should be increasing transparency (Thaler & Sunstein, 2008). Generally, nudging should be approached as an instrument. And as any instrument it might be used for good or for bad. “[N]udges can presumably be inelegant, inappropriate, misguided, mean-spirited, and/or outright harmful. But just like it would be unhelpful to criticise the use of hammers based on the fact that people get hurt if they are whacked over the head, it would be odd to criticize nudges based on the fact that they have harmful uses” (Angner, 2016).

Probability that unfavourable nudges for society take place cannot be excluded, but it is then an issue of general trustworthiness in policy makers, not nudging as an instrument.

3.2.2. Risk of unintentionally unfavourable nudges and lack of competence in nudging

Even if applying behavioural insights to public policy is not done with intention to manipulate towards unfavourable choices, the risk of unintentionally unfavourable nudges is still present. The criticism has been raised towards the possible lack of policy maker competence in nudging. The ability of policy makers to be competent to make choice-architecture that could help individuals make choices that the latter consider better for them is questionable: how do they know what is best for people; are they able to make good guess; don't they have the same cognitive biases as any other individual? Some studies, indeed, indicate cognitive biases of policy makers and suggest greater trepidation when considering their reasoning (Whitman & Rizzo, 2007). Critics argue that lack of competence in decent nudging can do more harm than good by directing peoples' choices.

Response. This criticism has been responded by providing situations when nudging might be valuable. “[W]hen choices are fraught, when Nudgers have expertise, and when differences in individual preferences are either not important or can be easily estimated, then the potential for helpful nudging is high” (Thaler & Sunstein, 2008). It is understandable that policy makers “suffer the same limitations that rest of us do” (like lack of rationality and information), but “choice architects need not be superhuman” (Angner, 2016). It is important to note also that nudge units typically rely on expertise of professional behavioural economists.

3.3. Unaffected and well-educated choices are better than nudging

Nudging has been criticised for being paternalistic by its nature. Critics question “to what extent libertarian paternalism lives up to its libertarian credentials, and whether this “softer” version of paternalism is [...] desirable” (Rebonato, 2014). Criticism is addressed to issue that claim that all forms of paternalism including libertarian paternalism are objectionable. There is an argument that people in free society must have the right to make unaffected choices even if they are wrong. Nudging has been criticized for harming our autonomy and our ability to make moral choices for ourselves (Furedi, 2011; Bovens, 2008). It is claimed that making mistakes might be beneficial since that is how we learn. Thus, the critics argue that nudging might decrease the ability of people to learn from their mistakes (White, 2013). Unaffected choices have been seen better than nudging. This criticism is raised by libertarians and based on freedom of choice as the highest virtue (higher than welfare). “[T]hey would like to provide people with the information necessary to make choice, and then tell people to choose for themselves: no nudges!” (Thaler & Sunstein, 2008). Critics of nudge ideology believe that educating people to make well-reasoned choices is better alternative than nudging and that more opportunities to learn the skills of critical thinking are needed. “[T]he claim that we are

hardly educable lacks evidence and forecloses the true alternative to nudging: teaching people to become risk savvy” (Gigerenzer, 2015).

Response. This criticism has been responded. “[N]udge policies do leave people free to make their own mistakes, but they are less likely to make mistakes – if the government gets it right” (Wilkinson & Klaes, 2018). Surely, an educated choice is the best alternative, but the problem is that it is not something we can simply choose. People encounter time, knowledge, effort and other constraints and thus in many decision-making situations consciously or even unconsciously they choose not to choose. In that situation it is extremely important, what is the default option. Same as in traditional architecture, also in choice architecture “there is no such thing as a “neutral” design” (Thaler & Sunstein, 2008).

3.4. Limitations in application and effect

Another deficiency of nudging seen by its critics is its limited applicability and effect. Critics point out that there are very sharp limitations in use of nudging, it cannot be considered as substitute for traditional forms of policy and variety of problems should not be addressed using nudging but rather traditional forms of policy (Loewenstein and Ubel, 2010). It has been indicated that “behavioural economics is being asked to solve problems it wasn’t meant to address” and that “the field has its limits” (Loewenstein and Ubel, 2010). Critics also argue that “nudge intervention can only induce short-term cosmetic behavioral changes” (Salazar, 2012) thus raising the issue about lack of significant effect on behaviour in the long-term.

Response. This criticism is partly true. Application of behavioural economics and nudging in public policy, indeed, has limitations. But this criticism is not devaluing possible benefits of using insights from behavioural economics and nudging as an instrument in policy formation as there are areas, where behavioural nudges can contribute significantly and with the long-term effect. Though limited in application, nudging still can be considered as extremely beneficial libertarian policy tool complementing more traditional policy tools. It is low cost, cheap to administer and with immediate and possibly substantial effect. Moreover, it is likely that experience of the use of nudges will amass further and more areas of application will develop.

3.5. Unethicality

Nudging has been criticised for violation of ethicality issues. The key point of this criticism is addressed towards the fact that nudging is applied without the awareness of people, who are being nudged. Critics recommend that “[h]owever sympathetic we are to the goals nudge is trying to achieve – such as reducing car accidents or increasing tax collection – we should be deeply sceptical of its tactics, which involve influencing the public without them knowing it is happening” (Dunt, 2014). Thus, nudging is criticised for holding only liberal impression, while actually intending to impact without a notion. This has been seen as an unethical and manipulative approach. Critics claim that nudging works by “manipulating people’s choices” (Bovens, 2008). In this perspective nudging is seen as a policy tool, which is violating people’s autonomy and thus is claimed to be

another form of coercion (Farrell & Shalizi, 2011) or even worse than coercion (Wilkinson, 2013). “Libertarian paternalism” is claimed to be oxymoron (Mitchell, 2004) and ethics of nudging have been strongly questioned as individual choice and autonomy are believed to be crucial (White, 2013; Rebonato, 2012). “At least when something is banned, you know you are being prevented from doing it. With nudge, you will never know” nudging critics conclude (Dunt, 2014). Consequently, people are not unanimous concerning their willingness to be nudged at all.

Response. The criticism concerning ethical issues of nudging is understandable. Lack of awareness of people for being nudged, indeed, violates ethicality. However, these concerns have been responded by pointing towards the nonexistence of neutral choice architecture and providing transparency of nudges (Thaler & Sunstein, 2008). A transparent nudge has been defined as “any nudge part of an intervention provided in such a way so that those affected can infer three things about the intervention as a result of the intervention: 1.who’s the choice architect (agent) 2.what is the intention behind the intervention (ends) 3.how is the intervention supposed to nudge my behaviour (that is the transparency of the individual nudge function as a means)” (Hansen, 2017). Thus, transparency is the key issue when distinguishing manipulative use of nudges from other kinds of uses (responsible use of the nudge approach see: Hansen & Jespersen, 2013; for detailed overview about ethicality issues see: Bovens, 2009 and Sunstein, 2016). “When the ends are legitimate, and when nudges are fully transparent and subject to public scrutiny, a convincing ethical objection is less likely to be available” (Sunstein, 2015). Furthermore, the research suggests that people are rather supportive to the nudge approach (Branson et al., 2012).

RESULTS: AN OVERVIEW

The amount and variety of criticism of behavioural economics is large (is there an issue not attacked?). An overview of the criticism covered in this study is presented in Figure 3. This figure serves as a summary of the article.

Behavioural economics			
Areas of attack	Ideology	Evidence	Practical application
Criticism	Ideological criticism	Evidence suspicious criticism	Criticism towards nudging in public policy
	<ul style="list-style-type: none"> ▶ Lack of unified theory <ul style="list-style-type: none"> · many models, some contradictory ▶ Lack of normative status <ul style="list-style-type: none"> · almost purely descriptive, lack prescriptiveness in improving decisions ▶ Lack of predicting power <i>consequently</i> <ul style="list-style-type: none"> · Lack of novelty <ul style="list-style-type: none"> · ideas are not new, have been understood without intention to change existing models · Not being true <ul style="list-style-type: none"> · market is efficient irrationality of individuals nullifies by group response; in long run EMH holds · people are rational normatively irrational decisions might be rational when non-monetary components are counted in; heuristics are short-cuts that trade less effort for less accuracy 	<ul style="list-style-type: none"> ▶ Methodological deficiencies in extensive experimental research <ul style="list-style-type: none"> · lack of sufficient incentives no lasting financial consequences, behaviour might not be realistic) · participants know they are being watched artificial environment; stated preferences might not be real · narrowly-representative participants from “WEIRD” societies, self-selection · sensitivity towards delivery lack of control, mis-interpretation ▶ Overstated evidence <ul style="list-style-type: none"> · overenthusiasm in finding supporting evidence, confirmation bias, selective outcome reporting bias, “cherry-picking” of results, publication bias 	<ul style="list-style-type: none"> ▶ Risk of further undesirable tendency towards paternalism <ul style="list-style-type: none"> · “the slippery slope” argument, possible escalation of state intervention ▶ Risk of unfavourable nudges <ul style="list-style-type: none"> · intentionally policy maker self-dealing · unintentionally lack of competence in nudging ▶ Unaffected and well-educated choices is better alternative <ul style="list-style-type: none"> · nudging harms ability to learn from mistakes ▶ Limitations in application and effect <ul style="list-style-type: none"> · limited areas, short-term effect ▶ Unethicality <ul style="list-style-type: none"> · manipulation without people being aware, violates autonomy

Figure-3. Criticism of behavioural economics (self-made summary)

The attacks towards behavioural economics have been substantial and are harshly addressed towards ideology, evidence and practical application of behavioural economics (attacking all three levels of the pyramid of criticism presented previously in Figure 2). However, majority of criticism addressed against behavioural economics does not endanger general validity and significance of the field. Substantial part of the criticism is addressed towards field-specific characteristics, which are logical at the stage of development of the field (like lack of unified theory, normative status and predicting power), and some criticism is addressed towards “bad behavioural economics” (like methodologically deficient, poorly carried experiments, and unfavourable nudges introduced by self-dealing and incompetent policy makers). Another part of the criticism simply seems weak (lack of novelty, hypothetical risk of escalation of paternalism, if nudging is introduced in public policy, and limitations in application and effect of nudging). Even though this criticism does not endanger general validity of the field, it surely should be at the back of mind when further research and application of behavioural economics is done.

However, several issues raised against behavioural economics can be considered as significant attacks, which require careful further investigation and improvements. Firstly, the questions regarding definition of “rational behaviour” are substantial and would benefit from more analytical studies. Behavioural economists should be very careful to label behaviour as irrational knowing the variety of possible perceptions of

rationality, risk, utility and other decision-making concepts. Diverse non-monetary issues might take place. Something what seems irrational might in fact be “hiddenly rational”.

Secondly, the body of literature presenting evidence of behavioural economics should be approached with some suspicion. There surely are studies, which represent “good behavioural economics” methodology-wise (for example, experimental research is done in decent manner: it tests for effects of incentives, anonymity, covers wide scope of diverse participants and is carefully delivered; methods like field research, randomised controlled trials or neuroeconomical techniques are decently used; and outcomes are reported without any selectivity). In order to qualify as “good behavioural economics” collection and presentation of evidence should be approached extremely carefully with sufficient amount of self-criticism. However, the concern is that even if all behavioural economics researches would methodologically represent “good behavioural economics”, the body of literature presenting evidence on behavioural economics could still be overstated due to the publication bias. This should be taken into account when becoming acquainted with the next approving behavioural economics research. As well, it should be considered when using meta-analysis to combine results of multiple behavioural studies.

Thirdly, a clear framework for usage of nudges in public policy is desirable to determine constraints, under which nudging is welcome. There is a need for clarity, under which conditions nudging is favourable and ethical, in which areas it is applicable, where it has the best effects, and when to better chose other policy tools – more paternalistic (like legislative enforcement) or more liberal (like unaffected choices with some extra educational activities). Thus, what is “a good nudge” should be defined. Surely, it will include conditions like being in the best interests of the society, easy and cheap to avoid, and transparent (providing information about the nudge: choice architect, intended effect and intervention). However, more detailed framework identifying different nudge interventions, the best practice, mandatory conditions and limits would be of value.

Consequently, the overview of the criticism of behavioural economics has enlightened some deficiencies and raised notions about further improvements of the field.

CONCLUDING REMARKS

Scientific criticism can be as a springboard for development of any field of science including behavioural economics. But not to be misleading it is important to address criticism towards a good version of science rather than bad, as there is diversity in quality of research and practical application of it in any field.

The field of behavioural economics can be considered as a “teenager” in science. It emerged only recently discovering anomalies of the existing theories, offering new paradigms in economics as a science and directing new research, thus very much resembling the cycle of scientific progress involving paradigm change called the Kuhn

Cycle (originally presented in: Kuhn, 1962). Although behavioural economics has been revolutionary in economics, taking all the criticism addressed towards the field, it is complimentary to traditional economic theories and must be self-critical enough not to overstate itself.

Hopefully, systematisation of ideas of behavioural economics, in-depth analysis of the rationality issues, improvements of methodological performance, increase of use of the outside-lab methodology, caution in representation of the evidence, and development of clear framework for use of nudges in public policy will evolve. Taking lessons from the criticism received, some deficiencies of behavioural economics should diminish with time and further research. As Karl Raimund Popper wrote about growth of scientific knowledge: “science is one of the very few human activities—perhaps the only one—in which errors are systematically criticized and fairly often, in time, corrected” (Popper, 1963).

REFERENCES

- Alvey, J.A., 1999. A short history of economics as a moral science. *Journal of Markets & Morality*, 2(1), pp. 53-73.
- Amir, O., Ariely, D., Cooke, A., Dunning, D., Epley, N., Gneezy, U., Koszegi, B., Lichtenstein, D., Mazar, M., Mullainathan, S., Prelec, D., Shafir, E. & Silva, J., 2005. Psychology, behavioral economics, and public policy. *Marketing Letters*, 16 (3/4), pp. 443-454.
- Andrikopoulos, P., 2007. Modern finance vs. behavioural finance: an overview of key concepts and major arguments. *The ICFAI Journal of Behavioural Finance*, 4(2), pp. 53-70.
- Angner, E., 2016. *A course in behavioral economics S*. 3rd ed. New York: Palgrave Macmillan.
- Angner, E. & Loewenstein, G., 2010. Behavioral economics. In Mäki, U. (editor), *Handbook of the philosophy of science*, Amsterdam: Elsevier Publishing, 13, pp. 67-101.
- Ariely, D., 2010. *Predictably irrational: the hidden forces that shape our decisions*. New York, Harper.
- Azar, O.H., 2007. Behavioral economics and socio-economics journals: a citation-based ranking. *The Journal of Socio-Economics*, 36(3), Elsevier, pp. 451-462.
- Ball, P., 2015. *The trouble with scientists: how one psychologist is tackling human biases in science*. Nautilus. Retrieved October 29, 2018 from: <http://nautil.us/issue/24/error/the-trouble-with-scientists>
- Ball, S.B. & Cech, P.A., 1996. *Research in experimental economics*. Vol. 6, chapter Subject pool choice and treatment effects in economic laboratory research. Greenwich: JAI Press, pp. 239—292.
- Berg, N. & Gigerenzer, G., 2010. As-if behavioral economics: neoclassical economics in disguise? *History of Economic Ideas*, 18(1), pp. 133-166.
- Binmore, K. & Shaked, A., 2010. Experimental economics: where next? *Journal of Economic Behavior & Organization*, 73(1), pp. 87-100.
- Birnbaum, M.H., 2008. New paradoxes of risky decision making. *Psychological Review*, 115(2), pp.463-501.

- Blackburn, S., 2001. *Being good: a short introduction to ethics*. Oxford: Oxford University Press.
- Bovens, L., 2008. The ethics of nudge. In Grüne-Yanoff T. & Hansson, S.O. (editors) *Preference change: approaches from philosophy, economics and psychology*. Berlin and New York: Springer.
- Branson, C., Duffy, B., Perry, C. & Wellings, D., 2012. Acceptable behaviour: public opinion on behaviour change policy. *Ipsos MORI*. Retrieved November 5, 2018 from: <https://www.ipsos.com/sites/default/files/publication/1970-01/sri-ipsos-mori-acceptable-behaviour-january-2012.pdf>
- Camerer, C., 2003. *Behavioural game theory: experiments in strategic interaction*. Princeton. Princeton University Press.
- Camerer, C. & Loewenstein, G., 2004. *Behavioral economics: past, present, future*. In Camerer, C., Loewenstein, G. & Rabin, M. (editors) *Advances in behavioral economics*. Princeton, NJ: Princeton University Press, pp. 3-51.
- Camerer, C.F., Dreber, A., Forsell, E., Ho, T., Huber, J., Johannesson, M., Kirchler, M., Almenberg, J., Altmejd, A., Chan, T., Heikensten, E., Holzmeister, F., Imai, T., Isaksson, S., Nave, G., Pfeiffer, T., Razen, M., & Wu, H., 2016. Evaluating replicability of laboratory experiments in economics. *Science*, 351, pp. 1433-1436.
- Caplan. B., 2013. Nudge, policy, and the endowment effect. *Econlib. The Library of Economics and Liberty*, Retrieved November 2, 2018 from: https://www.econlib.org/archives/2013/07/nudge_policy_am.html.
- Colander, L., 2002. *History of economic thought*, 4th ed. Boston: Houghton Mifflin Company.
- Dunt, I., 2014. Nudge nudge, say no more. Brits' minds will be controlled without us knowing it. *The Guardian*. Retrieved November 2, 2018 from: <https://www.theguardian.com/commentisfree/2014/feb/05/nudge-say-no-more-behavioural-insights-team>
- Falk, A. & Heckman, J.J., 2009. Lab experiments are a major source of knowledge in the social sciences. *Science*, 326(5952), pp. 535–538.
- Fama, E.F., 1970. Efficient capital markets: a review of theory and empirical work. *The Journal of Finance*, 25(2), pp. 383-417.

- Fama, E.F., 1998. Market efficiency, long term returns and 'behavioral finance'. *Journal of Finance and Economics*, 49, pp. 283-306.
- Farrell, H. & Shalizi, C., 2011. 'Nudge' policies are another name for coercion. *New Scientist*, 2837.
- Frechette, G.R., 2011. Laboratory experiments: professionals versus students. SSRN Electronic Journal.
- Friedman, M., 1953 (1970). *The methodology of positive economics*. In Essays in positive economics. Chicago: University of Chicago Press, pp. 3-43.
- Fudenberg, D., 2006. Advancing beyond advances in behavioral economics. *Journal of Economic Literature*, 44(3), pp. 694-711.
- Furedi, F., 2011. *Defending moral autonomy against an army of nudgers*. Frankfuredi.com. Retrieved November 4, 2018 from: <http://frankfuredi.com/newsite/article/435>
- Galbraith, J.K., 1938. Rational and irrational consumer preference. *The Economic Journal*, 48 (190), pp. 336-342.
- Geiger, N., 2017. The rise of behavioral economics: a quantitative assessment", *Social Science History*, 41(3), pp. 555–583.
- Gigerenzer, G., 1996. On narrow norms and vague heuristics: a reply to Kahneman and Tversky. *Psychological Review*, 103, pp. 592–596.
- Gigerenzer, G., 2008. Why heuristics work. *Perspectives on Psychological Science*, 3(1), pp. 20 – 29.
- Gigerenzer, G., 2015. On the supposed evidence for libertarian paternalism. *Review of Philosophy and Psychology*, 6 (3), pp.361–383.
- Gintis, H., 2001. The contribution of game theory to experimental design in the behavioral sciences. *Behavioral and Brain Sciences*, 24, pp. 411-412.
- Hammond, P.J., 1997. Rationality in economics. Material prepared for a lecture. Retrieved October 16, 2018 from: <https://web.stanford.edu/~hammond/ratEcon.pdf> .

- Hansen P.G., 2017. *Notes on 'The limits of nudge: ethics & manipulation'* Retrieved November 2, 2018 from: <https://www.pelleonline.org/behaviour/notes-on-the-limits-of-nudge-ethics-manipulation.html?lang=en>
- Hansen, P.G. & Jespersen A.M., 2013. Nudge and the manipulation of choice: a framework for the responsible use of the nudge approach to behaviour change in public policy. *European Journal of Risk Regulation*, 4 (1), pp. 3-28.
- Harrison, G.W., Lau, M.I. & Rutström, E.E., 2009. Risk attitudes, randomization to treatment, and self-selection into experiments. *Journal of Economic Behavior & Organization*, 70 (3), pp. 498-507.
- Henrich, J., Heine, S.J., & Norenzayan, A., 2010. The weirdest people in the world? *Behavioral and Brain Sciences*, 33 (2-3), pp. 61-83.
- Holt, C.A. & Laury, S.C., 2002. Risk aversion and incentive effects. *American Economic Review*, 92 (5), pp. 1644-1655.
- Ioannidis, J.P.A., Munafò, M.R., Fusar-Poli, P., Nosek, B.A. & David, S.P., 2014. Publication and other reporting biases in cognitive sciences: detection, prevalence, and prevention. *Trends in Cognitive Sciences*, 18 (5), pp. 235–241.
- Jespersen, A.M., 2018. *Nudge Theory 3: Concerns Answered*. iNudgeyou. Retrieved October 30, 2018 from: <https://inudgeyou.com/en/nudge-theory-3-concerns-answered/>
- Kahneman, D., 2011. *Thinking, fast and slow*. New York: Farrar, Straus and Giroux.
- Keynes, J.M., 1974 (1936). *The general theory of employment, interest and money*. London and New York, Macmillan-Cambridge University Press.
- Kuhn, T.S., 1962. *The structure of scientific revolutions*. 1st ed., Chicago, University of Chicago Press.
- Lakhani, N., 2008. Unhealthy lifestyles here to stay, in spite of costly campaigns. *The Independent*. Retrieved November 3, 2018 from: <https://www.independent.co.uk/life-style/health-and-families/health-news/unhealthy-lifestyles-here-to-stay-in-spite-of-costly-campaigns-1055693.html>
- Levitt, S.D. & List, J.A. 2007. What do laboratory experiments measuring social preferences reveal about the real world? *Journal of Economic Perspectives*, 21 (2), pp. 153-174.

- Lo, A.W., 2005. Reconciling efficient markets with behavioral finance: the adaptive markets hypothesis. *The Journal of Investment Consulting*, 7(2), pp.21-44.
- Loewenstein, G. & Ubel, P., 2010. Economists behaving badly. *New York Times*. Retrieved November 2, 2018 from: <https://www.nytimes.com/2010/07/15/opinion/15loewenstein.html>
- McChesney, F., 2014. Behavioral economics: old wine in irrelevant new bottles? *Supreme Court Economic Review*, 21(1), pp. 43-76.
- Mitchell, G., 2004. Libertarian Paternalism is an oxymoron. *Northwestern University Law Review*, 99 (3).
- Mullainathan, S., & Sharif, E., 2013. Scarcity: why having too little means so much. London: Allen Lane.
- Muradoglu, G. & Harvey, N., 2012. Behavioural finance: the role of psychological factors in financial decisions. *Review of Behavioural Finance*, 4(2), pp.68-80.
- Myagkov, M. & Plott, C.R., 1997. Exchange economies and loss exposure: experiments exploring prospect theory and competitive equilibria in market environments. *The American Economic Review*, 87(5), pp. 801-828.
- von Neumann, J., 1947. The Mathematician. In Haywood, R. B., Works of the Mind, 1(1). Chicago: University of Chicago Press, pp. 180–196.
- NobelPrize.org. Nobel Media AB 2018. Daniel Kahneman – Facts. Retrieved October 4, 2018 from <https://www.nobelprize.org/prizes/economics/2002/kahneman/facts/> .
- Richard H. Thaler – Facts. Retrieved October 4, 2018 from <https://www.nobelprize.org/prizes/economics/2017/thaler/facts/> .
- OECD.org. Behavioural insights. Retrieved October 4, 2018 from <http://www.oecd.org/gov/regulatory-policy/behavioural-insights.htm>.
- OECD, 2017. Behavioural insights and public policy: lessons from around the world. Paris, OECD Publishing. Retrieved October 4, 2018 from https://www.oecd-ilibrary.org/governance/behavioural-insights-and-public-policy_9789264270480-en .
- Parco, J.E., Rapoport, A. & Stein, W.E., 2002. Effects of financial incentives on the breakdown of mutual trust. *Psychological Science*, 3, pp. 292-297.

- Popper, K.R., 1963, *Conjectures and refutations: the growth of scientific knowledge*. London, Routledge.
- Pūce, L., 2018a. Development, transition and challenges of economics as a science. *Proceedings of "7th International Scientific Conference Changes in Social and Business Environment"*, pp.75-94.
Available at: http://www.edlearning.it/ebook/B426_CISABE.pdf
- Pūce, L., 2018b. Behavioural economics: rise, acknowledgements and application; presented in *6th International Academic Conference on Social Sciences (IACSS 2018)* in Prague, Czech Republic on July 27th, 2018; article in process to be published in conference proceedings.
- Rebonato, R., 2012. *Taking liberties – a critical examination of libertarian paternalism*. New York: Palgrave Macmillan.
- Rebonato, R., 2014. A critical assessment of libertarian paternalism. *Journal of Consumer Policy*, 37(3), pp. 357–396.
- Rehman, T., 2016. Historical context of behavioral economics. *Intellectual Economics*, 10(2), pp. 128-132.
- Resnick B., 2018. *The Stanford prison experiment was massively influential. We just learned it was a fraud*. Vox Media. Retrieved October 29, 2018 from: https://www.vox.com/platform/amp/2018/6/13/17449118/stanford-prison-experiment-fraud-psychology-replication?_twitter_impression=true
- Ricciardi, V. & Simon, H.K., 2000. What is behavioral finance? *Business, Education & Technology Journal*, 2 (2), pp. 1-9. Rothstein, H., Sutton, A. J. & Borenstein M., 2005. *Publication bias in meta-analysis: prevention, assessment and adjustments*. Chichester: Wiley.
- Rubinstein, A., 2006. Comments on behavioral economics. In Blundell, R., Newey, W.K. & Persson T. (editors) *Advances in economic theory* (2005 World Congress of the Econometric Society). Cambridge University Press, 2, pp. 246-254.
- Salazar, A., 2012. Libertarian paternalism and the danger of nudging consumers. *King's Law Journal: King's College London Law Journal*.
- Samson, A. (editor), 2018a. The behavioral economics guide 2018. *Scholarly journals*, pp. 206-2018.

- Retrieved October 4, 2018 from <https://www.behavioraleconomics.com/the-be-guide/the-behavioral-economics-guide-2018/> .
- Samson, A. (editor), 2018b. The behavioral economics guide 2018. Postgraduate programs, pp. 164-185.
Retrieved October 4, 2018 from <https://www.behavioraleconomics.com/the-be-guide/the-behavioral-economics-guide-2018/> .
- Samson, A. (editor), 2018c. The behavioral economics guide 2018. Selected behavioral science concepts, Utility pp. 151-152.
Retrieved November 20, 2018 from <https://www.behavioraleconomics.com/the-be-guide/the-behavioral-economics-guide-2018/> .
- Schooler, L.J., & Hertwig, R., 2005. How forgetting aids heuristic inference. *Psychological Review*, 112(3), pp. 610–628.
- Sent, E.M., 2004. Behavioral economics: how psychology made its (limited) way back into economics. *History of Political Economy*, 36(4), pp. 735-760.
- Smets, K., 2018. There is more to behavioral economics than biases and fallacies. Behavioral Scientist. Retrieved October 15, 2018 from: <http://behavioralscientist.org/there-is-more-to-behavioral-science-than-biases-and-fallacies/>
- Smith, A., 1997 [1759]. The theory of moral sentiments. Washington (dc), Regnery Pub.
- Starmer, C., 2000. Developments in non-expected utility theory: the hunt for a descriptive theory of choice under risk. *Journal of Economic Literature*, 38, pp. 332-382.
- Statman, M., 2018. A unified behavioral finance. *The Journal of Portfolio Management*, 44 (7), pp. 124-134.
- Sterne, J., Egger, M. & Moher, D., 2008. Addressing reporting biases. In Higgins, J. P. T., & Green, S. (editors) *Cochrane handbook for systematic reviews of interventions*. Chichester: Wiley, pp. 297–334.
- Stigler, G.J., 1961. The economics of information, *The Journal of Political Economy*, 69(3), pp. 213-225.

- Sunder, S., 1995. *Experimental asset markets: a survey*. In Kagel, J.H. & Roth A.E. (editors) *Handbook of experimental economics*. Princeton: Princeton University Press, chapter 6, pp. 445–500.
- Sunstein, C.R., 2015. Nudging and choice architecture: ethical considerations. *Yale Journal on Regulation*, forthcoming.
- Sunstein, C.R., 2016. *The ethics of influence: government in the age of behavioral science*. New York: Cambridge University Press.
- Sunstein, C. R. & Reisch, L. (editors), 2017. *The economics of nudge*. London: Routledge.
- Thaler, R.H. & Sunstein, C.R., 2008. *Nudge: improving decisions about health, wealth, and happiness*. New Haven: Yale University Press.
- Weintraub, E.R., 2018. Neoclassical economics. *The Concise Encyclopedia of Economics*, The Library of Economics and Liberty. Econlib.org. Retrieved October 4, 2018 from <http://www.econlib.org/library/Enc1/NeoclassicalEconomics.html>.
- White, M. D., 2013. *The manipulation of choice: ethics and libertarian paternalism*. New York: Palgrave Macmillan.
- Whitman, D.G. & Rizzo, M.J., 2007. Paternalist slopes. *NYU Journal of Law & Liberty*, Forthcoming; NYU Law and Economics Research Paper No. 07-08.
- Wilkinson, M., 2013. Nudges manipulate, except when they don't. *The London School of Economics and Political Science, British Politics and Policy blog*. Retrieved November 2, 2018 from: <http://blogs.lse.ac.uk/politicsandpolicy/nudges-manipulate-except-when-they-dont/>
- Wilkinson, N. & Klaes, M., 2018. *An introduction to behavioral economics*, 3rd ed., Middletown: Palgrave Macmillan.
- Zizzo, D.J., 2010. Experimenter demand effects in economic experiments. *Experimental Economics*, 13(1), pp. 75-98.

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HIDDEN DETERMINANTS OF COMMERCIAL BANK PROFITABILITY: A DISCUSSION OF CONCEPTUAL AND METHODOLOGICAL EXTENSIONS OF COMMERCIAL BANK PROFITABILITY REGRESSION MODELS

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ABSTRACT*

Ongoing fundamental changes in the social, technological and economic environment of commercial banks can alter the interaction between commercial banks and their clients, competitors and suppliers. This conceptual paper puts forward conceptual and methodological extensions of currently applied commercial bank profitability regression models which may advance empirical examination of commercial bank profitability and thus may contribute to a finer grained understanding of commercial bank profitability.

In this conceptual paper, I suggest to augment the literature on the relevance of branch network structure for commercial bank profitability by exploring the relationship between geographical branch network concentration and commercial bank profitability and by accounting for the effects of branch location as commercial banks are forced to review and modify their branch network structure.

I further suggest to augment the identification process of commercial bank business models by using financial and non-financial strategic variables together in the clustering procedure. This extension allows for a better discrimination and interpretation of the results obtained from commercial bank profitability estimation models.

Keywords: behavioural economics, experiments, nudging, libertarian paternalism, criticism

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1. Introduction

Financial markets and especially commercial banking markets currently undergo major changes in their social, technological and economic environment. These fundamental changes can directly or indirectly alter the interaction between commercial banks and their clients, competitors and suppliers. Thus, there are good reasons to believe that several bank-specific characteristics which are not yet properly accounted for in commercial bank profitability regression models may contribute to a finer grained understanding of what shapes commercial bank profitability.

1.1. Geographical segmentation of financial markets (self-sorting across jurisdictions)

Commercial banks are active mainly in traditional lending and deposit-taking activities (savings and mortgage business). Several commercial banks also offer private banking services (e.g. discretionary mandates for wealthy clients) and asset management services (e.g. emission of investment funds) to diversify their operating income. Thus, private clients are an important client segment for commercial banks. A relevant trend related to private clients is a certain self-sorting of households by income across jurisdictions (i.e. countries, states and communes) based on differences in the income tax burden (e.g. Basten, von Ehrlich, & Lassmann, 2017; Schaltegger, Somogyi, & Sturm, 2011). In other words: High-income households tend to concentrate in low-tax jurisdictions. Because households are becoming more and more geographically mobile, jurisdictions compete for residents and governments therefore tend to minimize the tax burden for a given bundle of public goods (Basten et al., 2017). Therefore, commercial banks are forced to review and modify their branch network structure. This leads to the following question: Which role play bank-specific branch network structures in commercial bank profitability regression models?

1.2. Availability of cheap information and online services

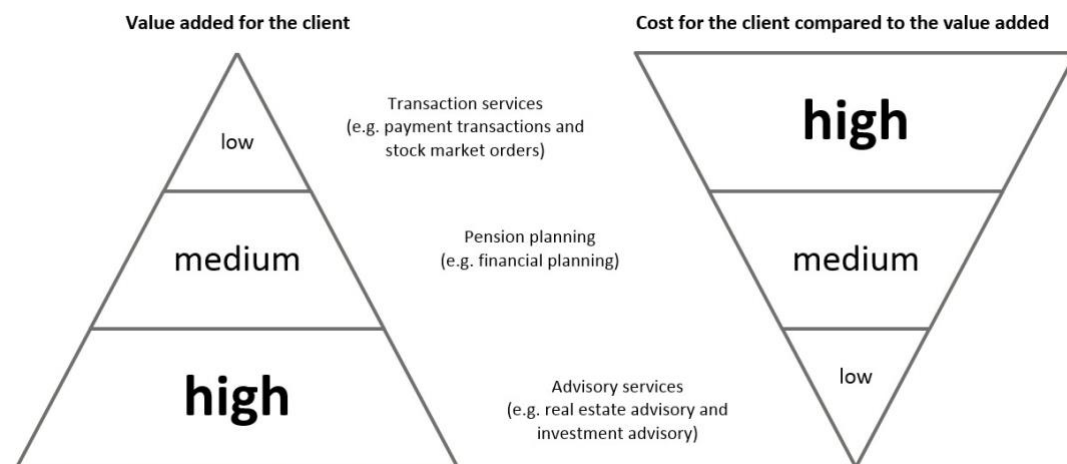
Another well-known and well-documented trend is the increased availability of cheap information and online services. Nowadays, non- and near-banks compete for commercial bank clients by providing online comparison services and online transactions at very low user costs. One can think of the countless comparison services for standardized mortgages or of trading platforms for standardized trading of equities, bonds, derivatives and currencies. The presence of such services increases competition within commercial banking markets and challenges the fundamental structure of the traditional earnings model of commercial banks (see

Fig. 1): Although for commercial bank clients the value added of advisory services is comparatively high as they cannot easily substitute the knowledge base and tools, advisory services are cheap or even costless. Commercial banks must therefore levy comparatively high cost for standardized services such as transaction services, which can be more easily substituted. Hence, commercial bank clients change their demand behavior and make use of commercial banks' cheap or costless advisory services but execute transactions using online services. This trend is a severe threat to commercial banks as they lose an important part of the financial contribution from transaction services to their high fixed cost. Therefore, commercial banks are forced to review and modify their traditional earnings model. This leads to the following question: Which role play bank-specific client structures and service structures, namely the configuration of services and products, in commercial bank profitability regression models?

Academic contributions related to the definition and the general relevance of bank business models are extensive. In a nutshell, a bank business model is a particular way of performing the banking business sufficiently differentiated from other competitors in the market and sufficiently generalized to deserve attention (Martín-Oliver, Ruano, & Salas-Fumás, 2017). It describes how banks generate profits, their targeted customers and their distribution channels (Köhler, 2015). Following these definitions, client structure and service structure are part of a bank's business model.

Fig. 1

Traditional earnings model of commercial banks.



This figure illustrates the inverse structure of value added and cost for commercial bank clients.
Source: Own illustration.

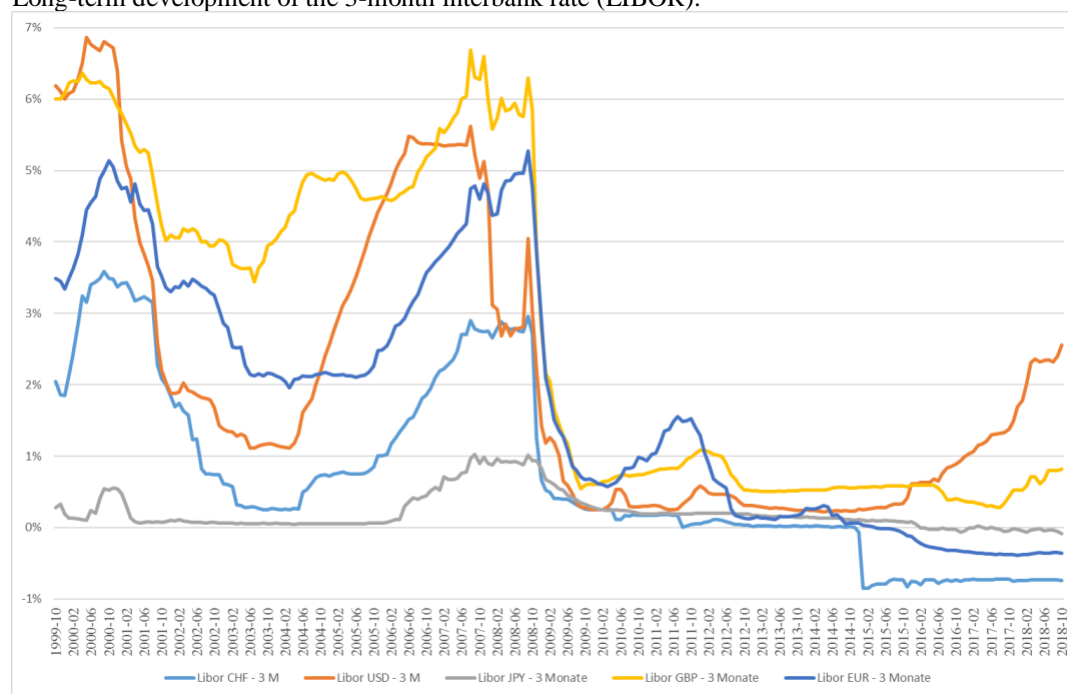
1.3. Low interest rate levels

The (very) low interest rates in several national economies (see **Fig. 2**) mark another fundamental change in the economic environment of commercial banks: As

commercial banks are active mainly in traditional lending and deposit-taking activities (savings and mortgage business), net interest income stemming from maturity transformation is a main source of their operating income: Commercial banks grant long-term mortgages and refinance their asset side by collecting short-term and thus low-cost customer deposits. The regression results of numerous academic studies on the relevance of interest rates for commercial bank profitability provide robust evidence for the positive relationship between interest rates and commercial bank profitability: A higher interest rate positively affects commercial bank profitability, a lower interest rate has a negative impact on commercial bank profitability. Therefore, low interest rate levels force commercial banks to review and modify their operating income streams to counterbalance the lower financial contributions from traditional lending and deposit-taking activities. This also leads to the question outlined above: Which role play the bank-specific client structures and the service structures, namely the configuration of services and products, in commercial bank profitability regression models?

Fig. 2

Long-term development of the 3-month interbank rate (LIBOR).



This figure depicts the monthly value of the 3-month interbank rate (LIBOR) for different currencies for the period October 1999 through October 2018.

Source: Swiss National Bank (2018)

1.4. Increasing regulatory requirements

Although banking markets belong to the most strictly regulated sectors of a national economy, regulatory requirements have further increased during the past few years.

Regulations that require particularly high personal and financial resources are amongst others related to the identification of the customer (e.g. “Know your customer” and money laundering) and to macro-prudential measures (e.g. capital requirements based on Basel II and Basel III, the latter requirement being a response to the 2007-2009 financial crisis). Increased operating cost for commercial banks have recently raised questions about the critical size of a bank and about the necessity to collaborate with competitors especially in IT services, back-office services and central banking services (e.g. cash management). This trend leads to the following question: Which role play trade association memberships in commercial bank profitability regression models? Such memberships are also part of a bank’s business model.

This conceptual paper aims to put forward conceptual and methodological extensions of currently applied commercial bank profitability regression models. Based on the trends outlined above, **Sections 2 and 3** suggest two specific extensions which may advance empirical examination of commercial bank profitability. **Section 4** concludes.

2. Branch network structure as an extension of commercial bank profitability regression models

This section first discusses managerial decisions related to bank-specific branch network structures. It then summarizes academic literature on the importance of branch network structure for commercial bank profitability and suggests conceptual and methodological extensions of commercial bank profitability regression models.

2.1. Managerial decisions related to bank-specific branch network structures

The trends outlined above and the fact that the maintenance of a physical branch network imposes high (fixed) cost for banks have induced a revision of banks’ branching strategies. The last years have seen several developments related to branch network size, branch network concentration, branch location and to the range of services offered within local branches.

Branch network size: The main strategy is to reduce the number of branches by closing branches or merging nearby branches. So as to be still physically present in local markets, some banks maintain unstaffed local branches which are digitally connected to centralized customer centers.

Branch network concentration: While some banks tend to increase geographical concentration of their branches, other banks do expand and maintain a nationwide and geographically diversified branch network.

Branch location: While some banks are mainly active in rural environments, other banks only operate branches in urban environments.

Range of services offered: Most banks reduce the range of services offered within local branches. This strategy aims to suspend low-threshold services which are not cost-covering such as the maintenance of cash counters, night safes and bank vaults.

2.2. *Literature on branch network structure and bank profitability*

There are only a few studies that explore the importance of bank-specific branch network structures for commercial bank profitability. A possible reason for the rather sparse literature on branch network structure can be found in the lack of detailed branch-level data for most banks (Hirtle, 2007). Studies have examined primarily either cost efficiency of individual branches or else the influence of branch network size on efficiency or bank profitability (Hirtle, 2007).

In an earlier work, Bos & Kool (2006) found for Dutch cooperative (Rabo) banks that opening more branches reduces cost efficiency but has no (negative) effect on profit efficiency. They therefore conclude that the higher cost of operating more branches is roughly offset by the higher profits they generate. Hirtle (2007) found no systematic relationship between branch network size and bank profitability for U.S. banks. In a more recent work, Temesvary (2015) followed an alternative approach for the Hungarian banking sector and examined how banks' lending and deposit rates are affected by branch network size. Her study showed that banks with relative branch network dominance are able to charge a premium in interest rates.

The few empirical findings on the relationship between branch network structure and bank profitability are limited to branch network size and do not provide robust evidence that branch network size affects bank profitability positively or negatively. Rather, I propose below, geographical dimensions of banks' branch network structures, e.g. the way in which a branch network is distributed across regions of varying types, can have important implications for commercial bank profitability.

2.3. *Extensions of current commercial bank profitability regression models*

To explore the impact of managerial decisions related to bank-specific branch network structures I suggest to extend commercial bank profitability regression models by including proxies that are able to grasp geographical dimensions of

bank-specific branch network structures such as the degree of geographical concentration (branch network concentration) and branch location. By doing so, I hope to further advance existing commercial bank profitability regression models by identifying which branching strategies are potentially more successful, i.e. profitability-enhancing, than others.

There are good reasons to believe that a more concentrated branch network has a positive effect on commercial bank profitability. I argue that a concentrated branch network structure offers several benefits such as better discrimination between high-risk and low-risk projects and lower logistic costs.

As managing credit risk (loan default and/or interest shortfall) is one major challenge that banks face as they carry out their role as intermediaries between capital lenders and capital borrowers, bank managers must minimize any form of information asymmetry between the bank and its customers. One way to do so is to increase local market knowledge. I argue that maintaining a geographically concentrated branch network structure can lead to improved local market knowledge in several ways: Local branch representatives are usually well embedded in their local neighborhoods (e.g. through club memberships and/or offices held), giving them a deep understanding of the local market and population. Moreover, they are quickly informed about opportunities and risks. Furthermore, geographic proximity allows branch representatives to share information about the local market and (potential) customers. All in all, superior local market knowledge allows banks to better discriminate between high-risk and low-risk projects. Thus, high-risk projects are not granted at all or granted only at a higher interest rate and/or higher periodic repayment requirements to account for a proper risk-adjusted pricing. Furthermore, a proper risk-adjusted pricing facilitates acquisition of new clients, because low-risk projects are not penalized by mispriced interest rates and/or too high repayment requirements. Branch concentration may be advantageous also for minimizing the cost of logistics. Cash supply cost of bank branches, for example, are determined mainly by the cost of transportation services. These cost depend on the amount of money transported (Castro, 2009) and on the distance from transportation services providers to bank branches (López Lázaro, Barbero Jiménez, & Takeda, 2018).

On the other hand, however, a highly concentrated branch network structure might lead to a certain cannibalization effect among nearby branches of the same bank because branches compete for the same clients and opportunities. Another possible disadvantage of a concentrated branch network is the increased exposure to local market risks (bulk risks) coming along with a low geographical diversification.

Considering the high (fixed) cost coming along with the maintenance of a physical branch network a further question to be discussed is: In what kind of environment do banks find business opportunities that lead to high business volumes per branch but that do not entail disproportionately high costs? I suggest that a concentrated branch network structure is particularly favorable to higher bank profitability if branches are located in regions where high-income households are concentrated. Because high-income households accept higher housing prices, mortgages in regions with a high share of high-income households tend to be higher. I argue that handling higher mortgages imposes only marginal additional cost for the bank compared to lower mortgages but generate much higher operating income. Moreover, high-income households have higher collateral to pledge for their loans, reducing banks' credit risk. A last advantage of operating branches in regions with a high share of high-income households may be that high-income households tend to invest their surplus income over and above what is needed to finance their routine expenditures. Banks offering asset management and/or private banking services can therefore augment branch income without facing disproportionately high additional cost. However, higher cost of living in environments with a high share of high-income households impose higher maintenance cost for bank branches.

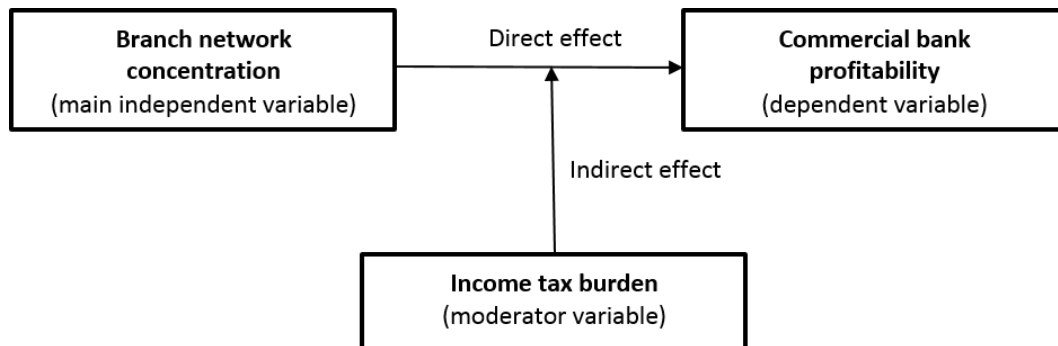
I therefore propose:

H1. There is a positive relationship between branch network concentration and bank profitability. The positive relationship between branch network concentration and bank profitability is stronger for banks whose branches are concentrated in environments with a low income tax burden.

From the methodological point of view, hypothesis H1 requires a further extension of currently used commercial bank profitability regression models to test for the effect of the income tax burden on the relationship between branch network concentration and bank profitability (see **Fig. 3**). Hence, hypothesis H1 puts forward the idea that contingency effects may well contribute to explain commercial bank profitability. In their seminal paper, Baron & Kenny (1986) describe the concept of moderation within a correlational analysis framework and show that including a moderator variable can affect the direction and/or the strength of a relationship between an independent and a dependent variable. I therefore propose to include tax burden as a moderator variable.

Fig. 3

The concept of a moderation variable in a regression model.



This figure illustrates the concept of a moderator variable (income tax burden) on the relationship between an independent variable (branch network concentration) and a dependent variable (commercial bank profitability).
Source: Own illustration.

The moderator variable must be defined as the product of the independent variable (branch network concentration) and the moderator variable (income tax burden). Furthermore, a regression model which includes a moderator effect (indirect effect of a moderator variable) must also include the direct effect of the moderator variable (Baron & Kenny, 1986).

3. Distinction of business models as an extension of commercial bank profitability regression models

This section first discusses managerial decisions related to bank business models. It then summarizes research touching on bank business models and suggests conceptual extensions of commercial bank profitability regression models.

3.1. Managerial decisions related to bank business models

The trends outlined above have led to a revision of commercial banks' business models as the importance of traditional lending and deposit-taking activities declines, non- and near-banks compete for commercial bank clients and the critical bank size increases. However, banks' answers to the trends outlined above do clearly differ: While some banks tend to outsource certain services and functions in order to increase cost efficiency, other banks tend to deliberately insource external services and functions or even recommend themselves as a service provider for other banks. Moreover, some banks tend to concentrate their activities primarily on the retail clientele, while other banks follow a more holistic approach and offer a wide range of services and products including asset management and social security. In order to be better able to discriminate and interpret results obtained from commercial bank profitability estimation models instead of obtaining only one

“universal” set of estimated relationships which is implicitly assumed to hold across all banks in a sample, I suggest to account for diverging business models among commercial banks.

3.2. *Literature on bank business models and bank profitability*

Although numerous academic contributions on the definition and the general relevance of bank business models have been made not only recently, only a few studies have empirically tested the relevance of bank business models for commercial bank profitability. From the literature we can distinguish two empirical steps, the first being the identification process of bank business models, the second being the measurement of the impact of business models on commercial bank profitability or on determinants of commercial bank profitability.

Mergaerts & Vennet (2016) provide an outline of two approaches used to identify bank business models:

Direct classification: Direct classification uses qualitative variables that are equated to the business model. An important drawback of this approach is the possible oversimplification of the complexity of bank business models. Studies following this approach often use the generic bank type according to the Fitch-IBCA Bankscope database.

Indirect classification: Indirect classification uses information contained in a set of variables that reflect the long-term choices of bank management related to a bank’s strategic orientation to identify bank business models. Indirect classification is usually achieved using cluster analysis to construct sufficiently distinct but generalizable clusters. In order to limit the spread of possible outcomes (clusters) most studies apply a process that can be summarized as “guided statistical search” (Martín-Oliver et al., 2017). This means that constraints are set antecedently on the dimensions along which clusters can differ. However, because clustering techniques generate discrete sets of clusters, i.e. binary group membership, these techniques do not account for a continuum of possible business models, i.e. intermediate strategies. After the statistical clustering procedure, a final step is required: Researchers must characterize and label the clusters to carve out empirically validated bank business models.

Once bank business models are identified, studies measure the effects of bank business models on bank profitability (quantitative divergences in the profitability of banks) or on determinants of bank profitability (qualitative divergences in the performance of banks). The effects of bank business models on bank profitability are usually measured either using dummy variables or subsamples for each bank

business model identified. To measure the effects on determinants of bank performance studies regularly conduct a statistical test of mean differences on the absolute value of explanatory variables. Only a few studies examine differences in the determinants regarding to the sign and significance of the coefficients of independent variables in a commercial bank profitability regression model. **Table 1** presents an overview of the research designs of recent studies on the relationship between bank business models and bank profitability.

Table 1

Research designs of recent studies on the relationship between business models and bank profitability.

	Classification method			Strategic variables used	Effects on bank profitability	Measurement	
	Direct classification	Indirect classification					Effects on determinants of bank profitability
Trujillo-Ponce (2019)	x		Bank type	x	x	Differences in the determinants regarding to the absolute value of the determinants	
Roenngpitiya et al. (2014)		x	Financial variables	x			
Köhler (2015)	x		Bank type, listed vs. unlisted banks, size		x	Differences in the determinants regarding to the sign and significance of the coefficients	
Ayadi et al. (2017)		x	Financial variables	x	x	Differences in the determinants regarding to the absolute value of the determinants	
Martin-Oliver et al. (2017)		x	Financial variables	x	x	Differences in the determinants regarding to the absolute value of the determinants	

Source: Own illustration.

From the literature review I conclude that research on the relationship between bank business models and bank profitability is mainly based on the definition of bank business models using financial variables. I further conclude that there are only a few empirical findings regarding to differences in the sign and significance of the coefficients of independent variables in commercial bank profitability regression models.

3.3. Extensions of current commercial bank profitability regression models

Non-financial strategic variables that might also well reflect long-term choices of bank management related to a bank’s strategic orientation are neglected in studies exploring the relationship between bank business models and bank profitability. Some authors argue that non-financial variables may also provide information regarding a bank’s strategic orientation but that this information is considered to be ultimately reflected in the observed financial ratios (e.g. Mergaerts & Vennet, 2016). In contrast, I argue that accounting for and integrating non-financial variables in the process of the definition of bank business models may yield further insights into the relevance of bank business models for commercial bank profitability.

I suggest to augment the commonly used clustering process by using financial and non-financial strategic variables together in the clustering procedure, as non-financial strategic variables may well contain information that may not be fully reflected in financial variables (see **Section 1**). However, the final definition of clusters may not use all variables listed in **Table 2**.

Table 2

Financial and non-financial strategic variables that reflect long-term choices of bank management.

Long-term choices of bank management	Strategic variable	Financial variable	Non-financial variable
How does the bank invest its cash from the liabilities side of its balance sheet?	Asset structure	X	
How strong is the bank's risk appetite?	Asset quality	X	
How does the bank refinance its investments on the asset side of its balance sheet?	Funding structure	X	
Does the bank pursue a growth strategy?	Size	X	
How strong is the bank's focus on traditional interest income sources?	Income diversification	X	
How large is the bank's branch network?	Branch network size (branching strategy)		X
How concentrated is the bank's branch network?	Geographical branch network concentration (branching strategy)		X
In which environment does the bank operate its branch network?	Branch location (branching strategy)		X
In how many regions does the bank operate branches?	Market area (branching strategy)		X
How strong is the bank's focus on mortgage loans for private clients?	Client structure (asset side)		X
How strong is the bank's focus on corporate loans?	Client structure (asset side)		X
Does the bank belong to a trade association which offers shared services such as IT services, back-office services and central banking services?	Trade association membership		X

Source: Own illustration.

Precedent to the statistical definition of business models for a specific commercial banking market, hypotheses can only be formulated in a general form. I therefore hypothesize at this stage:

H2. The choice of the business model affects commercial bank profitability and risk if business models are defined based on financial and non-financial strategic variables.

To explore the impact of different commercial bank business models on determinants of commercial bank profitability, I further hypothesize:

H3. The effects of a standardized set of macroeconomic and bank-specific determinants on commercial bank profitability do vary among different business models if business models are defined based on financial and non-financial strategic variables.

In the second stage of the examination, i.e. after empirically validated commercial bank business models are carved out for a specific banking market, H3. can be further detailed. Potentially interesting questions can embrace amongst others:

- The sensitivity of different commercial bank business models on changes in economic growth (GDP)
- The sensitivity of different commercial bank business models on changes in interest rates and/or on changes in the term structure of interest rates
- Differences in expense efficiency (cost-income ratio) among different commercial bank business models
- Differences in the relevance of the branch network structure among different commercial bank business models

4. Conclusion

In this conceptual paper, I sought to advance the literature on commercial bank profitability, extending the scope of the analysis beyond currently used determinants of commercial bank profitability.

Financial markets and especially commercial banking markets currently undergo major changes in their social, technological and economic environment. These fundamental changes can directly or indirectly alter the interaction between commercial banks and their clients, competitors and suppliers. Thus, there are good reasons to believe that several bank-specific characteristics which are not yet properly accounted for in commercial bank profitability regression models may contribute to a finer grained understanding of what shapes commercial bank profitability.

I therefore suggest two specific extensions which may advance empirical examination of commercial bank profitability: First, I conclude that only a few empirical studies explore the effects of branch network structure on commercial bank profitability and that these studies are limited to the relevance of the branch network size. Given the trends outlined above, commercial banks are forced to review and modify their branch network structure. Therefore, I suggest to augment existing literature on the relevance of branch network structure for commercial bank profitability by exploring the relationship between geographical branch network concentration and commercial bank profitability and by accounting for the effects of branch location. Second, I conclude that research on the relationship between bank business models and bank profitability is mainly based on the definition of bank business models using only financial variables. Furthermore, empirical results are largely limited to the effects of bank business models on bank profitability. I suggest to augment the commonly used clustering procedure by using financial and non-financial strategic variables together, as non-financial strategic variables may well contain information that may not be fully reflected in financial variables. I also suggest to test for the effects of bank business models on a standardized set of macroeconomic and bank-specific determinants of commercial bank profitability.

Brief biography

Marc Domenic Fuchs (*1980) worked from 1997 until 2015 for one of Switzerland's largest regional banks (700 employees), from 2010 until 2015 he was responsible for its business development and strategic projects and reported directly to the bank's CEO. Since 2016 he is head of business development of a hospital group in Switzerland (600 employees), in 2018 he was appointed deputy CEO. He holds a Master's degree in Banking and Finance from the Lucerne University of Applied Sciences and Arts and is pursuing his doctoral research at Grenoble Ecole de Management.

References

- Baron, R. M., & Kenny, D. A. (1986). The Moderator-Mediator Variable Distinction in Social Psychological Research: Conceptual, Strategic, and Statistical Considerations. *Journal of Personality and Social Psychology*, 51(6), 1173–1182. <http://doi.org/10.1037/0022-3514.51.6.1173>
- Basten, C., von Ehrlich, M., & Lassmann, A. (2017). Income Taxes, Sorting and the Costs of Housing: Evidence from Municipal Boundaries in Switzerland. *Economic Journal*, 127(601), 653–687. <http://doi.org/10.1111/eoj.12489>
- Bos, J. W. B., & Kool, C. J. M. (2006). Bank efficiency: The role of bank strategy and local market conditions. *Journal of Banking and Finance*, 30(7), 1953–1974. <http://doi.org/10.1016/j.jbankfin.2005.07.008>
- Castro, J. (2009). A stochastic programming approach to cash management in banking. *European Journal of Operational Research*, 192(3), 963–974. <http://doi.org/10.1016/j.ejor.2007.10.015>
- Hirtle, B. (2007). The impact of network size on bank branch performance. *Journal of Banking and Finance*, 31(12), 3782–3805. <http://doi.org/10.1016/j.jbankfin.2007.01.020>
- Köhler, M. (2015). Which banks are more risky ? The impact of business models on bank stability. *Journal of Financial Stability*, 16, 195–212. <http://doi.org/10.1016/j.jfs.2014.02.005>
- López Lázaro, J., Barbero Jiménez, A., & Takeda, A. (2018). Improving cash logistics in bank branches by coupling machine learning and robust optimization. *Expert Systems With Applications*, 92, 236–255. <http://doi.org/10.1016/j.eswa.2017.09.043>
- Martín-Oliver, A., Ruano, S., & Salas-Fumás, V. (2017). The fall of Spanish cajas : Lessons of ownership and governance for banks. *Journal of Financial Stability*, 33, 244–260. <http://doi.org/10.1016/j.jfs.2017.02.004>
- Mergaerts, F., & Vennet, R. Vander. (2016). Business models and bank performance : A long-term perspective. *Journal of Financial Stability*, 22, 57–75. <http://doi.org/10.1016/j.jfs.2015.12.002>
- Schaltegger, C. A., Somogyi, F., & Sturm, J. E. (2011). Tax competition and income sorting: Evidence from the Zurich metropolitan area. *European Journal of Political Economy*, 27(3), 455–470. <http://doi.org/10.1016/j.ejpolco.2011.01.004>
- Swiss National Bank. (2018). Publication set Economic data. <https://data.snb.ch/de/publishingSet/B>. Last Access 2 December 2018.
- Temesvary, J. (2015). Dynamic branching and interest rate competition of commercial banks: Evidence from Hungary. *International Journal of Industrial Organization*, 43, 98–110. <http://doi.org/10.1016/j.ijindorg.2015.09.003>

COINTEGRATION ANALYSIS OF THE CENTRAL AND EASTERN EUROPEAN TOURISM DEMAND IN TUNISIA USING NON-STATIONNARY PANEL DATA

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ABSTRACT

This paper aims to model the destination choice process of tourists from central and Eastern Europe using non stationary panel data. If the unit root hypothesis is accepted, co-integration analysis is applied to estimate common long run demand relationships for these origin countries. The behavior of tourists from this part of the world is analyzed through estimated long run demand elasticities. The main finding of this study is that the existence of these relationships is expected giving identical geopolitical and historical factors characterizing these countries. In addition to prices and income factors, the supply factor is introduced as an explanatory variable in the econometric model. The co-integrating relationships show that the large elasticity magnitude may be the reflection that the tourism in Tunisia is regarded as a luxury by tourists. These results are corroborated by the estimated values of the short run demand elasticities obtained through the dynamic panel data model. They show also that only 1% of the increase in the tourist arrivals is due to tourist loyalty, which reflect the failure of the tourism policy in these markets to to creating and retaining a tourist loyalty to Tunisian services.

Keywords: Tourism demand, Non stationary panel data, Co-integration, Tourism policy. JEL classification : **C22 C53 D12**

In a previous empirical work, the importance of the western European market in Tunisian tourism was deeply highlighted. The factors that affect the destination choice process were identified and the European tourist behavior was analyzed (Ouerfelli, 2008). This work concluded, among others, the importance of the supply factor to target more segments of tourist particularly throughout the year. This result is confirmed in a more recent work. It especially led to the conclusion that the financial performances of the tourism industry are not up to par compared to the important amount of investments allocated in this sector. Indeed, given the very competitive character of the tourism market, the professionals of this sector need to find other potential tourist markets which have not yet been explored. The central and Eastern European market remains a real challenge for decision makers in Tunisia.

Since, the 1990's and the fall of the Berlin wall and the end of the Cold War, ex-communist countries are becoming more and more open to the rest of the world. These important changes have been taken into consideration by tourist professionals in Tunisia to target potential tourists from this part of the world. In fact, between 1992 and 2009, tourist arrivals from East Europe and Russia rose from 48 000 to more than 480 000 tourists with an approximate average annual growth rate of 17%. These countries accounted for about 10% of TArr from Europe and more than 14 % of the European Tourist bed-nights, but they provide the highest average length of stay (mainly Russia: 12.5 days ; Poland: 10 days ; Czech Republic: 10 days).

This important overall increase of tourist arrivals from this region can be detailed as follow: between 1991 and 1997 the average annual growth rate was of about 38.1%,

but grew only at an average rate of 7.5% per annum between 1997 and 2003 and 7.8% per annum between 2003 and 2009. Then it's misleading to attributed this increase to any given tourism policy in Tunisia, however, the trend of this evolution reinforces the hypothesis that the efforts taken remains insufficient in responding to the expectations of this particular market.

A more in depth analysis of potential tourist behaviors would be useful in many areas: first it provides researchers on how these "new" tourists finalize their destination choice and identify the main factors that explain this destination choice process. Secondly, used in an econometric model, these factors can then allow the professionals in this sector to influence this segment of the demand not sufficiently explored by examining the estimated demand elasticities. Thirdly, using potentially non-stationary panel data, this work allows verification for co-integration which may outperform the statistical properties of estimated models and their forecasting performances. It provides an interesting alternative to systematical differentiation of time series. The co-integrating relationships expresses long run equilibrium demand and provides estimated demand elasticity in respect to economic variables used in this study (Income, Price and Supply).

After having described the evolution of the eastern and central European tourism market in the Tunisian economy during the study period, section 2 emphasizes the modeling strategy used in this work and its estimated methods consequences. The theoretical framework of units root tests strategies and co-integration analysis will be developed using panel data. The empirical results of the modeling procedure, the

commentaries and their implications on tourism policy in Tunisia will be carefully discussed in the third section.

1. THE CENTRAL AND THE EASTERN EUROPEAN MARKETS: A REAL CHALLENGE FOR THE TUNISIAN TOURISM SECTOR

In this study, only the main origin countries from Eastern and Central Europe are considered: Hungary, Poland, Czech Republic, Slovakia, Croatia, Slovenia, Romania and Russia.

Considering the entire European market, available data covering between January and September 2010 indicated a significant fall of tourism activity in Tunisia due particularly to international financial crises. This fall affects not only tourism entry, but also the foreign currency receipts (-1.1%). In fact, in 2009, the tourism industry generated 2536 MD (millions of Tunisian dinar), instead of 2540 MD during this period in 2010. However, it's misleading to attribute this bad financial performance only to the consequences of the financial crises, the European market fell (0.7%) in 2008 as well. This fall was most probably due to an imbalance between supply and demand. This situation was apparently not the same for all the tourist origin countries, for example the Russian market actually increased about 46% during this period.

Table 1**Annual average means increasing rate (AAMIR) of tourist arrivals**

O. Countries	Tourist arrivals: Increasing rate					
	90 – 93	91 - 97	97 - 2003	AAMIR	2003- 09	AAMIR
Yugoslavia	235	12	-13.28	---		
Czech Republic	623	402	65.05	8.71	2.97	0.49
Russia	114.5	561	94.0	11.68	72.42	9.50
Poland	493	321	191.4	21.43	222.02	21.52
Romania	87	274	42.8	6.12	64.70	8.67
Hungary	489	255	227.1	36.44	- 45.71	
Bulgaria	352.5	-12.6	-79.2	---	241.99	22.74

Table 1 clearly shows the significant and expected increase of the tourist arrivals from this area since 1990 as a consequence of the important geopolitical transformation of this part of the world. Between 1997 and 2003, this increase in tourist arrivals has continued but at a low intensity, which implies that tourist professionals in Tunisia have failed to respond to the demand requirements of these regions. The annual increasing rate of tourism activities is more and more synchronous.

2 MODELING STRATEGY

Many published studies on tourism demand show the importance of using econometric models to analyze tourist behaviors through the estimation of demand elasticities. These studies include, among others, Ouerfelli (2008, 2011), Dritsakis (2004), Song and al. (2003), Hiemstra and Wong (2002), Tan and al. (2002), Kulendran and Witt (2001),

Smeral and Weber (2000), Song and Witt (2000), Kulendran and King (1997), Morley (1994), Martin and Witt (1989), Witt and Martin (1987).

Two major econometric approaches can be used: the non-causal (time series) and causal modeling approaches. The study based on non-causal modeling approaches “extrapolates the historic trends into the future without considering the underlining causes of the trends” (Song et al., 2003, p. 437) (e.g. Box-Jenkins ARIMA model and the exponential smoothing method). Indeed, the tourist demand model must consider the time path of the tourists’ decision-making process (Song & Witt, 2000, p. 28). When non-stationary variables are used, the co integrating analyses may be a suitable alternative strategy to model integrated data. This can avoid the loss of information, on the long run relationships between economic variables due to filtered time series.

Considering the origin countries used in this study, it is likely that these consumers have the same behavior in regards to their countries economic situation and the characteristics of tourist services supplied in Tunisia (dunes and sunny beaches) (see annex 1: graphic 1). Hence, it’s expected that the macroeconomic tourism demand functions will be the same. However, a substantial heterogeneity can be explained by several factors:

- potential tourist characteristics such as traveling habits, motivations, expectations, tastes, etc.;
- Their perception of Tunisia;
- Other historical and non economic factors difficult to measure.

It would be reasonable then to use panel data and to estimate a cross-section effect model (Green, 2003).

In the following paragraph, the factors which may explain tourist destination choice will be presented. The dependant and the explanatory variables are then deduced.

2.1 The model variables

The identification of these factors is useful for two reasons. First, it provides researchers with the information on how tourists finalize their destination choice. It can also allow forecasters to assess the manner (direction and magnitude) in which tourists would respond given any changes in the determining factors by examining the estimated demand elasticities. Secondly, these factors, used in econometrics models, can help policymakers create economic strategies in order to influence the tourism demand (Witt & Witt, 1995).

2.1.1 The dependent variable

The international tourism demand is often measured either in terms of the number of tourist arrivals, tourist bed-nights and/or in terms of tourist expenditure in the destination country.

In a recent study done on 107 papers about the quantification of the international tourism demand, Norlida and al. (2010) found that the most cited dependent variable is the tourist arrivals (59%), the tourist expenditure in the destination country (32%), the length of stay (6%) and the tourist bed-nights (3%). Indeed, tourism in Tunisia is essentially sea-side mass-tourism. The aim of decision-makers is then to have more tourists during all the

seasons of the year. Therefore, it seems reasonable to quantify the tourist demand by the tourist arrivals (TArr).

2.1.2 Determinants of tourism demand: the explanatory variables

The tourist's destination decision process is the result of both the individual characteristics (such as psycho-socioeconomic factors) and the destination characteristics (such as historical and cultural heritage and natural wealth). The diversity of these factors illustrates the complexity of the identification process. To make this process feasible, only the factors which can be measured will be shown in this analysis.

A large consensus among searchers about tourist demand factors provide the use of income, relative prices, transport cost (Lim, 1999) and the supply of tourist services (Johnson and Thomas, 1992, and Ouerfelli, 2008, 2011) as explanatory variables in an econometric model. In fact, the relative price elasticity can provide useful suggestions for the formulation of pricing and competitive strategies. Income elasticity enables professionals to measure the impact (on tourism demand) of a change in revenue distribution in the origin countries (see Crouch, 1992 and Song & Wong, 2003). Finally, the supply induced demand elasticity enables decision makers in Tunisia to decide and manage the quality and the quantity of this variable according to tourist expectations¹.

- The income is quantified by the gross domestic product per capita (GDP) (Ouerfelli, 2008),

¹ Johnson and Thomas (1995) highlighted the negative impacts of the hypothesis of an infinitely elastic tourist supply under the neoclassic assumption of the independence of supply and demand.

- The relative price is used to quantify the cost of tourism in Tunisia. This variable includes the tourists' living costs and the travel costs. The quantification of the first cost is based on the consumer price index (CPI) adjusted by the exchange rate (ER). The second is measured by the crude oil price,
- The supply factor must include an adequate infrastructure and most importantly hospitality. The accommodation capacity and touristic investments seem to be suitable proxies of the supply variable (Ouerfelli, 2008 and 2011, Choyakh, 2008).

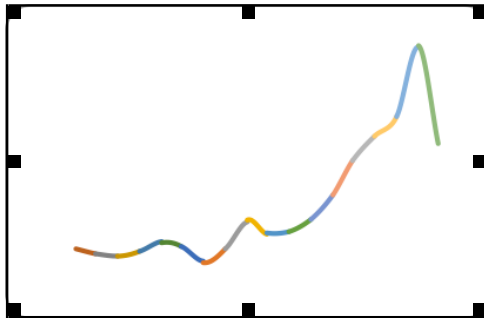
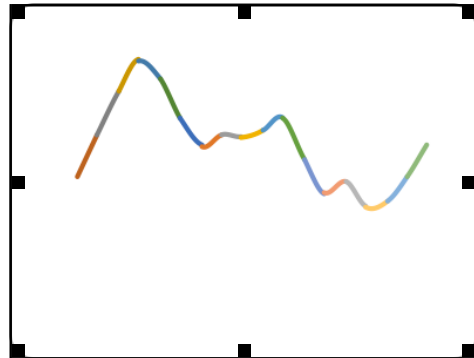
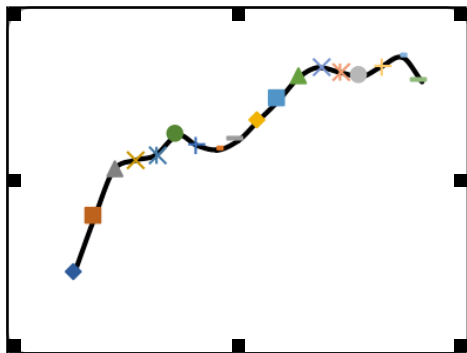
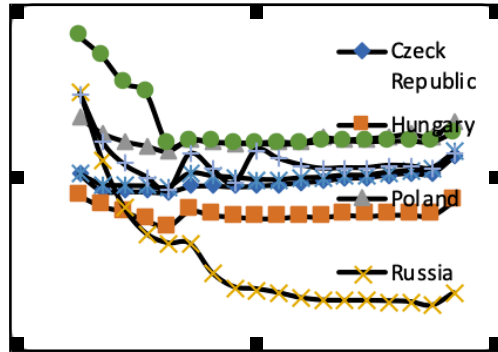
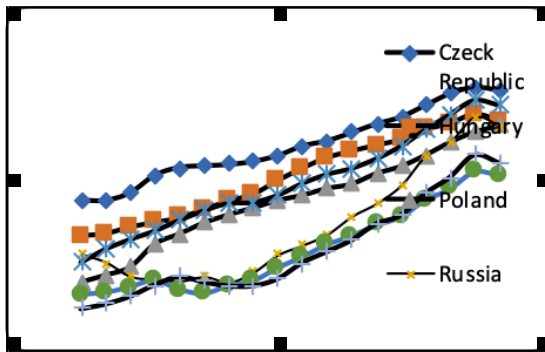
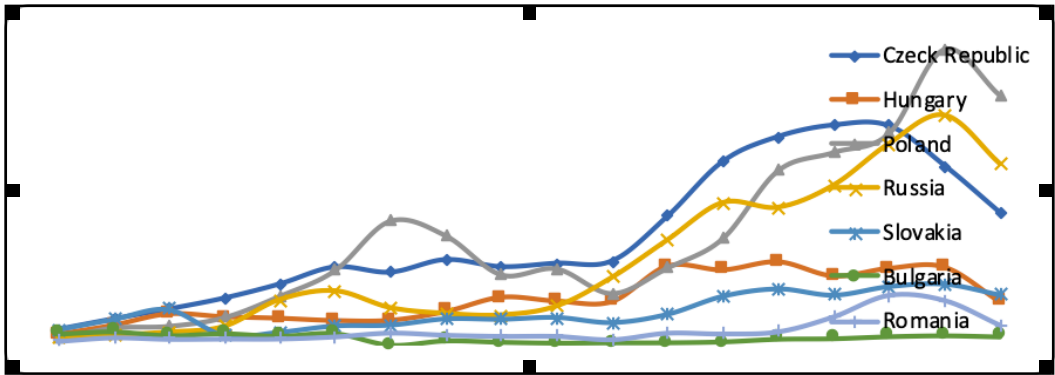
2.2 The sample

Tourist data is obtained from an annual document “Le tourisme tunisien en chiffre” published by the Tunisian National Tourist Office (TNTO). However, the economic data is collected from the International Financial Statistics and the OCDE statistics. Here data about Tourism arrivals (TArr), the income level (I) the relative price (P), the accommodation capacity (AC) and crude oil variable (CO) can be found from 1992 to 2009. The exchange rate is the quarterly average market rate of the local currency against the US dollar. Logarithmic transformations, which are used to express the multiplicative in the level of the variable, are applied and the transformed data is plotted below.

Note the two important dips of tourist activity were respectively during the 9/11 period and in 2009. Surprisingly, as shown in these graphs, globally the 9/11 events didn't affect the tourist arrivals as expected. The significant negative impact of this

phenomenon, appearing during the first quarter of 2002, was annihilated by the good performance of the tourism sector during the summer of the same year. “One of the advantages of using annual data is to avoid problems stemming from some conjectural shocks and/or seasonal effects” (Ouerfelli, 2011). The second is due to the financial crises where its consequences still significantly affect almost all the tourist origin countries’ economies. A dummy variable is introduced to capture the negative impact of this event.

Appendix 1: Logarithms of the dependent and the explanatory variables



3. COINTEGRATION ANALYSIS

In order to assess the relative explanatory power of the exogenous variables, it's suggested that insignificant variables be deleted until a parsimonious representation is obtained and the static panel model is implemented.

$$TArr_{it} = \alpha_i + \beta_1 GDP_{it} + \beta_2 P_{it} + \beta_3 CO_{it} + \beta_4 AC_{it} + \epsilon_{it}$$

$$i = 1, \dots, 7 ; t = 1992, \dots, 2009$$

Using the STATA software, the following estimated results are obtained:

$$TArr_{it} = -0.62 + 4.75 GDP_{it} - 0.10 P_{it} - 0.32 CO_{it} - 0.39 AC_{it}$$

(13.12) (0.49) (0.03) (0.183) (2.46)

$$R^2 = 0.61, DW = 0.23.$$

The estimated values of DW statistic and the residuals graphics show a strong residual autocorrelation probably due to the non stationarity of the data (see appendix 2).

Indeed, an eventual non stationarity of the TArr variable implies that using integrated variables will hold spurious results. However, first differenced variables used in panel data model provide only short run elasticities. Instead, long run behaviors can be analyzed through co integration framework.

In this study non differentiated variables are used. If the hypothesis of unit root is accepted, then co integration analysis can be applied. It aims to statistically check for

long run common demand relationships using integrated variables. We shall begin with testing for unit root. The Levin, Lin and Chu unit-roots test procedure is applied to test for the existence of stochastic trends.

3.1 Levin, Lin and Chu (2002) unit-root test results

The non stationarity of the data is probably due to the presence of unit roots; these series exhibit then a stochastic trend. The procedure, shown in this paragraph, was used to test for integrated time series in order to check for stationary demand relationships between these series.

To test for unit root, Levin, Lin and Chu (2002) proposed a procedure based on the following auxiliary regressions

$$\text{Model 1} \quad \otimes y_{i,t} = \odot y_{i,t-1} + \sum_{i,t} \quad (3.1)$$

$$\text{Model 2} \quad \otimes y_{i,t} = \langle 0i + \odot y_{i,t-1} + \sum_{i,t} \quad (3.2)$$

$$\text{Model 3} \quad \otimes y_{i,t} = \langle 0i + \langle 1i t + \odot y_{i,t-1} + \sum_{i,t} \quad (3.3)$$

where $i = 1, \dots, N$ and $t = 1, \dots, T$ and where $-2 < \odot \delta 0$ and $\sum_{i,t}$ are a stationary ARMA process within cross sections i . $\otimes = (1-L)$ designates the first difference filter.

The error term $\varepsilon_{i,t}$ is independently distributed through a stationary and invertible ARMA

process:
$$\varepsilon_{i,t} = \sum_{j=1}^{\infty} \theta_{ij} \varepsilon_{i,t-j} + u_{it}$$

3.2 Pedroni's co-integration test

When the series are an integrated process, difference filters can be used to achieve stationarity. The obtained stationary series can then be modeled with suitable econometric

models. Given the loss of information due to differentiation, an interesting alternative consists of checking for stationary relationships between integrated series which may provide long run demand relationships.

To test for co-integration, Pedroni (1999, 2004) proposed a procedure based on the following auxiliary regression:

$$y_{it} = \alpha_i + \gamma_i t + \beta' X_{it} + \varepsilon_{it} \quad (a)$$

where $\beta = \begin{pmatrix} \beta_1 \\ \beta_2 \\ \beta_3 \end{pmatrix}$, $X_{it} = \begin{pmatrix} \ln P_{it} \\ \ln GDP_{it} \\ \ln CO_{it} \\ \ln AC_{it} \end{pmatrix}$

The main interest of this test is to check if the independent variables contribute to explain the long run behaviors of tourist arrivals from Central and Eastern Europe in Tunisia.

4. EMPIRICAL RESULTS

In this section, once a preliminary test for the order of integration is applied to the series, the estimation of long-run relationships is provided.

4.1 Unit root tests

Using the Winrats66 software package, the Levin and Lin unit roots tests are applied to the logarithms of all the series to estimate the test equation (3) where the order of the auto regressive augmentation is chosen in an experimental way.

The results are given in Table 2; they show that the hypothesis of root 1 is accepted at a

5% level for all the series, which implies that they have non-stationary stochastic trends.

Table 2 :Unit root tests results using Winrats6

	Model	Without linear trend		with linear trend	
		5%	10%	5%	10%
LnGDP	M1	I (1)	I (1)	I (1)	I (1)
	M2	I (1)	I (1)	I (1)	I (1)
	M3	I (1)	I (1)	I (1)	I (1)
LnP	M1	I (0)	I (0)	I (0)	I (0)
	M2	I (1)	I (1)	I (0)	I (0)
	M3	I (1)	I (1)	I (1)	I (0)
LnEnt	M1	I (1)	I (1)	I (0)	I (0)
	M2	I (1)	I (1)	I (1)	I (1)
	M3	I (1)	I (1)	I (1)	I (1)

I(1) designates that the series is integrated of order 1.

4.2 Long-run co-integration

The Pedroni's co-integration test procedure is applied using the software RATS 6.0 and results are given in table 3.

Table 3 : Co-integration test results

Test	Statistics	Estimated values	
		Without linear trend	
The Pedroni test (1999,2004)	Panel v-stat	-0.156	0.383
	Panel rho stat	1.260	0.251
	Panel pp-stat	0.262	0.368
	Panel adf-stat	-1.720	0.015
	Group rho-stat*	2.720	0.030
	Group pp-stat*	0.136	0.398
	Group adf-stat*	-2.920	0.0056

The program « multi-pc3-Pedroni » used here is available on the site: www.estima.com.

*According to these statistics, the null hypothesis of non co integration is rejected at the 5% level.

The results show that the hypothesis of co-integration is accepted at a 5% significance level and a probability value 0.9844. The same procedure provides the estimated co-integrating relationship:

$$\text{TArr}_{i,t} = 0.46 \text{DI}_{i,t} - 0.71 \text{P}_{i,t} - 6.23 \text{CO}_{i,t} + 0.23 \text{AC}_{i,t} \quad (3)$$

(2.43) (-10.63) (-7.50) (0.69)

This estimated demand relationship particularly provides the estimated values of long run demand elasticities with respect to economic variables. Note that these results reflect the same behavior in the long run for tourists from the origin countries in this study. They are also useful for suitable economic strategies of decision makers in Tunisia to target this demand segment.

The income and the relative price demand elasticities suggest that holidays in Tunisia are regarded as a luxury good and also more increasingly as a necessity in the long run. By contrast, the results highlight the importance of the transport cost measured by the crude oil price. In fact, this variable appears to be highly elastic. This result is expected given the geographical position of these origin countries in respect to Tunisia. Finally, the estimated value of the accommodation capacity's elasticity corroborates the supply induced demand hypothesis. However, this variable is not statistically significant at a 5 % level. Indeed, its low value can be attributed to the following explanations. Firstly, the accommodation capacity is only a part of the supply in Tunisia. Certain supply aspects have not been taken into consideration due to data unavailability, such as

Saharan, cultural, health tourisms etc. Secondly, this variable doesn't reflect the importance of the climatic factor and the sea side character of tourism in Tunisia.

4.3 Dynamic panel model

The estimation of a dynamic panel data model provides short-run elasticities of tourist demand with respect to the different explanatory variables. Long-run elasticities can be computed by dividing each of the coefficients by $(1 - \beta)$. Considering the above unit root tests results, the first difference filter $(1-L) = \Delta$ is applied to achieve stationarity, the dynamic equation is given by

$$\Delta y_{it} = (\alpha + 1) y_{it-1} + \beta' x_{it} + \Delta \sum_{it} \quad t = 1, \dots, T \text{ and } i = 1, \dots, n \quad (4)$$

where α is the cross-section effect, and x_{it} is a vector of explanatory variables. The innovations \sum_{it} is the time error term.

The following model is estimated and results are reported in the Table 2.

$$\Delta \text{TArr}_{i,t} = (\alpha + 1) \Delta \text{TArr}_{i,t-1} + \beta_1 \Delta \text{P}_{i,t-1} + \beta_2 \Delta \text{DI}_{i,t} + \beta_3 \Delta \text{AC}_{i,t} + \beta_4 \Delta \text{CO}_{i,t} + \Delta \sum_{it} \quad (5) \quad i = 1, \dots, 7 ; t = 1992, \dots, 2009$$

\sum_{it} is the time variant idiosyncratic error term.

Dummy, a dummy variable included to capture the negative effects of the 9/11 events, takes the value of 1 in the above-mentioned year and 0 otherwise.

Note that the inclusion of the investment and the crude oil variables in the static model provides unexpected estimated results. They show a statistically non-significant coefficient at a 10% level. These results are probably due to both a specification error

and/or a multi co-linearity problem. To avoid this problem, these variables are eliminated from the regression model.

The GMM technical is applied to estimate the unknown parameters (the second difference of the explanatory variables is introduced as instrumental variables in the estimated procedures). The estimated demand equation is then as followed (the detailed results are given in table 3):

$$\begin{aligned} \otimes TArr_{i,t} = & - 0.01 TArr_{i,t-1} + 5.5 \otimes DI_{i,t} - 0.10 \otimes P_{i,t} - 0.009 \otimes CO_{i,t} \\ & + 4.90 \otimes AC_{i,t} \end{aligned}$$

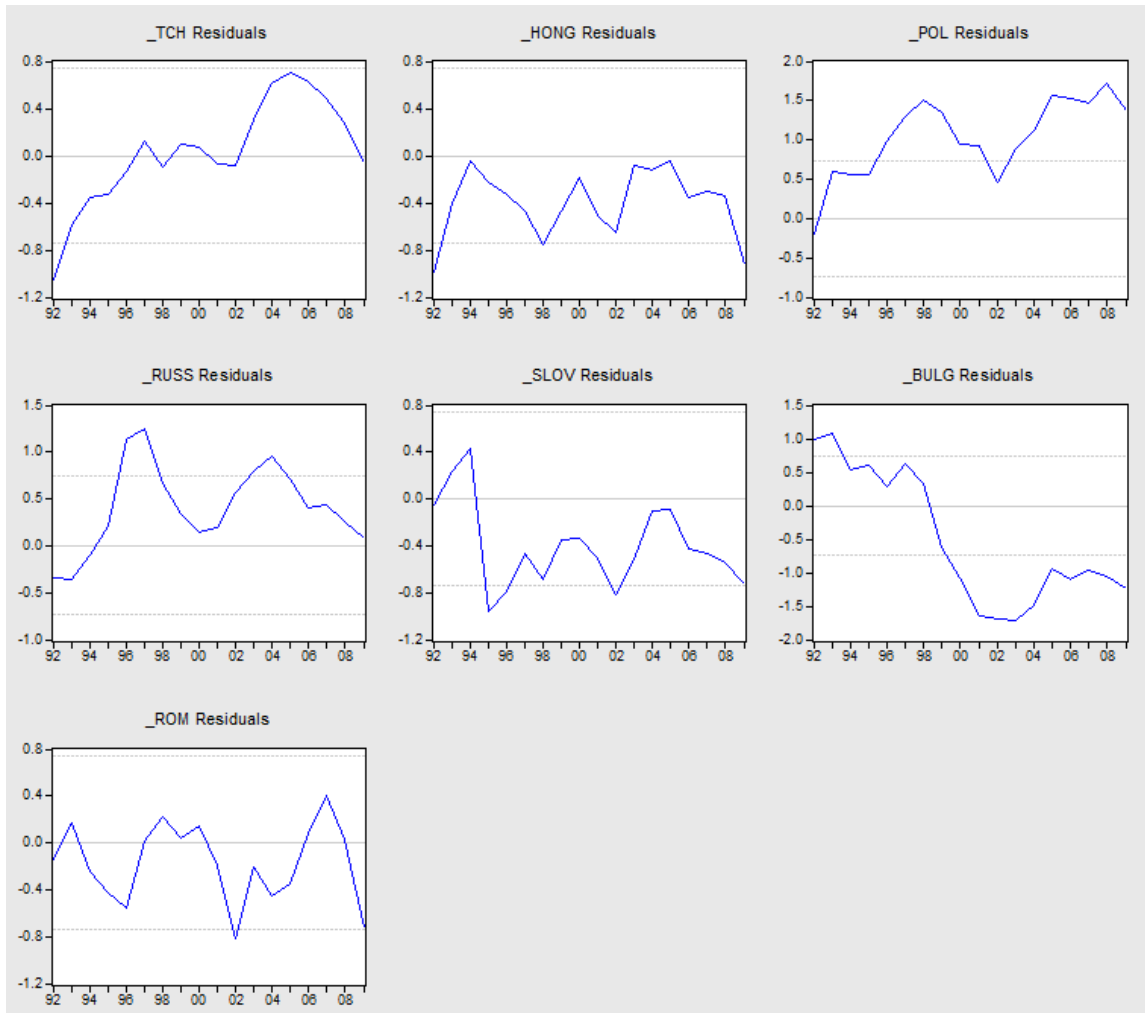
(6)

The coefficients are highly statistically significant at a 1% level and correspond in sign and magnitude to the economic theory. Empirical results show only 1% of the increase in tourist arrivals is due to tourist loyalty. This low value corroborates the preliminary conclusion which stipulates that the tourism policy in Tunisia aiming to target and increase tourist loyalty from these regions remains insufficient. An efficient strategy should include, among others, a heterogeneous and high-quality supply in order to respond to these tourists exigencies.

Empirical results show the high level of the short-run income and price elasticities, which may reflect the luxury character of holidays in Tunisia. However, considering the long run demand elasticities, it can be concluded that tourism in Tunisia is regarded as a luxury by tourists from these European regions, but also more and more as a necessity. The estimated value of the accommodation capacity elasticity corroborates the supply induced demand hypothesis and significantly shows the importance of the supply factor

in a suitable strategy targeting more tourists from this region. Note that in the long run, the impact of this variable is of low significance.

The residual graphics



CONCLUSION

The tourism demand from central and Eastern European markets were analyzed and modeled using non stationary panel data framework. Unit root tests and co- integration analysis were applied to estimate long-run demand elasticities in respect to income, price and supply variables. The dynamic panel data model was also estimated. Short run demand elasticities were then generated and the tourism loyalty and the reputation effect were measured through the inclusion of the lagged dependent variable.

The modeling strategy used for the first time in this study, provided useful information and insight into many statistical and economical studies. On the statistical point of view, when non stationary variables are used, co-integration analysis is an interesting alternative to model these variables without loss of information due to systematic differentiation. This procedure probably improves the model statistical performances through the increase in the degree of freedom.

On the economical point of view, interesting aspects of tourism activity are generated. The estimated long and short-run demand elasticities provide some useful insights on tourist characteristics and their expected behaviors useful for suitable strategies created by tourist professionals in Tunisia considering these merely explored markets. Empirical results show that tourism in Tunisia is regarded as a luxury by tourists from these European regions; however it is becoming more and more a necessity.

Furthermore, these results gave an empirical justification of the supply induced demand hypothesis. The supply factor was significant in the destination choice decision

process. However, its low impact was attributed to the approximated character of the accommodation capacity. This variable reflected only a part of the supply in Tunisia, the holding capacity. Many supply aspects such as Saharan, cultural, health tourism etc., are not taken into consideration in this study due to data unavailability. Indeed, these various supply aspects are probably not sufficiently highlighted in holiday packages, which may explain the low value of the tourist loyalty degree where only 1% of tourist arrivals from this part of Europe return to Tunisia after their first experience. A suitable tourism policy in these markets consists of diversifying and promoting high-quality services in order to lengthen the duration of stay and to create and retain tourist loyalty.

REFERENCES

Box, G.E.P. & Jenkins, G.M. (Eds). (1976). Time series analysis, forecasting and control. Holden Day, San Francisco, CA.

Choyakh, H. (2008). A model of tourism demand for Tunisia: inclusion of the tourism investment variable. *Tourism Economics*, 14(4), 819-838.

Crouch, G.I. (1992). Effects of income and price on international tourism. *Annals of Tourism Research*, 19, 643-664.

Dickey, D.A. & Fuller, W. A. (1979). Distributions of the estimators for autoregressive time series with a unit root. *Journal of the American Statistical Association*, 74, 427-431.

Dritsakis, N. (2004). Cointegration analysis of German and British tourism demand for Greece. *Tourism Management*, 25, 111-119.

Green, W. (2003) *Econometric analysis*, 5th ed., Prentice Hall, Pearson education Inc, Upper Saddle River, New Jersey, USA.

Hiemstra, S.J. & Wong, K.F. (2002). Factors affecting demand for tourism in Hong Kong. *Journal of Travel and Tourism Marketing*, 12 (1-2), 43-62.

Johnson, P. & Thomas, B. (1992). *Choice and demand in tourism*, Mansell, London.

Kim, S., & Song, H., (1998). Empirical analysis of demand for Korean tourism: a cointegration and error correction approach. *Tourism Analysis*, 3, 25-41.

Kulendran, N. & King, M. L. (1997). Forecasting international tourist flows using error correction and time series models. *International Journal of Forecasting*, 13, 319-327.

Kulendran, N. & Witt, S. F. (2001). Cointegration versus least squares regression. *Annals of Tourism Research*, 28, 291-311.

Levin, A., C.F. Lin, and C.J. Chu (2002), Unit Root Tests in Panel Data: Asymptotic and Finite-Sample Properties, *Journal of Econometrics*, 108, 1-24.

Lim, C. (1999). A meta-analysis review of international tourism demand. *Journal of Travel Research*, 37, 237-284.

Marley, C. (1994). The use of CPI for tourism prices in demand modeling. *Tourism Management*, 15(5), 342-346.

Martin C. & Witt, S.F. (1989). Forecasting tourism demand : a comparison of the accuracy of several quantitative methods. *International Journal of Forecasting*, 5, 7-19.

Norlida Hanim, M. Redzun, Osman. Abu Hassen, M. Mohd Safar, H. (2010): « Malaysian tourism demand from the Middle East market: a preliminary analysis», *Journal Antarabangsa Kajian Asia Barat International Journal of West Asian Studies* (2), pp 37-52

Ouerfelli, C. (2008). Co-integration analysis of quarterly European tourism demand in Tunisia. *Tourism Management*, 29, 127-137.

Ouerfelli, C. (2011). Analysis of European tourism demand for Tunisia: a new approach. *International Journal of Tourism Policy*

Pedroni, P. (1999). Critical values for cointegrating tests in heterogeneous panels with multiple regressors. *Oxford Bulletin of Economics and Statistics*, 61, 653-670.

Pedroni, P. (2004). Panel Cointegration; Asymptotic and Finite Sample Properties of Pooled Time Series Tests with an Application to the Purchasing

Power Parity Hypothesis. *Econometric Theory*, 20, 597-62.

Smeral, E. & Weber, A. (2000). Forecasting international tourism trends to 2010. *Annals of Tourism Research*, 27(4), 982-1006.

Song, H. & Witt, S.F. (2000). Tourism demand modelling and forecasting. *Modern Econometric Approches*, Pergamon, Oxford.

Song, H., Witt, S.F. & Jensen, T.C. (2003). Tourism forecasting : accuracy of alternative econometric models. *International Journal of Forecasting*, 19, 123-41.

Song, H., & Wong, K.F. (2003). Tourism modeling: a time varying parameter approach. *Journal of Travel Research* in press.

Tan, Y.F., McCahon, C., & Miller, J. (2002). Modelling tourist flows to Indonesia and Malaysia. *Journal of Travel and Tourism Marketing*, 12 (1-2), 63-84.

Wickens, M. R. (1996). Interpreting vectors and common stochastic trends. *Journal of Econometrics*, 4, 255-271.

Witt, S.F. & Martin, C.A. (1987). Econometric models for forecasting international tourism demand. *Journal of Travel Research*, 23-30.

Witt, S.F., & Witt, C. (1995). Forecasting tourism demand: A review of empirical research, *International Journal of Forecasting*, 11(3), 447-475.

THE IMPACT OF SERVICE QUALITY ON CUSTOMER SATISFACTION

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ABSTRACT

The aims of this paper is to examine the relationships of service quality dimensions on customers'satisfaction towards e-ticket system in Royal Jordanian Airlines. The proposed instrument dimensions are identified based on a questionnaire survey conducted in Jordan. Based on an extensive review of literature, this paper proposed five dimensions for measuring online service quality on customer satisfaction. The results show significant relationships among the online service quality dimensions (Responsiveness, Contact, Efficiency and privacy), and customer satisfaction. The results are important to enable managers to have a better understanding of the key online service quality dimensions that influence customer satisfaction. The primary limitations of this research are the scope and size of its sample.

THE IMPACT OF LEADERSHIP CAPABILITIES ON HEALTHCARE SERVICE DELIVERY IN REGIONAL HOSPITALS IN SOUTH AFRICA

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ABSTRACT

The KwaZulu-Natal Department of Health in South Africa has a constitutional mandate to provide effective, efficient and quality healthcare to all of the citizens who reside in the province. Public hospitals play a critical role in delivering healthcare to the population of this country.

Numerous studies (Naidoo, 2005; Ndlovu, 2012; Govender, 2013) have suggested that public health is a national and international problem, from which South Africa, in particular, is not exempt. The negative picture of the South African healthcare system painted by the media negates the ideals of the Constitution of the Republic of South Africa, the Patient Rights Charter, the Bill of Rights, as well as the Batho Pele Principles. In her study, Naidoo (2005) also indicated that the Department of Health was mandated to develop an integrated and comprehensive healthcare system that provides affordable and accessible healthcare to all South Africans. It is thus crucial that the South African public has equitable and accessible healthcare, which is deemed a fundamental right for all citizens. This study focused on the leadership principles employed at the regional hospitals in KZN, primarily aimed at exploring the leadership capabilities and to determine how it could contribute to improving healthcare service delivery. It is particularly important for healthcare organisations to have the right kind of leadership if they are to cope with the complexities and competitiveness that prevail in such an environment. This research aimed to explore the leadership capabilities at regional hospitals in the KZN Province that could contribute to enhancing healthcare service

delivery in such facilities. The mixed method approach was

utilised for the study. Multiple perspectives and diverse views and opinions are critically important for achieving a deeper understanding of the research questions and objectives Purposeful sampling was employed for the qualitative phase of the study, whilst stratified random sampling was used for the quantitative phase. Fifteen senior managers from the four regional hospitals participated in the in-depth semi-structured interviews and 380 Likert scale questionnaires were handed out to samples for the quantitative phase of the study. 323 questionnaires were considered usable for the statistical analysis at a response return rate of 85%. The quantitative analysis was done using the SPSS statistical software, whilst the Nvivo 12 Plus software was used for analysis of the qualitative data. The researcher ensured that adequate measures were put in place in order to ensure reliability, trustworthiness, validity and minimal bias in the collection of data during the qualitative phase of the study. The study suggested that leadership is an important core competency for healthcare leaders. There is a dire need for strong leadership in regional hospitals in order to address the multitude of challenges faced and to provide optimal healthcare for patients. The study identified transformational leadership as critically important in achieving strategic healthcare goals in regional hospitals. The leadership capabilities of the managers at the regional hospitals were explored, revealing that the leadership skills of managers are lacking as the majority of them focus on operational issues, rather than being strategic. The study showed that healthcare leaders needed to be more decisive in order to contribute to achieving healthcare outcomes in regional hospitals. It is also important that the appropriate conditions be created for the adoption of an integrated leadership approach in regional hospitals that would ultimately contribute to improving service delivery. Leadership development programmes were identified as being critically important for developing the leadership skills of all managers at the respective hospitals.

Keywords: healthcare service delivery, public hospital, leadership, South Africa

THE FUNCTION OF LEADERSHIP AND COLLECTIVE ACTION: A CASE STUDY OF THE PROMOTION OF NATURAL AGRICULTURE IN WUFENG DISTRICT, TAICHUNG CITY, TAIWAN

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ABSTRACT

Natural agriculture is one of the farming method that practice without chemical materials, and has been verified that it is helpful to the environment. However, 'environmental public goods' is difficult to be provided by individual farmer. Such goods may be effectively supplied by means of collective action which is organized by regional residents and stakeholders who independently participate together. During the process of collective action, it would not be success unless local leaders mobilized farmers to actively participate in. This paper reviews the literature of 'leadership' and 'collective action' and adopts qualitative materials and observation where are collected in 'Wufeng District Farmers Association' to explore the status of local leaders in central Taiwan. The targets of the establishment of the farmers' association aims to enhance farmers' knowledge and skills, promote agricultural modernization, improve farmers' livelihoods, and develop the rural economy. Whether these targets could be achieved or not, the leadership is the key to success.

In light of the importance of the supply of healthy agri-products, the Director General of the Wufeng District Farmers' Association mobilized farmers to transform from conventional agriculture to natural agriculture. In order to understand the function of leadership toward collective action during the process of promoting natural agriculture, this study uses qualitative

method and proposes three important driving factors for the transformation between different farming methods. They are: farmers' association gives natural farming prospect and plans incentive mechanism; Taiwan Agricultural Research Institute provides cultivation techniques support; and agriculture production and marketing group leads successful mobilization. The research findings are as following: 1. the role of the leader is the necessary 'manager' and 'intermediary' who initiates and maintains the collective action; 2. leader seeks opportunities to address the problems of sustainable development and address the challenges of cooperation and uncertainty; 3. by means of the leader's advocacy, the farmland of natural agriculture is rapidly enlarging and the farmers' association transforms their rice as creative agri-products: rice wine. All in all, although the collective action which dominated by leadership seems successfully, leaders still need to cope with the challenges from the external environment and pursue sustainable development.

Keywords: collective action, leadership, sustainable development, natural agriculture, Taichung Wufeng

1. Introduction

In recent years, problems with food security and a global food supply system have emerged, which facilitates people to rethink how to supply healthy and reliable food, so that non-toxic, natural agriculture or organic agriculture are getting more severe concern again. Although organic agriculture is regarded as a kind of intelligent agriculture with environmental, economic and social benefits in response to climate change, the promotion of organic agriculture is relatively complicated due to restrictions such as geographical conditions of production, the management of field cultivation, and strict verification. Thus, the development of non-toxic or friendly natural agriculture might be the first step towards sustainable development. Although the definition of natural agriculture has been diverse from one to another, without chemical inputs, no weeding or only partial weeding, and enhancing soil nutrients through microbes might be a universal understanding of it. However, under the situation of the general farmers who adopted conventional agriculture, it is not easy to turn to natural agriculture.

In Wufeng District, located in central Taiwan, belonging to Taichung City, a group of people believed that conventional agriculture is harmful to the ecological environment, intending to promote transformation into natural agriculture. However, the transformation of agriculture cannot rely solely on individuals. It is also necessary to carry out collectively to reconstruct the fragmental farming hills to become a complete area. Only when farmers work together to adjust their behavior of agriculture, can they achieve their ideals. The Director-General of the Wufeng Farmers' Association is a key leader. He who is promoting the cultivation of aromatic rice variety Tainung 71 (Yihchuan aromatic rice) ¹entered the Wufeng Farmers' Association in 1995 and held the position of the Director-General in 2001. In recent years, Taiwan has been affected by issues of food security and environmental protection, the Director-General of the Wufeng Farmers' Association still started promoting the project of "Five Hectares Farmland in Natural Agriculture (Wu-Jia-Di)." The Wufeng Farmers' Association funded the farmers in order to hope to plant non-toxic rice without pesticides and chemical fertilizers, which will facilitate the rejuvenation of the ecological environment. However, it is necessary that the leader of the agricultural area mobilize the farmers for implementation of the project of "Wu-Jia-Di." In this case study, the project of "Wu-Jia-Di" is a bottom-up self-governance action without government resources, which encouraged farmers to attend change procession. Such leaders can be seen as institutional or social entrepreneurs who promote collective actions of institutional change through the provision of preferential prices under contract farming.

The purpose of this paper aims to explore the critical factor of the promotion of natural agriculture in Wufeng District through the foundation of the relevant theories and

¹ The trade name of "Yihchuan aromatic rice" was used for marketing in memory of the late breeding leader Dr. Yihchuan Kuo for his great contribution to evolvement of cultivation (Liu and Yang, 2011, p. 137).

explain that how the entrepreneurship of leader plays a vital role in collective action. The paper is structured as follows: First, introduces the relevant literature review, especially literature that emphasizes on leadership, collective action, and entrepreneurship; Second, explains the research methods; Third, briefly explains the social-economic background of the case study. Further, analyze the interconnection between leadership and collective action via the result of the interview and indicates the function of leadership in collective action. Finally, this paper attempts to summarize the conclusion of this study compendiously.

2. Literature Review

Although the concept of so-called “natural agriculture” in this paper that is worthy to introduce is a little bit different from that in general literature, the basic principle or value of that is quite similar. Also, the purpose of collective action is to achieve the common goals of the group. Collective action theory focuses primarily on understanding the interactions between group members, establishing rules, and supervising the mechanisms for obligation and resolution of complaints. As for how collective action emerges and the role of key leaders are less of a concern, so this paper focuses on the literature on leadership and entrepreneurship that could help to fill the insufficiency of literature. Therefore, this paper would like to discuss relevant literature separately.

(1) Natural Agriculture

Healthy soil is the foundation of sustainable agricultural management. The difference in agricultural practices is mainly due to soil inputs and crop protection measures. In the practice of conventional agriculture, the abuse of chemical fertilizers and pesticides destroy the communities of beneficial soil microbes (BSMs), which will change the nature of the soil and result in high cost of crop production. Once the pollutants with heavy metal in soils enter into the food chain in large quantities, **may pose** a negative impact on human health. The extensive use of inorganic chemical fertilizers and pesticides can also lead to the accumulation of harmful chemicals and heavy metals in soil, surface and groundwater (Colbourn & Thornton, 1978, p.513; Ma & Rao, 1997, p. 263). Conversely, the essence of natural agriculture is to minimize external inputs to farmland and to cultivate soil fertility, which is rich in loamy nutrients through the propagation of beneficial soil microbes (Devarinti, 2016, p.1).

The so-called “natural agriculture” refers to a way of management that cooperates with nature to produce healthy foods and maintains the health of humankind and the environment. The philosophy of “natural agriculture” indicates that everything in nature is useful and plays a role in the life network. Under such thought the cultivation process of “natural agriculture” is also called “management by doing nothing,” the farmers have been thus seen as facilitators, and the real agricultural work is done by nature itself. The cultivated way of natural agriculture usually emphasizes that it is unnecessary for it to use herbicides, inorganic fertilizers, pesticides, and encourage no-tillage crop production instead. Actual work and labor have been reduced by up to 80%, which compared to

other farming systems. Natural agriculture is different from organic agriculture because it does not use any organic fertilizers such as Vermicompost (VC) and Farmyard Manure (FYM). In Japan, Fukuoka experimented with nature and followed the natural methods of crop reproduction, adopting four principles of cultivation: no cultivation, no fertilization, no weeding, and no medicine, which launched into the development of natural agriculture and achieved similar outcomes to the yields of chemical agriculture. However, the result of his experiment did not cause soil erosion (Fukuoka, 1978). Additionally, the soil microbes that involves the circulation of carbon and nitrogen that essential for plant growth are still used to promote soil fertility (Lazarovits, 1997: 189), and furthermore, the soil microbes can be decomposed into the organic matter of soil and recovered the nutrients of the soil.

In short, natural agriculture is the emphasis on conformity to nature, the exertion of the inherent potential of the local creature, and skillfully application of the principle of yin and yang, which constructs a friendly environment for the healthy balance of the local ecosystem. Natural agriculture is utterly different from the indiscriminate use of chemical fertilizers to achieve rapid and short-term benefits, and assist in building the foundation of the community ecology from the land; meanwhile, natural agriculture also reflects the respect and humbleness from the perspective of conventional wisdom said “For I am abstracted from the world, the world from nature, nature from the way, and the way from what is beneath abstraction.”

(2) Leaders and Collective Action

There are many references that indicate the elements of collective action affecting the management of commons (Ostrom, 1990; Agrawal, 2001; Baland and Platteau, 1996; Rasmussen and Meinzen-Dick, 1995; Markelova et al., 2009; OECD, 2013), and summarize the four critical factors of elements: the characteristics of the resource system (such as: well-defined boundaries), the characteristics of the user group (such as: size, leaders, etc.), institutional arrangements (such as supervision, sanctions rules, etc.), and external environment (such as financial and non-financial support of external organizations). It is worth noting that leaders are only one of the essential factors of group characteristics; however, leaders play a crucial role in collective action to promote it through active mobilization and enthusiastic participation.

In general, we can observe whether leaders have the ability of several dimensions. First, personality- people is considered to have an admirable character; Second, behavior- leader takes action to facilitate transformation in the group; Third, skills- the ability of confirmation of effective leadership; Fourth, power relations- the relationships between leaders and followers or the transformation process of encouraging the achievement of followers beyond direct self-interest (Northouse, 2010). Lee-Ross and Lashley (2009, p. 214) indicated that “Leadership is the result of relationship influenced between leaders.....and the intention of the followers to truly change and of reflection of their common goals”. It could be seen that leaders who mobilize the active participation of followers are the key to the success of collective action. As Pedler, Burgoyne, and

Boydell (2010, p.3) pointed out that leaders often focus on “the direction and purpose they should seek for when facing serious challenges.” Thus, rural leaders need to place themselves in the accountability framework and try to give careful consideration to the interests of all stakeholders. Dwyer and Edwards (2010, p.20) argued that there is a need for “strong, firm, and effective leadership” in all levels of government, business, and community, and these stakeholders should play an active role in all levels. Nonetheless, local leadership is still essential because local needs different types of visions and effective leadership to achieve their goals (Richards & Palmer, 2010, p.130).

Whether the group operates well or not, leaders are a crucial role in collective action. Leaders must have leadership, charisma and the ability to organize and mobilize the group. Besides, leaders who have fruitful experience, profession, good reputation, and active participation are facilitating collective action. Glowacki and von Rueden (2015) argued that the attributes of leaders who are indispensable for successful collective action are that they can be important in setting goals, coordinating logistics, striving for supervision, resolving disputes, or rewarding and punishing. Lobo et al. (2016, p.982) reminded that the role of the leader is to act as an essential intermediary to open and sustain collective action. Although they bring solutions for sustainable entrepreneurship, it is possible to cause conflict within the community. Therefore, whether leaders can take advantage of the situation and avoid the breeding of conflicts or not, which is the key to the success of collective action.

(3) Leaders and Entrepreneurs

According to the literatures on collective action, leaders are seen as individuals who deploy resources, responds motivate mechanism, risks, and opportunities for creating organizations. They motivate commitments, mobilize resources, create and identify opportunities, formulate strategies, express needs, and influence outcomes (Morris and Staggenborg, 2004, p.171, Lobo et al., 2016, p. 988). In this regard, leaders actually have the essence of entrepreneurship that drives social and economic development. Olson pointed out that “imaginative entrepreneurs can discover or create selective incentives to support moderate-sized and stable organization.” Consequently, it is known that imagination or creativity is indeed the main trait of entrepreneurs (1965 [1971], p.176).

When it comes to the system innovation of common resource management, Elinor Ostrom put forward the concept of “public entrepreneurs”, indicating that its mission is to: First, expand the collective action plan under uncertainty; Second, begin to operate the innovation process; Third, committed to organization and management activities (1965, p.520). Kuhnert supplemented the characteristics of public entrepreneurship: First, has intrinsic motivation; Second, discovers and changes preferences; Third, makes decisions under uncertainty; Fourth transforms vision into the innovative institutional design; Fifth leads and coordinates activities (2001, p.18). According to the result of literature, leadership is an essential motivation for entrepreneurial innovation, and it is not an exaggeration to assert that there is a close similarity between the attributes of entrepreneurs and leaders.

In addition to defining the type of entrepreneur from an institutional perspective, when defining social entrepreneurship, Dacin et al., also suggested that the primary task of social entrepreneurs is to provide solutions of social problems to create social value, which does not negate the economic value. Because economic value is crucial to the sustainability of social entrepreneurs and the creation of social values, with economic results, social entrepreneurs can accumulate sufficient financial resources to achieve their primary mission (2011, pp.1204-1205). However, successful entrepreneurship requires effective leadership, adequate resources, and smooth processes to create new value (Reid, 2018:150)

As mentioned above, in the situation of building conditions and making decisions in groups or organizations, the principal leaders or entrepreneurs are catalysts for collective action and the provision of collective interests, as they play a strategic and operational role to mobilize collective action. From the perspective of innovative systems or creation of social values, creative leaders who often have articulate visions, provide appropriate models, have high performance that meets expectations, and supportive leadership behaviors are more likely to pursue new opportunities and participate in innovation (Reid, 2018: 152).

III. Research Methods and Background of the Study Case

(1) Research Methods

This paper employs a method of in-depth interview, and interviewing with the Director General of the Wufeng Farmers' Association, the Chief of the Promotion Department, the Convener of the Ataabu Natural Agriculture Group, the cadre members and general member of Agricultural Production and Marketing Group, the Chairman and CEO of the Community Development Association, etc. I conducted several interviews for seven key persons that I mentioned, and two times focus group interviews for ten members of the Agricultural Production and Marketing Group during the period from November 2016 to June 2018. Each interview took about half an hour to three hours, and it is based on the semi-structured interview method. The interview outline has been prepared in advance; however, the questions of the interview are flexibly adjusted according to the reaction of the informants. The questions of the interview are divided into four parts: the characteristics of leaders at all levels, the factors of initiation of collective action, the overcoming of obstacles, and the external environment.

Because this paper is based on a single case study, it could be able to understand the background and characteristics of the case study, further, understand the function of leaders in collective action through by expounding and comparing theory. The semi-structured in-depth interview is the primary official source of information for this paper, and secondary sources of this study include relevant documents of the Farmers' Association, the meeting record, and evaluation report. The encoding of the primary qualitative data adopts the method of Fereday and Muir-Cochrane (2006: 84-91). I

attempt to repeat to read the text and analyze the recurring theme patterns via the method of the thematic analysis, which facilitates the follow-up discussion in this paper.

(2) Background of Case Study

1. The Cradle of Rice Seeds: the Agriculture Research Institute in Wufeng District

Taichung City is located in the central part of Taiwan, while the Wufeng District is located at the southern end of the city. The eastern half of Wufeng District belongs to the mountainous terrain with the distribution of Huoyan Mountain Range and the Jiujiu Peak. The western half of Wufeng District is a plain area where the tributary of the Wu river runs through. The delta zone alluvial by Wu river is the location of the farmland of Wufeng District. The annual rainfall in the Wufeng District is between 1400-1665 mm, and the annual average temperature is about 22.5 °C. However, the whole district is divided into east and west by the No. 3 highway. Owing to many hillsides and the lack of water resources, the agriculture management is mainly based on planting fruit trees in eastern Wufeng; while there is the double-harvest-a-year cultivation in western Wufeng due to the sufficient water supply from Wu river.

The Taiwan Agricultural Research Institute in Wufeng district has a pivotal position in the research and development of rice varieties. In 1992, Dr. Kuo, Yihchuan led the team to invest in the research and development of rice seeds actively. The aromatic rice “Tainung 71” in this area was the rice hybridization of “Kinuhikari” introduced from Japan and Taiwan. Native species “Taikeng 4” improved by the Agricultural Research Institute. After many years of trials, the Institute successfully cultivated new varieties registered in 2000 and grown them on a trial basis successfully in Wufeng. This kind of fragrant rice has characteristic of possessing high eating quality with taro scented flavor, short, round and full grain, excellent grain appearance, drought tolerance, moderate stem, admirable canopy type, strong ability to resist pests, and less fertilization.

In order to commemorate Dr. Kuo, Yihchuan’s spirit and effort of cultivation of new variety, Former President Chen Shui-bian officially named “Tainung 71” as “Yihchuan aromatic rice.” It was the first variety rice production that possesses both business name and a certain person’s name (Yen Ai-ching et al., 2017, p.51).

2. Enlightenment of the Transformation of Agricultural Farming: Ataabu Natural Agriculture Group

When it comes to the transformation of the way of farming, it is impossible not to mention the influence of Ataabu Natural Agriculture Group. Ataabu Natural Agriculture Group is composed of a group of small farmers who are people-oriented and aim to achieve sustainable development of agriculture. They regarded the Wufeng District as the beginning and cooperated with farmers of Nantou, Wuri, Taiping, Dali. They cultivate the crop without chemical pesticides (they will use natural or available organic cultivation materials when necessary), chemical fertilizers, herbicides. If necessary, they implement

the fundamental principle of only using organic fertilizers, including the “organic cultivation” method and the “Humei Natural Farming” which is stricter than “organic cultivation” (no pesticides, no herbicides, no fertilizer).

Ataabu Natural Agriculture Group is an informal organization, its leaders Dr. Zhang, You-ming, served in the Taiwan Agricultural Research Institute in the past, have a faculty position in the university. Due to natural ecological environment destroyed by conventional farming adapted to cultivation, Dr. Zhang who was the chairman of the Gio- cheng Community Development Association in 2011, promoted “natural farming” in the community and use the simple greenhouse for vegetable cultivation to actively demonstrate and promote natural farming techniques. In 2014, Ataabu Natural Agriculture Group implemented Rural Rejuvenation Plan approved and subsidized by the Soil and Water Conservation Bureau of the Council of Agriculture, Taiwan, and held “Natural Ecologic Farming of Paddy Rice Education Workshop.” There were more than 30 participants, which are small farmers all over the Wufeng, Guoxing township, Dajia district. Under the lectures and teachings of experts of Taiwan Agricultural Research Institute and Taiwan Agricultural Chemicals and Toxic Substances Research Institute, the lectures received enthusiastic repercussions from the participants, which encouraged participants further set up Ataabu Natural Agriculture Group to share information and achievements. Nearly half of members of group were the participants and teachers of Natural Ecologic Farming of Paddy Rice Education Workshop, 3 of them grow rice, 6 of them plant fruit trees, 7 of them produce vegetables, and 5 of them use natural agricultural products as raw materials to make processed products such as rice bread and processed products of fruits and vegetables (such as enzyme products of fruits and vegetables, jams, dried fruits, vegetables and so on). Due to the support and assistance of the Director General of the Wufeng Farmers’ Association Huang, Jing-jian and the Chief of the Promotion Department of the Wufeng Farmers’ Association, In July 1 2015 Wufeng Farmers’ Association experimentally hosted the “Ataabu Natural Farmers Market” for half year to promote community-supported agriculture (CSA), which is helpful to reduce carbon footprint, promote green energy and environmental protection, and implement energy-saving and carbon-reducing actions for the earth through the concept of local production, local consumption (Liao & Xiao, 2016, pp.176-177).

3. Transformation of Wu-Jia-Di in Natural Agriculture: the Promotion of Yihchuan Aromatic Rice by Wufeng Farmers’ Association

In 2001, in response to the possible impact of Taiwan’s accession to the WTO on Wufeng agriculture, the Wufeng Farmers’ Association established a rice production and marketing group in the following year, an attempt to promote the high-quality “Yihchuan Aromatic Rice” under contract in order to have an opportunity of transformation of rice cultivation. For more than a decade, Wufeng Aromatic Rice has established a brand and a good reputation in the market, and its cultivation area has been promoted from the initial 7 hectares to nearly 300 hectares today. The Director-General of the Wufeng Farmers’ Association Huang, Jing-jian, with the concept of maintaining the quality of aromatic rice

and ensuring the safety of rice production, provided guarantee prices better than the market price and set contracts with farmers for rice cultivation. It is expected that farmers will plant high-quality fragrant rice and increase the income of rice farmers to create a win-win situation. The Wufeng Farmers' Association might be influenced by some small farmers of Ataabu Natural Agriculture Group who adopted "Humei Natural Farming," therefore, they tried to set a rice area for eco-friendly farming to enhance aromatic rice quality and the image of the brand in the future. They hoped to cultivate the crop without chemical fertilizers, pesticides and herbicides to reduce the destruction of land, environment, and ecology, and gradually arouse the public's attention to agriculture, land and ecological environment through the management model of eco-friendly farming.

Director-General Huang and his colleagues explained the concepts and practices of natural farming to farmers and encouraged them to work together for the transformation of rice cultivation. Initially, farmers used to implement conventional agriculture, so the willingness of them to cooperate with the transition remained low. Because it is necessary that each rice area for eco-friendly farming must maintain a distance of more than three meters from each other, which could avoid the influence of pesticide from neighboring farm, they actively advertised and communicated with local farmers, guaranteeing to provide a higher price than the market price under contract, and asked the leader and deputy leader of rice production and marketing group to mobilize local farmers. After a year of hard work, they found five hectares of land in Wufu village where they set the production scale and farming location and signed a contract with the farmers in 2015 to gradually adopt the natural farming method.

IV. The Case Study Analysis and Leaders of Collective Action

Based on the result of in-depth interview of the Director-General of the Wufeng Farmers' Association, the Chief of the Promotion Department, the researcher of the Agriculture Research Institute, the leader and deputy leader of rice production and marketing group, the paper indicates that how they play the role of leaders and followers to show entrepreneurship in the process of promoting the transformation of natural agriculture. To clarify the discourse of this study, the paper selects three major subjects to analyze the important driving factors of promoting agricultural transformation according to the result of qualitative coding data.

(1) The Director-General of the Farmers' Association Shaped the Vision and Planed

Incentive Mechanism

Leaders often shape the vision and convey or instill important goals to followers in an inspiring way (Nanus, 1992). The leadership must conduct long-term strategic planning so that the goals can achieve its development potential. Leaders should be able to build a vision and generate ideas in order that the followers understand the challenges, values, and timelines in which they involved (Burns, 2001; Haven-Tang, and Jones, 2012, p.30). Furthermore, leaders have the ability of succinctly expounding their visions to

encourage followers to support key goals and to motivate followers to take action when the prospects are ambiguous or uncertain (Berson, Halevy, Shamir, & Erez, 2015, pp. 145-146). In the past, due to the good quality of Yihchuan aromatic rice the Farmers' Association would implement the contract with a high price, which led farmers to add chemical fertilizers and pesticides for more production. However, under the situation of climate change, deterioration of agricultural production environment, the high competition of rice market in Taiwan, and uncertain prospects the Farmers' Association must take responsibility to maintain the income of farmers. Huang, Jing-jian, the Director-General, was under pressure and wondered that if the "Yihchuan aromatic rice" still has the opportunity to strive for the next decade. He also realized that if the Farmers' Association would like to achieve sustainable agriculture, long-term application of chemical fertilizer is detrimental to the growth of rice and its environment.

Fortunately, after communicating with Dr. Zhang, a member of the Taiwan Agricultural Research Institute, Huang gradually understood the concept and idea of natural farming. Huang, his colleagues and the Chief of the Promotion Department Zhan, Zhi-yun discuss to propose "Wufeng Aromatic Rice Plan 2.0". The proposal of the Plan 2.0 intended to substitute "natural farming" for conventional agriculture during the growth of rice, and improve the agricultural production environment with no fertilizer, no pesticides, or herbicides.

While Huang had the idea of "natural farming," inviting Zhan, Zhi-yun, the leader Huang, Bing-nan and the deputy leader Hu, Kun-yu of rice production and marketing group to discuss that how to implement the proposal to improve environmental subjectivity and create social values in that time. Huang Bing-nan (current representative of the Wufeng Township) who is persuasive and eloquent was employed in other place and served as a senior cadre, but returned to his hometown for agriculture fifteen years ago. He recalled that:

Once Director-General generated a new idea, he would discuss with us like eco-friendly natural farming. In the beginning, when the Director-General told us this concept, it was difficult for us to accept that because of the influence of farming habits. Then, I also felt that we should carry out this concept to take care of the environment through continuous communication. Zhan, Huang and I, thus, started to find separated farmland where is suitable for implementation of natural farming.

In addition to explaining the concept, Director-General Huang also planned to provide incentives mechanism to protect farmers' income and improved farming behavior. He said:

One of the tasks of the farmers' association is to protect the rights and income of farmers. Therefore, we should consider how to increase the income of farmers and manage the farmland, and establish the penalty regulations.

In 2015, according to the contract of cultivation of Tainung 71 non-toxic, healthy aromatic rice, the content of contract stated the requirements of seedling of rice, the duration of rice cultivation, cultivated variety, contract objects, and farmland area. Besides, farmers have to take responsibility for management of rice cultivation and of accepting the guidance of relevant authority. If farmers were contrary to regulations, the farmers' association who would not purchase their crop had the right to terminate the contract and cancel the qualification of contract. As for the purchase price, the farmers' association would buy at NT\$1280 per 60 kilograms of wet grains and gave guarantee quota quantity according to average production of current period aromatic rice cultivation by conventional agriculture so that guaranteed price was about NT\$18000 per one-tenth hectare. Farmers were required to obey the schedule of the farmers' association of transplanting rice seedlings, fertilizing and harvesting, and gave the whole production to farmers' association; otherwise the qualification of rice cultivation would be canceled. In 2016, the guaranteed price of the contract was adjusted from NT\$18000 per one-tenth hectare to NT\$14000 per one-tenth hectare. Further, the contract also required farmers solely use organic fertilizer, prevention materials supplied by farmers' association, but herbicides. (Huang, 2015, 2016).

I asked the Director-General Huang about the difference of the purchase price and the responsibility of farmers in these two years (2015-2016). He responded:

This change is to protect the farmers' income further. The aim of modifying the contract in 2016 is to transfer the risk of production from farmers to the association. The farmers only bear the cost of soil plowing, seedlings, transplanting and harvesting that is about NT\$5,000. The cost of organic fertilizers, biological control of pests and diseases is all the responsibility of the Farmers' Association in order to achieve high quality and reduce the risks of farmers.

(2) Providing Management Techniques of Cultivation and Practical Guidance from Experts of the Taiwan Agricultural Research Institute

In the process of collective action, making good use of the support of government and non-government and leading group members to achieve common interests are the key to success for leaders. Therefore, if the leaders do not have the farming techniques of natural farming, they must seek external resources—agricultural experts to solve the problem. Although Dr. Zhang, the convener of Ataabu Natural Agriculture Group, was the key person who inspired Director-General Huang to involve in the transformation of natural agriculture, he had already retired from the Agricultural Research Institute. Therefore, Director-General Huang had to seek technical guidance from other experts when considering the development of natural agriculture.

At the beginning of the project of “aromatic rice variety Tainung No. 71” that had been conducted by Dr. Kuo, Dr. Lai, Ming-xin was a member of the project team. After the successful cultivation of “Yihchuan Aromatic Rice,” the project team discovered that

the grain was large and full, and its appearance of the grain was excellent with characteristics of good resistance to pests and diseases, which could reduce the use of drugs during rice cultivation. In order to enable farmers and consumers to understand the quality of “Yihchuan aromatic rice,” Dr. Lai took over the work of promoting the cultivation of aromatic rice since Dr. Guo passed away. He had become the best expert for technical guidance and beginning to design a natural agricultural education training course that promoted not to use pesticides at the request of the Director-General Huang.

In 2015, under the technical guidance of Dr. Lai, Farmers’ Association finally took the first step to implement non-toxic farming. They started to contract with nine farmers of production and marketing group in Wufu village and established the aromatic rice area where adopt cultivation of natural farming. Furthermore, the Farmers’ Association discussed the process and implementation of the cultivation management with farmers. They also conducted a workshop that invited farmers to visit the production and marketing group of organic rice in Waipu District and Dajia District, Taichung City in order to learn the management skills of eco-friendly farming.

In 2016, Wufeng Farmers’ Association held a workshop of cultivation and demonstration in “Wu-Jia-Di” of Wufu village and invited hundreds of farmers to attend the workshop. The farmers held Dr. Lai in high esteem and appreciated the effort in providing them with knowledge and assistance. Dr. Lai emphasizes that under the influence of global climate changes it is no longer feasible for rice cultivation to over-reliance on materials. He also explains that the way of rice cultivation management is quite similar to the way of human health management, “Natural Farming” has dual characteristics of “health management” of humankind and the land. It is worthy to promote and implement for sustainability. (Huang, 2016).

(3) The Leader and the Deputy Leader of the Production and Marketing Group Mobilized the Transformation of Agricultural Farming

Leadership can be considered as “the process of individual’s influence on a group of people for the achievement of common goals, like a two-way event in which interactions between leaders and followers occur” (Northouse, 2010, p.3). It is necessary that leaders need to elaborate ideas and possible benefits when promoting non-toxic agricultural farming or natural farming so that farmers will be willing to follow and implement them to achieve common goals. For the farmers of Wufu village, the Director-General of the Wufeng Farmers’ Association and the chief of the promotion department are the external leaders who provide financial resources. The leader and the deputy leader of production and marketing group are followers for their ideas; however, the successful transformation from the conventional farming to natural farming still depends on the encouragement of internal leaders of the community to the followers.

When Zhan, the chief of the promotion department, attempted to explain the thought of promoting farming transformation to the leader and the deputy leader of rice production and marketing group No.9, and obtained preliminary approval from them. Then, they selected farmland as the area where they adopted and practiced natural

farming in Wufu village and tried to persuade the farmers who cultivate the crop in the area. Huang said:

Zhan and we were very serious in coordinating with each farmer except one farmer who did not belong to the production and marketing group. We usually have close discussions and relationship, but at first, we suggested changing the way of farming, the farmers thought that we were out of mind. It was difficult for them to accept the new concept of farming owing to their concern with rice production, the use of pesticides and fertilizers, and the purchase price of rice. So they felt worried about the farming transformation that might reduce the production.

The deputy leader stated that:

Nothing happens without action. We have to take the first step toward the goals. Although we had worked hard for a while, fortunately, the integration was successful. There were a total of nine members who joined this action. We started to implement natural farming since 2015 but encountered cold wind, which resulted in a poor harvest. The productivity ranged only between 180-240 kg per one-tenth hectare. Without the determination of the Director-General who continued to follow the contract, there was no way to support it.

In general, the productivity of conventional agriculture ranges between 840-900 kg per 0.1 hectare, and the productivity of natural agriculture approximately ranges between 540-600 kg per one-tenth hectare. The farmers' association continued to implement the natural farming in support of guaranteed price. Although they encountered a typhoon during the rice cultivation, which influenced rice production, the harvest of natural agriculture was 540 kg per one-tenth hectare. The relative losses of crops cultivated through natural farming were less than the losses in the farmland where implement conventional agriculture. This situation excited all members of production and marketing group. The deputy leader said:

Since we adapted natural farming, the roots of rice have penetrated the soil so that its grip becomes stronger. So when the strong storms fall, the lodging rate of rice is not so high. That means the change in rice production is not as large as the fluctuation of rice production that implements conventional agriculture in the face of climate change.

Since they promoted the transformation of farming, in addition to the guaranteed income, what the other benefits of natural farming are. The leader of the production and marketing group said:

Since they promoted the transformation of farming, the fireflies have come back, the ecology of the farmland has become more abundant, and the air has been no longer pungent. The biodiversity represents the improvement of the

ecological environment and also represents the quality of residents in a rural area has improved

Based on the analysis above, there are three essential driving factors for the transformation of agricultural farming: First, the farmers' association strives to shape the vision and plan the incentive mechanism; Second, the Agricultural Research Institute provides the cultivation technology; Third, the leader of production and marketing group mobilizes farmers successfully. It can be seen that leaders are the key factor to promote "organizational effectiveness and successful endogenous collective action." However, the researcher of the Agricultural Research Institute is a technical guidance expert in providing knowledge and practical skills of natural farming in training workshop, which less affects the collective mobilization. Therefore, the following paragraph focuses on the role of farmers' association and leader of the production and marketing group in transactional or transformational leadership.

V. The Role of Leaders in Collective Action

In the case study of this paper, different organizations have their leaders who will not be able to fulfill their leadership responsibilities and achieve goals without followers. The common goal of different organizations in this case study is to adapt the natural farming, and the leadership must seek consensus first in the process of promoting the transformation of farming. In general, local leaders may be transactional leadership or transformational leadership. Transactional leadership is the relationship between leaders and followers in pursuit of common goals (Burns, 2001; Davies, 2011; Lee-Ross & Lashley, 2009), while transformational leadership is trying to change people and exert influence to enable followers to achieve performance that exceeds expectations (Northouse, 2010: 171). The leaders of this case study have alternately played roles as transactional leadership or transformational leadership in the process of the transformation of farming, so the following paragraph attempt to explain the role that they play.

(1) The Managerial Status of the Transformative Tendency Leadership

Transformational leadership would like to inspire their members to actively participate in their activities so that they can transform and go beyond expectations. Leadership will also actively transform themselves when expressing their shared vision for the future. In addition, they will act as role models and encourage acceptance of collective goals. They also set high expectations and support intellectual stimulation and support for the personal development needs of the members (Bas, 1985; Podsakoff et al., 1990; Yukl, 1999). This type of leadership is like an entrepreneurial system or an entrepreneur who creates social value, also fulfilling corporate social responsibility in the process of creating revenue.

In the collective action of the transformation of farming, Director-General Huang had the idea of changing the conventional farming towards sustainable agriculture. He initially discussed the action of promoting organic cultivation of rice with colleagues, however, because farmers who live in Wufu village were used to implementing conventional agriculture, it was difficult to pass a strict inspection. They have adopted a step-by-step approach to the transformation from non-toxic farming to natural farming. This successful reformation requests a key person in lobbying and research of supplementary measures, so what the farmers' association can do is to provide sufficient incentives mechanism to ensure the quality of excellent aromatic rice, while they persuaded farmers of the great benefits of the transformation of farming for human health and environmental protection.

In the contract, the most significant “positive incentives” is guaranteed purchase price of rice, but the farmers have to obey the regulations that is good technology in farming process, apply organic manure and prevention materials according to the regulations, fill production record, no use of chemical fertilizers and pesticides (including herbicides for a ridge between fields), self-manage to the irrigation and weeding in farmland, check residual toxins randomly. Only when farmers pass the requirement will farmers' association buy the crop at the guaranteed purchase price. Moreover, the “negative incentive” is that if farmers cannot take the responsibility of cultivation management or do not accept the technical guidance of the relevant authority, the farmers' association will not to purchase their crop and terminate the contract and qualification.

In sum, after establishing the incentive mechanism, the Director-General Huang did implement it strictly. The mechanism has been implementation until today. According to the table 1 that took the case of the first phase cultivation in 2017 as an example, the total income per one-tenth hectare under contract of natural agriculture was lower than the total income of other conventional farming areas, however, because the cultivation did not require the spraying of chemical pesticides and fertilizers, the cost of expenditure was relatively low so that the net income did not come in significantly below the expectation. Although the harvest of natural farming was not as good as that of conventional farming, the quality of rice production had been well received. The farmers' associations had provided farmers with a guaranteed price, which enable farmers to implement the way of cultivation of natural farming continually.

Table 1 the cost-benefit analysis of rice production per one-tenth in diverse modes of operation of the Wufeng Farmers' Association (the first phase of 2017)

Cost and Benefic	Special Rice Production And Marketing Areas	Contract Farming of Other Food Dealers (Special Areas)	Contracted Farmers Who Implements Natural Farming
Gross income(NT\$)	20,484	19,420	15,500
Expenditure cost(NT\$)	8,680	8,680	5,050
Net income(NT\$)	11,804	10,740	10,450

Note: Rice income also includes direct payment of NT\$ 1350, and special area payment of NT\$150.

Source: The Wufeng Farmers' Association

It may be influenced by the niche of farming transformation, the total contracted area has been gradually expanded from Wufu area to Nanshih, Peishih, Dingtai, etc. Now the total contracted area is nearly 40 hectares, which is a great achievement.

Table 2 The total area of Five Hectares Farmland

Year	First Crop (ha)	Second Crop (ha)
2015	5.2	5.48
2016	6	7.4
2017	16	32.5
2018	38.6	48.2

Source: The Wufeng Farmers' Association

However, there is a huge amount of money for agricultural promotion. The farmers' association have to propose a plan for the approval of the board members and seek external resources. Therefore, the farmers' association hosted the "Restoration Plan for a Hundred Hectares of Excellent Farmland," and invited enterprises to adopt five hectares of rice production area. The unit of adoption number is one-tenth hectare of farmland, and the amount of adoption for each cultivation period is NT\$38,000 per one-tenth hectare. The farmers' association planed a total of 50 units for adoption and asked enterprises to adopt at least one unit of rice production. The adopter can obtain 240 kilograms of aromatic rice from a contracted amount of rice, and make "the rice of five- hectares farmland" for self-use and gifts to relatives and friends and customers through customization. Employees of the enterprises that had already involved in the restoration plan can experience the life of a farmer and the joy of the rice cultivation. Since the establishment of "Restoration Plan for a Hundred Hectares of Excellent Farmland" by farmers' association, nearly 40 enterprises have participated in the adoption of rice, which could be said that results are outstanding.

In addition, the Wufeng Farmers' Association that developed processed food and combined with the local agricultural products, and established Wufeng Farmers' Association Winery in order to enhance the added value of Yihchuan aromatic rice. They also sent staffs to Japan to learn sake brewing technology and succeeded in brewing Taiwan's top sake with aromatic rice. In 2015, when starting to promote non-toxic and natural farming, the farmers' association made sake with the rice of Five Hectares Farmland. The sake "Chu-Wu" was a representative commodity that not only integrated culture of Wufeng and the value of Japan sake but also facilitated the flourishing development of the creative agricultural industry.

(2) The Intermediary Status of the Transaction Tendency Leadership

Transactional leadership is the leadership style that clearly expresses the desire to exchange relationships between leaders and followers. Therefore, such leadership will communicate specific expectations and provide rewards based on whether their followers

meet pre-set goals (Bas, 1985; Podsakoff et al., 1990). Like transformational leadership, transactional leadership also want their members to commit themselves to achieve specific goals and being accountable (Klein, Molloy & Brinsfield, 2012:16). In this case study, the goal of the production and marketing group's leader and deputy leader is to persuade the members to accept, support and participate in the creative plan of adapting natural farming. However, the so-called reward is the incentive mechanism provided by the farmers' association.

At the beginning of promoting the cultivation of natural farming, many farmers could not accept the concept of natural farming. Huang, the chief of production and marketing group in that time, told the members that the idea of the Director-General of farmers' association that provided a guaranteed price from average rice production of conventional agriculture in the current period was excellent, which make farmers have full advantages of protecting their income. However, the promotion of natural farming in 2015 encountered a poor harvest and made farmers cannot regain their original capital due to low temperature and typhoons. Director-General Huang was forced to purchase high-cost rice with low production of rice. He sent two representatives of farmers' association and leader Huang of production and marketing group to negotiate with farmers for the purchase price, but owing to the low price with which the farmers' association would like to provided farmers want to retreat and asked the leader Huang to negotiated with farmers' association. In order to encourage farmers to implement the natural farming instead of conventional farming, the leader Huang, Bing-nan once proposed an idea to the representatives of the farmers' association:

The regulation of promoting natural farming should consider the basic income of farmers. In the past, farmers who implemented conventional farming could profit between NT\$5000 - NT\$1000 per one-tenth hectare, roughly average profit was at least NT\$8000. Then, the farmers' association raised the guaranteed price to NT\$8500, plus a bonus of NT\$250, a total of the grant was NT\$8750. However, if we considered the expenditure of plowing, rice transplanting, rice reaping, transporting, seedlings and so on, the total costs approximately were NT\$5000. Therefore, the total income of farmers should be at least NT\$13750.

Consequently, the farmers' association decided to provide guaranteed price NT\$1400 per one-tenth hectare of land, which hoped that farmers could continue to move toward the transformation of natural farming. Despite the guaranteed price that makes farmer's income stable, the farmers still do their best to maintain and manage the farmland. The leader Huang said that:

In the past, there were several times that the quality of the seedlings was poor. It had been withered and yellow after the transplanting. Although the farmers' association did not strictly stipulate that farmer should refill the seedlings, the farmers who would like to respond to the support of Director- General Huang bought new seedlings to implement natural farming.

The deputy leader Hu, severing as leader currently, pointed out that the Director-General Huang is the best middleman between the farmers' association and the members of production and marketing group, and plays an important role in communicating with farmers.

His words are well organized attractive, and his actions are consistent with his words. We have been together for a long time; we are just like brothers. We trust him; furthermore, we believe that the Director-General always considers our situation and difficulty and negotiate with others for our benefits.

In fact, Hu, the deputy leader of production and marketing group, has been involved in farming for more than 50 years since he was a child. His experience is vibrant, his personality is very generous, and he practices what he preaches. As long as it is beneficial to the production and marketing group, he is willing to cooperate with the leader Huang and support Huang's proposal. In the process of persuading the farmers to join the natural agriculture, they played complementary roles, and finally promoted the cooperation of the members, which created a rich environment of production, life, and ecology and enhanced social capital.

VI. Conclusion

In recent years, the conventional agriculture resulting in poor quality of social and ecological environment was more noticeable. People realize that this operation mode of conventional agriculture hinders people's healthy, which encourages people to transform the operation from conventional agriculture to non-toxic or natural agriculture for sustainable development of agricultural business and management. However, the transformation of agricultural farming cannot be executed solely by individuals. It is also necessary for farmers in specific regions to carry out collective actions.

In order to understand the role of leadership in promoting collective action in natural agriculture, this paper that selects the Wufeng District of Taichung City as a research case adopts a qualitative research method, and analyzes three important driving factors that contribute to the transformation of agricultural farming: the farmers' association that shapes the vision and plans the incentive mechanism, the agricultural research institute that provided cultivation technology and the successful mobilization of leadership of the production and marketing group. The following are the research results of this paper:

1. The role of the leadership is essential "manager" and "intermediary" to maintain collective action. The former is like Director-General of the Wufeng Farmers' Association who is transformational leadership for the institution and social entrepreneurs. He also actively participates in the reform of the institution design and create incentives to allocate resources in order to promote the opportunities for sustainable development. The latter is like the leader of the deputy leader of

production and marketing group who is transactional leadership. They strive to persuade group members to adopt the original proposal of implementing natural farming in collective action. Both of them have an indispensable position for the initiation and promotion of the transformation of agricultural farming.

2. Leadership seeks opportunities to solve sustainable development issues to respond to the cooperation and uncertainty challenges. In order to achieve the transformation of farming, the leadership of the Wufeng Farmers Association had to strengthen followers' the concept of natural agriculture and seek resources to encourage their active participation so that the farmers were willing to engage in natural agriculture to maintain their economy. However, it is difficult to completely change the farming habits of conventional agriculture, which results in the challenge of comprehensively promoting natural agriculture. In addition, due to the uncertain factor of climate change and energy-consuming characteristic of manual weeding, the leadership of production and marketing group must seek the way of improving cultivation management, and must constantly adjust the way of mobilization to prevent the followers from implementing conventional agriculture.
3. Under the promotion of leadership, the area of cultivated land of natural agriculture is rapidly expanding, and the products of natural agriculture are transformed into products of high-quality sake. The Director-General of the Wufeng Farmers' Association used the internal resources of the farmers' association and cooperated with the chief of promotion department and the members of production and marketing group to create the good result of the production of natural agriculture, which facilitate the expansion of area where adopt natural farming year by year. Further, the farmers' association has also created the brand called "Five Hectares Farmland" (Wujiadi), and also uses high-quality rice as a brewing material to produce high-quality sake that creates the ultimate value of aromatic rice. In the past, the farmers' associations tried hard to persuade and promote the cultivation of natural farming, but now more farmers actively ask how to participate in the cultivation project. The Restoration Plan for a Hundred Hectares of Excellent Farmland can be expected soon.

In sum, the adoption of natural farming in the Wufeng District has been regarded as a successful collective mobilization, because none of farmers have been disqualified from violating the regulations of implementing natural farming, and there was no conflict in the transformation process. Today representative Huang, the leader of production and marketing group and team leaders still play the key roles of persuasion and practice. Director-General and the chief of the promotion department of farmers' association still work intensely or rigorously and hope to be in control of the management of flat plowing, irrigation water level, and seedling height, which avoid the problems arising from the management of weeds. In May 2017, the Taiwan government implemented the policy entitled "Subsidy Guidelines for Organic and Eco-Friendly Farming," which facilitated agricultural business and management to achieve sustainable development. On May 30th

2018, the Organic Agriculture Promotion Act was promulgated, which aims to more than double the amount of farmlands under organic production to 15,000 hectares by 2020. However, remain the big challenge. However, how to actively guide the transformation of farmers and smooth the maketing channels of eco-friendly rices and other products is a big challenge.

Reference

- Agrawal, A. (2001). Common property institutions and sustainable governance of resources. *World Development*, 29(10), 1649-1672.
- Baland, J. M. and Platteau, J. P. (1996). *Halting Degradation of Natural Resources: Is There a role for Rural Communities ?* Oxford: Clarendon Press.
- Bass, B.M.(1985). *Leadership and performance beyond expectations*, The Free Press, New York.
- Berson, Y., Halevy, N., Shamir, B., & Erez, M. (2015). Leading from different psychological distances: A construal-level perspective on vision communication, goal setting, and follower motivation. *The Leadership Quarterly*, 26 (2), 143-155.
- Burns, P. (2001). *Entrepreneurship and small Business*. Basingstoke: Palgrave.
- Colbourn, P. and Thornton, I. (1978). Lead pollution in agricultural soils. *Journal of Soil Science*, 29, 513-526.
- Dacin, T., P.Dacin, and Tracey, P.(2011). Social Entrepreneurship: A Critique and Future Directions. *Organizations Science*, 22(5), 1203-13.
- Davies, A. (2011). Local leadership and rural renewal through festival fun: The case of Snowfest. In C. Gibson, & C. Connell (Eds.), *Festival places: Revitalising rural Australia* (pp. 61-73). Bristol: Channel View Publications.
- Devarinti, SR, Natural Farming: Eco-Friendly and Sustainable? *Agrotechnology*, 2016, 5: 147. doi: 10.4172/2168-9881.1000147 <https://www.omicsonline.org/open-access/natural-farming-ecofriendly-and-sustainable-2168-9881-1000147.php?aid=80363&view=mobile>
- Dwyer, L., & Edwards, D. (2010). Sustainable tourism planning. In J. J. Liburd, & D.Edwards (Eds.), *Understanding the sustainable development of tourism* (pp. 19-44). Oxford: Goodfellow Publishers Limited.
- Fereday, J., & Muir-Cochrane, E. (2006). Demonstrating rigor using thematic analysis: A hybrid approach of inductive and deductive coding and theme development. *International Journal of Qualitative Methods*, 5(1), 80–92.
- Haven-Tang, C. and Jones, E. (2012). Local Leadership For Rural Tourism Development: A Case Study of Adventa, Monmouthshire, UK, *Tourism Management Perspectives*, 4, 28-35.
- Huang, Jing-jian. (2016). *The Contract of Tainung 71 (Yihchuan Aromatic Rice) by Natural Agriculture Technique*.
- Klein, H.J., Molloy, J., & Brinsfield, C. (2012). Reconceptualizing workplace commitment to redress a stretched construct: Revisiting assumptions and removing confounds. *Academy of Management Review*, 37, 130-151.
- Lee-Ross, D., & Lashley, C. (2009). *Entrepreneurship & small business management in the hospitality industry*. Oxford: Butterworth-Heinemann.
- Liao, Shujuan & Xiao, Zhibang. (2016). Discussion on Promoting the Development Strategy of Community Industry- the Case of JiuZheng Community at Wufeng

- District, *Quarterly Journal of Community Development*, 154, 171-182.
- Lobo, I.D., Velez, M. & Puerto, S. (2016). Leadership, entrepreneurship and collective action: A case study from the Colombian Pacific Region. *International Journal of the Commons*, 10(2), 982-1012.
- Nanus, B. (1992). *Visionary leadership: Creating a compelling sense of direction for your organization*. Jossey-Bass Inc., San Francisco, CA.
- Northouse, P. G. (2010). *Leadership: Theory and Practice* (5th ed.). Thousand Oaks: Sage.
- Pedler, M., Burgoyne, J., & Boydell, T. (2010). *A manager's guide to leadership: An action learning approach* (2nd ed.). Berkshire: McGraw-Hill Publishing Company.
- Fereday, J., & Muir-Cochrane, E. (2006). Demonstrating rigor using thematic analysis: A hybrid approach of inductive and deductive coding and theme development. *International Journal of Qualitative Methods*, 5(1), 80-92. Retrieved [2018.03.11] from http://www.ualberta.ca/~iiqm/backissues/5_1/pdf/fereday.pdf
- Fukuoka, M. (1978). *The One-Straw Revolution*, Rodale Press, Emmaus.
- Fukuoka, M. (1985). *The Natural Way of Farming-The Theory and Practice of Green Philosophy*, Tokyo and New York: Japan Publications.
- Glowacki L, von Rueden C. (2015). Leadership solves collective action problems in small-scale societies. *Philosophical Transactions of the Royal Society B Biological Sciences*, 370 : 20150010. <http://dx.doi.org/10.1098/rstb.2015.0010>.
- Kuhnert, S. (2001). An Evolutionary Theory of Collective Action: Schumpeterian Entrepreneurship for the Common Good. *Constitutional Political Economy*, 12(1), 13-29.
- Lazarovits G. (1997). Rhizobacteria for improvement of Plant Growth and Establishment. *HortScience*, 32, 188-192.
- Liu T-T, Yang T-S. (2011). Effects of an industrial milling process on change of headspace volatiles in Yihchuan aromatic rice. *Cereal Chemistry*, 88, 137-141.
- Lobo, I.D., Velez, M. & Puerto, S. (2016). Leadership, entrepreneurship and collective action: A case study from the Colombian Pacific Region. *International Journal of the Commons*, 10(2), 982–1012. DOI: <http://doi.org/10.18352/ijc.640>
- Ma, L.Q. and Rao, G.N. (1997). Chemical Fractionation of Cadmium, Copper, Nickel, and Zinc in Contaminated Soils. *Journal of Environmental Quality*, 26, 259-264.
- Markelova, H., Meinzen Dick, R., Hellin, J. and Dohrn, S. (2009). Collective action for smallholder market access. *Food Policy*, 34 (1), 7-14.
- Morris, A. and Staggenborg, S. (2004). Leadership in Social Movements. In D. Snow, S. Soule, and H. Kriesi (Eds.), *The Blackwell Companion to Social Movements* (pp. 171–96). Oxford: Blackwell Publishing. doi.org/10.1002/9780470999103.ch8.
- Nanus, B. (1992). *Visionary leadership: Creating a compelling sense of direction for your organization*. San Francisco: Jossey-Bass, CA.
- OECD. (2013). *Providing Agri-Environmental Public Goods through Collection Action*. Paris: OECD.
- Olson, M. (1965, 1971). *The Logic of Collective Action: Public Goods and the Theory of Groups*. Cambridge, Massachusetts: Harvard University Press.

- Ostrom, E. (1965). *Public Entrepreneurship: A Case Study in Ground Water Basin Management* (Ph.D. Dissertation). Retrieved from <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.196.3254&rep=rep1&type=pdf>
- Ostrom, E. (1990). *Governing the Commons: The Evolution of Institutions for Collective Action*. Cambridge: Cambridge University Press.
- Podsakoff, P. M., MacKenzie, S. B., Morrman, R. H., &Fetter, R. (1990). Transformational leader behaviors and their effects on follower's trust in leader, satisfaction, and organizational citizenship behaviors. *Leadership Quarterly*, 1, 107-142.
- Rasmussen, L., Meinzen-Dick, R. (1995). *Local Organizations for Natural Resource Management: Lessons from Theoretical and Empirical Literature*. Environment and Production Technology Division Discussion Paper 11. International Food Policy Research Institute (IFPRI), Washington, DC.
- Reid, S.W., Anglin, A.H., Baur, J.E., Short, J.C., & Buckley, M.R. (2018). Blazing new trails or opportunity lost? Evaluating research at the intersection of leadership and entrepreneurship. *The Leadership Quarterly*, 29 (1), 150-164.
- Richards, G. & Palmer, R. (2010). *Eventful cities: Cultural management and urban revitalisation*. Oxford: Butterworth-Heinemann.
- Yen, Aiching; Lin, Yili; Li, Hongwen; Li, Yanru; Xin, Hangen; Chen, Jinhui; Xu, Yunzhen; Huang, Xinyi; Zheng, Shuhui; Xiao, Shengcheng; Liao, Guozhu; Xie, Weiren. (2017). The Core Power in Rural Area: the Abundant Hometown, *Agricultural World Magazine*, 411, 51-61.
- Yukl, G. (1999). An evaluation of conceptual weaknesses in transformational and charismatic leadership theories. *Leadership Quarterly*, 10, 285-305.

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