RSEP CONFERENCES

International Academic Conferences

Conference Proceedings

FULL PAPERS

Editor
Dr. Patrycja Chodnicka-Jaworska

RSEP CONFERENCES
International Academic Conferences

ORGANIZED BY
RSEP

18th RSEP International Economics, Finance & Business Conference

CONFERENCE PROCEEDINGS

Editor

Dr. Patrycja Chodnicka - Jaworska

August 26-27, 2020
Istanbul, TURKEY

18th RSEP International Economics, Finance & Business Conference – Virtual/Online
26-27 August 2020, Kadir Has University, Istanbul, Turkey

www.rsepconferences.com   **CONFERENCE PROCEEDINGS/FULL PAPERS**   ISBN: 978-605-06961-5-8/September 2020

18th RSEP International Economics, Finance & Business Conference

ISBN: 978-605-06961-5-8/ 5 September 2020

BC Publishing

Editor
Patrycja Chodnicka - Jaworska

18th RSEP International Economics, Finance & Business Conference – Virtual/Online
26-27 August 2020, Kadir Has University, Istanbul, Turkey

www.rsepconferences.com   **CONFERENCE PROCEEDINGS/FULL PAPERS**   ISBN: 978-605-06961-5-8/September 2020

Conference Scientific Committee

Professor Nazif M. SHAHRANI
Indiana University, USA

Professor Ryoko Wada
Keiai University, JAPAN

Professor Amb Colette Mazzucelli
New York University, U.S.

Professor Ibrahim BAKIRTAS
Aksaray University, TURKEY

Professor Xianchu Zhang
The University of Hong Kong, CHINA

Professor Teresa CZERWIŃSKA
University of Warsaw, POLAND

Assist. Professor Luisa BOSETTI
University of BRESCIA, ITALY

Assoc. Professor Maria STANIMIROVA
University of Economics Varna, BULGARIA

Assoc. Professor Zoryana CHERNENKO
The National University of Kyiv-Mohyla Academy, UKRAINE

Assoc. Professor Adela COMAN
The University of Bucharest, ROMANIA

Assoc. Professor M. Veysel KAYA
Kirikkale University, TURKEY

Assist. Professor Monica MEIRELESS
University of Lisbon, PORTUGAL

Dr. Patrycja CHODNICKA-JAWORSKA
University of Warsaw, POLAND

Dr. Danijel MLINARIC
University of Zagreb, CROATIA

Dr. Veronika SOLILOVA
Mendelu University in Brno, CZECHIA

Senior Researcher Hasse EKSTEDT
University of Gothenburg, SWEDEN

18th RSEP International Economics, Finance & Business Conference – Virtual/Online
26-27 August 2020, Kadir Has University, Istanbul, Turkey

www.rsepconferences.com   **CONFERENCE PROCEEDINGS/FULL PAPERS**   **ISBN: 978-605-06961-5-8/September 2020**

Referee Board

CONFERENCE CHAIR

Dr. Imdat Dogan

Dr. İmdat Doğan holds an MBA degree in Finance & Investments and PhD degree in Banking and Finance. He has worked at investment banks and investment management firms in New York City such as Goldman Sachs Co., Deutsche Bank Asset Management, Prudential Equity Group and BlackRock Inc. on a full-time and consultant basis. Dr. Doğan is an expert on portfolio investments in different asset classes, private equity and venture capital funds in technology and energy sectors.

Keynote Speaker

Assoc. Prof. Konrad Gunesch
American University in the Emirates, Dubai, UAE
"Conferences in the Times of Corona: Redefining Workplaces, Meanings and Fulfilments Between Home, Public and Cyberspaces, in Macroeconomic, Sociopolitical and Philosophical Analysis"

"Special thanks to conference chair and keynote speaker"

CONTENTS

The Impact of Professional Investors on the Success of Startup Financing via Initial Coin Offerings (ICOs)

Anna Koscielecka

Ph.D. Candidate, Warsaw School of Economics, Warsaw, Poland
anna.koscielecka@doktorant.sgh.waw.pl

Abstract

This literature review is concerned with organizing and analyzing research on one specific subset of investors in Initial Coin Offerings (ICOs)—namely professional investors—emphasizing studies on the impact of their participation on the success of startup financing via ICOs. Research on ICOs is an emerging area of study in entrepreneurial finance with parallels to well-known forms of financing, including venture capital. This review proposes a framework for segmenting various effects produced by professional investors in ICOs. Most empirical studies suggest professional investors have a positive impact on the ICO process, including mitigating information asymmetries and improving post-ICO financial performance. However, a handful of studies point to a potential conflict of interest as a result of professional investors benefiting from ICO presale discounts that are typically not available to retail investors. This paper contributes to the nascent entrepreneurial finance subdiscipline of ICO financing by attempting to standardize selected ICO terms and to organize in a coherent framework a growing body of empirical studies on the impact of professional investors on startup financing via ICOs.

Keywords: Blockchain, Initial Coin Offering (ICO), Professional Investors, Startup Financing, Venture Capital (VC).
JEL Codes: G24, M13, O16.

1. Introduction

The introduction of blockchain technology in 2008 (Nakamoto, 2008) has been heralded as a revolutionary innovation from the technological perspective; however, its applications extend beyond technology. In particular, the concept of an Initial Coin Offering ("ICO")—a new form of startup financing based on blockchain—has garnered significant attention in the field of entrepreneurial finance.

Unlike financing through venture capital ("VC") rounds, ICOs enable startups to raise large amounts of funding typically without any regulatory or compliance requirements, and without the participation of intermediaries.

Existing entrepreneurial finance theories that were previously tested in a VC setting are now a valuable source of inspiration for research on ICOs. In particular, a large subset of existing entrepreneurial finance research has been dedicated to furthering the understanding of different characteristics of investors supporting companies across various stages of their life—from angel and venture capital investors in early-stage startups to retail investors in IPOs.

While internal characteristics of fundraising teams and ICO processes have been the most prolific avenues for research on ICOs to-date, a nascent subset of research extends entrepreneurial finance theories on professional investors to the ICO setting.

The following empirical studies are chiefly concerned with the analysis of professional investors in the ICO context: Boreiko & Risteski (2020); Fahlenbrach & Frattaroli (2019); Fisch & Momtaz (2020); Howell et al. (2019); and Lee et al. (2018). Several other empirical studies also discuss this subject.

This literature review is concerned with organizing and analyzing research on one specific subset of investors in Initial Coin Offerings (ICOs)—namely professional investors—emphasizing studies on the impact of their participation on the success of startup financing via ICOs. Research on ICOs is an emerging area of study in entrepreneurial finance with parallels to well-known forms of financing, including venture capital. This review

proposes a framework for segmenting various effects produced by professional investors in ICOs. Most empirical studies suggest professional investors have a positive impact on the ICO process, including mitigating information asymmetries and improving post-ICO financial performance. However, a handful of studies point to a potential conflict of interest as a result of professional investors benefiting from ICO presale discounts that are typically not available to retail investors.[1] This paper contributes to the nascent entrepreneurial finance subdiscipline of ICO financing by attempting to standardize selected ICO terms and to organize in a coherent framework a growing body of empirical studies on the impact of professional investors on startup financing via ICOs.

This review opens with the typology of ICO investors, followed by a brief summary of different definitions of a successful ICO project. The main body discusses the impact of professional investors on the success of ICOs during all three stages of the process (i.e., presale, crowdsale and post-ICO), highlights two types of effects produced by professional investors (i.e., selection and treatment), and pinpoints emerging concerns about the alignment of interests between professional investors and retail investors. The final section summarizes key findings and offers ideas for future research.

2. Typology of ICO investors

Research studies exploring characteristics of ICO investors often segment these contributors according to the following criteria: i) the average size per investment, ii) the degree of investment sophistication, iii) the level of institutionalization, and iv) the stage of the ICO campaign in which they participate.

The most common way to group investors is according to the average size of their contribution per ICO project. Boreiko and Risteski (2020) distinguish four investor subgroups and use the average US household savings account balance as of June 2018 of $16,420 as the main threshold. Any investor who contributed less than this amount was classified as "small." Investments exceeding this threshold were considered "large" and further divided into three specific categories: "big" (total contributions in excess of $16,420), "whale" (more than $1 million), and "top 1%" (as a percentage of total contributed funds).

The most numerous group comprising 95% of all observations in Boreiko and Risteski's (2020) study are "small" investors or otherwise known as "retail" investors. Interestingly, despite their position as the dominant ICO contributors by number and total value, retail investors have not attracted much research attention in the context of blockchain technology. In part, this is not surprising, as they contribute small amounts of capital per transaction and on a sporadic basis. Additionally, there is typically more public information available about larger investors, including strategies and composition of their portfolios, thus giving them advantage as more suitable research subjects. However, a handful of recent studies highlight, for the first time in the ICO context, the interaction between small and large investors (Boreiko & Risteski, 2020; Fahlenbrach & Frattaroli, 2019), and consequently launch an emerging discussion about retail investors in ICO.

Second criteria for investors classification—the perceived degree of investors sophistication—can be established based on investors' experience (i.e., the total number of completed investments) and the intensity of their due diligence process (Hornuf & Schwienbacher, 2018).

Another approach to segmenting contributors reflects their level of institutionalization defined by the separation between the owners of assets and the managers of assets, in other words a "principal-agent" relationship. What further distinguishes this connection is the contractual nature of the managers' engagement determining the rules for the distribution of risk and return and for the associated fiduciary responsibilities (Davis & Steil, 2001). Examples of institutional investors include insurance companies, pension funds, venture capital funds and hedge funds.

---

[1] Retail investors are non-professional market participants who generally invest smaller amounts than larger, institutional investors. Individual investors are thought to be less knowledgeable, less disciplined, less skillful, and more prone to behavioral and emotional errors than professional investors. Source: Hayes, A. *Retail investor.* Investopedia (Internet). 31 Mar. 2020 [accessed 22 Jul. 2020]. Available at: https://www.investopedia.com/terms/r/retailinvestor.asp

Finally, contributors can be grouped by the stage of the ICO campaign in which they participate. The first phase of ICOs, held by majority of campaigns and open only to a select group of invited investors and insiders, is referred to as a "presale." This is followed by the main sale, or a "crowdsale," which is open to the public. Participation in the presale stage is associated with perks and special rewards, including price discounts as large as 34%[2] (Fahlenbrach & Frattaroli, 2019).

Most empirical research papers to-date focus on exploring characteristics of large professional investors. While there is little variation across studies with regards to the distinction based on investment size and stage, there is less clarity around the terms "institutional investor" and "professional investor," and there can be overlap between different categories.

For instance, Boreiko & Risteski (2020) make a distinction between "professional" and "institutional investors," while Fisch & Momtaz (2020) consistently refer only to "institutional investors." Fahlenbrach & Frattaroli (2019) sporadically use terms "professional investors" and "accredited/qualified investors," but they prefer to describe investors based on the size of their average investment ("large investors"), stage ("presale investors"), or simply use a generic term "ICO investors."

 Figure 1. Classification of investors by type based on Boreiko & Risteski (2020) and Fisch & Momtaz (2020). Shaded area represents the overlapping category of investors
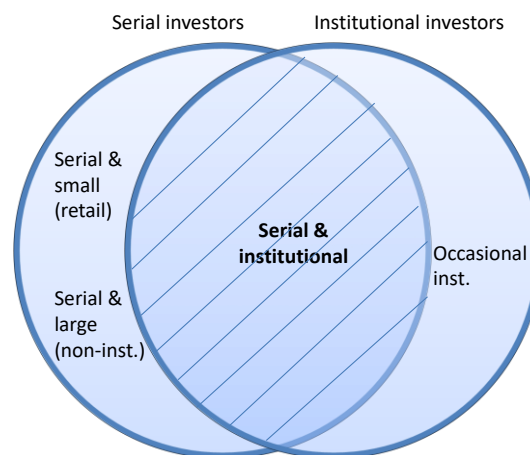
Source: Author's own graphic

Further, Boreiko & Risteski (2020) propose another term "large serial investor," thus utilizing the size of an investment as an estimate for investors' level of professionalism and investing experience. Based on their sample, around 28% of contributors invested in several ICOs and some accounts (192) contributed more than $1 million in total. According to their methodology, any large investor who contributed to more than two ICOs would be classified as a "large serial investor."

In an effort to standardize the terminology of ICO investors, I propose to use the term "professional investor," to describe both institutional and non-institutional investors distinguished by their size ("large") and frequency of commitment ("serial") (Figure 1). For example, this term would encompass both venture capital funds ("serial & institutional") and business angels ("serial & large, non-institutional"). I believe this common label is justified given strong similarities between both groups.

---

[2] 30% reflects an average discount to the presale investors.

Other than the size and frequency of capital commitments, professional investors tend to exhibit high risk-return profile; in other words, they are more open to risky investments. For this reason, venture capital and hedge fund investors comprise a large portion of professional ICO investors (Fisch & Momtaz, 2020; Howell et al., 2019).

3. Definition of a successful ICO campaign

Empirical studies explain ICO success across two dimensions: financial performance and operational progress of the underlying project (Table 1). Most authors focus on the financial performance of ICOs and there is generally a consensus among researchers as to the specific selection of financial performance-related factors that define success (e.g., total funds raised, exchange listing, financial return).

A rare example of a dissenting voice in this area is Howell et al.'s (2019) who chose to disregard the total amount raised as a measure of ICO success and instead focus on operational progress ("real outcomes"), including total employment, employment growth rate and survival. Their decision is driven by the potential risk that an excessive amount of capital raised could stimulate the ICO issuer's behavior misaligned with investors' best interest.

Table 1. ICO success factors commonly referenced in empirical studies

Financial performance		
Factors	**Comments**	**Examples of studies**
Total funds raised	Soft cap / minimum fundraising target met / amount raised	Fisch, 2019 Fisch & Momtaz, 2020 Lee et al., 2018
Exchange listing	Post-ICO listing and trading on ICO token exchange(s) / the number of exchanges	Fisch & Momtaz, 2020 Howell et al., 2019 Lee et al., 2018
Financial return / buy-and-hold abnormal returns (BHAR)	BHAR: Measures wealth gains for investors who purchase tokens during the ICO and then hold them for a given time horizon	Chod & Lyandres, 2019 Fisch & Momtaz, 2020
Operational progress		
Factors	**Comments**	**Examples of studies**
Employment	Number of individuals who identify as employees of the issuer	Howell et al., 2019
Employment growth rate	Growth of the total number of employees in a given time period	Howell et al., 2019
Issuer's survival	Avoided failure (e.g., still trades on exchanges; website exists)	Howell et al., 2019 Lee et al., 2018

Source: Author's own summary

4. What is the impact of professional investors on the success of startup financing via ICOs?

A growing body of empirical studies observes that backing by professional investors is associated with increased ICO success rates (Boreiko & Vidusso, 2019; Fisch & Momtaz, 2020; Howell et al., 2019; Lee et al., 2018). At the same time, other voices raise concerns about negative influence of large investors on the ICO process and on

18th RSEP International Economics, Finance & Business Conference – Virtual/Online
26-27 August 2020, Kadir Has University, Istanbul, Turkey

www.rsepconferences.com   **CONFERENCE PROCEEDINGS/FULL PAPERS**   ISBN: 978-605-06961-5-8/September 2020

retail investors in particular (Boreiko & Risteski, 2020; Fahlenbrach & Frattaroli, 2019). These diverging views prove there is an emerging debate brewing on the impact of professional investors on ICOs.

In order to organize this discussion, I propose to segment research findings along temporal lines common in most ICO processes—presale (i.e., the period leading up to the initial investment), ICO crowdsale (i.e., open to the public) and post-ICO phase (i.e., after the ICO campaign concludes). The assumption here is that the initial investment by professional investors occurs in the presale phase.

4.1. Theoretical background

First proposed in the 1970s, signaling theory has been one of the most prominent streams of thought in research on new venture funding. Signaling theory argues that actors (e.g., ventures, investors) possess imperfect information about each other, and thus they suffer from information asymmetries. In turn, this problem creates uncertainty and increases the level of capital risk. Despite that, ventures can minimize this ambiguity by either sending signals about their quality or engaging agents who will act as risk-minimizing factors (Spence, 1973).

In the startup financing setting, this suggests that investors who receive and are able to interpret signals about ventures' superior positioning mitigate information asymmetries and select higher quality ventures that ultimately generate greater financial returns. This screening capability has been discussed in entrepreneurial finance literature in the context of new venture financing (e.g., Gompers et al., 2020).

Additionally, institutional investors can impact startups through their direct involvement in the activities of their investee companies. On the menu of value-add services, entrepreneurs can typically find coaching, access to network, industry introductions, strategic advice and validation through the association with a brand-name investor (e.g., Cumming et al., 2017).

Fisch and Momtaz (2020) extend these theoretical considerations to ICOs and hypothesize that financing by institutional investors should lead to superior post-ICO performance. Specifically, professional investors in ICOs, thanks to their sophistication and investing experience, should be able to better exploit information asymmetries than an average retail investor. Furthermore, they could also continue their close engagement with their portfolio and contribute to their improved post-ICO performance. Fisch and Momtaz (2020) refer to the screening process as a "selection effect," and to the value-add element as a "treatment effect." Further, they distinguish two prongs under the "treatment effect" label, namely signaling effect and active post-ICO engagement.

While the authors applied this framework to cluster results of their own empirical study, I propose extending this framework to organize the nascent body of research on the impact of professional investors in ICOs. Specifically, selection effects are present in the pre-ICO phase when new professional investors screen potential investment opportunities, signaling effects (a subcategory of treatment effects) during the public crowdsale, and active investor engagement both during the ICO campaign and, more importantly, in the post-ICO value creation stage. However, these effects are not necessary mutually exclusive and can coexist in any ICO setting (Fisch & Momtaz, 2020). The following three subsections are ordered according to this framework and the last subsection opens a discussion about a potential misalignment of incentives between professional investors and retail investors.

4.2. Presale stage: selection effect

The selection effect describes professional investors' ability to select higher quality ICO projects than those selected by an average retail investor. Specifically, selection effect explains whether institutional investors are better qualified to select successful project.

18th RSEP International Economics, Finance & Business Conference – Virtual/Online
26-27 August 2020, Kadir Has University, Istanbul, Turkey

www.rsepconferences.com   CONFERENCE PROCEEDINGS/FULL PAPERS   ISBN: 978-605-06961-5-8/September 2020

The challenge Fisch and Momtaz (2020) faced was to isolate the selection effect from treatment effect. In other words, to ensure that they separate ICO ventures that would deliver strong performance regardless of institutional investors' direct involvement.

The ICO market is highly inefficient due to the lack of regulation of campaigns and information flow and these inefficiencies are gradually overcome only in the secondary market (Momtaz, 2020). Meanwhile, during presale and crowdsale, institutional investors utilize a set of sophisticated tools to conduct due diligence on new ICO projects. They also spend substantial amount of time on assessing the quality of ventures. In other words, they select successful projects more often than retail investors, as they have professional resources available at their disposal; an option not available to most retail investors.

Fisch and Momtaz (2020) construct a model testing a set of factors that allow institutional investors mitigate information asymmetries and extract information rents (i.e., above-market returns). They conclude that institutional investors do support ventures with higher observable quality at the time of investment.

For instance, their model predicts that a positive change of one-point-standard-deviation increase over the average expert rating[3] increases by 56.3% the probability of financing by institutional investors. Similarly, platform-based business models increase the likelihood of investment by 37.7%. Social media activity of institutionally-backed ICOs is also higher than average. Additionally, team members with technical or Ph.D. degrees significantly increase the probability of institutional investment. All of these effects have been associated with successful ICO projects (Fisch & Momtaz, 2020). These findings indicate the presence of selection effect and confirm the hypothesis that institutional investors are more skilled at identifying high quality ICO ventures[4].

This conclusion echoes certain aspects from Boreiko and Risteski's (2020) study highlighting that large serial investor groups seem to learn from participating in multiple ICO campaigns and, as a result, contribute to more successful ICOs. Boreiko and Risteski define success as campaigns that reach their minimum and hard caps, and list tokens on crypto exchanges. However, unlike Fisch and Momtaz who confirmed with a high degree of confidence their hypothesis of institutional investors' superior selection skills, Boreiko and Risteski are cautious about their findings. The latter state that while there is some evidence that larger investor groups perform better at selecting successful ICOs, the results are not robust across all measures (Boreiko & Risteski, 2020).

When Boreiko and Risteski (2020) expand their classification to include all serial investors, defined as those who contribute to more than two ICO ventures, they arrive at a conclusion that contrasts their earlier finding. Despite their higher level of experience, serial investors as a whole do not possess superior project selection skills. To the contrary, such investors have fewer bets on higher-quality projects than non-serial contributors. I find this conclusion counterintuitive, as I would expect that repetition leads to better selection. The authors' explanation invokes the theory of naïve reinforcement learning—meaning that serial investors have too much confidence in their personal experience, while neglecting the complexity of projects. Boreiko and Risteski (2020) claim that such investors construct portfolios that are equally likely to be comprised of successful and disappointing projects.

I argue that Boreiko and Risteski's definition of a serial investor is too broad. Investors who subscribe to a minimum of three ICOs—the floor for the authors' definition of a serial investor—hardly have a chance to develop pattern recognition and internalize learning. Therefore, I see an opportunity to repeat Boreiko and Risteski's analysis with a higher bar for the definition of a serial investor.

4.3. ICO stage: signaling impact (treatment effect)

Treatment effect explores two main forms in which professional investors exert their influence over ICOs. These are i) their signaling impact on retail investors during the ICO crowdsale, and ii) active post-ICO engagement.

---

[3] ICO experts are third-party providers of research reports offering their perspective on selected ICO campaigns.
[4] This is a highly significant effect with a residual (p < 0.01).

18th RSEP International Economics, Finance & Business Conference – Virtual/Online
26-27 August 2020, Kadir Has University, Istanbul, Turkey

www.rsepconferences.com **CONFERENCE PROCEEDINGS/FULL PAPERS** ISBN: 978-605-06961-5-8/September 2020

The first element, investors' signaling impact, is enabled by the accessibility of real time information on the aggregate ICO funding amount, and the quantity and size of previous contributions. Using these publicly available data, subsequent investors can estimate the current level of interest in any particular ICO campaign.

Certification by early investors comes in different forms and it can generate strong momentum among future token investors. Specifically, research points to the timing of investment (presale) combined with the size of investment as the two indicators used most often to gauge whether professional investors find the offering attractive (Fisch & Momtaz, 2020; Moritz et al., 2015).

First of all, simply the fact that a presale takes place has the potential to improve the likelihood of ICO success by 4.0% and, in fact, 59% of successful ICOs included a presale (Lee et al., 2018). Further, ICOs backed by professional investors raise on average $4.5M or 32% more in the process, which makes a significant difference for entrepreneurs (Fisch & Momtaz, 2020).

Moreover, there is strong evidence that the overall profile of presale investors plays a role. In particular, decisions of professional investors participating in presale influence choices made by retail investors. Investors' perceived experience and scale have the strongest signaling effect (Kim & Siva, 2019; Moritz et al., 2015). One type of early investors appears to have particularly strong impact on the success of ICOs. Namely, prior VC investment is one of the most significant predictors of success. Prior VC equity investment decreases the probability of failure by between 5% and 10 % (Howell et al., 2019).

4.4. Post-ICO stage: active engagement (treatment effect)

Turning to the other element of the treatment effect—active engagement. As mentioned above, active engagement can be observed at earlier stages of the campaign; nevertheless, it tends to be most pronounced at the post-ICO stage.

Fisch and Momtaz (2020) conducted a series of tests that supported their hypothesis about positive impact of institutional investors on the ultimate financial performance of ICO startups.

First of all, professional investors have an inclination to invest in ICO projects that require less time-to-market and they reduce this time further. Second, they list the firm on multiple token exchanges, thus increasing token liquidity. Additionally, the overall performance increases steadily by 50–75% over the first six to seven months[5]; after that, it remains at that level for longer holding periods. Finally, both VCs and hedge funds make significant contributions to ICO firms' longer-term development (Fisch & Momtaz, 2020).

4.5. Alignment of interest between professional investors and retail investors

For the reasons mentioned above, many argue that investors serve as value-increasing intermediaries and an important determinant of strong post-ICO performance.

As discussed above, investment by professional investors at the presale stage signals to retail or "crowd" investors the credibility of a given ICO (e.g., Fisch & Momtaz, 2020; Howell et al., 2019). Hence, early investors attract small individual investors who typically do not have access to presale discounts or diligence materials. At the same time, some large presale investors immediately take advantage of a significant presale discount (34% on average) and sell their position shortly after tokens are listed on exchanges, while retail investors do not have this option (Fahlenbrach & Frattaroli, 2019). Some argue that presale discounts and superior returns are indeed justified by higher risk taken by early professional investors (Lee et al., 2018). The question about appropriate level of compensation for early risk taking could be an exciting area of future research.

---

[5] Measured by buy-and-hold abnormal returns (BHAR)

Others studies are skeptical and call for more empirical studies exploring the effects of discounts and bonus campaigns on the timing and size of investments, among other elements (Boreiko & Risteski, 2020). Most of the average outperformance associated with institutional investor backing is realized in the first six months post-ICO (Fisch & Momtaz, 2020). The effects of early liquidity achieved by presale contributors are exacerbated by the fact that only 14% of ICOs impose a lockup period on presale investors (Fahlenbrach & Frattaroli, 2019).

I agree with the opinion that this dynamic leads to a potential conflict of interest between professional investors benefiting from attractive terms and crowdsale investors paying full prices for tokens while also having limited access to information and ability to diligence projects. As a result of financially-motivated behavior of presale investors, the value of institutional investors' certification can be indeed less meaningful than what may initially appear.

5. Conclusion

This literature review contributes to the growing body of research on ICO investor characteristics by highlighting several ways in which one specific subset of ICO investors—namely professional investors—impact the ICO process and the success of ICO startups.

Research studies on ICO investors often segment these contributors according to different criteria, including the average size per investment, the degree of their sophistication, their level of institutionalization and the stage of ICO campaign in which they participate. Because there has been some inconsistency across literature with regards to terminology, this paper attempts to systematize terms used to describe these different types of ICO investors and proposes a broad term "professional investors" that encompasses both institutional investors and serial/large non-institutional investors.

I observe that most empirical studies point to the overwhelming positive impact that professional investors exert as a result of their participation in the ICO process. Studies point to positive association between professional investors' contribution and post-ICO performance. Specifically, professional investors have the ability to select higher quality ICO projects than those selected by an average retail investor (selection effect). In addition, by deploying their experience and skills in conducting diligence on ICO campaigns, they serve as a useful quality indicator for other investors, thus mitigating information asymmetries (treatment effect - signaling). Finally, active engagement with their investee companies, particularly in the post-ICO phase, has a positive impact on the financial performance of the startup (treatment effect - engagement).

There are multiple avenues for future research that stem from the topics discussed in this review. First of all, the framework for organizing discussion on ICO investors proposed in this study combines ICO stages with selection and treatment effects. This framework could prove helpful as the body of ICO literature grows further and could be applied to test the impact of various other types of ICO investors, including subgroups of professional investors (e.g., venture capital funds, hedge funds, business angels) and retail investors.

Second, only a handful of research projects to-date has explored the relationship between professional investors and retail investors. This paper points to a few of these studies highlighting a potential conflict of interest as a result of professional investors benefiting from ICO presale discounts that are typically not available to retail investors. On the other hand, the de-risking impact of large professional investors raises the question whether they should indeed be compensated for lowering the investment risk for subsequent ICO investors and what is the appropriate level of compensation.

References

Boreiko, D., & Risteski, D. (2020). Serial and large investors in initial coin offerings. *Small Business Economics.* Available at: https://doi.org/10.1007/s11187-020-00338-8

Boreiko, D., & Vidusso, G. (2019). New blockchain intermediaries: do ICO rating websites do their job well? *Journal of Alternative Investments, 21*(4), 67–79. Available at: https://doi.org/10.3905/jai.2019.21.4.067

Chod, J., & Lyandres, E. (2019). A Theory of ICOs: Diversification, Agency, and Information Asymmetry. *ERPN: Venture Capital.* Available at: http://dx.doi.org/ 10.2139/ssrn.3159528

Cumming, D., Grilli, L., & Murtinu, S. (2017). Governmental and independent venture capital investments in Europe: a firm-level performance analysis. *Journal of Corporate Finance, 42*, 439–459. Available at: https://doi.org/10.1016/j.jcorpfin.2014.10.016

Davis, E. P., & Steil, B. (2001). *Institutional investors.* Cambridge, Mass.: MIT Press.

Fahlenbrach, R, & Frattaroli, M. (2019). ICO Investors. *SSRN Journal.* Available at: https://doi.org/10.2139/ssrn.3419944

Fisch, C. (2019). Initial coin offerings (ICOs) to finance new ventures. *Journal of Business Venturing, 34*, 1-22. Available at: https://doi.org/10.1016/j.jbusvent.2018.09.007

Fisch, C., & Momtaz, P. (2020). Institutional investors and post-ICO performance: An empirical analysis of investor returns in initial coin offerings (ICOs). *Journal of Corporate Finance.* Available at: https://doi.org/10.1016/j.jcorpfin.2020.101679

Gompers, P., Gornall, W., Kaplan, S., & Strebulaev, I. (2020). How do venture capitalists make decisions? *Journal of Financial Economics, 135*(1), 169–190. Available at: https://doi.org/10.1016/j.jfineco.2019.06.011

Hornuf, L., & Schwienbacher, A. (2018). Market mechanisms and funding dynamics in equity crowdfunding. *Journal of Corporate Finance, 50*, 556–574. Available at: http://dx.doi.org/10.1016/j.jcorpfin.2017.08.009

Howell, S., Niessner, M., & Yermack, D. (2019). Initial Coin Offerings: Financing Growth with Cryptocurrency Token Sales. *The Review of Financial Studies.* Available at: https://doi.org/10.1093/rfs/hhz131

Kim, K., & Siva, W. (2019). The 'Experts' in the crowd: the role of experienced Investors in a Crowdfunding Market. *MIS Quarterly, 43* (2), 347–372. Available at: https://doi.org/10.25300/MISQ/2019/13758

Lee, J., Li, T., & Shin, D. (2018). The Wisdom of Crowds and Information Cascades in FinTech: Evidence from Initial Coin Offerings. *SSRN Journal.* Available at: https://doi.org/10.2139/ssrn.3195877

Momtaz, P. (2020). Entrepreneurial Finance and Moral Hazard: Evidence from Token Offerings. *Journal of Business Venturing* (forthcoming). Available at: https://doi.org/10.1016/ j.jbusvent.2020.106001

Moritz, A., Block, J., & Lutz, E. (2015). Investor communication in equity-based crowdfunding: a qualitative-empirical study. *Qualitative Research of Financial Markets, 7*(3), 309–342. Available at: https://doi.org/10.1108/QRFM-07-2014-0021

Nakamoto, S. (2008): *Bitcoin: A Peer-to-peer Electronic Cash* (Internet). Available at: https://doi.org/10.1007/s10838-008-9062-0

Spence, M. (1973). Job Market Signaling. *Quarterly Journal of Economics. 87*(3): 355–374. Available at: https://doi.org/10.2307/1882010

Are ETFs Bad for Financial Health?

Michael Heinrich Baumann
Universität Bayreuth, Germany
michael.baumann@uni-bayreuth.de

Michaela Baumann
Universität Bayreuth, Germany
michaela.baumann@uni-bayreuth.de

Bernhard Herz
Universität Bayreuth, Germany
bernhard.herz}@uni-bayreuth.de

Abstract

Exchange-traded Funds (ETFs) are easy to understand, cost-efficient, and liquid investment vehicles that have become very popular for various types of investors. They are important vehicles in the current trend towards passive investment strategies that make it easy to passively track market indices such as the S&P 500. The dynamics of the index and its underlying assets are closely interlinked based on the rebalancing effect and depend among others on the different types of traders in the market, price trends in individual stocks and the overall market, as well as over- or undervaluations of individual stocks and the index. Investing in an index of assets can generate quite complex and sometimes counterintuitive investment behaviors on the level of individual assets. Seemingly stabilizing investment strategies on the level of the ETF, such as a fundamentalist approach, might actually destabilize on the level of individual stocks. Given the dramatic growth of ETFs financial regulators increasingly ponder on potential effects on market governance and financial stability.

Keywords: Exchange-traded Funds, ETF, index fund, financial stability, trading behavior
JEL codes: D01, G10, G11

1. Introduction

Among investment vehicles Exchange-traded Funds (ETFs) have become quite popular for both institutional and retail investors as they are easy to understand and cost efficient with a high liquidity (Gastineau, 2010), (Oura, et al., 2015), (Wiandt & McClatch, 2002). They are important vehicles in the current trend towards passive investment strategies that make it easy to passively track market indices such as the S&P 500. From originally tracking the performance of an underlying stock index ETFs have recently grown substantially in assets, diversity, and market significance, and are available, e.g., for bonds and for alternative investment strategies (Martin, Rajendra, & Jalagani, 2017), (Lettau & Madhavan, 2018). In September 2017, Exchange-traded Funds globally managed $4.3 trillion in around 6,300 investment vehicles, thus exceeding the hedge fund industry. However, back then, investments in index funds accounted for less than 20 % of global equities. For overview studies see (Lettau & Madhavan, 2018), (BlackRock, 2017). In 2019, the assets managed by ETFs rose to almost $6.2 trillion in about 7,000 products (ETFGI, 2020).

As volume and diversity of ETFs have expanded greatly, regulators and researchers have increasingly asked how these developments might affect market quality, financial market governance, and financial stability (Fichtner, Heemskerk, & Garcia-Bernardo, 2017), (Ivanov & Lenkey, 2014), (Pan & Zeng, 2017), (Anadu, Kruttli, McCabe, Osambela, & Shin, 2018). However, there is still only limited understanding of the longer term effects of ETFs' dramatic growth.

As ETFs' growth can be seen as part of a more general trend in the asset management industry to move from active to passive investment strategies, cf. (Liu, Liu, & Qiu, 2014), a lot can be learned from work that tries to explain this general trend and to explore the implications for market quality (Ben-David, Franzoni, & Moussawi, 2017). On the one hand, the spread of passive investment is seen as evidence of improved market efficiency as arbitrage opportunities have disappeared (Stambaugh, 2014). On the other hand, (Baker & Wurgler, 2011)points to a number of potential adverse effects of increased indexation as it might create distortions in securities' valuation, such as inclusion and deletion effects (Shleifer, 1986)}, (Wurgler & Zhuravskaya, 2002), (Kaul, Mehrotra, & Morck, 2005), (Greenwood, 2005), comovement of the stock with the index (Greenwood & Sosner, 2007), (Da & Shive, 2016), and higher sensitivity to bubbles and subsequent crashes.

Work more specific to ETFs finds that ETF ownership of stocks typically increases volatility and turnover (Ben-David, Franzoni, & Moussawi, 2014). The work (Glosten, Nallareddy, & Zou, 2016) finds that stocks incorporate information more quickly once they are included in ETF portfolios and (Da & Shive, 2016) documents an increased comovement in returns of stocks that are part of the same index. When investors trade on news related to the index, the mechanical basket trading of the underlying securities tied to the ETF through arbitrage exhibits higher return co-movements and causes basket stocks to lose part of their idiosyncratic volatility. At the same time individual stocks are likely to respond less sensitively and timely to idiosyncratic earnings news (Sullivan & Xiong, 2012), (Israeli, Lee, & Sridharan, 2017).

Possible negative effects of ETFs on informational efficiency are related among others to lower analyst coverage (Israeli, Lee, & Sridharan, 2017), slower price discovery (Bradley & Litan, 2011), (Bradley & Litan, 2010), impact of retail investor sentiments (Da, Engelberg, & Gao, 2015), and increased attractiveness of ETFs for short-horizon noise traders with correlated demand across investment styles (Broman, 2016). In the paper (Chinco & Fos, 2016) it is analyzed how ETFs' rebalancing needs in case of price changes are likely to trigger large rebalancing cascades that exacerbate the original price shock. In a broad analysis of the asset management industry (Oura, et al., 2015) raises the issue of systemic risks and identifies risk-creating mechanisms even for seemingly simple financial products such as ETFs. It concludes that it is not so much the size of ETFs per se that is relevant for systemic risk but rather the investment strategies that appear to be more important.

Taken together, ETFs might play a crucial role in amplifying shocks and destabilizing price dynamics when compared to a situation in which investors invest directly in individually selected securities. These risks are likely to have risen not only due to the increased weight of such products, but also as banks have tended to backtrack as market makers, possibly contributing to lower market liquidity. Still, the implications of ETFs on financial stability remain an open question (Sushko & Turner, 2018).

This study takes up this important policy issue and examines the transmission channels from ETF investments to price behavior of individual stocks. In particular it asks how ETFs' dramatic growth might affect financial stability. It contributes to the literature by systematically bringing together important aspects that have so far not received the necessary scrutiny, namely on the one hand the specific relation between ETFs and the underlying assets, the so-called rebalancing effect, and on the other hand the specific trading strategies ETFs are used for. While ETFs are a passive investment instrument by construction, institutional investors use them mainly to implement various active trading strategies, see (Stacey & Narine, 2018), (Vlastelica, 2017), (Rennison, 2017), (Schatzker, 2017). We account for two types of traders: (i) Fundamentalists increase their net asset position if an asset or index is undervalued and disinvest if an asset or index is overvalued. Thus, they are typically believed to stabilize financial markets. (ii) Trend followers, who are specific chartists, increase their net asset position if the price of an asset or index is rising and disinvest if the price is falling. Accordingly, they are believed to destabilize markets.

Our analysis focuses on index ETFs as the most common type of ETFs. We analyze how the interaction between the rebalancing effect and the specific trading strategies ETFs are used for can imply very complex, seemingly counterintuitive trading strategies on the level of the individual stocks depending on, among others,

- the strategy of ETF investors, e.g., fundamentalist or chartist,
- the price dynamics of the individual stocks, i.e., increasing or decreasing, and

18th RSEP International Economics, Finance & Business Conference – Virtual/Online
26-27 August 2020, Kadir Has University, Istanbul, Turkey

www.rsepconferences.com   **CONFERENCE PROCEEDINGS/FULL PAPERS**   ISBN: 978-605-06961-5-8/September 2020

- the prices of the individual stocks relative to their fundamental values, i.e., situations of over- or undervaluation.

While we focus on ETFs as instruments to passively track asset indices our results in principle also apply to other instruments of passive investment such as passive mutual funds (Lettau & Madhavan, 2018). There remain, however, important differences. In our analysis we integrate specific features of ETFs which are not present in conventional passive investment strategies. In particular, ETFs follow their respective market indices very closely. Their specific construction with the important role of privileged agents (or authorized participants) guarantees due to the underlying arbitrage processes that ETFs follow their respective index in a very cost-efficient way. In adding, trading costs are allocated in an incentive compatible way to the traders that cause these costs and are not borne by the holders of ETFs as it is usual for conventional mutual funds. In a similar way, costs from changes in the index and the subsequent necessary rebalancing of portfolios are not passed on to the ETF investors.

Section 0 provides a short example und thereby gives some intuition for the destabilizing dynamics generated by ETFs. Section 0 presents some analytical findings on the effects of index based investment strategies. Section 0 generalizes this analysis and examines how investment strategies affect market stability depending on alternative market settings. Section 0 concludes.

2. A Counterintuitive Example

The following example aims to build some intuition on the type of interactions we focus in our analysis. Take, e.g., a market with four types of traders: chartists and fundamentalists investing either in all stocks individually or in the index ETF only. All chartists are assumed to be trend followers, i.e., they buy when a stock or the index is rising and sell when a stock or the index is falling. Furthermore, fundamentalists buy when a stock or the index is undervalued and sell when a stock or the index is overvalued. Consider a situation in which stock 1 is overvalued and rising, while all other stocks are undervalued and falling so that the index is also decreasing and undervalued.

The typical chartist would buy stock 1 and sell all other stocks. Since the index falls, an ETF chartist would sell ETF shares and so indirectly all underlying stocks, including stock 1. So while trend following investment strategies are typically associated with destabilizing asset prices, the ETF chartist would stabilize the price of asset 1 by implicitly selling the rising and overvalued asset 1. In an analogous way a fundamentalist investment strategy, typically associated with stabilizing asset prices, can implicitly destabilize individual stock prices.

3. Investment Strategies and Price Dynamics of Indices and their Underlying Assets

As a passive investment vehicle a typical ETF replicates a specific asset index, e.g., the Dow Jones Industrial Average. We define as *index* both a publicly known set of N assets that are considered to be representative for a market as well as the price of that basket of assets which is defined as the sum of the asset prices. To simplify our analysis, we assume that the price of the index is available to all market participants at any time at no costs.

The implicit net asset position $I_i^\ell(t)$ of ETF trader ℓ in stock i at time t is given by

$$I_i^\ell(t) = I^\ell(t) \cdot \pi_i(t) = I^\ell(t) \cdot p_i(t)/p(t) \tag{1}$$

where $I^\ell(t)$ denotes trader ℓ's net asset position in the ETF with price $p(t) = \sum_{j=1}^{N} p_j(t)$, with stock i's market price $p_i(t)$ and relative weight in the index $\pi_i(t)$. Note that all ETF investors resemble chartists, especially trend followers, since the ETF is investing in rising stocks and disinvesting from falling ones by construction.

Investments on the level of the ETF imply specific investments on the level of the individual stocks depending on two determinants, namely the net asset position $I^\ell(t)$ (*level* or *quantity effect* and the stocks's relative weight

$\pi_i(t)$ (*rebalancing*, *price* or *composition effect*. Note that a trader's gain is independent of trading in ETF shares or in the underlying stocks according to Equation (1).

To better understand how ETF investments implicitly affect investments in the underlying stocks we analyze the quantity and price dimensions of these investments in greater detail. Given the past net asset position $I^\ell(t-1)$, the current investment in the index $\Delta I^\ell(t)$, as well as the index's rebalancing dynamics $\Delta\pi_i(t) = \pi_i(t) - \pi_i(t-1)$, we derive an ETF trader's investment in individual stocks $\Delta I_i^\ell(t) = I_i^\ell(t) - I_i^\ell(t-1)$.

Theorem 1 The investment in stock i of an ETF trader ℓ with net asset position I^ℓ in period t is given by

$$\Delta I_i^\ell(t) = \Delta I^\ell(t)\pi_i(t) + I^\ell(t-1)\Delta\pi_i(t). \tag{2}$$

Proof It holds:

$$\Delta I_i^\ell(t)$$
$$= I_i^\ell(t) - I_i^\ell(t-1)$$
$$= I^\ell(t)\pi_i(t) - I^\ell(t-1)\pi_i(t-1)$$
$$= I^\ell(t)\pi_i(t) - I^\ell(t-1)\pi_i(t) + I^\ell(t-1)\pi_i(t) - I^\ell(t-1)\pi_i(t-1)$$
$$= \Delta I^\ell(t)\pi_i(t) + I^\ell(t-1)\Delta\pi_i(t)$$

As Equation (2) indicates, firstly the investment in an individual stock i depends on the investment in the index given the relative weight of the stock in the index, i.e., $\Delta I^\ell(t)\pi_i(t)$ (*level effect*). Secondly, the investment in individual stocks also depends on how the fund reallocates the overall investment in the index, i.e. the ETF trader's net asset position, due to changes in the relative weight of the individual stocks, i.e. $\Delta\pi_i(t)$ (*rebalancing effect*). The level effect, i.e., the first summand of Equation (2), depends on the trader's strategy, i.e., on his or her investment $\Delta I^\ell(t)$, whereas the rebalancing effect, the second summand, depends on the change of the relative price of the stock, i.e., on market dynamics that traders take as given. Thus, an ETF trader actively controls his or her investment only on the level of the index, while passively tolerating the implied investments on the level of the individual assets. As the two effects can work in the same direction or in opposite directions, the net effect of index trading on individual stocks is a priori indeterminate and depends on the relative size of the level and the rebalancing effects. The interactions of these two effects can have complex and sometimes counterintuitive effects of ETF investments on the underlying stocks, as we illustrate further below.

Idiosyncratic shocks to an asset i's price p_i are passed on to the other assets incorporated in the index as the weights $\Delta\pi_j$ of all assets change. When π_i becomes small, the rebalancing effect becomes more important relative to the level effect which implies stronger counterintuitive investment behavior and, hence, increased uncertainty.

Note that for buy-and-hold strategies there is no difference between investing in the ETF or investing in the underlying assets according to Equation (1). Although it can be expected that investing in an index or directly in stocks does not make any difference, in real-world markets it can be observed that index funds are more volatile than the underlying assets, i.e., that people are more often shifting their index investments than their direct asset investments (Shiller, 1981).

18th RSEP International Economics, Finance & Business Conference – Virtual/Online
26-27 August 2020, Kadir Has University, Istanbul, Turkey

www.rsepconferences.com   **CONFERENCE PROCEEDINGS/FULL PAPERS**   ISBN: 978-605-06961-5-8/September 2020

4. What do ETF Investment Strategies Imply for Trading of Individual Assets?

In this section, we generalize and summarize how ETF traders' investment strategies affect the investment dynamics in an individual asset i. We discuss three investment drivers that differ between ETF fundamentalists and ETF chartists and one factor that is independent of the traders' investment strategies, see also Equation (2).

Specific to ETF fundamentalists is their past net asset position, the ratio of fundamental index price and market price, as well as the price p_i of asset i relative to its fundamental value f_i, which is used as a benchmark:

- In the past, the index has been under- or overvalued, implying a positive net asset position ($I^{E-F}(t-1) > 0$) of the ETF fundamentalist or a negative one ($I^{E-F}(t-1) < 0$).
- The index is currently undervalued ($f(t)/p(t) > 1$) or overvalued ($f(t)/p(t) < 1$).
- The i-th asset is currently undervalued ($f_i(t)/p_i(t) > 1$) or overvalued ($f_i(t)/p_i(t) < 1$). This variable helps classify the investment behavior of an ETF fundamentalist relative to a fundamentalist investor in individual stocks, i.e., to evaluate whether the behavior of the ETF fundamentalist is in line with conventional intuition (int.) or should be considered counterintuitive (count.).

Analogously, the relevant factors in case of ETF chartists are their past net asset positions and the market price dynamics of the index and individual asset i:

- In the past, the index has been increasing or decreasing, implying a positive net asset position ($I^{E-C}(t-1) > 0$) of the ETF chartist or a negative one ($I^{E-C}(t-1) < 0$).
- The price of the index is currently increasing ($p(t)/p(t-1) > 1$) or decreasing ($p(t)/p(t-1) < 1$).
- The price of asset i is currently increasing ($p_i(t)/p_i(t-1) > 1$) or decreasing ($p_i(t)/p_i(t-1) < 1$). This variable is needed as a benchmark.

A factor independent of the ETF traders' specific trading strategies is the change of the relative weight of asset i in the index, see Equation (2):

- The relative share of asset i in the index can be either increasing ($\Delta\pi_i(t) > 0$) or decreasing ($\Delta\pi_i(t) < 0$).

Combining these effects, we determine the sign of the investment decision for the i-th asset of an ETF investor and relate it to the investment strategy of the same type of trader investing in individual assets. We characterize market constellations as intuitive (int.) if the investment strategy on the level of the ETF implies a similar investment on the level of the individual asset i. More specifically in the case of trend followers a constellation is labeled intuitive if the ETF trend followers not only invest in a rising index and disinvest from a falling index but also (implicitly) invest on the level of individual assets in rising stocks and disinvest from falling stocks. In contrast, situations in which ETF trend followers (implicitly) invest on the level of individual assets in falling stocks and disinvest from rising stocks are characterized as counterintuitive (count.), respectively inconsistent. Analogously, a market situation is considered as intuitive/counterintuitive when ETF fundamentalists who invest in undervalued indices and disinvest from overvalued indices implicitly disinvest/invest on the level of individual assets from/in overvalued stocks and invest/disinvest in/from undervalued stocks.

18th RSEP International Economics, Finance & Business Conference – Virtual/Online
26-27 August 2020, Kadir Has University, Istanbul, Turkey

www.rsepconferences.com   **CONFERENCE PROCEEDINGS/FULL PAPERS**   ISBN: 978-605-06961-5-8/September 2020

Table 1 Price dynamics and (counter)intuitive behavior of ETF fundamentalists implied by the past net asset position, over- or undervaluation of index or individual asset, as well as increasing or decreasing relative share of the individual asset in the index.

ETF fundamentalists		$f_i(t)/p_i(t) > 1$		$f_i(t)/p_i(t) < 1$	
		$\Delta\pi_i(t) > 0$	$\Delta\pi_i(t) < 0$	$\Delta\pi_i(t) > 0$	$\Delta\pi_i(t) < 0$
$I^{E-F}(t-1) > 0$	$f(t)/p(t) > 1$	int.	?	count.	?
	$f(t)/p(t) < 1$	?	count.	?	int.
$I^{E-F}(t-1) < 0$	$f(t)/p(t) > 1$	?	int.	?	count.
	$f(t)/p(t) < 1$	count.	?	int.	?

Table 2 Price dynamics and (counter)intuitive behavior of ETF chartists implied by the past net asset position, increasing or decreasing price of index and individual asset, as well as increasing or decreasing relative share of the individual asset in the index.

ETF chartists		$p_i(t)/p_i(t-1) > 1$		$p_i(t)/p_i(t-1) < 1$	
		$\Delta\pi_i(t) > 0$	$\Delta\pi_i(t) < 0$	$\Delta\pi_i(t) > 0$	$\Delta\pi_i(t) < 0$
$I^{E-C}(t-1) > 0$	$p(t)/p(t-1) > 1$	int.	?	count.	?
	$p(t)/p(t-1) < 1$	?	count.	?	int.
$I^{E-C}(t-1) < 0$	$p(t)/p(t-1) > 1$	?	int.	?	count.
	$p(t)/p(t-1) < 1$	count.	?	int.	?

In half of the set-ups summarized in Tables 1 and 2, the level and the rebalancing effect work in the same direction and the net effect can be determined. In the other half the net investment effect cannot be determined in general without knowing the specific parameter values as indicated by **?**. This is the case if one summand is positive and the other one is negative in Equation (2), i.e., if the level effect is positive and the rebalancing effect is negative or vice versa.

Consider, for example, the scenario presented in the cell of the first row and the first column of Table 1. According to Equation (2), a positive net asset position together with a rising ratio of asset i (i.e., $I^{E-F}(t-1)\Delta\pi_i(t) > 0$) plus an undervalued index price results in a positive overall investment (i.e., $\Delta I^{E-F}(t)\pi_i(t) > 0$ where $\pi_i(t) > 0$ for all t) and a positive investment in asset i (i.e., $\Delta I_i^{E-F}(t) > 0$). Together with the condition of undervaluation of asset i ($f_i(t)/p_i(t) > 1$), the ETF fundamentalist's investment in asset i is in line with the investment of an investor in individual assets in such a situation, i.e., the ETF fundamentalists' investment is considered to be intuitive. In contrast, if asset i is overvalued (first row, third column of Table 1), his or her investment in asset i is opposite to the investment of an investor in individual assets, i.e., it is considered counterintuitive. Please note that the 16 cases in the two tables differ between ETF fundamentalists and chartists. For ETF fundamentalists, the ratio between the fundamental value and the price is important whereas for ETF chartists the ratio of the current and the previous price is of interest.

Conclusion

Exchange-traded Funds are easy to understand, cost-efficient ways of investing in stock market indices (and other indices) that have become very popular for both retail and institutional investors. The discussion of the wider repercussions of ETFs have just begun and are motivated by the rapid growth of these financial products. In our study we focus on alternative investment strategies implemented with ETFs and how they affect the markets of underlying individual assets. Under the complex interactions between index investments and the price dynamics of individual stocks, we find that the conventional assessment that fundamentalists tend to stabilize, while chartists tend to destabilize price dynamics does not necessarily hold.

Exchange-traded Funds might play a crucial role in amplifying shocks and destabilizing price dynamics when compared to a situation in which investors invest directly in individually selected securities. The importance of such risks is likely to have risen due to structural changes in the financial systems of advanced economies. Not only has the relative weight of such products increased considerably, but also banks have tended to backtrack as market makers, possibly contributing to lower market liquidity. The effects of (Shiller, 1981) large-scale funds, respectively large-scale investment strategies, might thus be more far-reaching than in the past.

This analysis suggests to refocus financial market regulation. New financial products such as ETFs are not (de)stabilizing per se and regulation should not (only) concentrate on their sheer size and rate of growth. Rather it is the specific use of these products that is of interest and should be at the focus of financial market regulators, an idea also suggested from the perspective of market governance. More generally, even simple and seemingly innocuous products like ETFs might have substantial side effects and deserve close scrutiny in particular with respect to alternative market situations and trading strategies. An important lesson learned from financial history is that even seemingly innocuous algorithmic trading might lead to serious asset price bubbles and financial crises. Subsequent research which particularly looks into the various dynamic interactions between market dynamics of indices and their underlying individual assets is called for to better understand the wider implications of the rapid spread of ETFs, which can essentially be considered algorithmic trading vehicles.

Acknowledgement

References

Anadu, K., Kruttli, M., McCabe, P., Osambela, E., & Shin, C. (2018). The Shift from Active to Passive Investing: Potential Risk to Financial Stability? In *Risk and Policy Analysis Unit RPA 18-04*. Federal Reserve Bank of Boston.

Baker, M., & Wurgler, J. (2011). *Behavioral Corporate Finance: An Updated Survey.* National Bureau of Economic Research.

Ben-David, F., Franzoni, F., & Moussawi, R. (2017). Exchange-Traded Funds. *Annual Review of Financial Economics, 9*(1), pp. 169-189.

Ben-David, I., Franzoni, F., & Moussawi, R. (2014). Do ETFs Increase Volatility? In *Working Paper Series 20071.* National Bureau of Economic Research.

BlackRock. (2017). BlackRock Global ETP Landscape. In *Monthly Snapshot October.* BlackRock.

Bradley, H., & Litan, R. (2010). *Choking the Recovery: Why New Growth Companies Aren't Going Public and Unrecognized Risks of Future Market Disruptions.*

Bradley, H., & Litan, R. (2011). *ETFs and the Present Danger to Capital Formation.* Ewing Marion Kauffman Foundation Research Paper.

Broman, M. (2016). Liquidity, Style Investing and Excess Comovement of Exchange-Traded Fund Returns. *Journal of Financial Markets, 30*, pp. 27-53.

Chinco, A., & Fos, V. (2016). *The Sound of Many Funds Rebalancing.*

Da, Z., & Shive, S. (2016). Exchange Traded Funds and Asset Return Correlations. *European Financial Management, 24*(1), pp. 136-168.

Da, Z., Engelberg, J., & Gao, P. (2015). The Sum of All Fears Investor Sentiment and Asset Prices. *The Review of Financial Studies, 28*(1), pp. 1-32.

ETFGI. (2020, April 30). Global ETF and ETP assets as of the end of March 2020. Retrieved from http://www.etfgi.com

Fichtner, J., Heemskerk, E., & Garcia-Bernardo, J. (2017). Hidden Power of the Big Three? Passive Index Funds, Re-Concentration of Corporate Ownership, and New Financial Risk. *Business and Politics, 19*(2), pp. 298-326.

Gastineau, G. L. (2010). *The Exchange-Traded Funds Manual.* Hoboken, New Jersey: John Wiley & Sons, Inc.

Glosten, L., Nallareddy, S., & Zou, Y. (2016). *ETF Trading and Informational Efficiency of Underlying Securities.*

Greenwood, R. (2005). Short- and Long-Term Demand Curves for Stocks: Theory and Evidence on the Dynamics of Arbitrage. *Journal of Financial Economics, 75*(3), pp. 607-649.

Greenwood, R., & Sosner, N. (2007). Trading Patterns and Excess Comovement of Stock Returns. *Financial Analysts Journal, 63*(5), pp. 69-81.

Israeli, D., Lee, C., & Sridharan, S. (2017). Is there a Dark Side to Exchange Traded Funds? An Information Perspective. *Review of Accounting Studies, 22*(3), pp. 1048-1083.

Ivanov, I., & Lenkey, S. (2014). Are Concerns About Leveraged ETFs Overblown? In *Finance and Economics Discussion Series.* Federal Reserve Board, Washington, D.C.

Kaul, A., Mehrotra, V., & Morck, R. (2005). Demand Curves for Stocks do Slope Down: New Evidence From an Index Weights Adjustment. *The Journal of Finance, 55*(2), pp. 893-912.

Lettau, M., & Madhavan, A. (2018). Exchange-Traded Funds 101 for Economists. *Journal of Economic Perspectives, 32*(1), pp. 135-154.

Liu, X., Liu, Z., & Qiu, Z. (2014). Investor Cash Flow and Mutual Fund Behavior. *The Manchester School, 83*(1), pp. 56-71.

Martin, H., Rajendra, A., & Jalagani, S. (2017). ETF+ Quarterly Directory. In *Deutsche Bank Markets Research North America.* Deutsche Bank.

Oura, H., Arregui, N., Beauchamp, J., Bhattacharya, R., Bouveret, A., Cuervo, C., . . . Jones, B. (2015). The asset management industry and financial stability. In *Global Financial Stability Report - Navigating Monetary Policy Challenges and Managing Risks.* IMF.

Pan, K., & Zeng, Y. (2017). ETF Arbitrage Under Liquidity Mismatch. *SRB Working paper Series, 59*.

Rennison, J. (2017). Institutional Investors Boost Ownership of ETFs. *Financial Times*.

Schatzker, E. (2017). *Larry Fink Q&A: "I Don't Identify as Powerful".* Bloomberg.

Shiller, R. (1981). Do Stock Prices Move Too Much to be Justified by Subsequent Changes in Dividends? *The American Economic Review, 71*(3), pp. 421-436.

Shleifer, A. (1986). Do Demand Curves for Stocks Slope Down? *The Journal of Finance, 41*(3), pp. 579-590.

Stacey, M., & Narine, F. (2018). *Why Active Managers use ETFs.* AGFiQ.

Stambaugh, R. (2014). Presidential Address: Investment Noise and Trends. *The Journal of Finance, 69*(4), pp. 1415-1453.

Sullivan, R., & Xiong, J. (2012). How Index Trading Increases Market Vulnerability. *Financial Analysts Journal, 68*(2), pp. 70-84.

Sushko, V., & Turner, G. (2018). The Implications of Passive Investing for Securities Markets. *BIS Quarterly Review March*, pp. 113-131.

Vlastelica, R. (2017). *Active Managers Have a New Favorite Tool: Passive Funds.* Market Watch.

Wiandt, J., & McClatch, W. (2002). *Exchange Traded Funds.* Hoboken, New Jersey: John Wiley & Sons, Inc.

Wurgler, J., & Zhuravskaya, E. (2002). Does Arbitrage Flatten Demand Curves for Stocks? *The Journal of Business, 75*(4), pp. 583-608.

The Effects of Unemployment on Health in Sub Saharan Africa

Michel Freddy Harry Yamben
University of Maroua, Cameroon
yambenharry@yahoo.fr

Kangkai Zacheus Asaah
University of Maroua, Cameroon

Abstract

This research work is an empirical analysis of the relationship between unemployment and health in Sub Saharan Africa (SSA). In examining the impact of unemployment on health we firstly made a test of interdependence of our conceptual framework. Secondly we used the modified Generalized Methods of Moment (GMM) by Arellano and Bond (1991) from the econometric perspective to study the link between unemployment and health. We then resolved the problem of endogeneity using a dynamic panel data relative to the study period 2006-2017. After carrying out a series of tests: test of cross-sectional dependence, stationarity tests, co-integration tests, test of endogeneity and identification of the model, the results revealed that, the co-integration analysis support a robust long run relationship between our variables. Consequently, a 1% rise in unemployment rate at lag 1 leads to a 0.148% rise in female, 0.134% rise in male and 0.138% rise in total mortality rates, and at levels it leads to a 1.166% rise in total mortality rate in middle income countries. However, in low income countries a 1% rise in unemployment rate leads to a 0.166% fall in total mortality rate. In terms of recommendations, to maintain a low level of unemployment rate, actions to undertake have to be based on the better functioning of the labour market, a better flexibility of markets, a health insurance cover and limiting incitements which depress economic activities.

Keywords: Unemployment rate, mortality rates, middle and low income countries and GMM.
JEL codes: I15, E24

1. Introduction

Some studies have shown a positive relationship between unemployment and mortality Adofu and Salami (2018), Sullivan et al. (2009). The debate concerning the association between unemployment and ill health has been the concern of researchers for many years. The two major questions that arise concerning this relationship which are firstly, does unemployment cause deterioration in health? Or, conversely, are the sick more likely to become unemployed? It is not worth mentioning that when an economy is experiencing a downturn, employers first lay off sick workers and unemployment causes material hardship which affects an individual negatively both physically and mentally Griffin (1993). In a study conducted by Brenner (1976), he found that for every 10% increase in the unemployment rate, suicide will also increase by 1.7% and psychiatric hospitalizations which will increase by 4.2%.

In other studies the separation of negative effects of unemployment on health has been done into individual and family effects Hanisch (1999). Individual effects include Physical and Psychological effects. Physical effects include: increase in stomach ache, head ache, lack of energy and sleep, heart and kidney diseases, hypertension. Psychological effects include: increased hostility, anxiety, depression, fear, anger, stress, loneliness, loss of self-esteem, life satisfaction. Family effects include: increase in family conflicts, abuse on spouse, child abuse, and marital friction. Some high income countries[1] have recently been severely struck by these phenomena of unemployment and ill health that developed after the 2008 financial crisis Wanberg (2012). The negative effects of unemployment on health is as a result of loss of income but also the deprivation of social, psychological and

---

[1] High income countries include; the USA, New Zealand, Spain, and Taiwan

non-pecuniary benefits provided by employment Jahoda (1982). Some research prone a number of reasons for unemployment. The reasons for youth unemployment are fairly similar to other causes of unemployment and include; lack of qualifications, geographical unemployment, real wage unemployment, lack of graduate jobs, cyclical unemployment, frictional unemployment, cultural/social factors, underground economy and hysteresis (past unemployment trends are likely to cause future unemployment) Tejvan (2017). Unemployment nowadays is caused by the economy and also by the increase in population Jacob (2011).

Conversely some studies have established a negative relationship between unemployment and ill health. Some studies that were conducted in the US and Europe revealed pro cyclical association of unemployment rates and mortality rates, depending on the economic state of the economy. These studies revealed that higher unemployment rates are associated with lower mortality Ruhm (2000), Granados (2008). They found that after long-term trends, higher unemployment rates (mostly during economic recessions) lead to lower mortality rates, while lower unemployment rates (mostly during economic expansions) lead to higher mortality rates, such that mortality rates fluctuate with the business cycle. This trend of fluctuations was also found for cardiovascular and infectious disease mortality, traffic deaths and industrial injuries Kossoris (1939), Miller et al. (2009).

Other studies outline the important determinant of health as a personal sense of job satisfaction. Epidemiological evidence, such as the renowned, Whitehall study of British civil servants, has shown how the hierarchy of workplace organization has significant impact on health outcomes (including mortality), with the people in the lowest-status jobs (with the least sense of control) having the worst outcomes Marmot et al. (1987 and 1988). Unemployment has been associated with low self-esteem, humiliation and depression in the individual, and a damaged family and social life. Conversely, obtaining a job has been found to quickly lead to improvement in family and social life Warr (1987).

High unemployment rates are a major characteristic of developing economies most of them being found in the Middle East and sub Saharan Africa. Unemployment is one of the greatest challenge in the development of Africa with an estimated 10.9% and 10.4% of job seekers in 2003 in sub Saharan and North Africa respectively which are the second and third world's highest unemployment rates respectively after the Middle East ERA (2005). In the same light Africa faces the planet's worst health issues according to the WHO report on African Regional Health of May 2019. According to the report, Africa is confronted with the World's dramatic health crisis though the region can over time redress its health challenges given sufficient international support. Amongst the prominent illnesses are HIV/AIDS which is the leading cause of deaths among adults with about 60% of the population infected. These illnesses are mostly blamed on poor hygiene and sanitation, poor drinking water and wide spread poverty. It is estimated that only 58% of people in sub Saharan Africa have access to safe water supplies. As a matter of fact, the study of the effects of unemployment of health in sub Saharan Africa will provide some empirical responses to unemployment-health issues.

2. Empirical Literature Review

Several studies have been carried out on the cause and effect relationship between unemployment and health in general, on unemployment and mortality in particular. The Literature review shall be grouped into time series analysis and longitudinal analysis.

2.1. Time Series Analysis

In a series of aggregate studies in the 1970s, using time-series analyses, Brenner examined the relationship between the overall mortality rates and several economic variables including unemployment, for the United States, between 1909 and 1976 Brenner (1980a,) for England and Wales, between 1936 and 1976 Brenner (1979; 1980b), and for England, Wales and Scotland between 1954 and 1976 Brenner (1983). He found that in all these countries, national mortality rates were significantly related to earlier unemployment rates. Brenner did not suggest that all the excess deaths occur amongst the unemployed. He argued that many do occur among those who are left in unstable employment and those who lose one job and find another which may be less well paid and more hazardous. In a report of his analyses to the US Congress in 1976, Brenner predicted that a 1% rise in

unemployment in the US would lead to some 6,000 excess annual deaths Brenner (1984). The method used by Brenner in his studies was criticized by some researchers.

In 2005, Brenner investigated the effects of real GDP per capita, unemployment rate, and the employment to population ratio on age-adjusted mortality rates over the period of 1901 to 2000, in the United States. Using the Engle-Granger Co-integration method and Shiller lag estimation model, he found that the net effect of increased unemployment leads to a substantial increase in mortality, while increases in GDP per capita leads to a significant decrease in mortality rates. He emphasized that in using the preference criterion, the occurrence of the independent variable prior to that of dependent variable, is necessary to get a stable and reliable long term effect of unemployment on mortality. In his study, he used lag of 11 years for the independent variables and found that within short time, the results showed counter a priori expectations for both unemployment and real GDP per capital, but becomes stable over medium-to-long- time phenomenon Brenner (2005). Adofu and Salami (2018) in a study to investigated the effect of unemployment rates on mortality rates in Nigeria, using time series data and employing the Johansen Co-integration Test and Fully-Modified Least Square Regression (embedded with distributed lag of unemployment) methods found that, the second lag of unemployment rates have significant and positive effect on mortality rates. A one percent increase in unemployment leads to 0.16% increase in total mortality rates, 0.17% increase in adult male mortality rates and 0.15% increase in adult female mortality rates.

Contrary to the findings of Brenner, Gravelle et al. (1981) were amongst the strongest critics of Brenner's method. Using Brenner's own methodology they argued that while his studies resulted in the conclusion that there is a correlation between of unemployment rates and mortality rates in different geographical areas, some other important variables such as income, educational levels, diet, occupational structure and housing are also associated with mortality and that these variables are also strongly correlated with unemployment rates. Gravelle et al. (1981) suggested that if these other variables were included in the analysis the reliability of the estimates of the effects of unemployment would be reduced. Equally if these variables were omitted the estimates would be biased in that some of the effects of omitted variables on mortality will be wrongly attributed to unemployment. Grenados (2005), in an investigation of the relationship between annual national fluctuations in a number of macroeconomic indicators and mortality of US economy between 1900 and 1996, found that higher mortality rates were associated with higher unemployment rates only during recessions, and that this situation was reversed as the economy expanded. He used Stuart Mill's Concomitant Variation approach and Hodrick–Prescott filter to transform the variables, before regressing the percentage change in mortality on GDP growth and the rate of change of unemployment.

2.2. Longitudinal Analysis

By employing United States' state-level longitudinal data from 1979 to 1991 and using fixed effect method to investigate the relationship between unemployment and mortality rates, Ruhm (2000), Ionides et al. (2013) found that an increase in the unemployment rate is associated with a decrease in the overall mortality rate. Ruhm also found that an increase in unemployment leads to a decrease in deaths from all preventable causes of death, except with the case of Suicide and homicide that are countercyclical in nature.

Gerdtham and Ruhm (2002), using fixed effect method to investigate the relationship between mortality rates and per capita disposable income of 23 member nations of the OECD over the 1960-1997, found that total mortality and deaths from several common causes increased with the strengthening of the labour markets. They found that decrease in the national unemployment rate is associated with a rise in total mortality and increases in deaths from cardiovascular disease, pneumonia, liver disease, deaths associated to motor vehicle accidents and other accidents. Similarly, Neumayer (2004), by applying fixed effect method on German state level data equally found a pro cyclical 3.relationship between unemployment and mortality due to cardiovascular disease, pneumonia and influenza, motor vehicle accidents and suicides.

Some studies carried out by researchers like Sullivan and Von Wachter (2009); Crost and Friedson (2015) found countercyclical association between unemployment and mortality. Sullivan and Wachter (2009)**,** used fixed effect method on administrative records of Pennsylvania workers of 1970s, 1980s and death records of 1960s. They found out that job loss by high tenured male workers led to increase in their mortality rate by 50% to 100% in

the first year after job loss. The trend continued, as mortality rates of displaced workers remained 10% to 15% higher after 25 years. Eliason and Storrie (2006) show similar evidence for job losers in Sweden. Further interesting evidence comes from twins studies carried out by Nylen et al. (2001) and Voss et al. (2004) who examined mortality of Swedish twins in relation to unemployment. They find that those who were unemployment in 1973 are significantly more likely to commit suicide and or die from undetermined causes during the period 1974-1996. Similarly, Crost and Friedson (2015) used fixed effect method to investigate the effect of education specific unemployment rates on mortality to get better likelihood of being directly impacted by a recession. They found that among the working-age population, higher education-group specific unemployment rates were positively associated with mortality rates. Their findings suggest that the unemployment rate of an educated group in a given state is positively related to mortality in that group. They explained further that part of the education specific mortality effect is driven by the loss of health insurance coverage that comes with unemployment.

In some studies carried on health outcomes response to economic fluctuations in high income and low income countries;

Morin (2009) using fixed effects method to investigate the relationship between mortality rate and some selected macroeconomic variables of Organization for Economic Co-operation and Development countries found that long-run economic growth (captured by GDP per capita) decreases mortality, while short-run growth is detrimental to health in rich countries. Government programs to artificially boost economic growth may negatively affect the population's health. But in poorer countries, particularly the ones with GDP per capita levels below $10,000, both long-run and short-run growth lower mortality rates, so any move that boosts economic output will improve the health of citizens of the country. Similarly, Using fixed effect method, Ferreira and Schady (2009) found that in richer countries (like United States) child health and education outcomes are counter-cyclical: they improve during recessions. But in poorer countries like Africa and low-income Asia, the outcomes are pro-cyclical: infant mortality rises, and school enrolment and nutrition fall during recessions. In the middle-income countries of Latin America, health outcomes are generally pro-cyclical, and education outcomes counter-cyclical.

Hongbin et al. (2016) performed a periodic bivariate Pearson's analysis on the data of GDP per capita, GHE per capita and IMR in china from 1952 to 2014. They found that there was no relationship between GDP per capita and IMR from 1972 to 1970. GDP per capita and IMR were negatively correlated from 1980 to 2014. The stage from 1970 to 1975 was the turning point for the effect of GDP per capita on IMR. From 1980 t0 1995, the growth rate of GHE per capita (12.80%) was slower than that of GNP per capita (17.26%) and the average decline rate for IMR was 2.82%. from 1995 to 2014, the average growth rate of GHE per capita (18.25%) was faster than that of GNP per capita (12.42%) and the average decline rate for IMR was significantly accelerated (7.15%).

3. Methodology
3.1. Nature and Source of Data

The data used in this work is a time series data that covers the period of 12years from 2006 to 2017 collected from secondary sources and a cross-section of 10 countries in sub Saharan Africa. The data was collected from the World Bank database, the World Health Organization database and International Labour Office database. The 10 countries are a stratified sample of SSA with three from West Africa, three from Central Africa, two from East Africa and two from South Africa. The selection of these countries was based on the World Bank income classification including countries of the upper middle and lower middle income groups and countries of the low income groups and also on the availability of data. This was to make sure that the sample is an actual representation of the population.

3.2. Model Specification

To attain our main objective our model, a 1 to 2 time-lag of unemployment rates and mortality rates were introduced in to the model to evaluate long term effect of unemployment on mortality. The use of distributed lag

18th RSEP International Economics, Finance & Business Conference – Virtual/Online
26-27 August 2020, Kadir Has University, Istanbul, Turkey

www.rsepconferences.com **CONFERENCE PROCEEDINGS/FULL PAPERS** ISBN: 978-605-06961-5-8/September 2020

effect of unemployment follows Neumayer (2004), Rhum (2000) and Brenne (2005) and the specification of the model follows the works of Berthelemy and Varoudakis (1998) in the analysis of the relationship financial development, financial reforms and economic growth for a sample of 82 countries. Our model is therefore specified as follows;

- Mortality rate, adult female

$$LogMorf_{it} = \gamma_1 LogMorf_{it-j} + \gamma_2 LogUn_{it-j} + \gamma3 LogGNI_{it} + \gamma_4 LogCHE_{it} + \gamma_5 LogHIV_{it} + \gamma_6 Logpopg_{it} + \lambda_{it}$$

(1)

- Mortality rate, adult male

$$LogMorm_{it} = \beta_1 LogMorm_{it-j} + \beta_2 LogUn_{it-j} + \beta_3 LogGNI_{it} + \beta_4 LogCHE_{it} + \beta_5 LogHIV_{it} + \beta_6 Logpopg_{it} + \varepsilon_{it}$$

(2)

- Mortality rate, total

$$LogMort_{it} = \alpha_1 LogMort_{it-j} + \alpha_2 LogUn_{it-j} + \alpha_3 LogGNI_{it} + \alpha_4 LogCHE_{it} + \alpha_5 LogHIV_{it} + \alpha_6 Logpopg_{it} + \mu_{it}$$

(3)

- Mortality rate, middle income countries

$$LogMort_{it} = \delta_1 LogMort_{it-j} + \delta_2 LogUn_{it-j} + \delta_3 LogGNI_{it} + \delta_4 LogCHE_{it} + \delta_5 LogHIV_{it} + \delta_6 Logpopg_{it} + \nu_{it}$$

(4)

- Mortality rate, low income countries

$$LogMort_{it} = \lambda_1 LogMort_{it-j} + \lambda_2 LogUn_{it-j} + \lambda_3 LogGNI_{it} + \lambda_4 LogCHE_{it} + \lambda_5 LogHIV_{it} + \lambda_6 Logpopg_{it} + \eta_{it}$$

(5)

The a priori expectations between the unemployment rates and mortality rates, gross national income per capita, current health expenditure, prevalence of HIV and population growth are as follow;

$\gamma_1, \beta_1, \alpha_1, \delta_1, \lambda_1 > 0$, $\gamma_2, \beta_2, \alpha_2, \delta_2, \lambda_2 > 0$, $\gamma_3, \beta_3, \alpha_3, \gamma_3, \delta_3, \lambda_3 < 0$, $\gamma_4, \beta_4, \alpha_4, \gamma_4, \delta_4, \lambda_4 < 0$, $\gamma_5, \beta_5, \alpha_5, \gamma_5, \delta_5, \lambda_5 > 0$, $\gamma_6, \beta_6, \alpha_6, \delta_6, \lambda_6 < 0$.

Where; (i = 1,, 10) refers to the country, (t = 1,.., 12) refers to the time period and (j = 1,…,2).

Morf is the mortality rate, adult female, Morm is the mortality rate, adult male, Mort is the total mortality rate, Un is the unemployment rate, GNI is the gross national income/capita, CHE is the current health expenditure/capita, HIV is the prevalence of Hiv and Popg is the population growth rate. γ, β, α, δ, λ are coefficients to be estimated. λ_{it}, ε_{it}, μ_{it}, ν_{it} and η_{it} are the elements of the error terms which vary across the group of countries and time.

3.3 Unit Root Test (Test of Stationarity)

For panel data, panel unit root tests have been proposed by Levin and Lin (1992) Im et al. (1997), Choi (1999) and Levin et al. (2002). The Levin-Lin-Chu unit-root test will be used to verify the stationarity of the variables. This version of unit root test includes lagged terms of the dependent variable in order to eliminate autocorrelation and statistics are suitable for finite or infinite number of panels.

3.4. Co-integration Test

Given the results of stationarity of our variables, we have to choose the form by which our model would be represented. At this stage, we have to verify if our variables are co-integrated and if our model contains a short term and/or long term relationship. There are several possible methods that can be used to verify this: the method of Pedroni (1999), the Kao (1999), the Engle and Granger (1987) and the method of Johansen (1988). The Pedroni method is given more privilege because the model takes into account both the notion of within and between dimensions. This co-integration test is stronger than other multiple co-integration tests. The null hypothesis of this test verifies for an absence of co-integration.

18th RSEP International Economics, Finance & Business Conference – Virtual/Online
26-27 August 2020, Kadir Has University, Istanbul, Turkey

www.rsepconferences.com **CONFERENCE PROCEEDINGS/FULL PAPERS** **ISBN: 978-605-06961-5-8/September 2020**

3.5. Method of Data Analysis

In order to estimate the parameters of our dynamic equations, we would use the modified GMM estimation model. This is because the GMM estimates are a more reliable and efficient models since they solve problems of serial correlation, heteroscedasticity, and endogeneity of variables Arellano and Bond (1991), Arellano and Bover (1995), and Blundell and Bond (1998)) and create their own instruments. In addition it is good for small sample studies as it is our case. But, the basic weakness in the system GMM estimation is that it creates too many instruments leading to the misspecification of the model (the instruments may not tie with economic theories). In this context, to get valid instruments, we follow Roodman (2009) by using the Arellano Bond (2) model which does the Sargan test, Hansen test and difference Hansen test to verify the validity of instruments and the Arellano Bond (1 and 2) tests to check for serial correlation. In the case of a one-step estimation technique, a high p-value of the Sargan test if preferred to a conventional level of 0.05 and in this same light, in a two-step estimation technique, a high p-value of the Hansen test is preferred rather than the conventional level of 0.05. We would employ the Arellano Bond (2) two-step system robust estimation technique, create our instruments and the robust option will take care of the problem of heteroscedasticity.

3.6. Choice of Variables

Mortality rate, adult, total (mort) in our work is merely the sum of adult female and male mortality rates. This is due to the fact that, since unemployment is concerned specifically with adults, it was not necessary to take into account infant mortality rate. We aim here at verifying the impact of unemployment rate on adult mortality rate only. The various mortality rates are employed in line with the works of Ruhm (2002), Neumayer (2004). We have employed unemployment rate as a proxy to unemployment because the labour market is not well developed in most SSA countries and data only exist mostly on unemployment rate.

The income per capita is used because it interprets income at the macro level. More so, empirical literature suggest it has a causal effect on health outcomes summarized by Pritchett and Summers (1996:863) who note that "wealthier nations are healthier nations" and "gains from rapid economic growth flow into health gains" though some say the influence of income per capita on health outcomes has diminished over time Preston (2007).

We equally used current health expenditure per capita because it takes into account both private and government health expenditures. Furthermore, it in some way accounts for the quality of health care institutions (private and public). Again, HIV prevalence is employed because it greatly affect health in SSA and the rate is very high in some of these countries like South Africa. Furthermore, the employment of population growth rate follows the Malthusian theory of population growth.

4. Results
4.1. Descriptive Statistics

In this section, we would present the summary statistics for all variables in a tabular form. This is aimed at having a general observation of the variables in question as well as their relationships.

Table 1: Summary Statistics							
	LOGMOR T	LOGMOR F	LOGMOR M	LOGU N	LOGG NI	LOGCH E	LOGHI V	LOGPOP G
Mean	6.442631	5.631404	5.852045	1.9208	8.2532	5.18856	1.3418	0.949471
Median	6.468354	5.630369	5.866673	1.9149	8.0597	5.03385	1.2806	0.995039
Maximum	6.952401	6.152835	6.355429	3.3495	10.266	6.98438	3.1822	1.537923
Minimum	6.026371	5.096434	5.482367	0.6601	6.2916	3.10342	-0.35668	0.113919
Std. Dev.	0.208163	0.225664	0.209112	0.7267	1.0863	1.12044	1.036	0.313953
Skewness	0.095927	-0.129693	0.196932	0.2708	0.1359	-0.03520	0.4052	-0.661870
Kurtosis	2.467436	2.523765	2.288322	2.1557	2.0469	2.05647	2.066	3.391993
Jarque-Bera	1.602164	1.470404	3.308075	5.031	4.9114	4.10299	7.6454	9.529733
Probability	0.448843	0.479409	0.191276	0.0808	0.0858	0.12854	0.0219	0.008524
Sum	773.1158	675.7685	702.2454	230.4	990.39	570.742	161.02	113.9365
Sum Sq. Dev.	5.156487	6.059994	5.203596	62.834	140.42	136.837	127.72	11.72940
Observations	120	120	120	120	120	110	120	120

Source: Computed by author using EViews 8.

From the table above, the mean of total mortality rate total (adult female and male) mortality rate, adult female and mortality rate, adult male are 6.443, 5.631 and 5.852 respectively. Their maximum and minimum values are 6.952, 6.153, 6.355 and 6.026, 5.096, 5.482 respectively. The standard deviation of mortality rate total, mortality rate, adult female and mortality rate, adult male are 0.208, 0.226 and 0.209 respectively. Total mortality rate and male mortality rate are skewed to the right of their mean values since their skewness values are positive meanwhile the female mortality rate is skewed to the left of the mean. The mean value of unemployment rate is 1.921 and the maximum and minimum values are 3.35 and 0.660 respectively and the standard deviation is 0.727. Looking at the skewness we found that unemployment rate is positively skewed implying that it mostly falls to the right of the mean value. The mean of Gross National Income per capita, Current Health Expenditure per capita HIV and Population Growth rate are 8.253, 5.189, 1.342 and 0.949 respectively. Their maximum values are 10.266, 6.984, 3.182 and 1.538 respectively. Also, their minimum values are 6.292, 3.103, -0.357 and 0.114 respectively. Looking at skewness we observe that most of the values of Gross National Income per capita and HIV fall to the right of the distribution since they are positively skewed.

4.2. Unit Root Test

Table 2: The Levin-Lin-Chu Unit Root Test

Variable	Statistics		p-value	ADF regression: lags
	Unadjusted t	Adjusted t*		
Mort	-6.4858***	-4.7276	0.0000	I(0)
Morf	-3.5781**	-1.7865	0.0370	I(0)
Morm	-6.5029***	-4.3408	0.0000	I(0)
Un	-5.9068**	-2.3900	0.0084	I(0)
Gni	-7.5916***	-4.6712	0.0000	I(1)
Che	-6.3183***	-2.7160	0.0033	I(0)
Hiv	-4.0065**	-1.7060	0.0440	I(0)
Popg	-5.1759**	-3.5922	0.0002	I(1)

Note: * = significant at 1%, ** = significant at 5%, * = significant at 10%,

Source: Computed by the author using STATA 12.

Critical values: 1.645 at 10%, 1.96 at 5%, and 2.576 at 1% level of significance.

The Levin-Lin-Chu unit-root test results show that all panels are stable at 5% level of significance at lag (0) except the Gross national income per capita (GNI) and Population Growth Rate (popg) that are stationary at first lag. Thus we can apply the GMM model for the analysis of our data.

4.3. Co-integration Test

Table 3: Co-integration Test for Mortality Rate, Adult Female

Alternative hypothesis: Common AR coefficients. (Within-dimension)

			weighted	
	Statistic	*Probability*	*Statistic*	*Probability*
Panel v-Statistic	*-0.459080*	*0.6769*	*-1.889579*	*0.9706*
Panel rho-Statistic	*3.424673*	*0.9997*	*3.510360*	*0.9998*
Panel PP-Statistic	*-8.556059****	*0.0000*	*-4.400648****	*0.0000*
Panel ADF-Statistic	*-2.735142****	*0.0031*	*-1.747010***	*0.0403*

Alternative hypothesis: common AR coefficients. (Between-dimension)		
	Statistic	*Probability*
Group rho-Statistic	*4.720779*	*1.0000*
Group PP-Statistic	*-9.351880****	*0.0000*
Group ADF-Statistic	*-3.151724****	*0.0008*

Note: *** = significant at 1%, ** = significant at 5%, * = significant at 10%,

Source: Computed by the author using EVIEWS 8.

The results of the Pedroni co-integration test for mortality rate, adult female show that there exist three long-run equilibrium relationship between our variables. Out of the seven statistics of the above test, four are statistically significant (rejection of the null hypothesis of absence of co-integration); two of the within effect and two of the between effects dimensions.

Table 4: Co-integration Test for Mortality Rate, Adult Male				
Alternative hypothesis: common AR coefficients. (Within-dimension)				
			weighted	
	Statistic	Probability	Statistic	Probability
Panel v-Statistic	-0.313227	0.6229	-1.594998	0.9446
Panel rho-Statistic	3.418185	0.9997	2.936382	0.9983
Panel PP-Statistic	-7.527114***	0.0000	-5.697537***	0.0000
Panel ADF-Statistic	-2.625294***	0.0043	-3.350584***	0.0004

Alternative hypothesis: common AR coefficients. (Between-dimension)		
	Statistic	Probability
Group rho-Statistic	4.304707	1.0000
Group PP-Statistic	-9.820348***	0.0000
Group ADF-Statistic	-4.280413***	0.0000

Note: *** = significant at 1%, ** = significant at 5%, * = significant at 10%

Source: Computed by the author using EVIEWS 8.

The results of the Pedroni co-integration test for mortality rate, adult male show that there exist three long-run equilibrium relationship between our variables. Out of the seven statistics of the above test, four are statistically significant (rejection of the null hypothesis of absence of co-integraton); two of the within effect and two of the between effects dimensions.

Table 5: Co-integration Test for Total Mortality Rate.

Alternative hypothesis: common AR coefficients. (Within-dimension)

	Statistic	Probability	weighted	
			Statistic	Probability
Panel v-Statistic	-0.493105	0.6890	-1.515020	0.9351
Panel rho-Statistic	3.437282	0.9997	3.024131	0.9988
Panel PP-Statistic	-7.918482***	0.0000	-6.796309***	0.0000
Panel ADF-Statistic	-2.623698***	0.0043	-3.463372***	0.0003

Alternative hypothesis: common AR coefficients. (Between-dimension)		
	Statistic	*Probability*
Group rho-Statistic	*4.375560*	*1.0000*
Group PP-Statistic	*-10.64695***	*0.0000*
Group ADF-Statistic	*-4.623283***	*0.0000*

Note: * =** significant at 1%, ** = significant at 5%, * = significant at 10%

Source: Computed by the author using EVIEWS 8.

The results of the Pedroni co-integration test for mortality rate, total show that there exist three long-run equilibrium relationship between our variables. Out of the seven statistics of the above test, four are statistically significant (rejection of the null hypothesis of absence of co-integration); two of the within effect and two of the between effects dimensions.

4.4. Regression Results

Sub Saharan Africa

Table 6: Results of Mortality Rate, Adult Female				
Variable	Coefficient	Standard Deviation	t	p-value
Dependent variable				
Mortality rate, female				
(logmorf) L1	1.699***	0.0364493	46.60	0.000
L2	-0.702***	0.0375303	-18.69	0.000
Endogenous variable				
Unemployment rate:	-0.050	0.050986	-0.98	0.349
(logun) L1	0.148*	0.08199	1.80	0.102
L2	-0.102**	0.044874	-2.28	0.046
Exogenous variables				
Gross national income/capita(loggni)	-0.011*	0.0066016	-1.72	0.116
Current health expenditure per capita (logche)	0.017**	0.0072811	2.33	0.042
Hiv prevalence (loghiv)	-0.004	0.0026265	-1.60	0.142
Population Growth rate (logpopg)	0.029***	0.0074098	3.85	0.003
Test for serial autocorrelation				
AR(1)	z = -1.74		P-value = 0.083	
AR(2)	z = -0.93		p-value = 0.355	
Test for over identification of all instrument				
Sargan test	chi2(2) = 1.42		p-value = 0.492	
Hansen test	Chi2(2) = 0.20		p-value = 0.903	
Test for linear hypothesis				
Wald test	F(5, 10) = 26.21		p-value = 0.0000	

Note: * =** significant at 1%, ** = significant at 5%, * = significant at 10%

Source: Computed by the author using STATA 12.

Critical values: 1.645 at 10%, 1.96 at 5%, and 2.576 at 1% level of significance.

The result in table 6 show that there is autocorrelation of the first order of the Arellano-Bond test at 0.1 level of significance. However there is absence of autocorrelation of the second order of the Arellano-Bond test given a

high p-value of 0.355. The p-value associated to both the Sargan test and Hansen test are high and stand at 0.492 and 0.903 respectively, indicating that the instruments are valid. Also the Wald statistics F-test is high and stands at 26.21. These show that the model estimated is globally significant and consequently the results are good for interpretation.

Table 7: Results of Mortality Rate, Adult Male				
Variable	Coefficient	Standard Deviation	t	p-value
Dependent variable				
Mortality rate, male (logmorm) L1	1.788***	0.099	18.11	0.000
L2	-0.785***	0.098	-7.98	0.000
Endogenous variable				
Unemployment rate:	-0.064	0.039	-1.65	0.130
(logun) L1	0.134*	0.068	1.96	0.079
L2	-0.073*	0.036	-2.06	0.067
Exogenous variables				
Gross national income/capita(loggni)	-0.020**	0.008	-2.42	0.036
Current health expenditure per capita (logche)	0.023**	0.01	2.32	0.043
Hiv prevalence (loghiv)	0.0003	0.001	0.31	0.761
Population Growth rate (logpopg)	0.0335***	0.011	3.17	0.010
Test for serial autocorrelation				
AR(1)	z = -2.09		p-value = 0.036	
AR(2)	z = -0.97		p-value = 0.333	
Test for over identification of all instrument				
Sargan test	Chi2(2) = 1.26		p-value = 0.531	
Hansen test	Chi2(2) = 2.46		p-value = 0.292	
Test for linear hypothesis				
Wald test	F(5, 10) = 9.48		p-value = 0.0015	

Note: *** = significant at 1%, ** = significant at 5%, * = significant at 10%

Source: Computed by the author using STATA 12**.**

Critical values: 1.645 at 10%, 1.96 at 5%, and 2.576 at 1% level of significance.

18th RSEP International Economics, Finance & Business Conference – Virtual/Online
26-27 August 2020, Kadir Has University, Istanbul, Turkey

www.rsepconferences.com   **CONFERENCE PROCEEDINGS/FULL PAPERS**   ISBN: 978-605-06961-5-8/September 2020

The result in table 7 show that there is autocorrelation of the first order of the Arellano-Bond test at a 0.05 significantly level. However, the test shows an absence of autocorrelation of the second order given a high p-value of 0.333. The p-value associated to both the Sargan test and Hansen test are high are 0.531 and 0.292 respectively indicating that the instruments used are valid. Also the Wald statistics F-test is high and stands at 9.48. These show that the model estimated is globally significant and consequently the results are good for interpretation.

Table 8: Results of Total Mortality Rate				
Variable	Coefficient	Standard Deviation	t	p-value
Dependent variable				
Mortality rate total				
(logmort) L1	1.750***	0.0718462	24.36	0.000
L2	-0.749***	0.0712826	-10.51	0.000
Endogenous variable				
Unemployment rate:	-0.058	0.0355436	-1.64	0.133
(logun) L1	0.138**	0.0536671	2.58	0.027
L2	-0.085***	0.0256097	-3.31	0.008
Exogenous variables				
Gross national income/capita(loggni)	-0.016***	0.0056202	-2.81	0.019
Current health expenditure per capita (logche)	0.019***	0.0063879	2.93	0.015
Hiv prevalence (loghiv)	-0.0009	0.0015089	-0.58	0.578
Population Growth rate (logpopg)	0.031***	0.0071774	4.25	0.002
Test for serial autocorrelation				
AR(1)	z = -1.84		p-value = 0.066	
AR(2)	z = -1.04		p-value = 0.301	
Test for over identification of all instrument				
Sargan test	Chi2(2) = 1.32		p-value = 0.518	
Hansen test	Chi2(2) = 0.94		p-value = 0.626	
Test for linear hypothesis				
Wald test	F(5, 10) = 10.59		p-value = 0.0010	

Note: * =** Significant at 1%, ** = significant at 5%, * = significant at 10%

Source: Computed by the author using STATA 12.

Critical values: 1.645 at 10%, 1.96 at 5%, and 2.576 at 1% level of significance.

18th RSEP International Economics, Finance & Business Conference – Virtual/Online
26-27 August 2020, Kadir Has University, Istanbul, Turkey

www.rsepconferences.com   **CONFERENCE PROCEEDINGS/FULL PAPERS**   **ISBN: 978-605-06961-5-8/September 2020**

The result contained in table 8 show that there is autocorrelation of the first order of the Arellano-Bond test at a 10% level. However, the test shows an absence of autocorrelation of the second order given a high p-value of 0.301. The p-value associated to both the Sargan test and Hansen test are high with p-values of 0.518 and 0.626 respectively indicating that the instruments are valid. Also the Wald statistics F-test is as high as 10.59. These show that the model estimated is globally significant and consequently the results are good for interpretation.

Middle Income Countries of SSA

Table 9: Results of Total Mortality Rate				
Variable	Coefficient	Standard Deviation	t	p-value
Endogenous variable				
Unemployment rate: (logun)	1.166*	0.651738	1.79	0.117
Exogenous variables				
Gross national income/capita(loggni)	1.285**	0.5287751	2.43	0.045
Current health expenditure per capita (logche)	-0.79	0.6239214	-1.27	0.246
Hiv prevalence (loghiv)	-1.088*	0.6175029	-1.76	0.121
Population Growth rate (logpopg)	-0.82	1.244061	-0.66	0.531
Test for serial autocorrelation				
AR(1)	z = 1.93		p-value = 0.053	
AR(2)	z = 2.04		p-value = 0.042	
Test for over identification of all instrument				
Sargan test	chi2(5) = 387.10		p-value = 0.000	
Hansen test	Chi2(5) = 2.51		p-value = 0.775	
Test for linear hypothesis				
Wald test	F(5, 7) = 637.17		p-value = 0.0000	

Note: *** = Significant at 1%, ** = significant at 5%, * = significant at 10%,

Source: Computed by the author using STATA 12.

Critical values: 1.645 at 10%, 1.96 at 5%, and 2.576 at 1% level of significance.

The result contained in table 9 show that there is autocorrelation of the first and second order of the Arellano-Bond test at 0.1 and 0.05 significance level respectively. The p-value associated to the Sargan test is small indicating over identification of instrument. However, the Hansen test is high (0.775) indicating that the instruments are valid. Also the Wald statistics F-test is very high (637.17). These show that the model estimated is globally significant and consequently the results are good for interpretation.

Low Income Countries of SSA

Table 10: Results of Total Mortality Rate				
Variable	Coefficient	Standard Deviation	t	p-value
Endogenous variable				
Unemployment rate: (logun)	-0.166***	0.011624	-14.30	0.001
Exogenous variables				
Gross national income/capita (loggni)	1.002***	0.0714084	14.03	0.001
Current health expenditure per capita (logche)	-0.847***	0.1080691	-7.84	0.004
Hiv prevalence (loghiv)	0.642**	0.2822785	2.28	0.107
Population Growth rate (logpopg)	2.416***	0.2075409	11.64	0.001
Test for serial autocorrelation				
AR(1)	z = -0.04		p-value = 0.965	
AR(2)	z = -1.31		p-value = 0.190	
Test for over identification of all instrument				
Sargan test	Chi2(5) = 41.94		p-value = 0.000	
Hansen test	Chi2(5) = 0.00		p-value = 1.000	
Test for linear hypothesis				
Wald test	F(2, 3) = 68.13		p-value = 0.0032	

Note: *** = significant at 1%, ** = significant at 5%, * = significant at 10%,

Source: Computed by the author using STATA 12.

Critical values: 1.645 at 10%, 1.96 at 5%, and 2.576 at 1% level of significance.

The result contained in table 10 shows that there is absence of autocorrelation of the first and second order of the Arellano-Bond test since both p-values are high (0.965 and 0.190 respectively). The p-value associated to the Sargan test is small indicating over identification of instrument. However, the Hansen test is high (1.000) indicating that the instruments are valid. Also the Wald statistics F-test is very high (68.13). These show that the model estimated is globally significant and consequently the results are good for interpretation.

4.5. Discussion of Results

Mortality Rate, Adult Female

$LogMorf_{it} = 1.699LogMorf_{it-1} - 0.702LogMorf_{it-2} - 0.050LogUn_{it} + 0.148LogUn_{it-1} - 0.102LogUn_{it-2} - 0.011LogGNIPC_{it} + 0.017LogCHE_{it} - 0.004LogHIV_{it} + 0.029Logpopg_{it}$ *(1)*

18th RSEP International Economics, Finance & Business Conference – Virtual/Online
26-27 August 2020, Kadir Has University, Istanbul, Turkey

www.rsepconferences.com   **CONFERENCE PROCEEDINGS/FULL PAPERS**   **ISBN: 978-605-06961-5-8/September 2020**

In table 6 results show that unemployment rate is statistically significant in lags (1) and (2) at the 0.1 and 0.05 levels. Its p-values are small enough to reject the null hypothesis. But it is the elasticity of unemployment rate at lag 2 that has a good sign. Therefore, a 1% increase in unemployment rate at lag 1 will lead to a 0.148% rise in female mortality rate in SSA. The GNI per capita is statistically significant at the 0.1 level and therefore we reject the null hypothesis and its elasticity as well has a good sign. It is showing that a 1% increase in GNI per capita will lead to a 0.011% fall in female mortality rate. Also, the CHE per capita is statistically significant at the 0.5 level and therefore we reject the null hypothesis but its elasticity does not have a good sign. It is showing that a 1% increase in CHE per capita will lead to a 0.017% rise in female mortality rate. This may be explained by the fact that the main beneficiaries of the increase in CHE per capita for the studied period are the male folk and children.

Also, the HIV prevalence is statistically significant at the 0.1 level and therefore we reject the null hypothesis but its elasticity does not have a good sign. It is showing that a 1% increase in HIV prevalence will lead to a 0.004% fall in female mortality rate. This may be explained by the fact that HIV prevalence has been contained in women as compared to their male counterpart. Moreover, the Population growth rate is statistically significant at the 0.01 level and therefore we reject the null hypothesis but its elasticity does not have a good sign. It is showing that a 1% increase in the Population growth rate will lead to a 0.029% rise in female mortality rate. This may be explained by the fact that as population is growing, the number of women who die also increase since they form a greater proportion of the population growth and total population than their male counterpart.

Mortality Rate, Adult Male
$LogMorm_{it} = 1.788LogMorm_{it-1} - 0.785LogMorm_{it-2} - 0.064LogUn_{it} + 0.134LogUn_{it-1} - 0.073LogUn_{it-2} - 0.020LogGNIPC_{it} + 0.023LogCHE_{it} + 0.0003LogHIV_{it} + 0.033Logpopg_{it}$ *(2)*

In table 7 results show that unemployment rate is statistically significant in lags (1) and (2) at the 0.1 and 0.05 level respectively. Its p-values are small enough to reject the null hypothesis. But it is the elasticity of unemployment rate at lag 1 that has a good sign. Therefore, a 1% increase in unemployment rate at lag 1 will lead to a 0.134% rise in male mortality rate in SSA. The GNI per capita is statistically significant at the 0.5 level and therefore we reject the null hypothesis and its elasticity as well has a good sign. It is showing that a 1% increase in GNI per capita will lead to a 0.020% fall in male mortality rate. The CHE per capita is statistically significant at the 0.5 level and therefore we reject the null hypothesis but its elasticity does not have a good sign. It is showing that a 1% increase in CHE per capita will lead to a 0.023% rise in male mortality rate. This may be explained by the fact that there are few qualified doctors such that the doctor-patient ratio remains low due to the fast growing population.

Conversely, HIV prevalence is insignificant and therefore we reject the null hypothesis but its elasticity has a good sign. It is showing that a 1% increase in HIV prevalence will lead to a 0.004% rise in male mortality rate. The Population growth rate is statistically significant at the 0.01 level and therefore we reject the null hypothesis but its elasticity does not have a good sign. It is showing that a 1% increase in the Population growth rate will lead to a 0.033% rise in male mortality rate. This shows that as the population is fast growing more health challenges are still faced by men.

Total Mortality Rate
$LogMort_{it} = 1.750LogMort_{it-1} - 0.749LogMort_{it-2} - 0.058LogUn_{it} + 0.138LogUn_{it-1} - 0.085LogUn_{it-2} - 0.016LogGNIPC_{it} + 0.019LogCHE_{it} - 0.0009LogHIV_{it} + 0.031Logpopg_{it}$ *(3)*

In table 8 results show that unemployment rate is statistically significant at the first and second lags at 0.5 and 0.01 levels respectively. Its p-values are small enough to reject the null hypothesis. But it is the elasticity of unemployment rate at lag 1 that has a good sign. Therefore, a 1% increase in unemployment rate at lag 1 will lead to a 0.138% rise in mortality rate, total in SSA. The GNI per capita is statistically significant at the 0.05 level and therefore we reject the null hypothesis and its elasticity as well has a good sign. It is showing that a 1% increase in GNI per capita will lead to a 0.016% fall in mortality rate, total. The CHE per capita is statistically significant at the 0.05 level and therefore we reject the null hypothesis but its elasticity does not have a good sign. It is showing that a 1% increase in CHE per capita will lead to a 0.019% rise in mortality rate, total. This

18th RSEP International Economics, Finance & Business Conference – Virtual/Online
26-27 August 2020, Kadir Has University, Istanbul, Turkey

www.rsepconferences.com   **CONFERENCE PROCEEDINGS/FULL PAPERS**   **ISBN: 978-605-06961-5-8/September 2020**

may be explained by the fact that there are few qualified doctors such that the doctor-patient ratio remains low due to the fast growing population.

On the other hand, HIV prevalence is insignificant and therefore we fail to reject the null hypothesis but its elasticity has a good sign. It is showing that a 1% increase in HIV prevalence will lead to a 0.0009% fall in mortality rate, total. The Population growth rate is statistically significant at the 0.01 level and therefore we reject the null hypothesis but its elasticity does not have a good sign. It is showing that a 1% increase in the Population growth rate will lead to a 0.031% rise in mortality rate, total. This shows that as the population is fast growing more health challenges are still faced by men.

Mortality Rate, Total in Middle Income Countries
$$\text{LogMort}_{it} = 1.166\text{LogUn}_{it} + 1.285\text{LogGNIPC}_{it} - 0.79\text{LogCHE}_{it} - 1.088\text{LogHIV}_{it} - 0.82\text{Logpopg}_{it}$$
(4)

In table 9 results show that unemployment rate is statistically significant at 0.1 level. Its p-value is small enough to reject the null hypothesis. Its elasticity equally has a good sign. Therefore, a 1% increase in unemployment rate will lead to a 1.166% rise in mortality rate, total in the middle income countries of SSA. The GNI per capita is statistically significant at the 0.05 level and therefore we reject the null hypothesis and its elasticity does not have a good sign. It is showing that a 1% increase in GNI per capita will lead to a 1.285% rise in mortality rate, total. This may be as a result of the fact that rising GNI per capita may not improve the living standards of citizens due to rising costs of living. Also, the CHE per capita is statistically insignificant and therefore we fail to reject the null hypothesis but its elasticity has a good sign. It is showing that a 1% increase in CHE per capita will lead to a 0.79% fall in mortality rate, total.

HIV prevalence is statistically significant at 0.1 level and therefore we reject the null hypothesis but its elasticity does not have a good sign. It is showing that a 1% increase in HIV prevalence will lead to a 1.088% fall in mortality rate, total. Conversely, the Population growth rate is statistically insignificant and therefore we fail to reject the null hypothesis but its elasticity has a good sign. It is showing that a 1% increase in the Population growth rate will lead to a 0.82% fall in mortality rate, total. This shows that improvement in medical facilities in the middle income countries of SSA has reduced mortality rates and fostered population growth.

Mortality Rate, Total in Low Income Countries
$$\text{LogMort}_{it} = -0.166\text{LogUn}_{it} + 1.002\text{LogGNIPC}_{it} - 0.847\text{LogCHE}_{it} + 0.642\text{LogHIV}_{it} + 2.416\text{Logpopg}_{it}$$
(5)

In table 10 results show that unemployment rate is statistically significant at 0.01 level. Its p-value is small enough to reject the null hypothesis. But its elasticity does not have a good sign. Therefore, a 1% increase in unemployment rate will lead to a 0.166% fall in mortality rate, total in the low income countries of SSA. This might be explained by the fact that when an economy is recovering, incomes are rising and people tend to prefer more leisure to work. The GNI per capita is statistically significant at the 0.01 level and therefore we reject the null hypothesis and its elasticity does not have a good sign. It is showing that a 1% increase in GNI per capita will lead to a 1.002% rise in mortality rate, total. This may be as a result of the fact that rising GNI per capita may not improve the living standards of citizens due to rising costs of living. The CHE per capita is statistically significant at 0.01 level and therefore we reject the null hypothesis and its elasticity has a good sign. It is showing that a 1% increase in CHE per capita will lead to a 0.847% fall in mortality rate, total. HIV prevalence is statistically significant at 0.1 level and therefore we reject the null hypothesis and its elasticity has a good sign. It is showing that a 1% increase in HIV prevalence will lead to a 0.642% rise in mortality rate, total. The Population growth rate is statistically significant at a 0.01 level and therefore we reject the null hypothesis but its elasticity does not have a good sign. It is showing that a 1% increase in the Population growth rate will lead to a 2.416% rise in mortality rate, total. This shows that increase in population in low income countries of SSA has increased the misery hence mortality.

5. Conclusion and Recommendations

Unemployment and health take the center stage of the policy decisions of governments in developed and developing countries in general and SSA in particular given the important role they play in long term economic growth and development. This study was carried out to contribute to the ongoing debated whether job loss, or unemployment shortens people's lives in SSA. For this reason we employed unemployment rate as indicator of job loss and mortality rate as indicator of health. The long run co-integrating relationship between unemployment and mortality rates is estimated using system GMM regression. In other to get robust and stable results, GNI per capita, current health expenditure per capita, HIV prevalence and population growth were used as control variables.

The unit root test results show that all panels are stable at 0.05 level of significance at lag (0) except the Gross national income per capita (GNI) and Population Growth Rate (popg) that are stationary at first lag. The co-integration results show that there is a long run relationship between unemployment rates and mortality rates in SSA.

The estimation results showed that increase in unemployment rates lead to increase in mortality rates aggregately among female and male mortality rate as well as both joint together (total mortality rate) in SSA. In middle income countries it is also statistically significant and positively related to total mortality rates (female and male) in SSA. This is similar to the findings of Adofu and Salami (2018); Hoynes et al. (2012); Brenne (2005), Viren (2005); who also found, in their respective findings that unemployment rates are positively associated with mortality rates. The results also showed that GNI per capita is significant and negatively related to mortality rates across all categories except for middle income countries where it has a positive relationship. This mean GNI per capita is an important determinant of mortality rate. Policy makers here therefore should draw policies that would reduce the skyrocketing unemployment rates. This could be done by creating a business friendly environment to encourage investment, thus a rise in employment and GNI per capita. To maintain a low level of unemployment rate, actions to undertake have to be based on the better functioning of the labour market, a better flexibility of markets, a health insurance cover and limiting incitements which depress economic activities.

Current health expenditure and population growth rates are positively related to female and male mortality rate as well as both joint together (total mortality rate) in SSA. Again an increase in Hiv prevalence leads to a fall in female mortality rate but a rise in male mortality rate. This may be because the health expenditure is mostly public expenditure and because of low incomes individuals are unable to afford for better healthcare. Policy makers should intensify policies that aim at encouraging income yielding activities that could enable individuals raise incomes and pay for better healthcare. Also sensitization should be done on family planning to control the exponential growth in population.

Furthermore, evaluating the relationship between unemployment rates and mortality rates in low income countries, the result rather showed that an increase in unemployment rates leads to increase in mortality rates aggregately. This result is similar to that of Ionides et al. (2013), Grenados (2005), Ruhn (2000) who also found that an increase in the unemployment rate is associated with a decrease in the overall mortality rate. Again, in the low income countries, GNI per capita is found to be negatively associated to mortality. This is because the distribution of wealth within each country can also affects mortality rates, not simply the overall wealth of countries.

Area for Further Studies

Given that no research work is perfect we wish the area of study would be enlarged by including all the countries of SSA in the study samples. Also incomes levels and educational level can be included in the model to verify if they affect mortality positively or negatively for both female and male.

References

Adofu, I. Salami, A. (2018), "Unemployment and Mortality Rates in Nigeria: A cointegration approach." Department of Economics, Federal University Lafia. *Lafia Journal of Economics and Management Sciences, Vol 3, No 2. December 2018.*

Brenner, M. H. (2005), "Commentary: Economic growth is the basis of mortality rate decline in the 20th century experience of the United States 1901–2000." *International Journal of Epidemiology*; 34:1214–1221.

Brenner, M. H. (1984), "Estimating the Effects of Economic Change on National Health and Social Well Being." Joint Economic Committee of the US Congress, US Government Printing Office, Washington DC, 1984.

Brenner, M. H. (1976), "Estimating the Social Costs of National Economic Policy: Implications for Mental and Physical Health and Criminal Aggression." Washington, DC: US Government Printing Office.

Brenner, M. H. (1973), "Mental Illness and the Economy." Cambridge MA: Harvard University Press, 1973

Choi, I. (1999), "Unit Root Tests for Panel Data." Korea: Manuscript of Kookmin University.

Crost, B. and Friedson, A. (2015), "Recessions and Health Revisited: New Findings for Working Age Adults."

Granados, J. A. (2005). "Increasing mortality during the expansions of the US economy, 1990–1996." *International Journal of Epidemiology; 34:1194–1202.*

Granados, T. J. A. (2008), "Macroeconomic fluctuations and mortality in postwar Japan." Demography, 45, 323-343.

Gravelle, H. S. E. Hutchinson, G. Stern, J. (1981), "Mortality and unemployment: a critique of Brenner's time series analysis." The Lancet; ii: 675-9.

Hanisch, K. A. (1999), "Job loss and Unemployment Research from 1994 to 1998: a review and recommendations for research and intervention." *Journal of vocational behaviour, 55:188 to 220.*

Hongbin, Haijuang, Jie Wang, Zhijuan, Jianming. (2016), "Relationship among gross domestic product per capita, government health expenditure per capita and infant mortality rate in China." Biomedical research (2017) Vol 28, Issue 6.

Hoynes, Hillary, W. Douglas, L. Miller, and Schaller, J. (2012), "Who suffers during recession?" NBER Working Paper17951.

Im, K. S. Pesaran, M. H. and Shin, Y. (1997), "Testing for Unit Roots in Heterogeneous Panels." Cambridge: University of Cambridge.

Ionides, E. L. Wang, Z. and Granados, J. A. (2013), "Macroeconomic effects on mortality revealed by panel analysis with nonlinear trends." Ann Appl Stat. 2013; 7(3):1362–1385.

Jacob, J. (2011), "Top five reasons for high unemployment in the US." Retrieved from;http://www.ibtimes.com/articles/110575/20110209/US-JOBS-unemployment-top-five-reasons.htm.

Jahoda, M. (1981), "Work, employment, and unemployment: Values, theories, and approaches in social research." American Psychologist. 1981; 36(2):184-91.

Jahoda, M. (1982), "Employment and Unemployment: A Social-Psychological Analysis, the Psychology of Social Issues." Cambridge University Press.

Jane, Griffin. (1993), "Briefing the impact of unemployment on health" Office of Health Economics. 12 Whitehall London SW1A 2DY. No 29 July 1993.

Kossoris, M. D. (1939). "Industrial injuries and the business cycle." Monthly Labor Rev.; 46(3):575–579.

Levin, A. Lin, C. F. and Chu, C. S. J. (2002), *"*Unit Root Tests in Panel Data: Asymptotic and Finite Sample Properties." *Journal of Econometrics, 108, 1-22.*

Marmot, M. G. Kogevinas, M. A. Elston, M. (1987), "Social/Economic Status and Disease." Ann Rev Public Health, 8; 111-35, 1987.

Marmot, M. G. Theorell, T. (1988), "Social Class and Cardiovascular Disease: The Contribution of Work." *International Journal Health Science, 18(4): 659-74, 1988.*

Miller, Douglas, L. Page, M. Stevens, A. F. and Filipski, M. (2009), "Why are recessions good for your health?" American Economic Review, American Economic Association, 99(2), pages 122-27.

Morin, S. (2009), "Business cycles and health: how the level of development of a country affects the relationship between the strength of its economy and the health of its population."

Neumayer, E. (2004), "Recessions lower (some) mortality rates: evidence from Germany." Social Science & Medicine, Elsevier, vol. 58(6), pages 1037-1047.

Preston, S. H. (2007), "The changing relation between mortality and level of economic development." *International Journal of Epidemiology 36: 484-490.*

Pritchett, l. and L. H. Summers, (1996), "Wealthier is Healthier." *The Journal of Human Resources, 31 (4): 841-868.*

Ruhm, C. J. (2000). "Are recessions good for your health?" *Quarterly Journal of Economics. ; 115(2):617–650.*

Sullivan, D. and Wachter, T. (2009), "Job displacement and mortality: an analysis using administrative data." *Quarterly Journal of Economics; 124(3): 1265–1306.*

Tejvan, P. (2017), "Reasons for Youth Unemployment." Retrieved fromhttp//www.economicshelp.org/blog/517/economics/reasons-fot-youth-unemployment/

Wanberg, C. R. (2012), "The Individual Experience of Unemployment." Annual Review of Psychology, 63: 369-396.

Warr, P. B. Parry, G. (1982), "Paid employment and women's psychological wellbeing." Psychol. Bull. 1982; 91: 498-516.

Warr, P. B. (1987), "Work, unemployment and mental health." Oxford Science Publications, 1987.

WHO, 2019. "The African Regional Health Report: The Health of the People" Bulletin Volume 97, May 2019.

Economic and Financial Crime in Romania in the Context of European Countries

Monica Violeta Achim
Prof., Babeş-Bolyai University, Romania

Sorin Nicolae Borlea
Prof., 'Vasile Goldis' Western University of Arad & University of Oradea, Romania

Gabriela Monica Miron
PhD candidate, Babeş-Bolyai University, Romania.

Iulia Brici
PhD candidate, Babeş-Bolyai University, Romania
iulia.brici@econ.ubbcluj.ro

Abstract

In this paper we propose to make a theoretical and practical analysis of the phenomenon of economic and financial crime in European countries. In particular, we turn our attention to the impact of this phenomenon in Romania. In order to realize this analysis on Europe, we used data on economic and financial crime for 45 European countries, the analysis period we referred to being 2005-2020. The results of the study concluded that the highest level of economic and financial crime is found in Southern Europe, as well as in Central and Eastern Europe. The lowest level of this phenomenon is presented by the countries of Northern Europe.

Keywords: Economic and financial crime, corruption, fraud, money laundering, tax evasion.
JEL codes: D73, H2

1. Introduction

Economic and financial crime has many destructive effects (economic-financial effects, social effects and political effects). Specialized studies reflect the negative impact of corruption on the efficiency of fiscal policy (Fjeldstad 1996, 2003; Kaufman, 2010; Ivanyna et al. 2010). In this regard, Kaufman (2010) found that corruption reduces tax revenues, increases public spending, and affects productivity, competitiveness and economic growth. In the same view, Ivanyna et al. (2010) find that an increase in the level of corruption leads to a decrease in state revenues and impedes economic growthIn addition, economic and financial crime has a negative effect on economic development, being an impediment to increasing investments (Mauro, 1995; Paldam, 2001,2002), absorption of European funds (Achim and Borlea, 2015), business development and performance (De Rosa et al., 2010; Achim, 2017), and finally, economic growth (World Bank, 2009). In the same view, the study of Hoinaru et al. (2020) conducted on 185 countries for the 2005–2015 time period, finds that corruption and shadow economy are poverty-driven diseases and they highly characterize low-income countries. Thus, they find that higher levels of corruption and shadow economy are correlated with lower levels of economic and sustainable development. As far as money laundering crimes are concerned, they can hinder the purpose of investments and thus lead to reduced productivity. Money laundered, other than those engaged in financial flows, are placed in the so-called "sterile investments" (Jurj-Todoran and Şaguna, 2016, p. 435) consisting of real estate, art objects or luxury goods. These investments do not create added value for the economy, but their purpose is rather to "dodge the control and detection of money derived from crime" (Jurj-Todoran and Şaguna, 2016, p 435).

Knowing these negative repercussions of the economic and financial crime, in this paper we propose a theoretical and practical analysis of this phenomenon in European countries with reference to the situation in Romania. For this purpose we used data on economic and financial crime for 45 European countries, the analysis period being 2005-2020. Our results highlighted the fact that the countries with the highest levels of economic

18th RSEP International Economics, Finance & Business Conference – Virtual/Online
26-27 August 2020, Kadir Has University, Istanbul, Turkey

www.rsepconferences.com **CONFERENCE PROCEEDINGS/FULL PAPERS** **ISBN: 978-605-06961-5-8/September 2020**

and financial crime are those in Southern Europe, as well as in Central and Eastern Europe. The lowest level of this phenomenon is presented by the countries of Northern Europe.

The remainder of the paper is organized as follows: Section 2 highlights the literature review regarding the concept of economic and financial crime. Section 3 describes the methodology, data and variables. Section 4 presents the results of our analysis, summarizes and discusses our findings. Section 5 provides the conclusions and a brief discussion of policy implications, limitations and avenues for future research.

2. Literature review

At international level, there is no common definition given to all the states, regarding the economic and financial crime (Leția, 2014, p. 13), but in practice, this concept is associated to numerous deeds such as corruption, theft, cheating, embezzlement, data distortion, electronic fraud, forgery, counterfeiting, data and document cover up and destruction, money laundering, tax evasion, crimes regarding the accounting books, faked offers at public acquisitions tender etc.

The fact there is neither legally nor didactically is any unitar definition explained in the light of the continuous evolution of the technical means which result in extremely different ways of manifestation of such activities.

According with US legal (2020) the economic crime represents "the illegal acts committed by an individual or a group of individuals to obtain a financial or professional advantage. In such crimes, the offender's principal motive is economic gain. Cyber crimes, tax evasion, robbery, selling of controlled substances, and abuses of economic aid are all examples of economic crimes."

The economic and financial crime consists of the "asses missapropriation, bribery and corruption, accounting and tax fraud, cybercrime, procurement fraud" and "it represents a persistent threat to business and business process" (PricewaterhouseCoopers, 2016, p. 4);

⇒ According to the Cambridge Dictionary (2020) the concept of "criminality" means illegal activities or behaviour;

⇒ The economic and financial crime includes "the crimes provided by the special laws with dispositions belonging to the business criminal law, refers to the competition, commercial societies intellectual property, money laundering, banking regime, securities, tax evasion, accountancy regime, customs procedure, public authority, lands etc." (Pantea, 2010);

⇒ The economic and financial crime represents "all those forms of non-violent crime causing a financial loss" (Leția 2014, p. 14);

⇒ The economic and financial crime represents a breach of trust exploiting the good faith of participants at the economic life, the apparent credibility and stability of the financial, commercial, banking circuit of documents etc. (Leția, 2014, p. 14);

⇒ The economic and financial crime, called also "business crime", is defined as the total unlawful acts and deeds committed by individuals, associations, societies or organizations in relation with the progress of some businesses or financial, banking, customs, commercial transactions using the cheating, fraud, breach of trust, forgery of turnovers, money laundering, fraudulent bankruptcy, tax evasion, insurance policies etc. (Aniței and Lazăr, 2016, p 15);

⇒ The economic and financial crime is defined by the identification of the features common to deeds circumscribed in this notion, respectively:

i) WHERE? – their committing under the economic, business and financial life, either private or public;

ii) HOW? – using the means and methods which do not call on force or psychiatric violence – cheating, forgery, counterfeiting, corruption, exploitation of commercial secrets, of personal data;

iii) WHO? - by persons who have knowledge in the economic, commercial or financial field;

iv) GOAL? - with the goal of accumulating profit, economic domination, saving of economic entities in difficult condition (processing based on Queloz 2002 quoted by Leția 2014, p. 14).

According with Achim and Borlea (2020) t*he economic and financial crime is specific for the businesses and could occur as business crimes such as corruption, fraud, tax evasion, money laundering etc.* Also, the illegal business such as prostitution, gambling, smuggling drugs or human beings trade, etc., produce (or intermediate) the obtaining of *economic and financial benefits* for certain stakeholders, therefore these crimes could be also included in the definition of the economic and financial crime.

3. Methodology

In order to measure economic and financial crime as a whole we follow the metodology used by Achim and Borlea (2020, p.38-40). Thus, following the purpose of measuring it, Achim and Borlea start with the main three components of the economic and financial crime namely corruption, shadow economy and money laundering. In order to measure these three phenomena the following data are used:

a. Regarding corruption (C) we use the Corruption Perception Index, which aggregates data from different surveys on the perception of corruption registered in the public sector in different countries of the world. This index is drawn up annually on a scale from 0 (meaning very corrupt), to 100 (meaning very clean), for a number of 180 countries, starting from 1995.

b. Regarding the shadow economy (S) we use the database elaborated by Schneider (Medina and Schneider, 2019), in which the size of shadow economy is calculated as a percentage of the official GDP, for a number of 158 countries, starting from 1991.

c. Regarding money laundering (L), we use the Basel AML (Basel Anti-Money Laundering Index), which measures the risk of money laundering and terrorist financing in over 129 countries around the world. The Basel AML score is calculated starting from 2012.

Further, because all these three indexes contain data measured through different methods we use their standardized values in order to obtain homogenous data that would be subject to aggregation. Then, an *economic and financial crime index (CSL)* is built as an arithmetic average score of these main categories of economic and financial crime (corruption-C, shadow economy-S and money laundering-L (Achim and Borlea 2020, p. 38-40). Thus, the economic and financial crime score (CSL) ranges between level 0, reflecting the lowest size of economic and financial crime and level 1, reflecting the highest size of economic and financial crime. This type of score is used to quantify the level of economic and financial crime specific to a particular country. Also, with the help of this method, comparative analyzes can be performed between states.

The study is conducted on 45 european contries (whose description is made in the Appendix) and the whole period of analysis is 2005-2020. In order to obtain the economic and financial crime index where some data were missing, they were estimated based on neighboring values.

4. Results and discussion

4.1. Corruption

Graph 1 represents the evolution, in terms of corruption, of the 45 countries analyzed, the data being aggregated for the period 2005-2020.

Following the revision of the data in Graph 1, we can observe that the number 1 in this top is taken by Russia, which, for the analyzed period, faces the highest level of corruption in the public sector among the analyzed countries. Very high levels of corruption are also found in Azerbaijan, Ukraine and Belarus. Romania has a level of 68.8, compared to the maximum value reached by Russia, of 135.7. We can also observe, registering the

lowest level of corruption in the group of countries analyzed, the countries of the North, respectively Denmark, Finland, Sweden, Norway and the Netherlands.

Graph 1. Corruption in the group of the 45 countries, 2005-2020
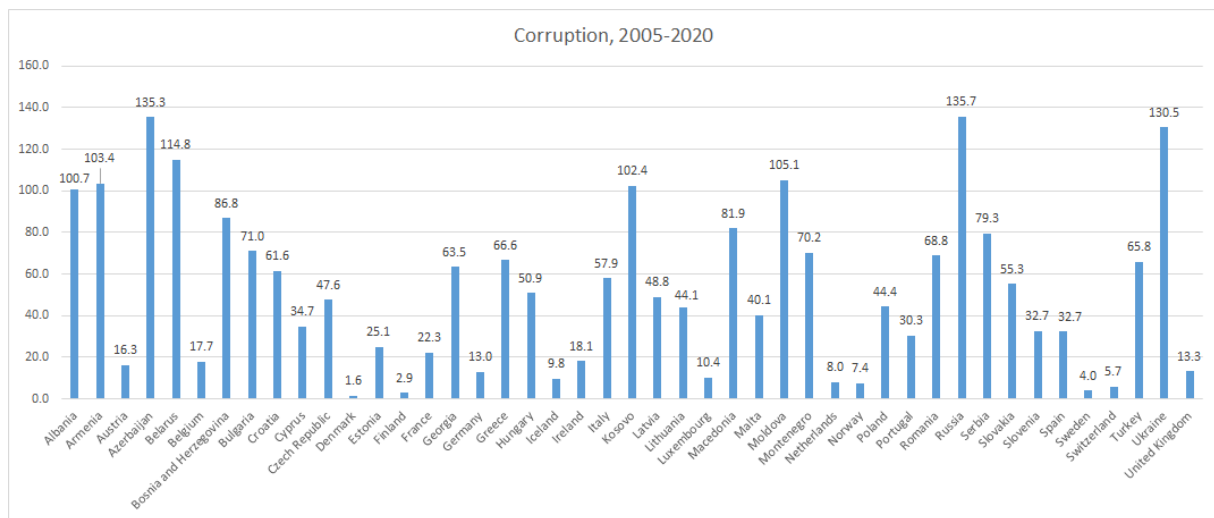
Source: own processing

4.2. Shadow economy

Graph 2 shows the evolution of the shadow economy in the 45 countries analyzed, as an aggregate average for the period 2005-2020.

Graph 2. Shadow economy (% in GDP) in the group of the 45 countries, 2005-2020
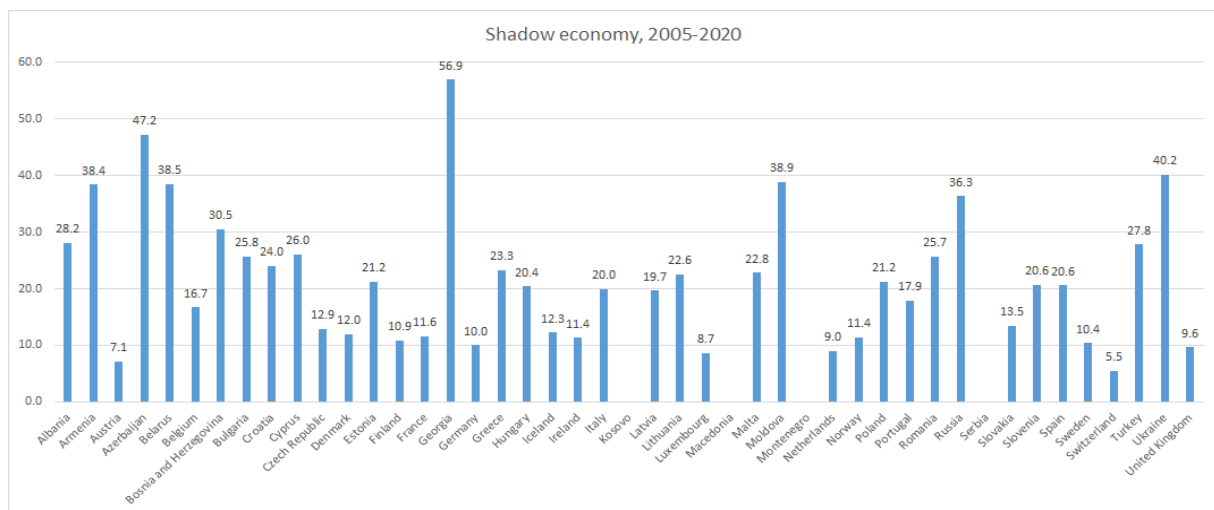
Source: own processing

The results obtained reflect the fact that the highest levels of shadow economy are found in Georgia (56.9%), Azerbaijan (47.2%) and Ukraine (40.2%). The countries in Southern Europe and Central and Eastern Europe follow with a rather high percentage. The countries of Western Europe indicate the lowest level of the shadow economy, followed by the countries of Northern Europe. The lowest percentage is found in Switzerland (5.5%).

18th RSEP International Economics, Finance & Business Conference – Virtual/Online
26-27 August 2020, Kadir Has University, Istanbul, Turkey

www.rsepconferences.com   **CONFERENCE PROCEEDINGS/FULL PAPERS**   **ISBN: 978-605-06961-5-8/September 2020**

The causes of this areal division, at the level of the 45 countries, are of economic, political or legal nature (economic growth rate, institutional quality, quality of regulation, fiscal pressure), but also of social and cultural nature (culture, fiscal morality, religion, etc.).

4.3. Money laundering

Graph 3 shows that the highest money laundering risks are in Ukraine, Turkey, Russia, while the lowest money laundering risks are in Finland, Estonia, Slovenia, Lithuania and Bulgaria. Romania occupies a middle to risky position in the top of countries classified according to the risk of money laundering.

Graph 3. Anti-money landering index for the group of the 45 countries, 2005-2020
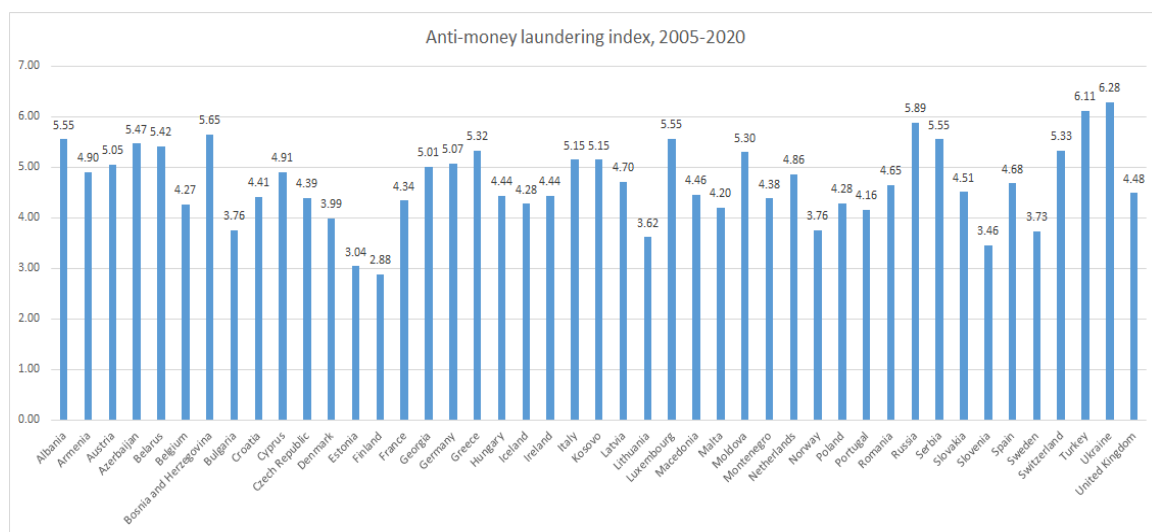

Source: own processing

Our results correspond to those of the study made by the European Commission (2013) in the ECOLEF Project (2013, p.13), which also concludes that in Luxembourg, the United Kingdom and other Western European countries the highest levels have been identified. higher levels of money laundering. The reasons for these values could be represented by the high rate of financial market sophistication, economic growth reflected as GDP / capita, but also cultural influences.

4.4. Economic and financial crime

Graph 4 shows the evolution in terms of economic and financial crime, of the 45 countries studied during the period 2005-2020. This score is an average of the other three components analyzed above: corruption, shadow economy and money laundering.

18th RSEP International Economics, Finance & Business Conference – Virtual/Online
26-27 August 2020, Kadir Has University, Istanbul, Turkey

www.rsepconferences.com   **CONFERENCE PROCEEDINGS/FULL PAPERS**   ISBN: 978-605-06961-5-8/September 2020

Graph 4. Economic and financial crime, in the group of the 45 countries, 2005-2020
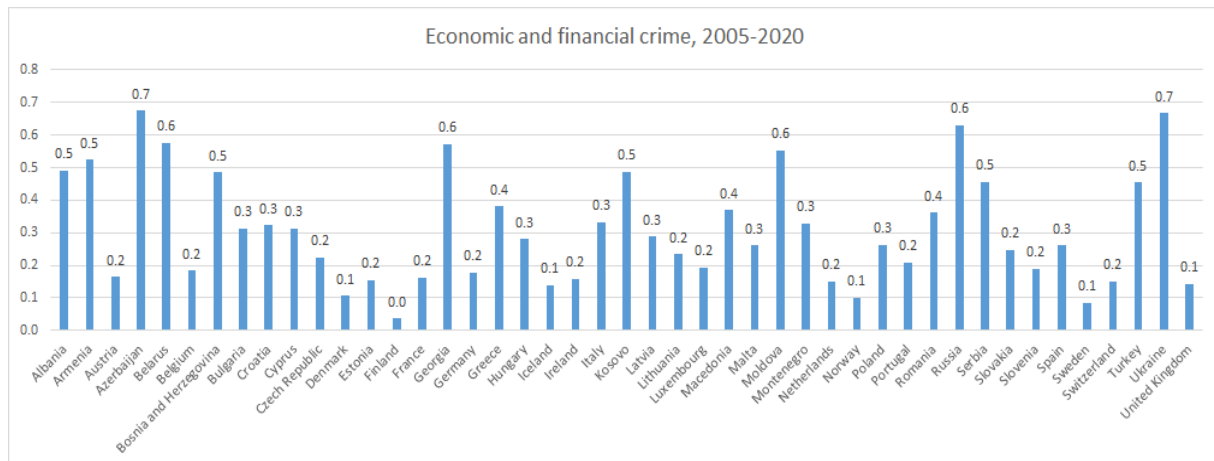
Source: own processing

The results show that the highest levels of economic and financial crime are found in Azerbaijan (0.7), Ukraine (0.7), Georgia (0.6) and Russia (0.6). These are followed by countries from Central and Eastern Europe. The lowest levels are held by the countries of Western and Northern Europe. We notice that the results obtained at the level of each component of this index correspond when we do the aggregation in a single result.

4.5 Economic and financial crime – a short focus on Romania

Moving our attention to Romania, we will make a brief study of economic and financial crime by components, and then as a phenomenon that integrates all these, similar to the study for the group of 45 countries, referring to the period 2005-2020.

Corruption in Romania

In graph 5, we can see represented the evolution of corruption in Romania between 2005 and 2020. The corruption indicator reached values in the range of 55-85 in Romania, in the period 2005-2020. The lowest value appears in 2016, and the highest value in 2005. Overall, we can notice a decrease in the impact of this phenomenon, with a single considerable upward slope related to 2011, after which the values follow a decreasing trend.

18th RSEP International Economics, Finance & Business Conference – Virtual/Online
26-27 August 2020, Kadir Has University, Istanbul, Turkey

www.rsepconferences.com   **CONFERENCE PROCEEDINGS/FULL PAPERS**   ISBN: 978-605-06961-5-8/September 2020

Graph 5. Corruption in Romania, 2005-2020
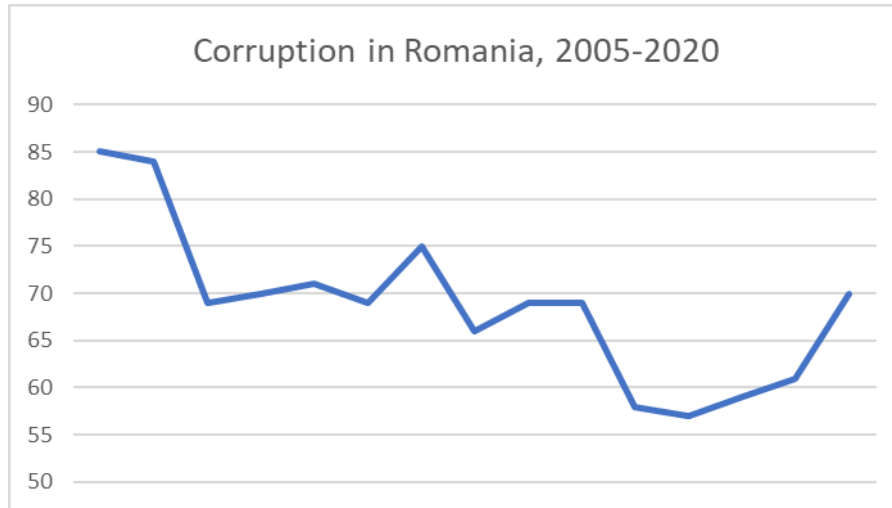
Source: own processing

Shadow economy in Romania

Graph 6 shows the evolution of the shadow economy in Romania in the period 2005-2020. As in the case of the study for the group of 45 countries, this indicator is calculated as a percentage of GDP.

Graph 6. Shadow economy in Romania, 2005-2020

Source: own processing

As a percentage of Romania's GDP, the shadow economy has values between 20% and 32%. The lowest percentage is achieved in 2017, and the highest values are related to the first years of analysis. As in the case of corruption, the shadow economy is following a downward trend overall, but with a visible growth in 2009.

18th RSEP International Economics, Finance & Business Conference – Virtual/Online
26-27 August 2020, Kadir Has University, Istanbul, Turkey

www.rsepconferences.com   **CONFERENCE PROCEEDINGS/FULL PAPERS**   ISBN: 978-605-06961-5-8/September 2020

Money laundering in Romania

In graph 7 we find the evolution of the anti-money laundering index for Romania, corresponding to the period 2005-2020.

Graph 7. Money laundering in Romania, 2005-2020

Source: own processing

In the period 2005-2020, the anti-money laudering index values between 4 and 5. The trend is volatile, because in the first years of analysis we have higher values, and in the period 2016-2017 we will see a decrease in the values of the index. From 2018 until now, the values follow an upward trend.

5. Economic and financial crime in Romania

The economic and financial crime in Romania in the period 2005-2020 is obtained by compiling three components: corruption, shadow economy and money laundering. As we already have specified in the methodology section, the economic and financial crime index (CSL) is represented by the arithmetic average of these main categories of economic and financial crime. The value we obtain is 0.4, being below the middle of the safety interval, so it means Romania is located on an optimistic scale. Its evolution totally depends on the evolution of the other three components.

In order to highlight the evolution of economic and financial crime in Romania, we present below in Table 1 a statistic of the damages caused on 17 fields of activity, from 2011 to 2019. In this way it is possible to identify the area in which the most damages from various economic and financial crimes have occurred.

Table 1. Economic and financial prejudices on 17 fields of activity, 2011-2019

Domain	Prejudice (in thousands of lei)								
	2011	2012	2013	2014	2015	2016	2017	2018	2019
Public administration and budgetary institutions, education, culture, sports, etc.	68,589.40	37,832.90	94,135.67	97,975.23	34,140.53	20,527.05	55,824.21	16,064.21	20,306.23
Health, public acquisitions	20238.3	32,222.60	59,579.15	11,122.18	7,320.48	19,139.53	3,643.20	2,030.67	1,055.11
Labor protection	100,865.97	41,805.87	92,131.48	42,028.75	26,302.06	71,454.08	15,483.71	10,859.66	5,648.81
Customs fraud	198,670.70	166,892.78	47,923.15	70,670.91	267,499.98	21,267.47	13,264.38	8,285.46	9,194.42
Tourism	144,829.66	67,028.91	54,838.04	39,993.06	7,809.02	6,807.35	5,074.97	4,342.11	8,110.02
Financial crime, crimes in the field of credit institutions, financial leasing, reinsurance insurance	138,694.69	206,945.40	247,186.25	110,610.10	247,299.43	228,486.03	285,187.85	245,898.06	257,378.84
Agriculture and land	264,183.69	159,516.60	132,527.74	75,965.43	77,414.96	69,164.91	41,195.23	52,631.89	53,472.32
Food industry	372,703.00	369,664.60	164,919.57	115,744.35	130,927.23	148,747.83	111,546.96	58,300.15	41,141.45
Gambling	7,936.08	3,181.59	11,406.47	9,964.82	9,476.08	8,382.06	7,185.50	4,109.10	11,414.45
Construction	119,960.47	124,806.29	285,914.03	187,067.92	270,114.46	182,466.56	285,652.64	191,344.31	168,335.06
Recyclable materials	39,159.69	44,840.87	97,854.11	12,387.21	83,304.06	163,951.63	119,883.40	130,825.30	94,522.84
Environment protection	32,033.96	4,878.09	5,331.56	2,110.75	1,350.26	12,196.92	5,154.47	12,970.96	495.10
Forestry	17,830.07	18,016.97	19,279.24	18,571.60	13,104.06	34,241.35	17,487.72	7,296.15	7,536.96
Alcohol	9,230.30	13,019.27	29,367.41	32,462.25	27,346.00	18,479.30	2,400.15	4,182.31	3,106.93
Tobacco	224,184.24	31,911.07	21,662.73	7,241.11	20,018.82	20,292.57	12,548.85	14,272.10	17,792.44
Energy products fraud in the regime of excisable products	95,795.68	68,884.80	52,650.49	47,396.24	31,496.83	37,087.78	42,316.68	31,432.84	58,284.20
Transport, road infrastructure	19,802.22	44,395.72	71,351.56	42028.75	101,659.10	83,925.73	80,688.41	63117.85	76030.49

Source: own processing

We can observe great damages in several areas. By making an average of the period for each of the 17 domains, on the first place of the ranking we can find the domain of financial crimes, crimes in the field of credit institutions, financial leasing, reinsurance insurance. In the last place is the field of gambling.

According to a study developed by Novel Research (Transilvania-Business Magazine, 2019) at the end of 2018, the share of recovering the damages in the field of tobacco, forestry, health-public acquisitions is the most significant.

In terms of forestry, the wood is no longer stolen at a low level, now the theft is made through fraudulent operations, generally with crimes of corruption, tax evasion and money laundering, to turn a blind eye to flagrant illegalities in the field of logging in Romania.

In the field of tobacco, forestry, health, public acquisitions, the goods relevant for the judicial authority to take precautionary measures as early as possible in the criminal investigation phase have been identified, which is a guarantee that they will not be alienated or destroyed, that the state or institutions injured parties will be able to recover the damages caused in the event of a final conviction decision and that the convicted persons will be deprived of the illegally acquired property. At the opposite pole are customs fraud and the field of gambling.

As an evolution of the damage, in the field of gambling, there is a discrepancy between the damage found and the recovered one. The existing discrepancy is due to the fact that no movable or immovable property belonging to legal or de facto entities or persons carrying out such operations has been identified. Thus, the institution of the insurance seizure or the measure of seizure on the amounts of money from their bank accounts, does not cover the damage.

A similar behavior is valid in the case of the evolution of damages in the field of recyclable materials and customs fraud, there are many situations in which those who commit criminal acts do not own goods in their name or have not been identified goods that may be subject to special or extended confiscation, or which may serve to guarantee recovery of the damage caused by the offense.

6. Conclusions

In order to outline a final conclusion of our study, we will highlight the fact that in the analysis of the group of 45 countries, both in the case of corruption and the shadow economy and money laundering, but also in economic and financial crime, as a phenomenon, the highest values can be found in the countries of southern Europe, but also in central and eastern Europe. At the opposite pole are the western countries, but especially the

18th RSEP International Economics, Finance & Business Conference – Virtual/Online
26-27 August 2020, Kadir Has University, Istanbul, Turkey

www.rsepconferences.com   **CONFERENCE PROCEEDINGS/FULL PAPERS**   **ISBN: 978-605-06961-5-8/September 2020**

northern countries. This outcome was exactly as we expected, knowing numerous cultural, political or social factors that create discrepancies between these areas.

Regarding the study on Romania, economic and financial crime is at an acceptable level, but this should not make us happy. On the contrary, we must pay attention to the changes that technological progress produces and what impact it can have on economy and finance. This topic is of current interest, not only for Romania, and is certainly a future direction of research that we will follow.

References

Achim, M.V., Borlea, N.S. (2020). Economic and financial crime. Corruption, shadow economy, and money laundering. Springer Nature Switzerland AG.

Achim M.V., Borlea N.S. (2015). Determinants of the European funds absorption 2007-2013 in European Union members states, Proceeding of WEI International Academic Conference in Viena, Austria,12-15 April 2015, 174-188.

Achim, M.V.(2017), Corruption, income and business development, Journal for International Business and Entrepreneurship Development, 10(1), 85-100.

Aniţei, N.C., & Lazăr, R.E. (2016). Evaziunea fiscală între legalitate și infracțiune (The tax evasion between legality and crime). Universul Juridic Publishing House, Bucharest.

Basel Institute on Governance (2020). Basel AML Index. Available at https://index.baselgovernance.org/start_index, accessed on 20 September 2020.

Cambridge Dictionary (2020). Cambridge University Press.

De Rosa, D.,Gooroochurn, N. and Gorg, H. (2010),Corruption and productivity: firm-level evidence from the BEEPS Survey. Policy Research Working Paper, World Bank, 5348.

Fjeldstad, O.H. (1996), Tax evasion and corruption in local governments in Tanzania: Alternative economic approaches. Working Paper 14, Chr. Michelsen Institute.

Fjeldstad, O.H. (2003), Fighting fiscal corruption: Lessons from the Tanzania revenue authority. Public Administration and development, 23, 165–175.

Kaufman, D. (2010). Can Corruption Adversely Affect Public Finances in Industrialized Countries?, April 19, Washington. Available at https://www.brookings.edu/opinions/can-corruption-adversely-affect-public-finances-in-industrialized-countries/, accessed on March 2017.

Ivanyna M., Moumouras, A., and Rangazas, P. (2010). The culture of corruption, tax evasion, and optimal tax policy. Available at http://www2.warwick.ac.uk/fac/soc/ economics/events/seminars-workshops-conferences/conferences/mysore/programme/ivanyna.pdf.

Jurj-Tudoran, R. and Șaguna, D.D (2016). Spălarea banilor (Money laundering), Ch. Beck Publishing House, Bucharest.

Leția, A.A. (2014). Investigarea criminalității de afaceri (Investigating business crime), Universul Juridic Publishing House, Bucharest.

Queloz (2002), Criminalité économique et criminalité organisée, L'Économie politique 2002/3 (nº 15), 58- 67.

Hoinaru, R., Buda, D. 2, Borlea N.S.,Vaidean, V.L. and Achim, M.V., (2020), The Impact of Corruption and Shadow Economy on the Economic and Sustainable Development. Do They "Sand the Wheels" or "Grease the Wheels"?, *Sustainability* 2020, *12*, 481; doi:10.3390/su12020481.

Mauro, P. (1995). Corruption and Growth, *The Quarterly Journal of Economics*, 110 (3), 681-712.

Medina, L., & Schneider, F. (2019). Shedding Light on the Shadow Economy: A Global Database and the Interaction with the Official One, Cesifo Working paper 7981-2019.

Paldam, M. (2001). Corruption and religion. Adding to the economic model. *Kyklos,* 54, 383–414.

Paldam, M. (2002). The big pattern of corruption: economics, culture and the see saw dynamics, *European Journal of Political Economy*, 18, 215–240.

Pantea, M. (2010). Investigarea criminalității economico-financiare (Investigation of economic-financial crime). Pro Universitaria Publishing House Bucharest.

PricewaterhouseCoopers (2016). *Global Economic Crime Survey 2016.* Available at https://ec.europa.eu/home-affairs/sites/homeaffairs/files/what-we-do/policies/organized-crime-and-human-trafficking/corruption/experience-sharing-programme/docs/o.iskit-global-economic-crime-survey_en.pdf, accessed on 16th March 2019.

US Legal (2020). *Economic Crime Law and Legal Definition*. Available at https://definitions.uslegal.com/e/economic-crime/, accessed on 15 July 2020.

Transparency International (2020). Corruption Perception Index.

World Bank (2009) *Anticorruption*, Washington, DC.

Appendix:

The list of european countries considered in our study is: Albania, Armenia, Austria, Azerbaijan, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iceland, Ireland, Italy, Kosovo, Latvia, Lithuania, Luxembourg, Macedonia, Malta, Moldova, Montenegro, Netherlands, Norway, Poland, Portugal, Romania, Russia, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine, United Kingdom

The Rationale and Ethics behind Non-Profit Organizations Being Exempt from Tax

Nida Turegun
Dr, Ozyegin University, Turkey
nida.turegun@ozyegin.edu.tr

Abstract

The current research paper is prepared to explain the rationale and ethics behind the tax exemption of non-profit organizations. The main purpose of this paper is to explore the understanding of such exemption discussed in various studies. The topic is interesting and attractive to find out the reasons for tax exemption for a non-profit organization to realize its importance. The requirement is to find out the reasons from relevant literature to ensure completeness in this research paper. The overall findings in the current study have clarified that tax exemption for non-profit organizations is essential to mitigate any threat in the future. The research indicates that non- profit organization work according to the welfare policies and rules set by the government. The support of government is mandatory to promote and motivate such welfare practices. Although the revenue budget of the government may face critical issues due to this action, the practices of welfare and well-being should be continued in the same manner. The government authorities should offer further relief to such organizations that they can reduce the financial issues in the long run.

Keywords: Non-profit Organizations, Tax Exempt, Ethics
Jel Codes: M40, H2, L3

1. Introduction

Tax is considered important in today's modern competitive environment. Every organization specifically consider this element in the decision-making process. However, non-profit organizations are exempt from taxes, as their primary objective is not profitability. Although they may earn income which is considered as surplus, the income is not taxable. The main motive of a government is to give relief to such organizations and promote charitable role in society. Non-profit organizations include religious, scientific, or public safety institutions with specific purposes. Therefore, a government provides an exemption to such organizations that they are not liable to pay taxes.

The current research paper is prepared to explain the rationale and ethics behind the tax exemption of non-profit organizations. The main purpose of this paper is to explore the understanding of such exemption discussed in various studies. The topic is interesting and attractive to find out the reasons for tax exemption for a non-profit organization to realize its importance. The requirement is to find out the reasons from relevant literature to ensure completeness in this research paper.

The design of this research paper is simple to extract relevant information from different scholarly sources. The next section of this research paper is a literature review, which consists of findings from various scholarly sources. The methodology adopted for this research paper is to collect and analyze the extracted information. The secondary approach is essential to achieve the objective of this research paper. The third section of this report comprises of the discussion on the findings from the literature review. The last section is the conclusion that summarizes the findings to show a clear and concise view.

2. Literature Review

The current section is the main part of this research paper that comprises of two important discussions. The first portion is definitions of key terms used in this research to make it clear and understandable. The next section comprises of different past studies that discuss various concepts and claims observed and noticed by authors.

Three different key terms are discussed in this section to show a clear and concise view in this literature review section.

2.1. Non-Profit Organizations

Non-profit organizations are non-business entities as they do not work for profit or earnings (Barbara Yasmin Lodge, 2017). It may include hospitals, welfare centers, educational centers, or religious centers, etc. (Ely and Calabrese, 2017). Many non-profit organizations are managed and controlled by a government to ensure the welfare and progress of society (Hojiev, 2017). However, it is not essential that only government authorities can run this type of entity (Feng and Others, 2019). Individuals or group of individuals can run such organizations but not for profit.

2.2. Tax Exemption

Tax exemption refers to entities that are exempt by laws not to pay taxes on any gain or surplus (Basri and Khalid, 2020). A government specifically or generally mentions the category of entities that are not required to pay the proportion of income to the government (Grigsby, 2018). The main reason for such exemption is to appreciate or promote such organizations to work without any hesitation (Zheng, 2018).

2.3. Public Welfare and Interest

The term of public welfare and interest relates to government or state practices to work for citizens (Brescia and Others, 2019). A government is responsible for protecting the interest of the public by preparing policies and rules to facilitate citizens (Hojiev, 2017). It is the main reason that government exempts taxes to non-profit organizations that they work for the welfare of society.

2.4. Past Studies

Baglioni, De Pieri, and Tallarico (2017) explain that the role of non-profit organizations was crucial in achieving the goal of a government in Germany and Italy. The findings of the study showed that the practices of such non-profit organizations resulted in the success of the government. Chaiyachati, Qi, and Werner (2018) also elaborate that spending on hospitals is required to reduce health issues in society. The exemption of tax is based on the health and well-being of citizens to minimize their problems. Barragato (2019) also supports the argument by claiming that the tax exemption of non-profit organizations is essential to ensure the progress of the society. Although the accountability and transparency of such organizations is mandatory, the tax exemption policy should be followed accordingly.

De Los Mozos, Duarte, and Ruiz (2016) explain requirement of tax exemption for non-profit organizations in a different manner. Non-profit organizations mainly raise funds to run their institutions. If such organizations are required to give revenues to the government, it is not possible to achieve the goal of fundraising. Kelley and McLaughlin (2017) also support the argument by claiming that non-profit entities are entitled to get tax exemption. A government promotes fundraising organizations to increase their practices for the welfare of all stakeholders. Khorin, Brovkin, and Potanina (2018) argue that non-profit organizations also contribute substantially to the economy of a country. Government support is mandatory to maintain consistency in their operations, and the authorities exempt taxes to such organizations to appreciate and motivate them.

Kim, Oh, and Kim (2018) present the findings of Korea that the government offers tax benefits to non-profit organizations to transfer the ultimate benefits to the public. The Korean government takes needful steps to benefit its citizens. Lamboy-Ruiz, Cannon, and Watanabe (2019) also support the argument that the government prepares policies to ensure improvement in welfare. The community benefits are considered important in bringing improvement in the overall society or country. Nwabachili and Obi-Ochiabutor (2020) explain the difference in tax exemption laws of Nigeria, the US, and the UK. The appraisal is noticed in the case of each country to give more benefits to non-profit organizations.

Manny (2017) criticizes the argument of tax exemption to non-profit organizations by elaborating that governance issues are common in such organizations. Although governments try to overcome the issues by implementing various policies, tax exemption is the relief to promote welfare services. Martin and Todd (2018) elaborate that tax deduction is allowed in charitable works to promote such activities in the city. The deductions are allowed in the United States and Australia that are considered important in reducing the issues. McMillan (2020) supports the argument of Manny (2017) that non-charitable organizations should not have the facility of tax deduction.

Stratmann (2017) state that sales tax exemption is allowed to various food aid providers in a country or city. Non-profit organizations are entitled to get relief on sales tax and promote welfare services within the territory. It is the prime responsibility of a state or country government to ensure the consistent improvement in welfare and well-being related services. Therefore, non-profit organizations work on this general rule to support the government in achieving its long-term goals. Michalski and Others (2018) claim that accountability is the main issue for the Polish government to promote the practices of non-profit organizations in the country. The increasing issues of governance and management within such organizations have created hurdles for the government to give tax exemptions. The lack of consistency in managing and preparing goal-oriented policies for all organizations is the main reason for increasing issues. Netzer (2020) also supports the claim by explaining that non-profit organizations work according to the culture of a country. The promotion of culture is important to manage the norms, values, and other cultural practices.

Schoenfeld (2017) criticizes the argument by explaining that tax exemptions are allowed to religious organizations. However, few countries or state do not allow such exemptions to religious organizations that create issues and challenges for a government. The promotion of religious organizations is also mandatory to protect the basic right of worship of people living in a country. Verulava, Jorbenadze, and Dangadze (2018) claim that the role of non-profit organizations is essential in a healthcare system to avoid negative impacts on the economy. A government should continue to support the healthcare providers in the city or state that they should work consistently on bringing improvement in the healthcare system.

Basri and Khalid (2020) also claim that accountability issues are common in non-profit organizations. The issues require special treatment from tax authorities to smoothen the operations. The combined efforts of government authorities are also crucial to mitigate the challenges of non-profit organizations. Netzer (2020) also elaborate that the authorities should promote cultural and religious practices within the country to achieve the goal of welfare and well-being of people. Therefore, a government should provide complete support to such organizations that they can contribute their part in the overall progress of a country.

De Los Mozos and Others (2016) state that a government should have potential control over resource utilization. The utilization of resources is workable only when a government gives tax exemption to cultural and religious organizations. They should have proper funding that can be used to acquire new resources for long-term growth. Feng and Others (2019) criticize the findings of De Los Mozos and Others (2016) by claiming that there should be accountability and transparency in all organizations. The tax exemption policy should be well-defined for all non-profit organizations, and they should be accountable for their related practices to claim for such exemption.

Kim and Others (2018) state that non-profit organizations work on behalf of the government to support the public. The tax benefit to them means that the government is improving its activities to fulfil the responsibility towards the public. The benefit should be provided to such organizations that they should continue their welfare practices without any disturbance. The role of government authorities is crucial in reducing the challenges to these non-profit organizations. Lamboy-Ruiz and Others (2019) also supports the argument that community or society benefits should be considered important. The benefits to the non-profit organization will ultimately result in a benefit to the government in achieving the goal of prosperity and growth. The overall productivity of the economy will open in this way, which will open new doors for the government. The ethical dilemma in this activity is that it will become easy for the government to make effective policies and rules regarding the welfare of people. Nwabachili and Obi-Ochiabutor (2020) also support the argument that the role of non-profit organizations is crucial for a government to implement a policy for the welfare of people. Non-profit

18th RSEP International Economics, Finance & Business Conference – Virtual/Online
26-27 August 2020, Kadir Has University, Istanbul, Turkey

www.rsepconferences.com   CONFERENCE PROCEEDINGS/FULL PAPERS   ISBN: 978-605-06961-5-8/September 2020

organizations work according to the guidelines and rules set by the state authorities to mitigate the challenges for the government.

Basri and Khalid (2020) criticize the claim that tax exemption should be based on performances of non-profit organizations. The factor of accountability and transparency is important to determine whether the tax should be exempted or not. The deduction should be allowed on the past performance of an organization. The taxation authority should keep in view the track record of the organization to make the decision of exemption. Netzer (2020) criticize the previous findings by claiming that tax exemption is based on the rules and laws prepared by the government. In simple words, the taxation authorities should carefully review and assess whether the exemption is according to the defined rules, and suits to the long-term objectives of the country.

Manny (2017) elaborates that non-profit organizations should consider governance issues to prepare accounts for tax exemption. The main requirement is to assess whether the governance issues are attributed to the policies and rules set by the government or not. The decision of tax exemption should be based on evaluating all legal aspects in a specific context to grant a tax exemption or reduction. Martin and Todd (2018) also claim that tax credits should be given to non-profit organization based on their performances in reducing the issues of the government. The main concern of these organizations should be like that they act as an agent of the country's authority to remain consistent on their mission and objectives.

3. The Rationale and Ethics behind Non-Profit Organizations Being Exempt from Tax

Non-profit organizations work according to the guidelines set by the state or country authority. The primary objective of these organizations is to protect the interest of all stakeholders without creating any discrimination. The requirement is to promote such organizations in a way that the government should ensure a backup for them (Chaiyachati, Qi and Werner, 2018). The concept of ethics arises in this situation that such organizations should have the leverage to work for the betterment of society. The reason is to give motivation to such organizations that they should continue working for the welfare of the public (Feng, Neely and Slatten, 2019). Three important benefits in support of the argument of tax exemption of non-profit organization is presented in this section.

3.1. Monetary Benefits

Tax exemption creates easiness for a non-profit organization to utilize the income uniformly. In the case of a surplus, the tax relief to such organizations increases the funds of such organizations to further utilize them (Kelley and McLaughlin, 2017). The monetary benefits are important to reutilize the excess of funds for the welfare of people. Therefore, monetary benefits have a high value for a government to maintain stability in welfare practices. The increasing monetary benefits enable the leaders of non-profit organizations to strengthen their operations and support the government.

The benefits of tax exemption are not limited to income taxes, but the government also offers tax relief for food aid organizations. The government is responsible for providing basic rights to its citizens (Manny, 2017). Non-profit organizations give exclusive supports to the government in reducing the issues of poverty and inflation in the country. The monetary benefit provides financial support to such organizations in mitigating the challenges and issues that may come forward in their routine operations.

3.2. The motivation for Non-Profit Organizations

The motivation and appreciation of non-profit organizations are essential to increase the morale of employees (Khorin, Brovkin and Potanina, 2018). The employees should have financial and moral support from the leaders of their organizations to mitigate the challenges of life. Most of the workers in a non-profit organization work voluntarily or for the sake of humanity. The receive salary that may be proud of them, and they should have such appreciation. Therefore, the motivation and appreciation of such hardworking employees are essential that they should remain proud of their work.

The talented and experienced workers in a non-profit organization require recognition and award to bring improvement in their respective jobs. The employees working at different levels maintain consistency in their operational activities if they receive full support from the management of their organizations. The management also looks for such support from the government to give a tax relief that they can be efficient and productive in their work (Lamboy-Ruiz, Cannon and Watanabe, 2019). The support and backup of a government requirement to reduce the issues and challenges for all non-profit organizations working in return for appreciation and recognition.

3.3. Promotion of Welfare Practices

A government work for the welfare and well-being of people living in a city or state. It is the implied ethical duty and responsibility of an organization to promote such practices (Khorin, Brovkin and Potanina, 2018). The promotion of such practices is essential to reduce the challenges faced by various citizens. The promotion of welfare practices has a high significance in the world to work for the sake of humanity (Barragato, 2019). A government requires the support of such welfare organizations to overcome the economic and social challenges in the city or state.

Non-profit organizations act as an agent of a government to protect the interest of all stakeholders. A government prepares policies and guidelines for welfare organizations that they should follow them in the same sense (Grigsby, 2018). The leaders of non-profit organizations are required to prepare a strategic framework to promote such welfare practices. The non-availability of tax credit creates issues for such organizations to continue welfare practices. Therefore, the requirement is to manage the operations in such non-profit organizations. The leaders of a non-profit organization should manage and control the operations in a systematic manner to reduce future challenges.

4. Conclusion

The overall findings in the current study have clarified that tax exemption for non-profit organizations is essential to mitigate any threat in the future. The research indicates that non- profit organization work according to the welfare policies and rules set by the government. The support of government is mandatory to promote and motivate such welfare practices. Although the revenue budget of the government may face critical issues due to this action, the practices of welfare and well-being should be continued in the same manner. The government authorities should offer further relief to such organizations that they can reduce the financial issues in the long run.

References

Baglioni, S., De Pieri, B., & Tallarico, T. (2017). "Surplus Food Recovery and Food Aid: The Pivotal Role of Non-Profit Organisations. Insights from Italy and Germany". *VOLUNTAS: International Journal of Voluntary and Nonprofit Organizations,* 28(5), pp.2032-2052.

Barbara Yasmin Lodge, M. J. (2017). "Commentary Not-for-Profit Tax-Exempt Hospitals: Is it Time to Start Paying Taxes?" *Journal of Health Care Finance,* 44(3), pp.1-2.

Barragato, C. A. (2019). "The Impact of Accounting Regulation on Non-Profit Revenue Recognition". *Journal of Applied Accounting Research,* 1(1), pp.1-10.

Basri, H., & Khalid, S. N. (2020). "Views on the Issue of Accountability in Non-Profit Organizations". *Malaysian Management Journal,* 14(1), pp.49-60.

Brescia, R., Decatur, A., & Kosineski, J. (2019). "Civil Society and Civil Justice: Teaching with Technology to Help Close the Justice Gap for Non-Profit Organizations". *Alb. LJ Sci. & Tech,* 29(1), pp.16-78.

Chaiyachati, K. H., Qi, M., & Werner, R. M. (2018). "Non-profit Hospital Community Benefit Spending Based on Local Sociodemographics". *Journal of health care for the poor and underserved,* 29(4), pp.1259-1268.

De Los Mozos, I. S., Duarte, A. R., & Ruiz, Ó. R. (2016). "Resource Dependence in Non-profit Organizations: Is it Harder to Fundraise If You Diversify Your Revenue Structure?" *VOLUNTAS: International Journal of Voluntary and Nonprofit Organizations,* 27(6), pp.2641-2665.

Ely, T. L., & Calabrese, T. D. (2017). "Public Borrowing for Private Organizations: Costs and Structure of Tax-Exempt Debt Through Conduit Issuers". *Public Budgeting & Finance,* 37(1), pp.3-25.

Feng, N. C., Neely, D. G., & Slatten, L. A. (2019). "Stakeholder Groups and Accountability Accreditation of Non-Profit Organizations". *Journal of Public Budgeting, Accounting & Financial Management,* 1(1), pp.1-10.

Grigsby, J. D. (2018). "The Impact of Tax Reform on Hospitals and Health Care Systems". *Northeastern Association of Business, Economics and Technology,* 1(1), pp.138-152.

Hojiev, M. (2017). "Further Improvement Issues of Accounting and Reporting in Non-State Non-profit Organizations in Uzbekistan". *European Journal of Business and Management,* 9(3), pp.212-216.

Kelley, T. A., & McLaughlin, C. B. (2017). "North Carolina's Nonprofit Property Tax Exemption Conundrum". *NCL Rev.,* 96(1), pp.1769-1819.

Khorin, A. N., Brovkin, A. V., & Potanina, Y. M. (2018). "Management Economic Environment of Non-profit Organizations". *Journal of Advanced Research in Law and Economics,* 9(2), pp.522-532.

Kim, H. M., Oh, H. J., & Kim, Y. K. (2018). "Developing and Fostering Public Benefit of Not-For-Profit Medical Institutions in Korea through Tax Benefits". *Korea Journal of Hospital Management,* 23(3), pp.1-15.

Lamboy-Ruiz, M. A., Cannon, J. N., & Watanabe, O. V. (2019). "Does State Community Benefits Regulation Influence Charity Care and Operational Efficiency in US Non-Profit Hospitals? " *Journal of Business Ethics,* 1(1), pp.1-25.

Manny, J. S. (2017). "Governance Issues For Non-Profit Religious Organizations". *The Catholic Lawyer,* 40(1), pp.1-23.

Martin, F., & Todd, T. M. (2018). "The Income Tax Exemption of Charities and the Tax Deductibility of Charitable Donations: The United States and Australia Compared". *Australian Tax Forum,* 33(4), pp.667-699.

McMillan, L. A. (2020). "Noncharitable Nonprofit Organizations and Tax Policy: Working toward a Public Benefit Theory". *Washburn LJ,* 59(1), pp.301-332.

Michalski, G., Blendinger, G., Rozsa, Z., Cierniak-Emerych, A., Svidronova, M., Buleca, J., & Bulsara, H. (2018). "Can We Determine Debt To Equity Levels In Non-Profit Organisations? Answer Based On Polish Case". *Inzinerine Ekonomika-Engineering Economics,* 29(5), pp.10-29.

Netzer, D. (2020). *Non-profit Organizations. In Handbook of Cultural Economics, Third Edition.* London, UK: Edward Elgar Publishing.

Nwabachili, C. O., & Obi-Ochiabutor, C. (2020). "A Comparative Appraisal of the "Not for Profit" Exemption Clauses in the Tax Laws of Nigeria, United Kingdom, United States of America and Australia". *Nnamdi Azikiwe University Journal of International Law and Jurisprudence,* 11(1), pp.96-107.

Schoenfeld, H. M. (2017). "Current Tax Issues Affecting Religious Organizations". *The Catholic Lawyer,* 36(3), pp.335-356.

Stratmann, T. (2017). "The Political Economy of Sales Taxes and Sales Tax Exemptions". *Public Choice,* 171(1-2), pp.207-221.

Verulava, T., Jorbenadze, R., & Dangadze, B. (2018). "The Role of non-Profit Organizations in Healthcare System: World Practice and Georgia". *Georgian Med News,* 274(1), 178-182.

Zheng, D. X. (2018). "Corporate Income Tax Policy, Implementation Difficulties and Its Response Solutions Suitable for Public Hospitals". *Chinese Health Economics,* 37(6), 85-89.

Crossroads of the Concepts of Circular Economy and Smart City

Janis Zvirgzdins
*Researcher, Riga Technical University, Institute of the Civil Engineering and Real Estate Economics,
Latvia*
Janis.Zvirgzdins_1@rtu.lv

Sanda Geipele
*Assoc. Prof., Riga Technical University, Institute of the Civil Engineering and Real Estate Economics,
Latvia*
Sanda.Geipele@rtu.lv

Abstract

Circular economy is a concept that is recognized as having a great potential in such global issue mitigation as climate change, loss of biodiversity, resource scarcity, deforestation, air water and soil pollution, etc. With the rapid development of information and communication technologies the concept of smart city has also gained the attention in scientific, political and business environment as well as in whole society. The objective of the article is to evaluate the similarities and differences between circular economy and smart city concepts. For this purpose authors used the methodology of literature review and qualitative content analysis. Results show that there are similarities between concepts of circular economy and smart city related to management of resources, resource efficiency, consumption, industrial symbiosis, renewable energy, sustainable development goals, sharing economy, business models and innovation. However, there are also differences between concepts as circular economy emphasises value preservation, systems thinking and life cycle thinking while concept of smart city emphasises technology, increased life quality, creativity, urban areas and security.

Keywords*:* Circular Economy, Climate Change, Smart City, Technology, Urban Environment.
JEL codes: O18, R11, Q01, Q53

1. Introduction

Current way of operating has proved to be unsustainable – global population consumes the resources of 1.75 planets Earth (Global Footprint Network, 2019). That means that global society is using the resources today that are meant for satisfying the needs of tomorrow. Idealistic Sustainable Development Goals (SDGs) seem unreachable. Current way of operating does not include enough tools that could contribute to achievement of SDGs. Therefore, it is crucial to look at other concepts that could give us the opportunity to postpone the coming disaster forecasted by Meadows and Others (1972) related to limits of growth.

The beginnings of circular economy can be found in 1960s when American economist Kenneth Ewart Boulding drew an analogy from 'cowboy economy' to 'spaceship economy' (Geipele I. and Others, 2018, p.66). The concept of the circular economy is opposite to the traditional 'linear economy' that turns raw materials into waste in the production process (Zvirgzdins, Plotka and Geipele S., 2019, p.704). Circular economy is linked to such global initiatives as climate change mitigation and adaptation, reduction of fossil fuel exploitation and development of renewable energy sources (Zvirgzdins, Plotka and Geipele S., 2018, p.94). In the framework of circular economy any waste is considered a resource. Therefore, there is no term 'waste' within the concept of circular economy. Operating within this framework could provide global society with an opportunity to positively impact sustainability concerns related to resilience of resources. However, there is lack of tools that could possibly bring the concept of circular economy to life. Therefore, the attention of authors was attracted by smart city concept which in comparison to concept of circular economy is driven by technology and is practical in its essence. Present paper provides comparison of circular economy and smart city concepts revealing the similarities and differences between them.

18th RSEP International Economics, Finance & Business Conference – Virtual/Online
26-27 August 2020, Kadir Has University, Istanbul, Turkey

www.rsepconferences.com   **CONFERENCE PROCEEDINGS/FULL PAPERS**   ISBN: 978-605-06961-5-8/September 2020

2. Methodology

To compare the concepts of circular economy and smart city, authors analysed the key words / characteristic elements of these concepts. Concerning the characteristic elements of the concept of circular economy authors used the results of previous research (Zvirgzdins and Geipele S., 2020). Concerning key words / characteristic elements of smart city concept 23 definitions of 'smart city' were analysed using the methodology of qualitative content analysis.

Qualitative content analysis is a widely used qualitative research method. This scientific approach is used to interpret meaning from the content of text data. (Hsieh and Shannonc, 2005, p.1277).

Identification of key words / characteristic elements of smart city concept was based on 23 definitions of 'smart city' (Bakici, Almirall and Wareham, 2013; Barrionuevo, Berrone and Ricart, 2012; Caragliu, Del Bo and Nijkamp, 2011; Chen, 2010; Cretu, 2012; Eger, 2009; Fernando and Others, 2011; Giffinger and Others, 2007; Guan, 2012; Hall, 2000; Harrison and Others, 2010; IDA, 2012; Komninos, 2011; Kourtit and Nijkamp, 2012; Kourtit, Nijkamp and Arribas, 2012; Lazaroiu and Roscia, 2012; Lombardi and Others, 2012; Marsal-Llacuna, Colomer-Llinàs and Meléndez-Frigola, 2015; Nam and Pardo, 2011; Thite, 2011; Thuzar, 2011; Washburn and Others, 2010; Zygiaris, 2013).

As a result of qualitative content analysis totality of 16 key words / characteristic elements related to smart city concept were identified as codes. From 16 codes 10 categories were developed.

3. Results and Discussion

At first, authors identified key words / characteristic elements of concepts of circular economy and smart city. Afterwards similarities and differences of these concepts were analysed. Based on the analysis conclusions were developed.

Characteristic elements of circular economy are reflected in figure 1 (Zvirgzdins and Geipele S., 2020, p.28). It can be seen that the characteristic elements of circular economy are the principle of multiple use and recovery '4R+7R', waste, closed-loops, design, business models, systems thinking, life cycle thinking, resource efficiency, consumption, value preservation, sharing, renewable energy, behaviour and industrial symbiosis.

Figure 1. Characteristic elements of circular economy (Zvirgzdins and Geipele S., 2020, p.28)

18th RSEP International Economics, Finance & Business Conference – Virtual/Online
26-27 August 2020, Kadir Has University, Istanbul, Turkey

www.rsepconferences.com   **CONFERENCE PROCEEDINGS/FULL PAPERS**   **ISBN: 978-605-06961-5-8/September 2020**
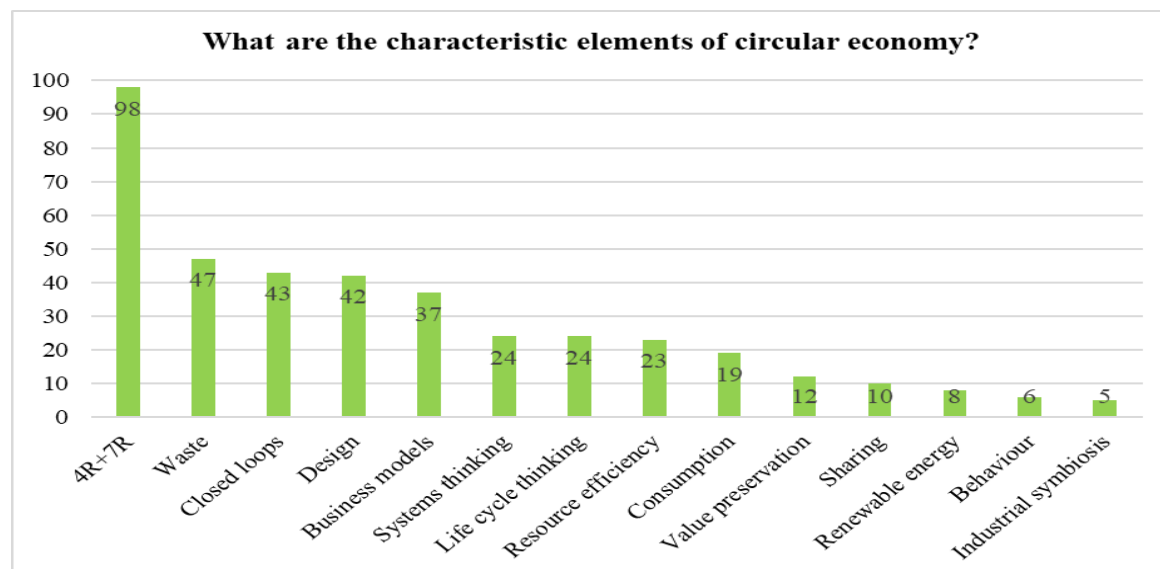
Results of qualitative content analysis are shown in table 1 reflecting key words / characteristic elements of smart city concept. Totality of 10 categories were developed deriving from 16 codes. Categories are ranked in descending order based on their frequencies. The most common key words / characteristic elements of smart city concept are 'Sustainability' (11) and 'Technology' (11) followed by 'Resource efficiency' (8), 'Increased life quality' (7), 'Knowledge' (6), 'Data' (5), 'Management' (5), 'Creativity' (4), 'Innovation' (3) and 'Environmental benefits' (3). There were such codes that were not included into categories and they are 'Urban areas', 'Integration', 'Information exchange', 'Security', 'Energy conservation' and 'Business models'.

Table 1. Summary of categories and frequencies of key words / characteristic elements of smart city concept

Rank	Category	Frequency	%
1	Sustainability	11	17,5%
2	Technology	11	17,5%
3	Resource efficiency	8	12,7%
4	Increased life quality	7	11,1%
5	Knowledge	6	9,5%
6	Data	5	7,9%
7	Management	5	7,9%
8	Creativity	4	6,3%
9	Innovation	3	4,8%
10	Environmental benefits	3	4,8%
	Total	63	100,0%

Source: developed by authors

Data of table 1 is illustrated in figure 2, which emphasizes sustainability and technology as main key words / characteristic elements of smart city.

Figure 2. Category frequencies of key words / characteristic elements of smart city concept (developed by authors)
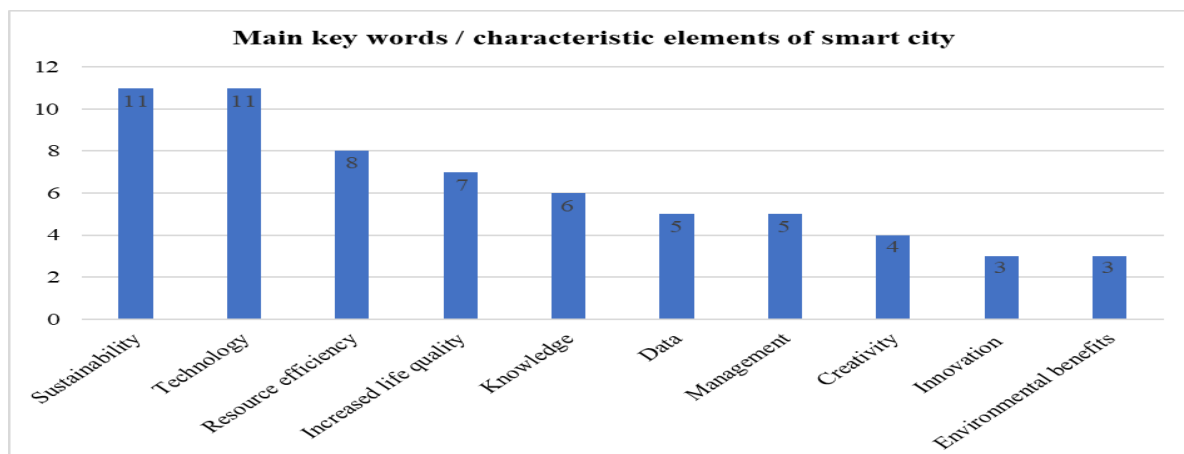
To sum up, smart city concept is aimed at achieving sustainability through resource efficiency, knowledge, management of resources, assets, services, creativity and innovation. This concept is driven by technology, supported by data, and it increases life quality and provides environmental benefits.

Further authors analysed the similarities and differences of circular economy and smart city concepts.

Table 2 reflects similarities of circular economy and smart city concepts based on previous research (Zvirgzdins and Geipele S., 2020) and analysis described above.

Table 2. Similarities of circular economy and smart city concepts

Circular economy	**Smart city**
4R+7R; Waste; Closed loops	Management of resources
Resource efficiency	Resource efficiency
Behaviour, Consumption	Knowledge ('smart society')
Industrial symbiosis	Data; Information exchange (city as manufacturing centre)
Renewable energy	Energy conservation / Renewable energy
Sustainability (SDGs – 6,7,8,12,15)	Sustainability (SDG 11)
Sharing (change of ownership model)	Smart mobility (mobility as a service)
Business models	Business models
Innovation	Innovation

Source: developed by authors

Even though the key words / characteristic and approaches are different, it can be stated that concepts of circular economy and smart city are headed in one direction. Principle of multiple use and recovery, reduction of waste and waste management and closed loops in concept of circular economy are related to management of resources, assets, services in concept of smart city (see table 2). Behaviour and consumption that are characteristic elements of circular economy are in close relation to knowledge and 'smart society' which is not only adaptive to progress of technological level but also aware global environmental issues and their relation to consumption and consumer behaviour. There can be seen synergy effects between concepts of circular economy and smart city. For example, industrial symbiosis in which waste from one company serves as a resource for another (element of circular economy) requires information sharing among companies, and one of the elements in concept of smart city is data which could accelerate the information exchange. Additionally, city as a manufacturing centre could be the core of the intercompany clusters in industrial symbiosis, providing the conditions for sustainable business models. In the framework of circular economy all the required energy should be generated by renewable energy sources which is in accordance with smart city concept and code 'Energy conservation'. Both of analysed concepts are highly related to sustainability and sustainable development goals as circular economy is directly linked to Sustainable Development Goal (SDG) 6 (Clean water and sanitation), SDG 7 (Affordable and clean energy), SDG 8 (Decent work and economic growth), SDG 12 (Responsible consumption and production) and SDG 15 (Life on land) (Schroeder, Anggraeni and Weber, 2019), while smart city concept is directly linked to SDG 11 (Sustainable cities and communities). 'Sharing' is the characteristic element of circular economy which is derivative of the 'sharing economy' concept. It is based on a change of ownership from private to shared goods. One of the examples is car sharing which is linked to smart mobility and mobility as a service. One of the recent studies has shown that passenger vehicle sharing strategy applied to passenger vehicles in European Union (excluding Bulgaria, Cyprus, and Malta) has a potential to cut emissions by 358.6 $MtCO_2$ eq. and save 7.64 billion EUR annually (Zvirgzdins,

18th RSEP International Economics, Finance & Business Conference – Virtual/Online
26-27 August 2020, Kadir Has University, Istanbul, Turkey

www.rsepconferences.com   **CONFERENCE PROCEEDINGS/FULL PAPERS**   **ISBN: 978-605-06961-5-8/September 2020**

Plotka and Geipele I., 2020, p.870). Additionally, circular economy and smart city both are aimed at resource efficiency, and both of these concepts require appropriate business models and innovations in order to be implemented in practice.

However, there are some differences between the concepts of circular economy and smart city as well. They are reflected in table 3.

Table 3. Differences between circular economy and smart city concepts

Circular Economy	Smart City
Life cycle thinking	Technology
Systems thinking	Increased life quality
Value preservation	Creativity
	Urban areas
	Security

Source: developed by authors

The concept of circular economy puts emphasis on lifecycle thinking, systems thinking and value preservation, while concept of smart city is driven by technology aiming to increase the life quality and ensure security in urban areas. Additionally, creativity is one of the characteristic elements of smart city concept, which is linked to creative society and creative solutions.

These differences between concepts of circular economy and smart city are the key aspect that could be exploited to create synergies and bring the society closer in achieving the sustainable development goals.

4. Conclusion

Key words / characteristic elements of smart city concept are sustainability, technology, resource efficiency, increased life quality, knowledge, data, management, creativity, innovation and environmental benefits.

Main similarities between concepts of circular economy and smart city are related to management of resources, resource efficiency, consumption, industrial symbiosis, renewable energy, sustainability and sustainable development goals, sharing economy, business models and innovation.

There are also differences between concepts of circular economy and smart city as circular economy emphasises value preservation, systems thinking and life cycle thinking while concept of smart city emphasises technology, increased life quality, creativity, urban areas and security. However, these differences have a potential to create synergies and bring the society closer in achieving the sustainable development goals.

Further research direction is linked to identifying and analysing other concepts, which could positively contribute to global issue solving and achievement of sustainable development goals.

Acknowledgement

References

Bakici, T., Almirall, E., & Wareham, J. (2013). A Smart City Initiative: the Case of Barcelona. Journal of the Knowledge Economy, 4(2), 135-148. doi: 10.1007/s13132-012-0084-9

Barrionuevo, J. M., Berrone, P., & Ricart, J. E. (2012). Smart Cities, Sustainable Progress. IESE Insight, 14(14), 50-57.

Caragliu, A., Del Bo, C., & Nijkamp, P. (2011). Smart Cities in Europe. Journal of Urban Technology, 18(2), 65-82. doi: 10.1080/10630732.2011.601117

Chen, T. M. (2010). Smart Grids, Smart Cities Need Better Networks [Editor's Note]. IEEE Network, 24(2), 2-3. doi: 10.1109/MNET.2010.5430136

Cretu, L. G. (2012). Smart Cities Design Using Event-driven Paradigm and Semantic Web. Informatica Economica, 16(4), 57.

Eger, J. M. (2009). Smart Growth, Smart Cities, and the Crisis at the Pump a Worldwide Phenomenon. I-WAYS-The Journal of E-Government Policy and Regulation, 32(1), 47-53.

Fernando, H., Velosa, A., Anavitarte, L., Tratz-Ryan, B. (2011). Market Trends: Smart Cities Are the New Revenue Frontier for Technology Providers. Retrieved from: https://www.gartner.com/en/documents/1615214

Geipele, I., Plotka, K., Wirzhbitskis, Y., Zvirgzdins, J. The Synergy in Circular Economy. In: Advances in Economics, Business and Management Research: Proceedings of the Third International Conference on Economic and Business Management (FEBM 2018), China, Hohhot, 20-22 October, 2018. Amsterdam: Atlantis Press, pp.65-68. doi:10.2991/febm-18.2018.15

Giffinger, R., Fertner, C., Kramar, H., Kalasek, R., Pichler-Milanović, N., & Meijers, E. (2007). Smart Cities: Ranking of European Medium-sized Cities. Vienna: Centre of Regional Science

Global Footprint Network (2019). Earth Overshoot Day 2019 is July 29, the earliest ever. Retrieved from https://www.overshootday.org/newsroom/press-release-july-2019-english/

Guan, L. (2012). Smart Steps to a Battery City. Government News, 32(2), 24-27.

Hall, R. (2000). The Vision of a Smart City. International Life Extension Technology Workshop, Paris, France.

Harrison, C., Eckman, B., Hamilton, R., Hartswick, P., Kalagnanam, J., Paraszczak, J., & Williams, P. (2010). Foundations for Smarter Cities. IBM Journal of Research and Development, 54(4), 1-16. doi: 10.1147/JRD.2010.2048257

Hsieh, H. F., & Shannon, S. E. (2005). Three Approaches to Qualitative Content Analysis. Qualitative Health Research, 15(9), 1277-1288.

IDA Singapore. (2012). iN2015 Masterplan. Retrieved from http://www.ida.gov.sg/~/media/Files/Infocomm%20Landscape/iN2015/Reports/realisingthevisionin2015.pdf

Komninos, N. (2011). Intelligent Cities: Variable Geometries of Spatial Intelligence. Intelligent Buildings International, 3(3), 172-188. doi: 10.1080/17508975.2011.579339

Kourtit, K., & Nijkamp, P. (2012). Smart Cities in the Innovation Age. Innovation: The European Journal of Social Science Research, 25(2), 93-95. doi: 10.1080/13511610.2012.660331

Kourtit, K., Nijkamp, P., & Arribas, D. (2012). Smart Cities in Perspective–a Comparative European Study by Means of Self-organizing Maps. Innovation: The European Journal of Social Science Research, 25(2), 229-246. doi: 10.1080/13511610.2012.660330

Lazaroiu, G. C., & Roscia, M. (2012). Definition Methodology for the Smart Cities Model. Energy, 47(1), 326-332. doi: 10.1016/j.energy.2012.09.028

Lombardi, P., Giordano, S., Farouh, H., & Yousef, W. (2012). Modelling the Smart City Performance. Innovation: The European Journal of Social Science Research, 25(2), 137-149. doi: 10.1080/13511610.2012.660325

Marsal-Llacuna, M. L., Colomer-Llinàs, J., & Meléndez-Frigola, J. (2015). Lessons in Urban Monitoring Taken from Sustainable and Livable Cities to Better Address the Smart Cities Initiative. Technological Forecasting and Social Change, 90, 611-622. doi: 10.1016/j.techfore.2014.01.012

Meadows, D. H., Meadows, D. L., Randers, J., & Behrens, W. W. (1972). The Limits to Growth. New York, 102, 27.

Nam, T., & Pardo, T. A. (2011). Conceptualizing Smart City with Dimensions of Technology, People, and Institutions. In Proceedings of the 12th Annual International Digital Government Research Conference: Digital Government Innovation in Challenging Times, pp. 282-291. doi: 10.1145/2037556.2037602

Schroeder, P., Anggraeni, K., & Weber, U. (2019). The Relevance of Circular Economy Practices to the Sustainable Development Goals. Journal of Industrial Ecology, 23(1), 77-95.

Thite, M. (2011). Smart Cities: Implications of Urban Planning for Human Resource Development. Human Resource Development International, 14(5), 623-631. doi: 10.1080/13678868.2011.618349

Thuzar, M. (2011). Urbanization in Southeast Asia: Developing Smart Cities for the Future?. Regional Outlook, 96.

Washburn, D., Sindhu, U., Balaouras, S., Dines, R. A., Hayes, N., & Nelson, L. E. (2010). Helping CIOs Understand "Smart City" Initiatives. Growth, 17(2), 1-17.

Zvirgzdins, J., & Geipele, S. (2020). Breaking Down the Concept of Circular Economy: Qualitative Content Analysis. In 17th RSEP International Economics & Social Sciences Conference, 6 April 2020. Madrid: BC Publishing House, pp. 24-35.

Zvirgzdins, J., Plotka, K., & Geipele, I. (2020). The Usage of Circular Economy Strategies to Mitigate the Impacts of Climate Change in Northern Europe. In: Leal Filho, W., Nagy, G., Borga, M., Chávez Muñoz, D., Magnuszewsk, A. (Eds). Climate Change, Hazards and Adaptation Options. Cham: Springer, pp.853-873. doi:10.1007/978-3-030-37425-9_43

Zvirgzdins, J., Plotka, K., & Geipele, S. (2018). Eco-Economics in Cities and Rural Areas. Baltic Journal of Real Estate Economics and Construction Management, 6(1), 88-99. doi:10.2478/bjreecm-2018-0007

Zvirgzdins, J., Plotka, K., & Geipele, S. (2019). Circular Economy in Built Environment and Real Estate Industry. In: The 13th International Conference "Modern Building Materials, Structures and Techniques MBMST 2019": Selected Papers, Lithuania, Vilnius, 16-17 May, 2019. Vilnius: VGTU Press, pp.704-713. doi:10.3846/mbmst.2019.046

Zygiaris, S. (2013). Smart City Reference Model: Assisting Planners to Conceptualize the Building of Smart City Innovation Ecosystems. Journal of the Knowledge Economy, 4(2), 217-231. doi: 10.1007/s13132-012-0089-4

Manipulation of Financial Information through Creative Accounting: Case Study at Companies listed on the Romanian Stock Exchange

Andrada-Ioana Sabau (Popa)

Economist, Babes-Bolyai University, Faculty of Economics and Business Management, Cluj-Napoca, Cluj-Napoca, Romania
andradaa.ioana@yahoo.com

Ioana Lavinia Safta

PhD. candidate, Babes-Bolyai University, Faculty of Economics and Business Management, Cluj-Napoca, Cluj-Napoca, Romania
lavinia_s15@yahoo.com, ioana.safta@econ.ubbcluj.ro

Gabriela Monica Miron

PhD. candidate, Babes-Bolyai University, Faculty of Economics and Business Management, Cluj-Napoca, Cluj-Napoca, Romania
gtepuse@yahoo.com

Monica Violeta Achim

Professor PhD. Dr habil., Babes-Bolyai University, Faculty of Economics and Business Management, Cluj-Napoca, Cluj-Napoca, Romania
monicaachim@yahoo.com, monica.achim@econ.ubbcluj.ro

Abstract

This study investigates whether the companies listed on the Bucharest Stock Exchange are susceptible to manipulation of financial statements. The tested models M-Beneish and M Risk-Fraud Beneish were used both nationally and internationally. For this purpose, we analyzed the financial statements of 19 companies listed on the Bucharest Stock Exchange, in the period 2017-2018, by statistically processing the data taken from the public financial statements. For each model we identified two, three, and four indicators, with a significant influence on the models in each field of activity selected for this study. In order to identify the degree of harmonization of the results obtained within the calculated scores, with the report issued by the external auditor, the type of opinion issued was also taken into account. The results emphasize that the opinions issued do not correlate with the calculated scores. The study's findings indicate the general tendency of selected companies to manipulate financial statements. Through the M-Beneish model, 58% of the analyzed companies resort to the manipulation of financial statements, as well as through the Robu model, 79% of the companies resort to manipulation techniques.

Keywords: Creative Accounting, Beneish Model, Earnings Management, Financial Fraud

JEL codes: M41, G32

1. Introduction

This paper approaches a topic of international interest, with important implications for the economy. In this regard, it was proposed to identify the degree of manipulation of financial statements for 19 companies listed on the Bucharest Stock Exchange from three different sectors of activity (construction, transport and extractive industry). In this study, it will be applied the mathematical model developed by Messoud Beneish, in contrast with the discrimination equation developed by Robu and Robu (2013). For a more detailed analysis, the opinion

18th RSEP International Economics, Finance & Business Conference – Virtual/Online
26-27 August 2020, Kadir Has University, Istanbul, Turkey

www.rsepconferences.com   **CONFERENCE PROCEEDINGS/FULL PAPERS**   **ISBN: 978-605-06961-5-8/September 2020**

issued by the financial auditors will be identified. It will be annalized the degree of harmonization between the results obtained in the case of the two ecuations and the type of opinion issued by the external auditor.

The literature presents various cases in which large companies have reached the brink of bankruptcy, as a result of the application of this concept, in the long run. The demarcation line is fine between the two concepts: fraud and creative accounting. Creative accounting occurs as a result of gaps in legislation, which without proper regulation offers the freedom of professional accountants to "create" different ways of manipulating accounts. Creative accounting is exercised by applying various techniques for manipulating the results, depending on the expected purpose. Accounting manipulation is applied by those who prepare the financial statements. As people have very diverse ways of thinking and perceiving things, in the case of applying creative accounting techniques the accountant can provide various ways of applying the concept. The manipulated information presented in the financial statements is a significant indication of the existence of fraud. Financial fraud does not comply with the letter of the law or its spirit, bringing with it criminal liability.

Concretely, one can manipulate the incomes, expenses, assets, debts, equity, in order to present a favorable image of the entity for various users (Achim and Borlea, 2019, p. 176). Each user of accounting information, however, pursues certain interests, and the flexibility offered by accounting regulations is often used to satisfy private interests to the detriment of the public interest. Groșanu (2013). Creative accounting appeared in Anglo-Saxon literature, in the 1970s, most commonly found in works based on the bankruptcy of companies and in works by Watts and Zimmerman (1978, 1986, 1990), which describe the foundation of positive accounting theory.

The research results show that most of the companies studied use earnings management techniques. The M-Beneish score indicates that 42% of the companies selected do not manipulate financial statements and 58% use creative accounting techniques. The results obtained by modeling the discrimination equation M-RiskFraud-Beneish suggest the presence of creative accounting in proportion of 79%; a percentage of 10.5% marks the lack of use of creative accounting, in the same proportion appears uncertainty. The opinions issued by the financial auditors are mostly unqualified opinion, so they do not harmonize with the scores obtained. The differences that appear in terms of scores are due to the contexts in which each of the models were developed.

The rest of our work is organized as follows.

The "Literature review" section reviews and evaluates existing research on creative accounting and its evaluation models. The "Research methodology" section describes the techniques used, the variables and the working data. The section "Results and discussions" presents and comments on the results obtained in the light of the results identified in the literature. The "Conclusions" section highlights the main conclusions of the paper.

2. Literature review

Those involved in the preparation, control and checking the financial statements must distinguish the delimitation of the concept of fraud with the concept of creative accounting. In the literature there are numerous studies on establishing the boundaries between creative accounting and fraud, taking into account the approaches of each country.
The concept of creative accounting is used to describe the process by which professional accountants use their knowledge to manipulate the figures included in the annual accounts.

The American journalist Griffiths Ian associates creative accounting with the Trojan Horse, in the sense that the approach of this method is a great deception for those to whom the synthesis documents are presented. The professional accountant Michael Jameson expresses a slightly milder opinion compared to that of journalist Griffiths Ian. He claims that the accountant profession is practiced by people with different personalities, ideas, motivations, hence the reason why some professionals use various techniques. At the same time, he states that applying creative accounting techniques respects the spirit of the law, but not its letter (Achim and Borlea, 2019, p.142).

Each set of financial statements, which are published on the basis of the accounting accounts, have been "lightly cooked" or "completely fried". The financial statements presented once or twice a year to the public, to investors, show slight or major changes compared to "reality". All these changes occur to protect a culprit, to increase or decrease the company's result. In any of the situations it is considered as a totally legitimate deception (Oriol, Blake and Dowds, 1999).

Kamal Naser has an academic perspective on creative accounting, arguing that this is the way to turn financial accounting figures from what they really are into what management wants, taking advantage of existing rules and/ or ignoring them completely or partially (Oriol, Blake and Dowds, 1999).

It is considered that creative accounting excludes fraud. According to (Jones, 2010), who sets out a theoretical approach in the book he published, he defines the concept of creative accounting as follows: "using accounting flexibility in the current regulations to manage the presentation of accounts so that they put the interests of the company first, not the users." Creative accounting is thus seen as operating under the regulatory system, so it is not illegal. Companies that use creative accounting does not break the law, they just use the flexibility of accounting to serve their own interests. (Jones, 2010, p.5).

Some authors consider creative accounting as "a set of techniques, options and freedom left by accounting regulation, without moving away from accounting laws or requirements, allowing managers to change the financial result" (Baciu and Pop, 2008, p .936).

Therefore, the opinions of specialists in this field presented in articles and books published shows different perspectives of this practice. Even if different terms are attributed to this term, the basic effect of creative accounting is the same in any context.

There is the matter of differentiating the concept of creative accounting and fraud. Specialized studies based on existing situations in practice, have established the delimitation between the two concepts. There is a fine line between the two practices. On the one hand, creative accounting follows the letter of the law, but not its spirit. Fraud, on the other hand, does not respect the letter nor the spirit of the law, it entails criminal liability. Fraud is an action that is intentionally taken by employees, top management, with the ultimate goal in obtaining incorrect or illegal benefits. Both creative accounting and fraud are considered intentional actions.

Accounting standards provide the accountant with a wide range of methods for calculating and recording transactions, so it is only a matter of insight of a good accountant to use these "niches" in favor of the company (Cernușcă, Gomoi and Condea, 2009).

By making a comparison between two accounting systems, the American and the United Kingdom, one also identifies the perspective that each culture has on creative accounting. In America, creative accounting is treated as fraud, so it is an illegal method. The United Kingdom treats accounting manipulation as an action taken due to the flexibilities that are present in the laws, so it is not perceived as fraud (Safta, Achim and Borlea , 2020, p.90-107).

The gaps in the law are used by companies to present users with the expected financial statements; depending on these, they decide whether to sell or buy shares in a particular company. The accounting law enables managers to manipulate accounting accounts. The problem that arises with the application of creative accounting is that sometimes those who apply it deviate from the basic meaning of accounting, which is providing a true picture of financial statements. Recourse to creative accounting, but also to fraudulent actions, is most often done when a company is going through a difficult financial period and is trying to distort the truth (Safta, Achim and Borlea, 2020, p.90- 107).

The analysis of the relationship between creative accounting and fraud was addressed in the paper written by Johan L. Perols and Barbara A. It is considered that "earning management occurs when managers use professional judgment in financial reporting and structuring transactions to change financial statements, in order to mislead some stakeholders about the economic performance underlying the company or to influence the contractual results on which the accounting reports are based". Fraud has the same purpose as earning

18th RSEP International Economics, Finance & Business Conference – Virtual/Online
26-27 August 2020, Kadir Has University, Istanbul, Turkey

www.rsepconferences.com   CONFERENCE PROCEEDINGS/FULL PAPERS   ISBN: 978-605-06961-5-8/September 2020

management, but differs from it in that fraud is applied outside generally accepted accounting principles. Creative accounting does not violate the letter of the law. Financial fraud occurs when managers use accounting practices that do not comply with generally accepted accounting standards in order to "modify financial statements by misleading stakeholders about the economic performance of the company or influencing the contractual results on which it is based on the reported accounting results". (Johan, Perols and Barbara, 2011, p.40).

Therefore, both creative accounting and fraud start for intentional reasons, both move away from the real situation of the company, often appear in times of financial difficulty, to create benefits for the company. Both follow the spirit of the law. The differences between the two concepts are that fraud does not comply with the letter of the law, and creative accounting takes this into account. Fraud is done in bad faith, while creative accounting can be applied either in good faith or in bad faith.

The implementation of creative accounting is done through creative accounting techniques. In this sense, the professional accountant has the freedom to choose the preferred technique, depending on the purpose pursued, not violating the letter of the law, but only its spirit.

Relevant divisions of accounting techniques that the professional accountant can use in various contexts are categorized in the paper written by Groșanu Adrian (2013). The four categories are: fixed assets, current assets, equity and debt, and the last refers to positive discrimination in persuasive language.

In the case of fixed assets, there are techniques that may occur in particular for: "development expenses, goodwill, revaluation, depreciation policy and depreciation adjustments for capitalization of post-commissioning expenses and interest" (Groșanu, 2013, p.38).

 For current assets, creative accounting practices can be exercised in the case of "stock valuation, volume of stored production, choosing the method of accounting for construction contracts, artificial assignment of investment securities, calculation and recording of adjustments for impairment of inventories and receivables, etc." (Groșanu, 2013, p.53). In the category of equity and debt, accounting window-dressing is manifested in: capital premiums, provisions policy, expenses with employees, through sales followed by the return of goods sold and sales of products in retail units (Groșanu, 2013, p.59). A final direction of creative accounting is manifested in positive discrimination in persuasive language. In the study conducted by Groșan (2013, p.66), we consider this practice as part of creative accounting techniques.

The similarities and differences between creative accounting and fraud can be shown schematically in the table below:

Table 1. Similarities and differences between creative accountancy and fraud

	Creative accounting	**Fraud**
Similarities	1. Intended actions	
	2. Distorts the truth	
	3. Occurs during times of financial difficulties	
	4. Creates advantages	
Differences	1. Complying with the letter of the law	1. Not complying with the letter of the law
	2. Not complying with the spirit of the law	2. Not complying with the spirit of the law
	3.Can be conducted in good faith (when the flexibility result contributes to the achievement of a fair and true value) or with bad faith (some of the users of the information are disadvantaged)	3.It is conducted with bad faith

Source: own processing

As seen in the table above, the creative accounting is situated at the border between legal and illegal matters, respectively at the border between "legality and moral fraud", and "the step to fraud is small and many times invisible" (Groşanu, 2013, p. 35).

Audit and financial fraud

An issue of high importance is the role of audit in detecting financial fraud. There is the matter of delimiting the financial auditor's responsibility of the annual report audited.

According to Gary Giroux, the audit is a systematic process of obtaining and objectively evaluating accounting actions, regarding statements about economic actions and events, in order to establish the degree of correspondence between these statements, established criteria and communication of results to stakeholders. Normally, an auditor verifies the financial statements of a company, guided by auditing standards, in order to be able to issue an opinion on the degree of compliance with accounting standards (Gary, 2014).

The ISA 240 standard outlines the responsibilities for identifying fraud as follows: *"The primary responsibility for preventing and detecting fraud lies with those in charge of governance, but also with management"* at the same time, it is also specified that: *An auditor conducting an audit in accordance with the ISA is responsible for obtaining reasonable assurance that the financial statements, taken as a whole, are free from material misstatement, either as a result of fraud or error."*(Martyn, 2010). Therefore, the responsibility does not "fall" on the shoulders of the auditor or only the management; there is the issue of an equitably distributed responsibility. For the former there is the problem of a secondary responsibility, while for the latter a primary responsibility. (Martyn, 2010).

The auditor must be insightful, conduct his audit mission with professional skepticism so that he is able to identify potential irregularities in an entity. Finally, the professional also develops recommendations "*on the effectiveness of the process implemented by management to manage the risk of fraud and in assuming this role*" (Dragomir, Secrieru and Darii, 2017). The financial auditor also has the responsibility to organize various tests in order to exclude the existence of accounting manipulation techniques, or even fraud (Robu & Robu, 2013, p.6).

Robu & Robu (2013) raise the issue of the financial auditor and his role. It is emphasized that once a company has been audited by an external auditor, its credibility is automatically higher. Stakeholders and management trust the published financial statements. Once the financial statements have been audited, if irregularities are identified at company level, a more detailed analysis is carried out. Also in this sense, in case of financial fraud, the "red flags" are used to indicate irregularity (Robu & Robu, 2013, p.4).

As a result of the great scandals that took place in the "economic" world caused by the bankruptcy of some important companies, brought with it the idea of responsibility. The auditors were also held liable for compensation, being held liable for lack of capacity, or intentionally concealing the fraudulent actions taking place in those companies at that time.(Robu & Robu, 2013, p.4) .

The first to identify the existence of fraud, in addition to specialists in the field are: employees, internal audit, financial audit, and management. It can be identified the existence of fraud by the simple fact that the supporting documents underlying the preparation of the financial statements arrive late to professional accountants. In addition to ways of directly observing the manipulation of financial statements, in the literature have been developed statistical-mathematical methods that can highlight the risk of manipulation of results through financial statements. Specific indicators, referred to in the literature as signal indicators ("red flags"), may signal existing fraud risks.

Earnings manipulation is defined as a situation in which a company's managers violate generally accepted accounting principles, in order to give a favorable picture of the company's financial performance. In 1997, Professor Messod Beneish developed a mathematical model to detect accounting manipulation in the case of companies with very good financial performance. In order to develop this model, he chose and analyzed 64 companies that violated the spirit of the law, with another 1989 companies, which are supposed to have not resorted to techniques that did not comply with accounting standards, during 1987-1993. Subsequently, some

18th RSEP International Economics, Finance & Business Conference – Virtual/Online
26-27 August 2020, Kadir Has University, Istanbul, Turkey

www.rsepconferences.com   **CONFERENCE PROCEEDINGS/FULL PAPERS**   ISBN: 978-605-06961-5-8/September 2020

changes were made in the case of the initial mathematical model developed in 1997, developing in 1999 a new one, which differs from the first (Ramírez-Orellana and, Martínez-Romeroa and Marino-Garrido 2017).

The Beneish model (Beneish, 1999) is a mathematical model created by Professor Messod Daniel Beneish who formulated several analysis reports and eight variables to identify the occurrence of financial fraud or the tendency to engage in earnings management (Repousis, 2016).

This model is a statistical model that, with the help of financial indicators calculated on the basis of a company's accounting data, it identifies the degree of manipulation of financial statements. At the same time, the calculations will be performed by comparing the current year with the previous year. The Beneish model cannot be applied to financial institutions (Achim and Borlea, 2019, p.148). To calculate the final discrimination equation, eight equations will be calculated in the first stage, with information gathered from the financial statements. The equation is detailed as:

$$M = -4,84 + 0,92* DSRI + 0,528*GMI + 0,404*AQI + 0,892*SGI + 0,115*DEPI – 0,172*SGAI + 4,679* TATA – 0,327* LVGI$$

Where:

At the elaboration of the M score, Beneish (1999) proposed a series of indicators which can be used for the application of the analytical procedures to identify the frauds from the financial statements, as follows:

1. Days Sales in Receivables Index (DSRI) represents the ratio between the period of collecting receivables from one financial year to the previous one. As long as there are no extreme changes of the crediting policy, it is expected that this indicator has a linear structure. An increase in period of collecting receivables may be a red flag for the manipulation of financial data.

DSRI = (Net Receivables t / Sales t) / (Net Receivables t-1 / Sales t-1)

2. Gross Margin Index (GMI) represents the ratio between the gross margin rate registered by a year before the fraud notifying and the gross margin rate registered in the financial year when the fraud was notified. The reduction of Gross margin ratio in the current year compared with the previous year represents a negative signal for the future perspectives and reflects the fact that such companies are more engaged in result manipulation. Therefore, a GMI score greater than 1 indicates that the gross margin ratios are deteriorated, motivating the management team to manipulate the numbers to look better than they might be otherwise. A GMI score greater than 1 is an important red flag for any auditors and accountants to show the degree of manipulation financial data.

GMI = [(Sales t-1 – COGS t-1) / Sales t-1] / [(Sales t – COGS t) / Sales t],

where COGS is cost of goods sold (COGS) and it refers to the direct costs of producing the goods sold by a company.

3. Asset Quality Index (AQI) is used to identify the eventual frauds at the company level regarding the evaluation of the assets. It shows the modification of the weight of other immobilized assets, except for the tangible ones, within the total assets compared to the previous period. The higher the AQI value is the higher the possibility of manipulating the results is.

AQI = [1 - (Current Assets t + PP&E t + Securities t) / Total Assets t] / [1 - ((Current Assetst-1 + PP&Et-1 + Securitiest-1) / Total Assetst-1)], where PP&E represents property plant and equipment (PPE)

4. Sales Growth Index (SGI) represents the ratio between the sales levels registered throughout two consecutive periods of reporting. The increase of the sales is not an indicator of the data manipulation; however, the companies which register increase in sales are much more likely to engage in manipulations of results.

SGI = Sales t / Salest-1

5. Depreciation Index (DEPI) represents the ratio of the depreciation rate in year t-1 compared with the year t. The higher the value of the depreciation index indicates that the rate at which assets are depreciated has slowed down, possible due to increasing revision of the estimated lives of the tangible assets which finally, would lead to the increase of incomes.

DEPI = (Depreciationt-1/ (PP&Et-1 + Depreciationt-1)) / (Depreciation t / (PP&E t + Depreciation t))

6. Sales General and Administrative Expenses Index (SGAI) measure the variation of this type of expenses in relation with the sales level. The overheads may include a series of incentives or bonuses for the managers. The existence of a correlation between SGAI and sales is expected. A disproportionate increase of this ratio reflects a negative signal about firms' future prospects.

SGAI = (SG&A Expense t / Sales t) / (SG&A Expense t-1 / Sales t-1)

7. Leverage Index (LVGI) measures the ratio between the total debt of an enterprise and the total assets. The higher the ratio value is, the higher is the debt in relation with the total assets. This variable is introduced to catch the incentives in the debt contracts to manipulate the gains.

LVGI = [(Current Liabilities t + Total Long Term Debt t) / Total Assets t] / [(Current Liabilities t-1 + Total Long Term Debt t-1) / Total Assets t-1]

8. Total Accruals to Total Assets (TATA) describes the relation which is established between the level of the total accruals (the change in working capital other than cash and depreciation) and the level of the total assets. Accruals reflect the extent to which managers make discretionary accounting choices to alter earnings. Thus, a higher level of accruals associates with a higher likelihood of profit manipulation. For the companies with risk of fraud there can be noticed the increase with the time of the percentage of the accruals as a result of the fraud on the financial statements, which probably are determined by a series of fictitious sales (Robu & Robu, 2013).

TATA = (Income from Continuing Operations t - Cash Flows from Operations t) / Total Assets

The value -2.22 is considered to be a reference point for the results obtained after computing the Beneish Model. If the result of the equation is higher, it is assumed that the company in question applies creative accounting techniques; if it is smaller there are no techniques for manipulating the results (Achim and Borlea, 2019, p 151).

The indices developed by Beneish (1999) were the basis for the elaboration of numerous models for identifying the risk of manipulation of financial statements in many countries: Romania (Robu & Robu,2013), Spain (Vladu, Oriol and Cuzdrioreanu, 2016), Asian countries). Malaysia, Indonesia, Thailand, Hong Kong, Singapore, China, and Japan (Hasan and Others, 2017).

An example of M-Beneish model for the Romanian economy is carried out in the study conducted by Robu & Robu (2013), with the purpose to analyse and evaluate the risk of fraud determined by the accounting manipulations starting from the indicators proposed by Beneish. To this aim, the authors substantiated a function of discrimination which explains 100% of the total variation of the risk of fraud shown with the Beneish indicators. The function of discrimination elaborated by the authors presents the following formula:
M-RiskFraud-Beneish= -0.383*DSRI+ 0.039*GMI -0.325*AQI + 0.448*SGI + 0.273*DEPI + 0.915*SGAI + 0.478*LVGI – 0.153*TATA
For the function of discrimination M- RiskFraud-Beneish elaborated for Romania by Robu and Robu (2013) there are obtained three intervals of classification of the companies by groups of risk:
1. *The interval [-2.841; -0.355]* – zone free of risk of financial fraud – safe zone;
2. *The interval (-0.355; 0.313)* – zone of uncertainty (grey zone) regarding the occurrence of the risk of fraud and this is a case which assumes the application of additional audit procedures;
3. *The interval [0.313; 2.453]* – zone with risk of financial fraud where there exist the use of tricks to misrepresent the company image or to reduce the transparency of the financial reports.

3. Research methodology

The main objective of the present research is to determine the field in which the degree of manipulation is the most pronounced by applying the models. Consequently, we propose to identify some answers to the following research question:

Research question 1: In which of the fields of activity in the Romanian economy is the greatest emphasis on the manipulation of financial data?

In addition, we want to identify which indicators of financial manipulation are more likely to be manipulated. For this purpose, we intend to answer the following research question:

Research question 2: Which financial indicators are most often manipulated?

To answer the research questions formulated above, we will use a sample of companies represented by a number of 19 non-financial companies listed on the Bucharest Stock Exchange that operate in three different activity fields: construction (9 companies), extractive industry (5 companies) and transportation (6 companies). The information sources are represented by the financial reports for the financial years 2017 and 2018.

To answer Research question 1, we will apply the Beneish (1999) and Robu & Robu (2013) models for the main purpose of analyzing and assessing the risk of fraud triggered by earning management. At the same time, the opinions issued by the financial audit were taken into account in order to be able to correlate the results obtained after calculating the scores with the audit report.

To answer Research Question 2, we will calculate the correlation between the Beneish and & Robu manipulation scores and the variables included in the calculation of these scores. For this purpose we will use the correlation coefficients together with the analysis of multiple regression. These scores were used to determine the level of fraud/ manipulation for the companies in the chosen sample. Comparisons were also made between the two scores. The research questions were tested using a selected sample.

4. Results and discussions

4.1. Results regarding Research question 1

Based on the values of the scores by risk categories of the selected companies, we can see that most companies in the sample chosen by us resort to manipulating the information provided by the financial statements, offering a low degree of credibility. These results are confirmed by the graphs below, where it can be seen that by applying the M-Beneish mode, 58% of the analyzed companies use financial statements, and by applying the Robu model, the percentage is even higher, respectively 79%. However, we consider Robu's model to be much more accurate, unlike the M-Beneish model (1999) which was developed in the American economic context, the model developed by Robu & Robu (2013) is established on the Romanian economic space, and therefore much more appropriate to the realities of Romania.

18th RSEP International Economics, Finance & Business Conference – Virtual/Online
26-27 August 2020, Kadir Has University, Istanbul, Turkey

www.rsepconferences.com   **CONFERENCE PROCEEDINGS/FULL PAPERS**   ISBN: 978-605-06961-5-8/September 2020

Figure 1. Beneish Model versus Robu Model results

At the same time, the opinion issued by the financial auditor was taken into account for each company, in order to be able to correlate the results 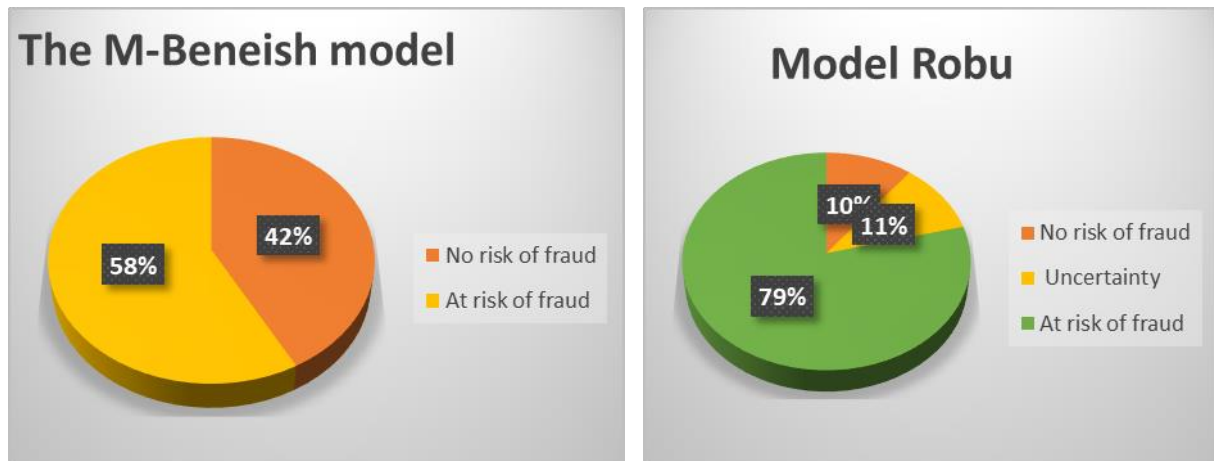obtained after calculating the scores with the audit report. Taking into account the audit opinion issued, only 11% of the selected companies correlate with the result of the score. 85% obtained are unqualified report and 5% have a disclaimer of opinion. This result is worrying in terms of the transparency and trust that an entity should offer to users of financial statements. As Vladu (2016) states: "accounting should faithfully represent economic reality and should not be misleading".

Figure 2. The Financial Auditor opinion
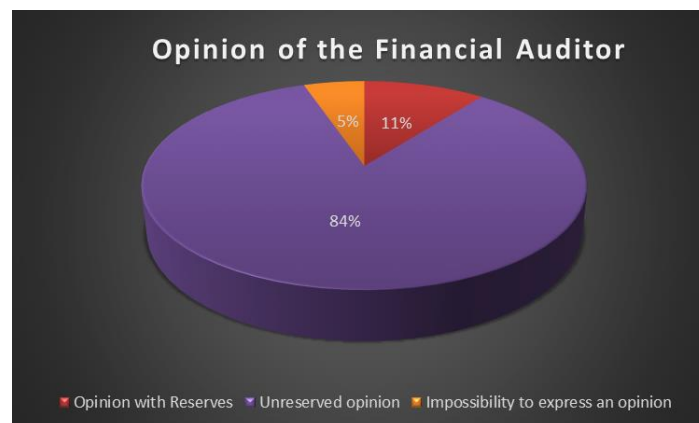
However, in the same note we emphasize the fact that each professional has his own version, reality, way in which an individual relates to life. In this case, every professional accountant relates to the principles of ethics, of sincerity in a different way. Hence the challenge that appears in the accounting profession (Vladu, Oriol And Cuzdriorian, 2016, p.3). As in any other field, when a set of rules or laws are established, there are those loopholes through which those who practice the profession, identify various flexible cases that favor their decision-making process, which do not violate the word of the law, but does not respect its spirit. In the case of the accounting profession, with the establishment of accounting policies in a company (policies that comply with International Financial Reporting Standards), creative accounting appears.

It is known that each person has a unique structure to "function". Each professional has a distinct way of thinking only in certain circumstances our frequencies intersect. It is said that each of us have our own universe,

and our worlds rarely meet. Creative accounting also includes these psychological aspects, the way in which the professional accountant understands this concept, and as a finality applies it. At the same time, the problem is the emphasis on ethical behavior and the way it is assimilated and appropriated by employees as a collective entity, but also as an independent action.

4.2. Results regarding Research question 2

Results regarding Research question 2 regards on the one hand the corelation coefiecients between the financial manipulation scores M-Benesih and Robu & Robu (2013) and on the other hand the indicators included in the models of these scores respectively DSRI, GMI, AQI, SGI, DEPI, SGAI, LVGI and TATA), (Tale 3 and 4).

Table 3 shows the Pearson correlations in pairs between the dependent variable of the Beneish Model and the independent variables of the model.

Table 2. Pearson correlations for the M-Beneish Model

	M Beneish	DSRI	GMI	AQI	SGI	DEPI	SGAI	LVGI	TATA
M Beneish	1								
DSRI	0.1483	1							
GMI	0.9965***	0.0823	1						
AQI	-0.0317	-0.1229	-0.0270	1					
SGI	0.0892	-0.2858	0.0932	0.3183	1				
DEPI	-0.0471	-0.0573	-0.0605	(-)0.4503*	(-)0.4300*	1			
SGAI	-0.0712	-0.0177	-0.0754	-0.3396	-0.0521	0.2848	1		
LVGI	0.3791**	0.0327	0.3865**	0.2460	0.3876**	-0.3254	-0.1315	1	
TATA	0.1897	-0.0523	0.1638	(-)0.5198*	-0.2342	0.5238*	0.1872	-0.3139	1

*the correlation is significant at 0.05; ** the correlation is significant at 0.01; *** the correlation is 0

Table 2 reveals that the highest correlations (which was significant at the significance threshold of no more than 5%). The Indebtedness Index was found in correlation with the Beneish model. At the opposite pole, a positive but insignificant correlation can be observed in relation to the gross margin index. The strongest positive link exists between the Gross Margin Index and M-Benish.

Table 3 shows the Pearson correlations in pairs between the dependent variable of the Risk Fraud Beneish Model and the independent variables of the model.

Table 3. Pearson correlations for the M-RiskFraud Beneish Model

Risk-Fraud Beneish Model	DSRI	GMI	AQI	SGI	DEPI	SGAI	LVGI	TATA
Risk-Fraud Beneish Model	1							
DSRI	-0.3232	1						
GMI	0.6632**	0.0824	1					
AQI	-0.4357*	-0.1230	-0.0270	1				
SGI	0.0301	-0.2859	0.0933	0.3183	1			
DEPI	0.5049*	-0.0573	-0.0605	-0.4503*	-0.4300*	1		
SGAI	0.3327	-0.0178	-0.0754	-0.3396	-0.05214	0.2848	1	
LVGI	0.1292	0.0327	0.3865**	0.2459	0.3877	-0.3254	-0.1316	1	
TATA	0.4467**	-0.0523	0.1638	-0.5198*	-0.2342	0.5238*	0.1873	-0.3139	1

 * the correlation is significant at 0.05 level ** the correlation is significant at 0.01 level *** the correlation is 0

Table 3 reveals the highest correlations (which were significant at the significance threshold of maximum 5%). The indebtedness index was found in correlation with the M-Riscfrauda Beneish model. At the opposite pole, a positive but insignificant correlation can be observed in relation to the gross margin.

The table shows the Pearson correlations in pairs between the dependent variable of the Risk-FraudBeneish Model and the independent variables of the model. Table 3 indicates a weak point between these two variables (r = 0.33269) and are not statistically significant, by running multiple regressions (Tables 2,3). The regressed results accept the assumptions, which means that most companies are perceived to have a high level of manipulation of financial companies.

Table 4. Descriptive statistics and statistical results of simple regressions for the M-Beneish model

Variables	Mean	Standard Deviation	Regression coefficient	Standard errors	t-stat	P
Dependent Variabile						
M-Beneish	-4.0971	14.2436				
Independent Variables						
AQI	0.9730	0.6373	0.6068	0.0993	6.1079	0.6993
Adj. R-squared -0.057754 F=0.017187 P=0.897236 N=19						
DEPI	1.5110	2.3538	0.1154	0.0280	4.1133	0
Adj. R-squared -0.056474 F=0.037809 P=0.848132 N=19						
DSRI	1.2718	1.2780	0.9302	0.0421	22.067	0
Adj. R-squared -0.035531 F=0.382394 P=0.544522 N=19						
GMI	-3.35993	26.48013	0.5284	0.0021	244.3445	0
Adj. R-squared 0.992763 F=24.385 P=0.000000 N=19						
LVGI	1.8136	1.6918	-0.0215	0.0367	-0.5863	0.5454
Adj. R-squared 0.093372 F= 2.853795 P=0.109413 N=19						
SGAI	0.9613	0.4253	0.0380	0.1266	0.3003	0.3329
Adj. R-squared -0.053442 F=0.086848 P=0.771791 N=19						
SGI	1.1344	0.4863	0.9489	0.1279	7.4164	0.0300
Adj. R-squared -0.050385 F=0.136580 P=0.716269 N=19						
TATA	-0.0022	0.1239	5.0467	0.5419	9.3126	0.1913
Adj.R-squared -0.020683 F=0.635246 P=0.436428 N=19						

It can be seen that regarding the simple regressions having as dependent variable M-Benish, only one model emerged significantly from a satistical point of view (sample <0.05), namely that of the independent variable GMI. Analyzing the simple regressions of the variable M-RiskFraud Beneish, we can see the same thing.

Table 5. Descriptive statistics and statistical results of simple regressions for model M-RiskFraud Beneish

Variables	Mean	Standard Deviation	Regression coefficient	Standard errors	t-stat	P
Dependent Variabile						
M-Beneish	0.9483	1.4304				
Independent Variables						
AQI	0.9730	0.6373	-0.6215	0.1452	-4.2794	0.0016
Adj.R-squared 0.142244 F=3.984977 P=0.062181 N=19						
DEPI	1.5110	2.3538	0.2722	0.0410	6.6351	0.0001
Adjusted R-squared 0.223108 F=3.584615 P=0.051721 N=19						
DSRI	1.2718	1.2782	-0.3980	0.0616	-6.4590	0.0001
Adjusted R-squared 0.051773 F=1.982799 P=0.177121 N=19						
GMI	-3.3599	26.4801	0.0383	0.0031	12.1249	0
Adjusted R-squared 0.406988 F=13.35351 P=0.001964 N=19						
LVGI	1.8136	1.6918	0.0315	0.0537	0.5863	0.5706
Adjusted R-squared -0.041144 F= 0.288683 P=0.598029 N=19						
SGAI	0.9613	0.4253	0.6079	0.1851	3.2838	0.0082
Adj. R-squared 0.058373 F=2.115843 P=0.163997 N=19						
SGI	1.1344	0.4863	0.3647	0.1870	1.9504	0.0797
Adjusted R-squared -0.057861 F=0.015463 P=0.902498 N=19						
TATA	-0.0022	0.1239	-0.6905	0.7921	-0.8717	0.4038
Adj.R-squared 0.152540 F=4.239937 P=0.055142 N=19						

Table 6. Models of test manipulation in the M-RiskFraud Beneish function for the selected fields of activity

Variabile	Model 1	Model 2	Model 3
DSRI	0.8803		1.3462**
GMI	0.5341	0.5373**	
AQI		-0.0698*	-2.5980
SGI	1.0680**	-0.0156	
DEPI	0.1768**		
SGAI	-0.1015		
LVGI		-0.0515	3.3993**
TATA			
Adjusted R Square	0.9982	0.9912	0.0096
Prob.	0	0	0
F	2032.449	512.7752	1.0583
N	19	19	19

* the correlation is significant at the level of 0.05 ** the correlation is significant at the level of 0.01; *** the correlation is 0

In the first regression, the Beneish model related to the construction sector was used as a dependent variable and as independent variables: GMI, SGI, DEPI, DSRI, LVGI. A statistically significant model was obtained, as its probability is zero. It can also be seen that most independent variables are statistically significant.

For the extractive industry, we used the same dependent variable, but we modified the independent variables and the regression obtained is also statistically significant.

For the companies that activate in transportation sector, a regression was created using the M-Beneish model as a dependent variable, and as independent variables: LVGI, AQI, DSRI, these being below the threshold of 10% and 5% respectively, are statistically significant.

The above mentioned, answer the first research question more precisely, that the field of activity in which the financial statements are most manipulated is that of transport. Also, the statistical surveys answered the second research question by the fact that the indicators that are most manipulated for companies analyzed are the Gross Margin Index, the Days Sales in Receivables Index, the Asset Quality Index, the Sales Growth Index and the Depreciation Index. The answers to the research questions are confirmed by the statistical processing performed. Following the analyzes performed for the sampled companies, it can be seen that the variables that manipulate the financial statements are the gross margin index that can be identified as a result of the significant increase from one period to another due to fictitious sales. The change in turnover indicator, or increase in sales, may be changed due to an increase in sales from one period to another by recognizing in advance some of the revenue or earnings resulting from fictitious sales. The depreciation index indicates the presence of creative accounting techniques through a high value. In this case, the accountant together with the manager resort to the depreciation of the value of receivables in order to hide the fictitious transactions. This action results in a significant increase in the value of the depreciation from one period to another. Among the reasons why financial statements are manipulated may also be the situation in which a manager, due to extra bonus incentives in the conditions in which he reaches certain predefined thresholds tends to resort to accounting manipulation techniques. Thus, the

index on administrative expenses is correlated with the presence of a remuneration / performance evaluation system, which results in a high number of bonuses granted, so higher values of administrative expenses.

From the above, we interpreted the results obtained from the calculation of both scores, for all three sectors of activity. In general, a balance of results is observed. Due to the fact that the calculation method of the discrimination function differs, different results appear from here. Results that stand out are obtained in the context of the M-Beneish score for Napochim Imobiliare SA (risk of financial fraud), Professional Imo (without risk of fraud) and Dafora SA (without risk of fraud).

Therefore, the general tendency of the selected companies is to manipulate the financial statements. Out of a total of 19 companies selected, according to the M-Beneish score: 6 companies do not manipulate the financial statements, and 13 are at risk of fraud. According to the M-RiskFraud-Beneish score: 2 companies are without risk of fraud, 2 in the gray area of uncertainty, and 15 manipulate the financial statements.

5. Conclusions

Starting from the theoretical aspects related to creative accounting, we wanted to identify the degree of financial statements manipulation in Romania, for 19 companies selected as sample. Eight activate in the construction industry, five in the extractive industry and six in the transport industry. Initially, we wanted to identify the field of activity in which the financial statements has the highest degree of manipulation. Subsequently, following the application of the scores, it was observed that, in all three sectors, most companies use accounting manipulation techniques, but the most common manipulation of financial statements is in the transport sector.
For construction, according to the results of the M-RiskFraud-Beneish model it was highlighted the fact that five of the companies present the risk of financial fraud, and one is located in the gray area, area of uncertainty. Regarding the external auditor opinion, only three companies which resort to earnings management, have qualified opinions, one of them being evaluated of the auditor with a disclamer type of opinion. The rest of the companies recieved the unqalified opinion.

In the extractive industry, out of a total of five companies through the M-RiskFraud-Beneish function, it indicates that three out of a total of five manipulates the financial statements, one is without risk of fraud and one company is in the area of uncertainty. For all five companies, auditors issue unqualified opinions.

In the transport sector, for which the M-RiskFraud-Beneish score was calculated, shows that five out of six companies manipulate the financial statements, and one does not resort to creative accounting. For all companies, auditors issue unqualified opinions.

The following indicators: Gross Margin Index, Days Sales in Receivables Index, the Asset Quality Index, the Sales Growth Index and the Depreciation Index, are the indicators that are the most statistically significant. This aspect suggests that from all the computed indicators, these five are the most statistically significant and commonly handled by the companies selected for this study.

As a percentage, on the one hand, the M-Beneish score indicates that 42% of companies do not handle financial statements and 58% use creative accounting techniques. On the other hand, the M-RiskFraud-Beneish score suggests the presence of creative accounting in the proportion of 79%, its lack of 10.5%, and those with uncertainty in the percentage of 10.5% As reference intervals of the scores obtained, for each of the two models are categorized differently, so hence the percentage division into two and three elements.

Being companies listed on the Bucharest Stock Exchange, we consider that the equation developed by Robu & Robu (2013) based on the eight equations of Beneish (1999), is the closest to the truth. The basis of this equation was developed by performing calculations and tests on listed companies in Romania, so in the Romanian economic context. As well as the analyzed companies, they carry out their activity taking into account the legislation in force in the country and the Romanian economic environment. Another very important aspect is the psychological side that professional accountants have. Every individual is different. When it comes to a society, culture it is formed a "generalized" behavior. Thus, in America we can observe ways of thinking and reporting to

18th RSEP International Economics, Finance & Business Conference – Virtual/Online
26-27 August 2020, Kadir Has University, Istanbul, Turkey

www.rsepconferences.com **CONFERENCE PROCEEDINGS/FULL PAPERS** **ISBN: 978-605-06961-5-8/September 2020**

certain situations much different from us, Romanians. We believe that this aspect must also be taken into account.

At the same time, the discrepancy identified between the results of the scores and the opinions issued by the external auditors should raise a question mark. There are three options: either it is a " human error", lack of professional training, or there are other interests. Auditors should be able to identify the presence of creative accounting, or signal the presence of financial fraud by applying additional audit procedures, and then proceed to report those "red flags" (Robu & Robu, 2013).

Efforts should be made to adopt international auditing quality standards in order to reduce earning management practices, as these practices affect the quality of financial reporting and the decisions of stakeholders (Talab, 2017, p.299).

The basis of this study was the idea of identifying which of the three sectors of activity has a higher level of manipulation of financial statements. Now, at the end we state that creative accounting is also present in the selected companies.

Therefore, in the end it can be concluded that many companies in Romania use creative accounting techniques either due to pressure from stakeholders or as a result of positive/ negative incentives from management, with the ultimate goal to make the financial statements look "good".

References

Achim, M.V & S.N. Borlea (2019). Economic and Financial Crime. Corruption, the underground economy and money laundering. Causes, effects, solutions. Theoretical and practical approaches, Romania:Ed. Economică.

Achim, M.V & S.N. Borlea (2020). Economic and financial crime. Corruption, shadow economy, and money laundering. Romania: Springer Nature Switzerland AG.

Balaciu, D. & Pop,C.M.(2008)." Is Creative Accounting a Form of Manipulation?".*Annals of the University of Oradea, Economic Science* , 17(3), pp.936-941.

Beneish, M. D., & Press, E. (1993)."Costs of technical violation of accounting-based debt covenants". *The Accounting Review*, 68 (2), pp (233–257).

Bertolus, J. (1988). "L'art de truquer un bilan". *Science &Vie Economie*, 40.

*** Bursa de Valori Bucureşti, Raport annual publicat de companiile selectate în eşantion http://www.bvb.ro/.

Cernusca, L., D. David, C. Nicolaescu & Gomoi, B.C (2016). "Empirical Study on the Creative Accounting Phenomenon". *Studia Universitatis „Vasile Goldis" Arad*, 26, No 2, 63-87.

Cernuşcă, L.B, Gomoi,C.B. & Condea, B.V. (2009). " Results Manipulation and Accounting Fraud". *Contabilitatea, expertiza şi auditul afacerilor*, no.1, p.18-22.

Dechow, P., M., Richard G. S., & A.P.,Sweeney. (1995). "Detecting earnings management." *Accounting review* 193-225.

Dragomir L., Secrieru V.,& Darii I., (2017). „The role of internal audit in fraud prevention and detection, Modern paradigms of economics and innovative entrepreneurship", Ediția a XII-a, p.144-146.

Feleagă,N.,&Malciu,L.(2002).Accounting policies and options. Fair accounting versus Bad Accounting, Bucuresti: Editura Economica.

Giroux, G. (2017). "Accounting Fraud: Maneuvering and Manipulation" *Past and Present*. Business Expert Press.

Groşanu, A. (2013). Creative accounting, Ed. ASE, Bucureşti, 2013,p.15-66.

Hasan, M. S., Omar, N., Barnes, P., & Handley-Schachler, M. (2017). "A cross-country study on manipulations in financial statements of listed companies." *Journal of Financial Crime*.

Hussein, H., Kasim, N., & Arumugam, V. (2015). "A review of creative accounting practices and its area, technique and ways of prevention". *International Journal of Science and Research*, *4*(10), 1377-1381.

International Financial Reporting Standards (IFRS) (2019), International Accounting Standards Board (IASB), © IFRS Foundation.

Jones, M. J. (2010). Creative accounting, fraud and international accounting scandals. John Wiley & Sons.

Jones, M.(2010)."Auditorii si frauda-sfârsitul" câinilor de paza" si al" copoilor" din domeniul financiar/Auditors and Fraud-and the end of Watchdogs and Bloodhounds." *Audit Financiar* 8(4), 46.

Oriol, A., Blake, J. & Dowds J. (1999). "The Ethics of Creative Accounting, Economics Working Paper". *Journal of Economic Literature classification*: M41.

Perols, J. L., & Lougee, B. A. (2011). "The relation between earnings management and financial statement fraud". *Advances in Accounting*, 27(1), 39-53.

Ramírez-Orellana, A., M.J. Martínez-Romeroa & T.Marino-Garrido(2017)." Measuring fraud and earnings management by a case of study: Evidence from an international family business". *European Journal of Family Business* 7 (1-2), January-December 2017, pp.41-53.

Repousis, S. (2016)."Using Beneish model to detect corporate financial statement fraud in Greece". *Journal of Financial Crime*, 23 (4), p.1063-1073.

Robu I.B& Robu M.A (2013). „Proceduri de audit pentru estimarea riscului de fraudă bazate pe indici de detectare a manipulărilor contabile", *Audit financiar*, XI, no. 106: p.4-15.

Safta I.L, Achim M.V& Borea S.N. (2020)."Manipulation of financial statements through the use of creative accounting. Case of Romanian companies" *Studia Universitatis „Vasile Goldiş" Arad – Economics,* Series, 30 , pp. 90-107.

Shapiro, C. & H.R. Varian (1997). "US government information policy." *University of California, Berkeley.*

Standardul Internaţional de Audit 240 the auditor's responsibility to consider fraud and error in an audit engagement of the financial statements, available, available:http://auditeam.ro/wp-content/uploads/240-Responsabilitatea-auditorului.pdf.

Talab, H. R., Flayyih, H. H., & Ali, S. I. (2018). "Role of Beneish M-score Model in Detecting of Earnings Management Practices: Empirical Study in Listed Banks of Iraqi Stock Exchange". *International Journal of Applied Business and Economic Research*, 15, no. 23, p.291-299..

Vladu, A.B., Amat, O. & Cuzdriorean (2016). „Truthfulness in Accounting: How to Discriminate Accounting Manipulators from Non-manipulators", *Journal of Business Ethics*, p.1-16.

Watts, R. L., & Zimmerman, J. L. (1986). Positive accounting theory. Prentice Hall

Wells, J. T. (2017). Corporate fraud handbook: Prevention and detection. John Wiley & Sons.

Widad, A.F, (2015). "Creative accounting practices in the vision of professional accountants". *Audit financiar*, XIII, No. 7(127)/2015, 59-72 ISSN: 1583-5812; ISSN on-line: 1844-8801.

The Research of Manager's Perception about the Importance of Quality Management Tools and Techniques at Croatian Companies

Marija Šiško Kuliš
Ph.D. Student in Economics, Faculty of Economics, University of Rijeka, Croatia
marija.sisko-kulis@hep.hr

Senad Hodžić
International School of Higher Education, Bosnia and Herzegovina
senad-hodzic@live.com

Abstract

The aim of this paper is to show a possible link between using ISO 9001 certificate and manager perceptions about the importance of quality management tools and techniques at companies. Research question: Is there a difference in the managerial perception of the importance of quality management tools and techniques between the managers of companies that use ISO 9001 certificate or are in the process of acquiring it and those companies that are not certificated? The author of this paper has designed and conducted survey about differences of managers' perception about the importance of quality management tools and techniques in companies that use or do not use ISO 9001 certificate. Research scope was the Republic of Croatia. The sample were companies from the electro-power sector and the metal industry, and the unit testing was the manager. The survey questionnaire was sent by e-mail to the addresses of the managers from 500 companies and 202 companies returned the completed survey questionnaire. The results of this investigation confirmed the initial hypothesis that the manager's perception of the importance of quality management tools and techniques statistically significantly differs between companies that use ISO quality management certificate or are in the process of acquiring it and those companies that are not certified.

Keywords: Quality, tools, technique, manager, ISO 9001
JEL Codes: J24, D22, M11, M21

1. Introduction

The synergistic effect of quality management tools and techniques and other elements of continual improvement are important for the success of the company. Although the quality management tools and techniques are an integral part of the quality management system, they alone cannot achieve continual improvement of the process. Before applying quality management tools and techniques, it is important to promote a culture of quality and establish a framework of Total Quality Management (TQM) in the company (Rahman & Shams-Ur, 1995). Also, some researchers believe that quality management systems can only have positive effects on the business performance of the companies with an adequate application of quality management tools and techniques (Sousa & Voss, 2002), and management motivation and understanding are a critical factor of continual improvement of the process in the companies that use ISO 9001 certificate (Karemani & Kapaj, 2016).

Management commitment and continual improvement of the process are the two most important critical factors of quality management (Kelly, 2009), and the quality management tools and techniques implementation is a critical factor for continual improvement of the process (Bunney & Dale, 1997; Stephens, 1997; Heras - Saizarbitoria, 2011**;** Ismyrlis & Moschidi, 2015). Considering all of the above, it can be concluded that the attitude of the management (manager) about the importance of quality management tools and techniques affects the quality management system in the company.

However, despite the mentioned observation, insufficient and inadequate application of quality management tools and techniques is evident in the companies (Sitkin, 1994; Wilkinson, 1998; Zhang, 2000; Sousa & Voss,

18th RSEP International Economics, Finance & Business Conference – Virtual/Online
26-27 August 2020, Kadir Has University, Istanbul, Turkey

www.rsepconferences.com   CONFERENCE PROCEEDINGS/FULL PAPERS   ISBN: 978-605-06961-5-8/September 2020

2002), which implies the main research question i.e. the influence of ISO 9001 certificate on managerial perception about the importance of quality management tools and techniques.

This topic is best illustrated by the following words: *It is not what people don't know about quality that gets them in trouble, it's what they think they know that's the problem.* (Crosby, 1979).

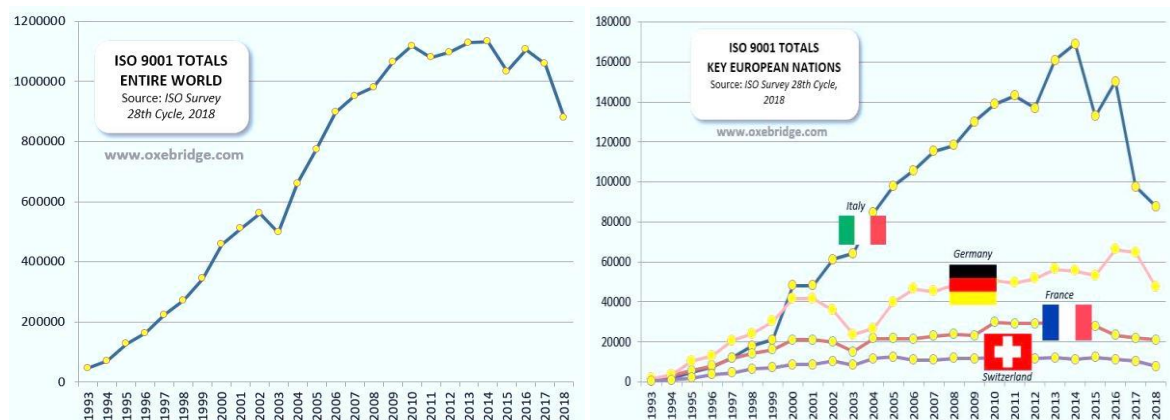This research is of a pioneering character because there is no knowledge of a prior similar research.

2. Literature Review and Development Hypothesis

2.1 ISO 9001 Standard

ISO 9001 is an international standard for quality management systems that was first published by ISO (*International Organization for Standardization*) in 1987. The standard went through four more editions: in 1994, then in 2000, also in 2008 and the last, fifth edition released in September 2015 that represents a replacement for all previous versions of this standard.

The ISO 9001 standard can be applied to all types of organizations, regardless of size, activity or geographical location (Heuvel et al., 2005). Over a million companies in the world have this certificate according to a ISO Survey 2018 (ISO, 2019; Fonseca et al. 2015; Casadesus et al., 2008; Karthi et al., 2012) and the further trend of growth (Karthi et al., 2012), Figure 1.

**Figure 1.** Annual growth of the number of ISO 9001 certificates in the world and Europe

Source:https://www.oxebridge.com/emma/iso-survey-2018-analysis-facing-20-loss-of-iso-9001-certs-worldwide-iso-dismantles-data-trending/ (2020/08/01)

The number of certified companies in Croatia in 2018 is 878,664 and it is still growing (Štajdohar-Pađen, 2019).

ISO 9001 is structured in ten sections. The first three sections are introductory and the last seven sections contain requirements for quality management system: section 4 - Context of the organization; section 5 – Leadership; section 6 - Planning; section 7 - Support; section 8 - Operation; section 9 – Performance evaluation; section 10 – Continual improvement (Heras-Saizarbitoria, 2018).

Two sections are important for the context of this research: the section related to management responsibility and the section related to a continual improvement, Figure 2.

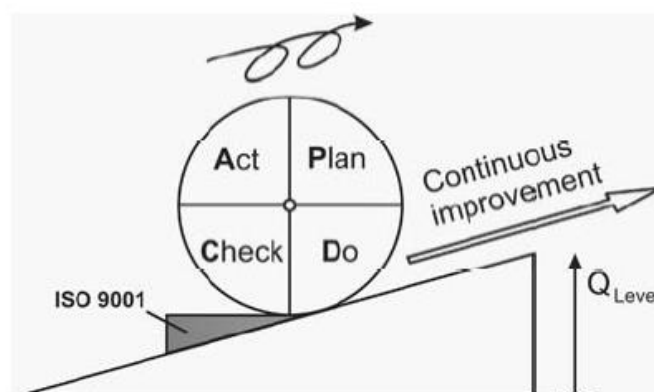**Figure 2.** ISO 9001 standard requirements for a quality management system
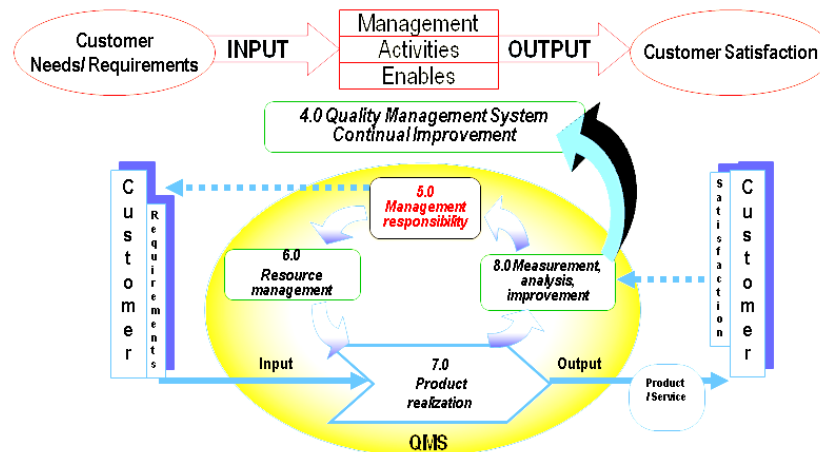
Source: http://www.isorequirements.com/iso_9001_5_management_responsibility.html (2020/07/05)

In fact, the company managers should show the commitment (support) to the quality management system by ensuring focus on a client, defining and communicating quality policy and assigning roles and responsibility throughout the organization (Heras-Saizarbitoria, 2011; Sitkin, 1999). This can only be achieved on the basis of the correct decisions and correct decisions can be made by the manager by an adequate application of quality management tools and techniques.

Moreover, all of this can be realized through continual improvement, which is described in Section 10 of this standard. This section includes requirements needed for continual quality management improvement (Koc, 2007; Marin & Ruiz - Olalla, 2011).

Continual improvement is based on the PDCA (*Plan, Do, Check, Act*) cycle of quality, also referred to as Deming cycle (Soković et al., 2010; Fonseca et al. 2015) which uses quality management tools and techniques in each stage, Figure 3.

Figure 3. PDCA cycle, ISO 9001 continual improvement

Source: Sokovic et al. (2010)

18th RSEP International Economics, Finance & Business Conference – Virtual/Online
26-27 August 2020, Kadir Has University, Istanbul, Turkey

www.rsepconferences.com   **CONFERENCE PROCEEDINGS/FULL PAPERS**   **ISBN: 978-605-06961-5-8/September 2020**

Deming cycle consist of four stages:

- Stage **Plan** which includes: *The Quality Concept and Objectives, Statutory Considerations, Product Liability and Product Safety, Training for Quality, The Control of Design.*
- Stage **Do** which includes: *Procurement, Just-in-Time Supplies, Process Capability, Product Reliability, Materials Handling, Servicing, Service Quality, Documentations and Records, Controlling Changes, Standards, Standardization, Conformity and Compatibility.*
- Stage **Check** which includes: *An Introduction to Statistics, Control Charts, Inspection, Functional Testing, Inspection and Measurement Equipment, Metrology, Quality Audits and Reviews, Quality- and Safety-related Cost, Benchmarking.*
- Stage **Act** which includes: *Managing Nonconformity, Improvement, ISO 9001 Certificate, Cultural and Organizational Aspects, Total Quality Management, Environmental Management Systems, Management System Integration.*

It is evident that Deming cycle uses quality management tools and techniques in each stage and that stage *Act* contains ISO 9001 certificate which is the basis for continual improvement (Heras-Saizarbitoria, 2018). Furthermore, *Act* is the most important stage of Deming cycle in which, after the completion of one cycle, what has been done is reviewed and a new cycle of improvement starts (Sokovic et al., 2010; Fonseca et al., 2015).

2.2 Quality management tools and techniques

As mentioned before, in the conditions of increasingly complex market economy, managers face problems in making complex and difficult decisions and use more quality management tools and techniques in identification, analysing and solving problems.

Besides, the quality requirements are dictated by customers and a good decision supports company's aims in achieving what is a priority, valuable and significant **(**Omar & Kleiner, 1997**).**

In order to meet customers' wishes, needs and requirements of products and/or services, quality management tools and techniques which represent a set of knowledge about collection, accuracy and reliability, analysis, synthesis, presentation and control of data are represented (Lazić, 2006).

Furthermore, quality management tools and techniques are the basis (McQuater at al. 1995; Bunney & Dale, 1997) and one of nine critical factors (Formento et al., 2013) or even the most critical factor of continual improvement of the process in the company (Spring et al., 1998).

Moreover, in the end, by increased use of quality management tools and techniques, the company ensures the improvement of business performance (Das et al., 2000; Ahmed & Hassan, 2003).

Nowadays, over three hundred of quality management tools and techniques and dozens of their classifications, with minor or major differences, are used in the world (Lazić, 2006; Sokovic et al., 2010; Formento et al., 2013).

It is hard to distinguish between quality management tools and techniques, so the majority of researchers observe it as a whole (Ahmed & Hassan, 2003; Bunney & Dale, 1997).

The classification of quality management tools and techniques determined by ISO 9000 standards is shown in the table 1.

Table 1. Quality management tools and techniques, ISO 9000 (developed by authors)

Standard point	Tools and techniques term	Application
A1	Collecting data forms	Systematic data collection
Tools and techniques for attribute data		
A2	Affinity diagram	Organize ideas and data about specific topic
A3	Benchmarking	Comparing with leaders (known and recognized)
A4	Brainstorming	Generating ideas for problem solving
A5	Ishikawa diagram	Finding problem causes (consequences)
A6	Flow diagram	Representing existing and designing a new process
A7	Tree diagram	Showing relationship between the topic and its constituents
Tools and techniques for numerical data		
A8	Control chart	Controlling and monitoring the process
A9	Histogram	Graphic display of data
A10	Pareto diagram	Indicates the relative importance
A11	Correlation diagram	Determining the existence of data dependence

However, one of the most famous classification of quality management tools is (Shahin et al., 2010):

- seven basic management tools: Pareto diagram, flow diagram, cause and effect diagram, exam sheet, histogram, scatter diagram, control charts

- seven new management tools: affinity diagram, relational diagram, priority matrix, tree diagram, matrix diagram, PDCP (*Process Decision Program Chart*) and network diagram.

Seven new management tools are increasingly attractive to managers and other decision makers and they show an increasing trend of growth.

The application of quality management tools and techniques is in the focus of interest of numerous researchers and the overview of the recent research of quality management tools and techniques, shown in the table 2, confirms it.

Table 2. An overview of the recent empiric research of quality management tools and techniques (developed by authors)

Researcher	Year	Subject of research
Ahmed & Hassan	(2003)	Survey and case investigations on application of quality management tools and techniques in SMI.
Tari & Sabater	(2004)	Quality tools and techniques: Are they necessary for quality management?
Thia et al.	(2005)	An exploratory study of the use of quality tools and techniques in product development
Sousa et al.	(2005)	Performance measures and quality tools in Portuguese small and medium enterprises: Survey results.
Bamford & Greatbanks	(2005)	The use of quality management tools and techniques: a study of application in everyday situations.
Hermann et al.	(2006)	An empirical study of QFD on company Performance.
Hagemeyer & Gershenson	(2006)	Classification and application of problem solving quality tools: A manufacturing case study.
Alsaleh	(2007)	Application of quality tools by the Saudi food industry.
Uhar	(2007)	An exploratory study on accounting for quality management in top 500 industrial enterprises in Turkey
Fotopoulos & Psomas	(2009)	The use of quality management tools and techniques in ISO 9001:2000 certified companies: The Greek case.
Fotopoulos, & Psomas	(2009)	The use of quality management tools and techniques in ISO 9001:2000 certified companies: The Greek case. International Journal of Productivity and Performance Management.
Heras - Saizarbitoria	(2009)	Impact of quality improvement tools on the performance of firms using different quality management systems.
Clegg et al.	(2010)	A study into the effectiveness of quality management training: A focus on tools and critical success factors.
Shahin et al.	(2010)	Proposing an Integrated Framework of Seven Basic and New Quality Management Tools and Techniques: A Roadmap.
Psomas et al.	(2011)	Core process management practices, quality tools and quality improvement in ISO 9001 certified manufacturing companies.
Ismyrlis & Moschidis	(2015)	The use of quality management systems, tools, and techniques in ISO 9001:2008 certified companies with multidimensional statistics: the Greek case.

18th RSEP International Economics, Finance & Business Conference – Virtual/Online
26-27 August 2020, Kadir Has University, Istanbul, Turkey

www.rsepconferences.com **CONFERENCE PROCEEDINGS/FULL PAPERS** **ISBN: 978-605-06961-5-8/September 2020**

Krstić	(2016)	The application of quality management (TQM) to enhance the competitiveness of agricultural entities.
Teryima et al.	(2016)	The Application of Total Quality Management (TQM). Approaches and Tools in Enhancing Goal Attainment in the Nigerian Brewery Manufacturing Firms: A Survey of Selected Brewery Manufacturing Firms in Nigeria.
Castello et al.	(2019)	Use of quality tools and techniques and their integration into ISO 9001: A wind power supply chain case.
Kutnjak et al.	(2019)	Improving Competitiveness of Small and Medium-Sized Enterprises with the Application of Quality Management System.
Soundararajan, & Janardhan Reddy	(2020)	Quality improvement through the application of quality tools and simulation technique: a case study in a SME.

The famous statement by Ishikawa indicates the importance of the quality tools best: *As much as 95% of quality related problems ... can be solved with seven foundamental quntitative tools* (Ishikawa, 1985).

2.3 Hypothesis of research

Quality management tools and techniques are in the focus of many theoretical and empiric research, as well as ISO 9001 standard and its implementation in the companies. However, despite the above, no one has so far researched the managerial perception of the importance of quality management tools and techniques and their connection to ISO 9001 standards. That is exactly the specific contribution of this research.

Hypothesis of this research is:

There is a difference in the perception of the importance of quality management tools and techniques between the managers of companies that use ISO 9001 certificate or are in the process of acquiring it and the managers of companies that are not ISO 9001 certificated.

Management commitment is one of the critical factors of quality management (Ahire et al. 1996; Black & Porter, 1996; Das et al. 2006), as well as continual improvement of the process (Hill & Wilkinson, 1995; Claver et al., 2003). The application of quality management tools and techniques is a critical factor of continual improvement of the process (Bunney & Dale, 1997, Stephens, 1997), which is closely related to ISO 9001 standard (Fotopoulos & Psomas, 2009; Ismyrlis & Moschidis, 2015).

3. Research Methodology

3.1 Sample Selection and Data Collection

The scope of this empiric research was the overall territory of the Republic of Croatia, the subject of the research (unit of choice and unit of analysis) was a company and the unit of research was a manager.

The reason for selecting such a research subject is a fact that the role of the manager is identified as a main determinant of the successful implementation of quality management tools and techniques.

Sample selection of this research was over 200 companies from Croatia that are registered to perform production activities (metal processing industry or electro industry). The research lasted for five months, in the period from May to November 2019.

The basic instrument of the primary research was an electronic questionnaire survey, sent by e-mail to 500 addresses.

The mentioned questionnaire was formed on the basis of the presented theoretical knowledge and experience of other researchers and it included questions divided into two thematic units:

- data on the business entity and the company status related to quality certificate.

- questions related to the importance of quality management tools and techniques in the company: the importance related to five functions of management; the importance related to the quality management systems; the importance related to continual improvement of the process.

Most of the questions from the survey questionnaire were in the form of multiple choice statements. Intensity of agreeing/disagreeing with each of offered statements was measured using 6 point Likert scale: (1) disagree, (2) slightly disagree, (3) moderately, (4) slightly agree, (5) agree, (6) strongly agree.

3.2 Variables

The conceptual model of managerial perception of the importance of quality management tools and techniques in the company represents the variable that includes three basic parameters, Figure 4:

- the importance of quality management tools and techniques for five functions,
- the importance of quality management tools and techniques for quality management systems and
- the importance of quality management tools and techniques for continual improvement process.

Figure 4. Conceptual model of managerial perception of importance of quality management tools and techniques in the company (developed by authors)
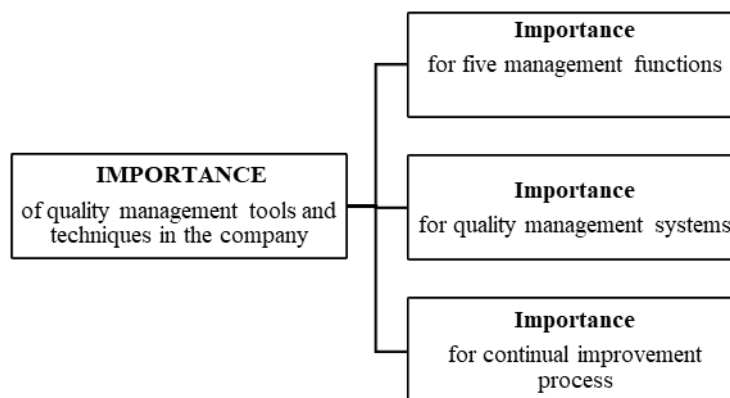
3.3 Method

This research included elements of theoretical and empiric types of research, using different scientific research methods.

Theoretical research included analysis of relevant secondary research in the field of quality management tools and techniques and application of ISO 9001 standard.

The empirical research included two main parts: the primary research – survey questionnaire and statistical processing of research results.

Data collected by the primary survey research were analysed by the greater number of appropriate statistical methods: descriptive statistical analysis and analysis of variance (ANOVA).

18th RSEP International Economics, Finance & Business Conference – Virtual/Online
26-27 August 2020, Kadir Has University, Istanbul, Turkey

www.rsepconferences.com   **CONFERENCE PROCEEDINGS/FULL PAPERS**   ISBN: 978-605-06961-5-8/September 2020

The entire statistical data analysis was performed by software package SPSS 17.0 (Statistical Package for Social Sciences, version 17.0).

4. Findings and Discussion

The survey questionnaire was sent to 500 companies and 82 companies that are not ISO 9001 certificated and 120 companies that use ISO 9001 or are in the process of acquiring it responded.

Thus, the data acquired from the survey research were sufficient for a valid analysis and discussion.

In table 3, the average ratings of the importance of quality management tools and techniques for each of three parameters of the importance of quality management tools and techniques are presented.

Table 3. Average ratings of the importance of quality management tools and techniques

| | ISO 9001 certificate | |
| | Have it or in the process of acquiring it | Do not have it |
	Mean	Mean
The importance for five management functions	4.01	2.19
The importance for quality management system	3.11	1.55
The importance for continual improvement process	3.01	1.71

The average value of the importance parameter of quality management tools and techniques is 2.19 in the group of companies with ISO 9001 certificate, which corresponds to *slightly disagree* on Likert measurement scale. In the group with ISO 9001 certificate the value of the mentioned parameter is 4.01, which corresponds to *slightly agree* on Likert measurement scale.

The average parameter value of quality management tools and techniques for quality management systems is 1.55 for the companies with no ISO 9001 certificate, which corresponds to *disagree* on Likert measurement scale. In the group with ISO 9001 certificate, the value of the mentioned parameter is 3.1, which corresponds to *moderately* on Likert measurement scale.

The average value of the importance parameter of quality management tools and techniques for continual improvement process is 1.71 for the companies with no ISO 9001 certificate, which corresponds to *disagree* on Likert measurement scale. In the group of the companies with ISO 9001 certificate, the value of the mentioned parameter is 3, which corresponds to *moderately* on Likert measurement scale.

These differences between the two groups of the companies are tested with F-test (table ANOVA) for individual variables, table 4.

Table 4. Anova analysis- rating of the importace of quality management tools and techniques

		Sumo of Squares	df	Mean Square	F	Sig.
The importance for five management functions	Between Groups	241.245	1	241.245	341.3388	.000
	Within Groups	143.003	202	.701		
	Total	344.842	203			
The importance for quality management system	Between Groups	210.111	1	210.115	235.221	.000
	Within Groups	161.007	202	.823		
	Total	371.118	203			
The importance for continual improvement process	Between Groups	117.525	1	123.729	130.773	.000
	Within Groups	201.113	202	.9175		
	Total	318.681	203			

From table 4, the significant difference in the managerial perception of the importance of quality management tools and techniques between the companies with ISO 9001 certificate and those without it is evident.

Such results can be attributed to the knowledge (tacit and explicit) and the experience that managers acquire during the certification process and later during the implementation of ISO 9001 standard in the company.

5. Conclusion

Quality management tools and techniques are important for the management as well as for the company as a whole, which manifests through the realisation of five management functions, quality management and also for the continual improvement of the process in the companies.

The result of the conducted research confirms the main hypothesis of the research that there is a difference in the perception of the importance of quality management tools and techniques between company managers that use ISO 9001 certificate or are in the process of acquiring it and company managers that are not ISO 9001 certificated.

This research has several contributions which are evident in:

- developing scientific thought about the importance of quality management tools and techniques,
- developing and testing perception models of the importance of quality management tools and techniques,
- encouraging scientists and business people to further develop and apply quality management tools and techniques.

Recommendations for further research are as follows:

- broadening the research range to the countries in the region, comparison of the results and finding possible causes of deviation;
- research of the perception influence of the importance of quality management tools and techniques on the business performance of the companies.

References

Ahire, S., Golhar, D., & Waller, M. (1996). Development and validation of TQM Implementation constructs, Decision Sciences, Vol.27, No.1, pp. 23-56.

Ahmed, S., & Hassan, M. (2003). Survey and case investigations on application of quality management tools and techniques in SMI s. International Journal of Quality & Reliability Management, 20(7), 795-826.

Alsaleh, N.A. (2007). Application of quality tools by the Saudi food industry. The TQM Magazine, 19(2), pp. 150–161. doi: 10.1108/09544780710729999

Bamford, D. R. & Greatbanks, R. W. (2005). The use of quality management tools and techniques: A study of application in everyday situations. International Journal of Quality & Reliability Management, 22(4), pp.376-392. https://doi.org/10.1108/02656710510591219.

Black, S., & Porter, L. (1996). Identification of critical factors of TQM, Decision Sciences, Vol. 27, No. 1, pp. 1-21.

Boje, D.M., & Winsor, R. (1993). The Resurrection of Taylorism: Total Quality Management's Hidden Agenda, Journal of Organizational Change Management, Vol. 6 (4): pp. 57-70.

Bunney, H.S., & Dale,B.G. (1997). The implementation of Quality, Managament Tools and Techniques: A Study. The TQM Magazine, Vol.9, No.3, pp 183-189.

Casadesus, M., Marimon, F., & Alonso, M. (2010). The future of standardised quality management in tourism: evidence from the Spanish tourist sector, The Service Industries Journal, 30:14, pp. 2457-2474, DOI: 10.1080/02642060802712822.

Castello, J., De Castro, R., & Marimon, F. (2019) Use of quality tools and techniques and their integration into ISO 9001: A wind power supply chain case, International Journal of Quality & Reliability Management, Vol. 37 No. 1, pp. 68-89. https://doi.org/10.1108/IJQRM-07-2018-0171 □ Download as .RIS

Claver, E., Tan, J.J., & Molina, J.F. (2003). Critical factors and results of quality Management: an empirical study, Total Quality Management, Vol. 14 No.1, 2003, pp. 91-118.

Clegg, B., Rees, C., & Titchen, M. (2010). A study into the effectiveness of quality management training: A focus on tools and critical success factors. The TQM Journal, 22(2), pp. 188–208. doi: 10.1108/17542731011024291 [Crossref], [Google Scholar

Costa, Nuno R. P. and Pires, Antonio R., Celma O. Ribeiro, (2006). Guidelines to help practitioners of Design of Experiments, The TQM Magazine, Vol. 18, No. 4, pp 386 – 399, 2006.

Crosby, B.P. (1979). Quality is Free: the Art of Making Quality Certain, Penguin Books, New York, N Y, pp. 123.

Das, A., Paul, H., Swierczek, F.W., & Laosirihongthong, T. (2006). Updating and Validating Total Quality Management (TQM) Constructs, proceeding of 11th International conference on ISO 9000 & TQM (11-ICIT), Hong Kong, pp,10-12.

Deming, W.E.(1982). Quality, Productivity, and Competitive Position, MIT Center for Advanced Engineering Study, Cambridge, MA.

18th RSEP International Economics, Finance & Business Conference – Virtual/Online
26-27 August 2020, Kadir Has University, Istanbul, Turkey

www.rsepconferences.com   **CONFERENCE PROCEEDINGS/FULL PAPERS**   ISBN: 978-605-06961-5-8/September 2020

Evans, J.R, Lindsay, W.M. (1999). The Management and Control of Quality, 4th ed, South-Western Col.

Fonseca, L., Lima, V., & Silva, M. (2015). Utilization of quality tools: does sector and size matter? International Journal for Quality Research 9(4) pp 605–620.

Formento, H.R., Chiodi, F.J., Cusolito, F.J., Altube, L.A., & Gatti, S.P. (2013). Key factors for a continuous improvement process. Independent Journal of Management & Production (ijm&p).pp 391-415. DOI: 10.14807/ijmp.v4i2.76

Fotopoulos, C., & Psomas, E. (2009). The use of quality management tools and techniques in ISO 9001:2000 certified companies: The Greek case. International Journal of Productivity and Performance Management, 58(6), pp. 564–580. doi: 10.1108/17410400910977091.

Hagemeyer, C., & Gershenson, J. K. (2006). Classification and application of problem solving quality tools: A manufacturing case study, The TQM Magazine, Vol. 18, No. 5, pp, 456 – 483.

Hamdouni, S. (2016). To determine if an international project management methodology may be (unwittingly) the cause of low project success rates due missing tools and techniques. An Exploratory study. A report submitted in partial fulfilment of the requirements for a Master in Business Administration, Project Management specialty at Cardiff Metropolitan University. https://www.researchgate.net/publication/330364845.

Heras-Saizarbitoria, I. (2018). ISO 9001, ISO 14001, and New Management .Standards. Springer International Publishing AG 2018. https://doi.org/10.1007/978-3-319-65675-5.

Heras-Saizarbitoria, I., (2011). Internalization of ISO 9000: an exploratory study, Industrial Management & Data Systems, 111(8-9), pp.1214-1237.

Hermann, A., Huber, F., & Algerheime, R. (2006). An empirical study of QFD on company performance, International journal of quality and reliability management, Vol. 23, No. 4, pp 345 – 366, 2006.

Heuvel J., Koning, L., Bogers, A.J.J.C., Berg, M., & van Dijen, M.E.M (2005). An ISO 9001 quality management system in a hospital, bureaucracy or just benefits? Int J Health Care Qual Assur 18(5): pp.361–369.

Hill, S., & Wilkinson, A. (1995). In Search of TQM, Employee Relations, 17 (3), 1995, pp. 9-20

Ismyrlis, V., & Moschidis, O. (2015). The use of quality management systems, tools, and techniques in ISO 9001:2008 certified companies with multidimensional statistics: the Greek case, Total Quality Management & Business Excellence, 26:5-6, 497-514, DOI: 10.1080/14783363.2013.856543.

Karemani, A., & Ilir Kapaj , I.(2016). The relationship between ISO 9001 and Total Quality Management: Analysis of SME-s in the Polog Region – Macedonia. International Journal of Social Sciences and Education Research Volume: 2(3), 2016. pp 7'3-707. Online, http://dergipark.gov.tr/ijsser

Karthi, S., Devadasan, S. R., Murugesh, R., Sreenivasa, C. G., & Sivaram, N. M. (2012). Global views on integrating Six Sigma and ISO 9001 certification, Total Quality Management & Business Excellence, 23:3-4, 237-262, DOI: 10.1080/14783363.2011.637803.

Kelly, J. M. (1997). Total Quality Management, pp.50. Potecon, Zagreb.

Koc, T., (2007). The impact of ISO 9000 quality management systems on manufacturing, Journal of Materials Processing Technology, 186(1-3), pp. 207-213.

Kristić, J. (2016). The application of quality management (TQM) to enhance the competitiveness of agricultural entities (PhD thesis summary), Poljoprivreda, Vol. 22, No. 2, pp. 70-70,

Lazić, M. (2006). Алати, методе и технике унапређења квалитета - Др Миодраг Лазић. Универзитетски уџбеник. Факултет инжењерских наука Универзитета у Крагујевцу.

Marin, M.L., Ruiz-Olalla, C.M., (2011). ISO 9000:2000 certification and business results, International Journal of Quality & Reliability Management, 28(6), pp. 649.

McQuater, R.E., Scurr, C.H., Dale, B.G., & Hillman, P.G. (1995). Using quality tools and techniques successfully. The TQM Magazine, Volume 7, Number 6, 1995, pp. 37-42.

Omar, T.A., & Kleiner, B.H. (1997). Effective decision making in the defence industry, Aircraft Engineering and Aerospace Technology, Vol.69, No.2, pp. 151–159.

Psomas, E., Fotopoulos, C., & Kafetzopoulos, D. (2011). Core process management practices, quality tools and quality improvement in ISO 9001 certified manufacturing companies. Business Process Management Journal, 17(3), pp. 437–460. doi: 10.1108/14637151111136360.

Putri, N.T., & Yusof, S.M. (2008). A Review of Quality Engineering Tools and Techniques Practices in Malaysia's and Indonesia's Automotive Industries and an Agenda for Future Research. Proceedings of the 2008 IEEE ICMIT. pp.449-456.

Rahman & Shams-Ur, (1995). Product development stages and associated quality management approaches, The TQM Magazine, Vol. 7, No. 6, pp 25 – 30, 1995.

Shahin, A., Arabzad, S.M., & Ghorbani, M. (2010). Proposing an Integrated Framework of Seven Basic and New Quality Management Tools and Techniques: A Roadmap. Research Journal of Internatıonal Studıes - Issue 17.

Sitkin, S.B., Sutcliffe, K.M., & Shroeder, R.G. (1994). Distinguishing control from learning in total quality management: a contingency approach, Academy of Management Review, Vol. 19 No.3, pp.537-64.

Sokovic, M., Pavletic, D., & Kern Pipan, K. (2010). Quality Improvement Methodologies – PDCA Cycle, RADAR Matrix, DMAIC and DFSS. Journal of Achievements in Materials and Manufacturing Engineering.Volume 43 Issue 1.pp 476-483.

Soundararajan, K., & Janardhan Reddy, K. (2020). Quality improvement through the application of quality tools and simulation technique: a case study in a SME. International Journal of Six Sigma and Competitive Advantage . List of Issues .Volume 12, Issue 1.

Sousa, R., & Voss, C.A. (2002). Quality management re-visited: a reflective review and agenda for future research, Journal of Operation Management, Vol. 20 No.1, pp.91-109.

Sousa, S.D., Aspinwall, E., Sampaio, P.A., & Guimarães Rodrigues, A. (2005). Performance measures and quality tools in Portuguese small and medium enterprises: Survey results. Total Quality Management & Business Excellence, 16(2), 277–307. doi: 10.1080/14783360500054434.

Spector, B., & Beer, M. (1994). Beyond TQM programms, Journal of Organizational Change Management, 7, 2, pp. 63-70.

Spring, M., McQuater, R., Swift, K., Dale, B., & Booker, J., (1998). The use of quality tools and techniques in product introduction: an assessment methodology", The TQM Magazine, Vol. 10, No.1, pp 45 – 50.

Stajdohar-Pađen, O. (2019). Glasilo HDK, br 3/2019, pp.7. Zagreb. Available at: http://www.hdkvaliteta.hr/file/articleDocument/documentFile/glasilo-hdk-2019-032.pdf

Stephens, B. (1997). Implementation of ISO 9000 or Ford´s Q1 award: effect on organizational knowledge and application of TQM principles and quality tools, The TQM Magazine 9 (3), pp.190-200.

Tari, J.J., &Sabater, V. (2004). Quality tools and techniques: Are they necessary for quality management? International Journal of Production Economics. Volume 92, Issue 3, 18 December 2004, Pages 267-280.

Teryima, S. J., Fabrm, M., John, E., & Philip, D. (2016). The Application of Total Quality Management (TQM) Approaches and Tools in Enhancing Goal Attainment in the Nigerian Brewery Manufacturing Firms: A Survey of Selected Brewery Manufacturing Firms in Nigeria.

Thia, C.W., Chai, K., Bauly, J., & Xin, Y. (2005). An exploratory study of the use of quality tools and techniques in product development, The TQM Magazine, Vol. 17 No. 5, pp. 406-424. https://doi.org/10.1108/09544780510615924 □ Download as .RIS.

Uhar, A. (2007). An exploratory study on accounting for quality management in top 500 industrial enterprises in Turkey (PhD). Marmara University, Istanbul. [Google Scholar]

Wilkinson, A., Redman, T., Snape, E., & Marchington, M. (1998). Merging TQM: Theory and Practice, Macmillan, London.

Zackrissona, J.,Franzén, M., Melbin,M., & Shahnavaz, H. (1995). Quality by a step-by-step program in low scale industries. Economics. Volume 41, Issues 1–3, October 1995, pp 419-427.

Zhang, Z. H. (2000). Implementation of total quality management: An empirical study of Chinese manufacturing firms. PhD unpublished thesis. Groningen: University of Groningen.

Zutshi, A., & Sohal, A.S. (2005). Integrated management system: The experiences of three Australian organisations. Journal of Manufacturing Technology Management, Vol. 16 No. 2, pp. 211-232. https://doi.org/10.1108/17410380510576840.

Assessment of Economic Values of Goods and Services Provided by Conifer Forest Ecosystems in the Khyber Pakhtunkhwa Province of Pakistan

Muhammad Tufail
PhD Scholar in the Department of Economics, S3H, NUS, Pakistan
m.tufail@s3h.nust.edu.pk

Ather Maqsood Ahmed
Professor of Economics, Department of Economics, S3H, NUST, Pakistan

Junaid Ali
Master of Economics Student, Department of Economics, S3H, NUST, Pakistan

Abstract

Forest goods and services represent the most significant natural asset values. In economic valuation methods, to estimate the forest ecosystem values, the focus remains primarily on market-based values, i.e. the economic values from forest calculated using market price such as the price of extracted timber. Natural conifer forest goods and services can be consumed as foods, medicinal resources, timber, and non-timber forest products directly or indirectly-by getting benefits from clean air, water, soil protection, and environmental sustainability. Similarly, forest ecosystems also contribute in the form of intangible values such as sociocultural, scientific, religious, and natural inheritance to the forthcoming generations. All these contributions of natural capital (forests) have higher values than the usual market values of timber production and raw materials. Both the market and non-market values of natural forests are of prodigious standing for human life. In this paper, the attempt is made to evaluate the economic values of forest environmental assets, goods, and services provided by the conifer forest in Northern province (Khyber Pakhtunkhwa) of Pakistan using the latest tools and techniques. The conifer forest in the study region is rich in values, it contributes US$229.42 million (Pakistani Rupees 37853.64 million) in the form of forest goods. Forest's services contribute a total of US$3028.18 million (PKR499650.50 million) in which marketable resources are US$2239.33 million (PKR36949.18 million) and non-marketable resources are US$788.85 million (PKR130160.32 million). The services further divided into two sub-groups; environmental services and socio-cultural services. The contribution of environmental services is US$ 2355.91 million while the socio-cultural values are US$672.28 million. In total, the conifer forests contribution to local, regional, and the global community is of US$43033.72 million (PKR7100563.63).

Keywords: Conifer Forest Ecosystem; Economic Evaluation; Environmental and Sociocultural Contribution; Forest Assets; Evaluation Methods; Khyber Pakhtunkhwa; Pakistan
JEL Codes: Q57, A14

1. Introduction

The economic evaluation of natural forest ecosystem goods and services got substantial consideration of both the researcher and public policymaker. After the publication of the Millennium Ecosystem Assessment report (MEA, 2005), the importance of valuing forest's contribution to local communities, national accounts, and global environmental sustainability achieved significant attention both in academia and public policy (Kornatowska and Sienkiewicz, 2018). The direct and indirect contribution of forest goods and services to human welfare and sustainable development makes them evaluate the value of forest goods, environmental assets, and ecosystem services (Norgaard, 2009; Ninan and Inoue 2013). Several attempts have been made to evaluate the contribution of forest both regionally and globally (Hou and Wu, 2008; Eurostat, 2002a, 2002b; United Nation et al., 2003 MEA, 2003; FAO, 2004). While in the last couple of decades a significant improvement has been achieved in the

development of forests products assessment approaches and the inclusion of forest ecosystem into national accounts.

In Pakistan, the assessment of the contribution of economic value of forest's goods and services is the most untouched topic. Most of the research has been done on the distribution and management of forests cover, forest land-use change and driving factors of deforestation at local, subnational, and national level (Ahmad and Abbasi 2011; Ahmad et al, 2012; Nazir and Olabisi 2012, Tariq et al, 2014). Many of these researches have been done at different perspectives, scales, purposes, and using remote sensing, GIS, and socio-economic surveys and come up with a contradictive result.

Pakistan has a very low level of forest cover and has been largely degraded. Pakistan's most natural forest are on the western border especially, in the mountain of Himalaya, Karakoram, and Hindu-Kush. These forests are mainly known as dry temperate forests mostly found in the North-West of the countryside and generally governed by governments and communities. The study region is consisting of six (6) districts (Buner, Lower Dir, Malakand, Shangla, Swat, and Upper Dir) of the Malakand Division which are in the province of Khyber Pakhtunkhwa. The total area of these six districts are forest districts is 15021 Km^2. These districts have been facing extreme poverty and rapid population growth. At the end of 2017, the total number of residents was 7.45 million (Pakistan Population Census 2017). Due to the remoteness of the districts, the region is facing high illiteracy and highly dependent on agricultural and forest-based income generation activities.

The dry temperate conifer Forests have a significant role in the ecology, aesthetics, and socio-economic development of the localities and regions. The conifer forest in Malakand Division mixed with other tree species are spread over a total of 532,288-hectare area (ha), where 60717 hectares of conifer forest mixed with other tree occur in District Buner, 38810 hectares of mixed conifer forest in District Lower Dir, 12680 hectares mixed forest in Malakand, 81405 hectares of pure conifer forest stand in District Shangla, while 156335 ha and 182340 ha of pure conifer forest occur in district Swat and Upper Dir respectively. These forests are very rich in carbon storage, carbon sequestration, biodiversity, and hosting a variety of fauna and flora.

This research is the first of its nature to evaluate the full marketable and non-marketable values of the conifer forests in Pakistan generally and in Malakand Division particularly, using the latest field survey data conducted in the six districts of Malakand Division natural forest and secondary data from government departments. The study is in contrast with other studies based on land use, land cover changes and driving factors of deforestation. It takes the distribution of forest covers and evaluates the benefits in the form of goods and services provided by the conifer forest and its distribution across economic sectors, local, regional, and global beneficiaries.

Naturally, there are many limitations to both the current and previous studies, many of which are pointed out in this research, and it is recognized that experts are unlikely to reach consensus on nonmarket values. Such efforts are nevertheless important to help raise awareness of the multifunctional roles of forest ecosystems and can ultimately contribute to the conservation and sustainability of forest resources.

2. The framework of the Study

The framework applied here is an updated version for forest ecosystems' valuation used by Hou and Wu (2008) concerning authoritative international document in the field (Eurostat, 2002a, 2002b; United Nations et al., 2003; Millennium Ecosystem Assessment, 2003; FAO, 2004). Assets i.e. stocks of natural capital, and production, the value of the flow of forest's goods and services, are distinguished in this framework, mixed by other valuation studies globally. The sustainability of forest management is indicated by changes in the former while the *latter* is about what needs to be counted in Gross Domestic Product (GDP) or Green GDP.

This framework categorizes the benefits people get from the forests into three that's are forest products, environmental benefits, and socio-cultural gains. Most of the studies in the world have included Forest's Environmental Services, but this framework adds an innovative category of forest's environmental assets. In this, a difference has been made between carbon storage (an asset) and carbon sequestration flow of forest (a service).

The valuation mechanism applied here incorporates the quantification of all goods and services provided by the forest ecosystem. For this valuation, market value, or (cost of replacement, loss of productivity, and illness's cost, etc.) and benefit transfer method are used.

Figure 1. Study Framework

Source: Adapted from Hou and Wu, 2008
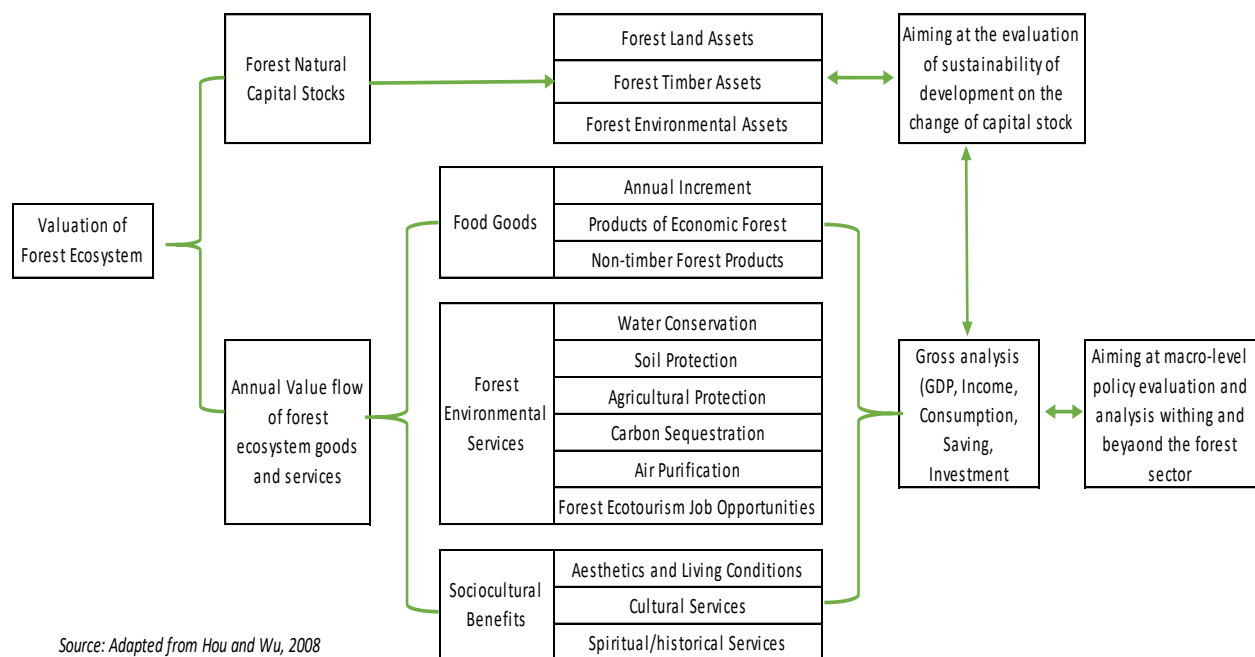
3. Categories of Valuation

3.1. Natural Capital of Forest

The first and most important economic asset, in the respect of the forest ecosystem, is Forest Land. Its valuation is done through the market transaction, either directly i.e. by taking bare forest land's market prices, or *by the ratio of the value of exchanged forest property.* This study classified the forest land into five types such as forested land, open forest land, bare forest land, shrubland, and nursery land. Each of them is valued according to their prices. In the area where the study was conducted, a method of stratified sampling has been used to probe the transaction prices for each type of forest land.

Secondly, an important economic asset is Standing Timber Assets. For its valuation, a simple method of stumpage value was used. In the study area, species and diameter wise stumpage prices were picked from the already existing transactions. Later, prices were adjusted by considering the consumer price index' ratio, and according to requirement by other factors. These prices were used for the stock with reference to the composition of the species and diameter.

Lastly, the most important assets considered as Forest Environmental Assets. This is composed of forest carbon stock and forest wildlife. By utilizing the IPCC's (Intergovernmental Panel on Climate Change,2004) technique of Biomass Expansion Factor (BEF) for the estimation of both forest carbon stock and changes in the stocks. The calculation for the value of forest carbon stock assets was done by multiplying the derived prices of carbon from

carbon projects in Beijing forests (Yuan 178 or US $23 per ton of CO2, 2007) and forest's carbon stock. Current Exchange Rate (July 2020) has been used for the conversion of the value into Dollars and Rupees.

3.2. Forest's Goods

Annual increment of standing timber. With the help of the stumpage value method, the annual increase in standing forests has been calculated. This was done by considering both annual hikes in species and age classes and per cubic meter stumpage prices of the corresponding species.

Products of economic forests. For the estimation of the value of fresh fruits, nuts, and flour products, the method of the market's value was used. These are called economic forests- also include those forests that are particularly planted for these goods. The data of production were collected from local farmers and the price came as a result of not only market survey but also from direct observations.

Non-Timber Forest's Products (NTFPs). Here too, the market value technique was used to calculate the value of NTFPs. This includes the non-wood forest's goods such as undomesticated medicinal stuff, undomesticated vegetables, and mushrooms, honey, hunting as well as those which are listed, in the Pakistan Forestry Statistics, as NTFPs. The data for their production was collected through a survey conducted in the study area.

3.3. Forest Ecosystem Services

One of the most important services of the forest ecosystem services is Water Conservation. "Green Reservoir" has the capacity to capture and store water i.e. to contribute to the availability of water during the dry season. Also, these not only purify water by filtering pollutants but also helps in stabilizing the soil. Estimation of the aggregate value of water conservation service was done based on regulating the capacity of water and the supplying cost of water to a city, including the fee of sewage treatment.

In addition, the water balance method was used for the estimation of the quantity of water. This was done by utilizing the area under forest and rainfall data to obtain total water supply into a catchment area. Then, run-off from the surface and evapotranspiration is subtracted for each type of forest. The maximum regulating capacity of water equals the forests' catchment storage capacity. The replacement cost method was considered for its estimation by utilizing the establishment cost of the conventional reservoir of water in Pakistan.

Forests ecosystem plays a significant role in Soil Protection. Forests help in the stabilization of soil, downgrades erosion, and sedimentation, as well as keeps soil fertility. Soil stabilization estimated value is the cost linked with the clearance of sediment. Again, replacement cost or method of avoided cost is used for its calculation, by taking use of average cost for sediment dredging in the study area. The estimation of soil fertility value was done through applying the method of market value. It was assumed that on average the forested soil contains two percent of compound fertilizer in the study area (Yu and Wang 1999). Also, compound fertilizer's market price was observed that of 2020.

Agricultural Protection. Increased production of crops has been the focus of the study and this benefit being provided by the forest shelterbelt. For the estimation of value based on the hike in production of the crop; the cropland area with shelterbelt; and the crop price, the method of market value was considered.

Carbon Sequestration. Not only the net primary production of standing forests but also sequestration of carbon by type of standing forest were used for the estimation of annual sequestration of carbon. Once more, the price of carbon was derived from Beijing's project of forest carbon.

Forest Ecotourism. The most often used technique for the estimation of forest ecotourism's value is the method of travel cost. Due to the scarce availability of time and funds, the study used the value of ecotourism estimated by (TEEB Climate Issues Update 2009). In order to estimate forest ecotourism's total value, that value and the total area of forest used for ecotourism were multiplied with each other.

Biodiversity Conservation. For conservation of forest biodiversity, this study adopted the average per-hectare value as estimated by Zhang (2002) for Beijing by considering opportunity cost multiplied by Beijing's area under forest.

Employment Opportunities. As far as the employment opportunities by forest are concerned, rather consider these an economic benefit they are considered as social benefits. This is because forests have the capacity to give conventional employment in distant areas. This is more vital than employment creation as strictly an economic return because the area where this study was conducted has very low employment opportunities. The use of personal and wage data from the local market was made for direct and indirect employment analysis.

Table 1. Data and Variables Measurements

Assessments of Environmental Goods and Services (Variables used)					
Topic		**Statistics and Related Information**	**Category of Measurement**	**Potential Aggregations and Scales**	**Methodological Guidance**
Forests	a.	Forest area		▪ By forest type ▪ National ▪ Sub-national ▪ By dominant tree species ▪ By ownership category	FAO Global Forest Resources Assessment (FRA) ▪ UN Forum on Forests (UNFF) Monitoring, Assessment and Reporting (MAR) ▪ Montreal Process (Working Group on Criteria and Indicators for the Conservation and Sustainable Management of Temperate and Boreal Forests)
		1. **Total**	Area		
		2. Natural	Area		
		3. Planted	Area		
		4. Protected forest area	Area		
Use of forest land	b.	Use of forest land			
		1. **Area deforested**	Area		
		2. Area reforested	Area		
		3. Area afforested	Area		
		4. *Natural growth*	Area		
Timber resources	a.	Timber resources		▪ By type of product (timber, industrial Roundwood, fuelwood, etc.)	▪ SEEA Central Framework (2012) ▪ FAO ▪ Central Product Classification (CPC)
		1. **Stocks of timber resources**	Volume		
	b.	Forest production	Volume		
	c.	Fuelwood production	Volume		
Water resources	a.	The inflow of water to inland water resources		▪ Regional	▪ UNECE Standard

18th RSEP International Economics, Finance & Business Conference – Virtual/Online
26-27 August 2020, Kadir Has University, Istanbul, Turkey

www.rsepconferences.com   **CONFERENCE PROCEEDINGS/FULL PAPERS**   ISBN: 978-605-06961-5-8/September 2020

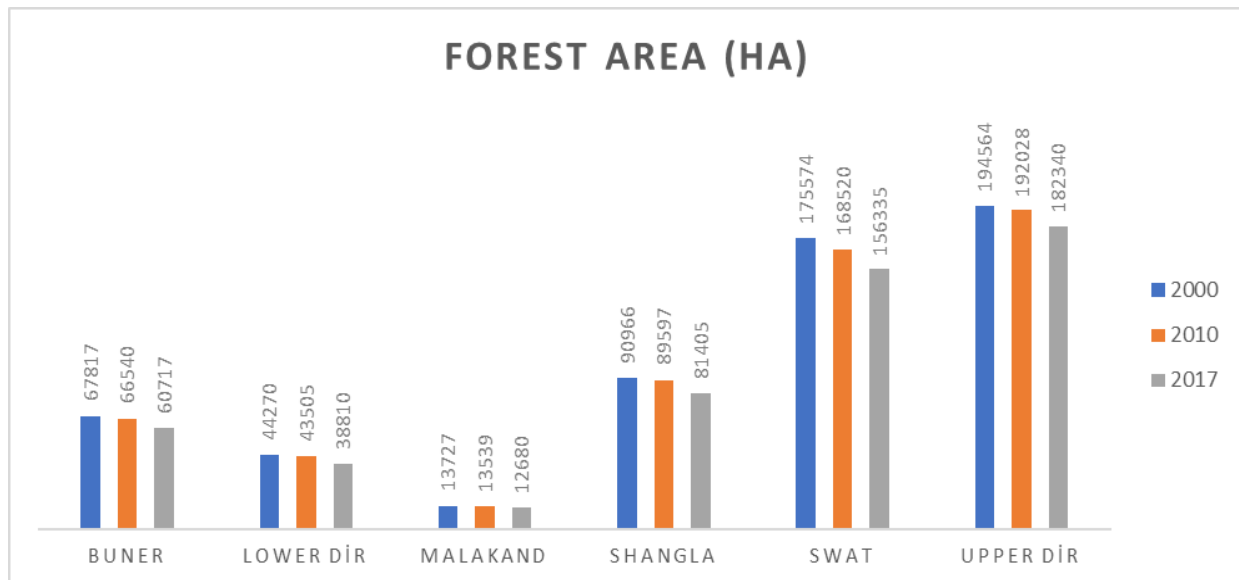|					
		1. **Precipitation**	Volume	▪ Regional	Statistical Classification of Water Use (1989) ▪ UNSD: Environment Statistics Section-Water Questionnaire
		2. **Inflow from neighbouring territories**	Volume		
	b.	1. **Evapotranspiration**	Volume		
		2. Outflow to neighbouring territories	Volume		
		3. Outflow subject to treaties	Volume		
	c.	Inland water stocks			
		1. Surface water stocks in artificial reservoirs	Volume		
		2. Surface water stocks in lakes	Volume		
		3. *Surface water stocks in rivers and streams*	Volume		
		4. *Surface water stocks in wetlands*	Volume		
		5. *Surface water stocks in snow, ice and glaciers*	Volume		
		6. Groundwater stocks	Volume		
Biodiversity	a.	Forest biomass		▪ Regional	▪ FAO Global Forest Resources Assessment (FRA)
		1. Total	Volume		
		2. *Carbon storage in living forest biomass*	Mass		

4. Results

4.1. Forest Area

The Conifer forest mixed with other tree species is distributed on over 532,288 Ha, in the six study region districts which are shown in graph 2. District Upper Dir has the highest (182,340 ha) forest area in the region followed by District Swat (156,335 ha) and District Shangla (81405 ha) while District Malakand (12680 ha) has the lowest forest area. Similarly, the forest area in District Buner and District Lower Dir is 60717 ha and 38810 ha respectively. All the districts have shown a decrease in forest area over time.

18th RSEP International Economics, Finance & Business Conference – Virtual/Online
26-27 August 2020, Kadir Has University, Istanbul, Turkey

www.rsepconferences.com   **CONFERENCE PROCEEDINGS/FULL PAPERS**   ISBN: 978-605-06961-5-8/September 2020

Figure 1. Forest Area of the Six Districts in the study region

*4.2. Forest Biomass, Carbon Stock, and Value of Total Carbon Stored in Forest*

The total biomass and carbon stock were calculated using the biomass expansion factor (BEF) of the Intergovernmental Panel on Climate Change (IPCC, 2004). The total calculated forest biomass stock in the study region was 137.85 Tg (137851873.73 Mg), in which the District Upper Dir accounts 47.22 Tg District Swat 40.49 Tg, and District Shangla 21.08 Tg are the leading Districts in term of total forest biomass while District Buner, Lower Dir, and Malakand have total biomass 15.72 Tg, 10.05 Tg, and 3.28 Tg respectively. Similarly, the total carbon stock was calculated for the study region was 64.79 Tg in which the highest carbon stock found in District Upper Dir followed by Swat, Shangla, and Buner. Fig. 3 shows the distribution of forest biomass and carbon stock across the Districts.

Figure 3. Total Biomass and Carbon Stock
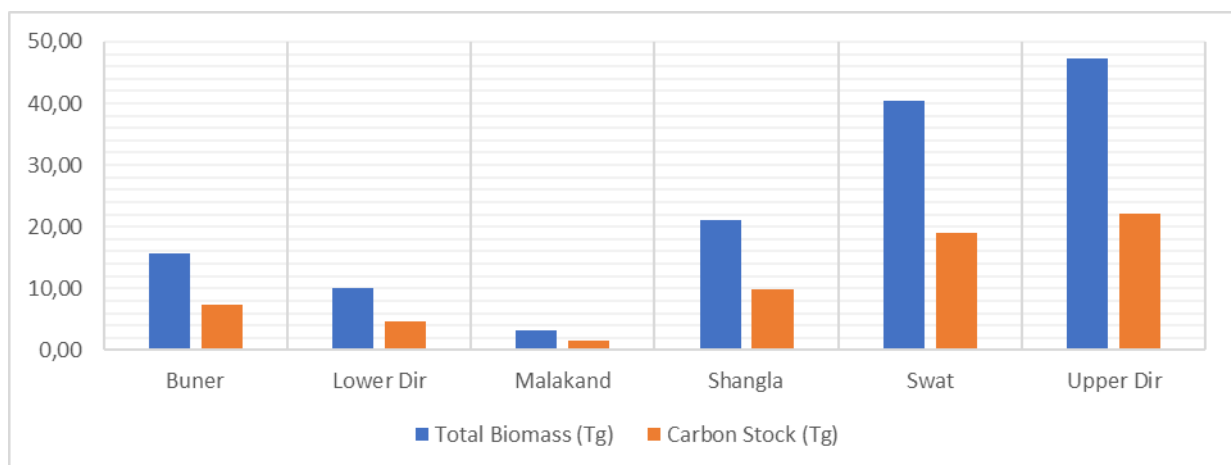
The value of total forest carbon stock assets in each district was calculated by multiplying the forest carbon by the price of carbon derived from the project in Beijing, 2007 (Pakistani Rupees 3795 or US$ 23 per ton CO_2). Graph 5 represents the value of forest carbon stock in each district. District Upper Dir has the highest value of forest carbon stock approximately US$665.84 million (PKR109862.89 million) followed by District Swat which has US$570.88 million (PKR 94194.62 million). The value of total forest carbon stock for Shangla, Buner, Lower Dir, and Malakand was 297.26, 221.72, 141.72, and 46.30 million US dollar respectively.
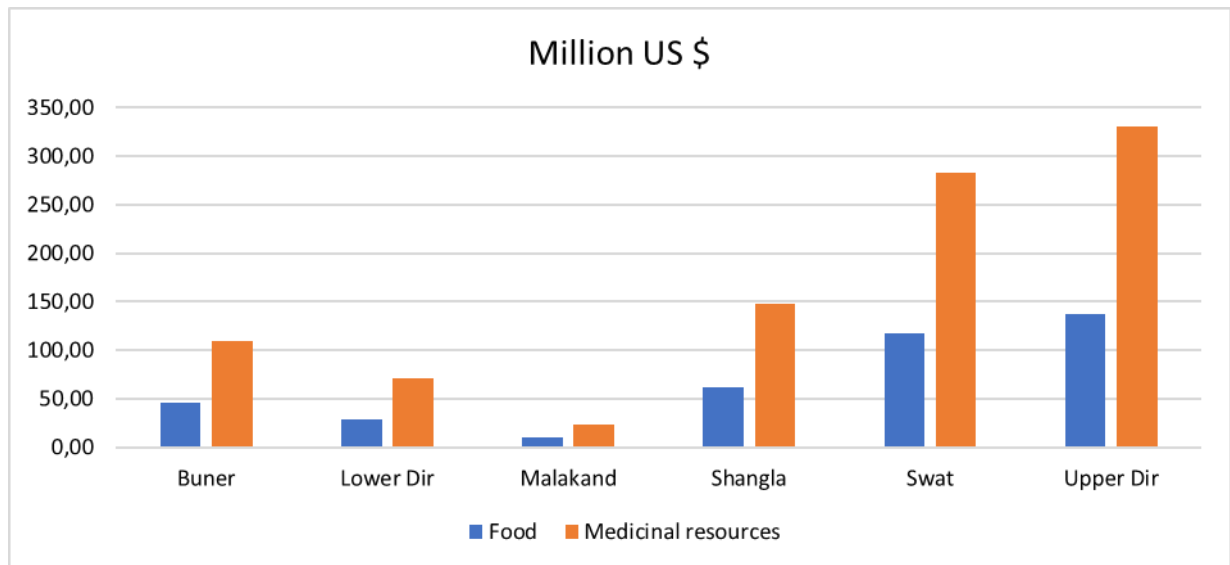
Figure 4. Total value of Carbon Stock
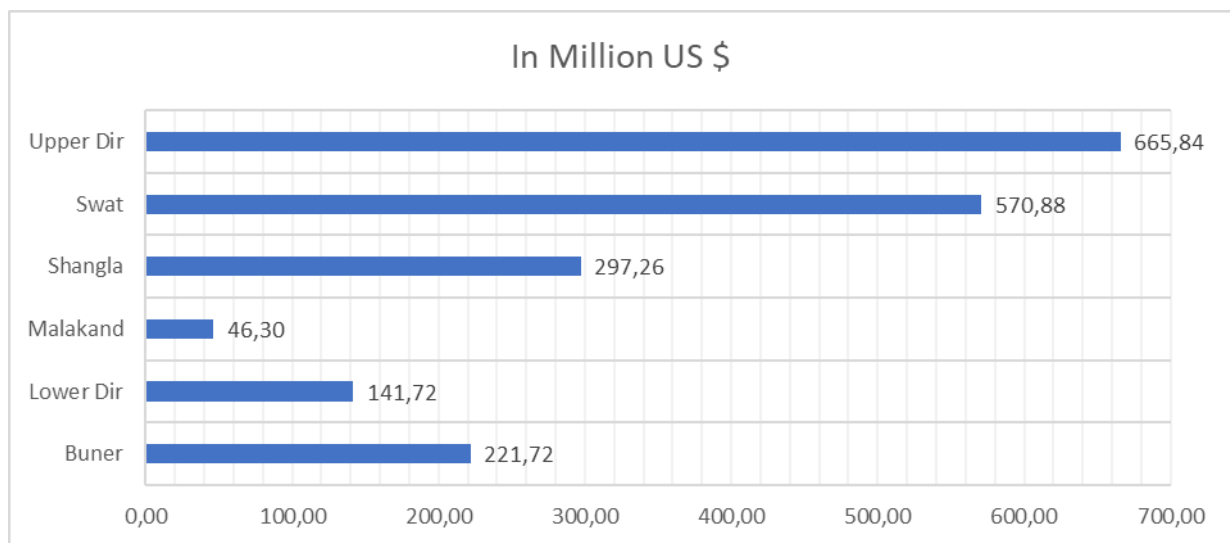
4.3. Food, Medicinal Resources, Water, and Climate Regulation

The conifer forest annual contribution to food and medicinal resources are given in graph 6. These forests contribute a total of 65870.81 million PKR (US$399.22 million) in food and PKR 158967.73 million (US$963.44 million) in medicinal resources. District-wise distribution of conifer forests shows that its contribution to District Upper Dir is the highest i.e. PKR 22564.56 million (US$136.75 million) in food and PKR 54455.81 million (US$330.04 million) in medicinal resources followed by Districts Swat, Shangla, Buner, Lower Dir, and Malakand.

18th RSEP International Economics, Finance & Business Conference – Virtual/Online
26-27 August 2020, Kadir Has University, Istanbul, Turkey

www.rsepconferences.com   **CONFERENCE PROCEEDINGS/FULL PAPERS**   ISBN: 978-605-06961-5-8/September 2020

Figure 5. Valuation of Food and medicinal Resources

Conifer forests watersheds include the capacity of capturing and storing of water which contributes to water availability during the dry season and the purification of water through the filtering of contamination and stabilization of soils. These forests contribute a total of PKR 12559.46 million (US$76.12 million) in water availability, PKR15545.46 million (US$94.21 million) in water purification, and PKR119445.36 million (US$723.91 million) in water flow regulation to the study region. District wise contribution of conifer forest to water resources is given below in fig 6.

Figure 6. Contribution of Conifer Forest to Water Resources

18th RSEP International Economics, Finance & Business Conference – Virtual/Online
26-27 August 2020, Kadir Has University, Istanbul, Turkey

www.rsepconferences.com   **CONFERENCE PROCEEDINGS/FULL PAPERS**   ISBN: 978-605-06961-5-8/September 2020
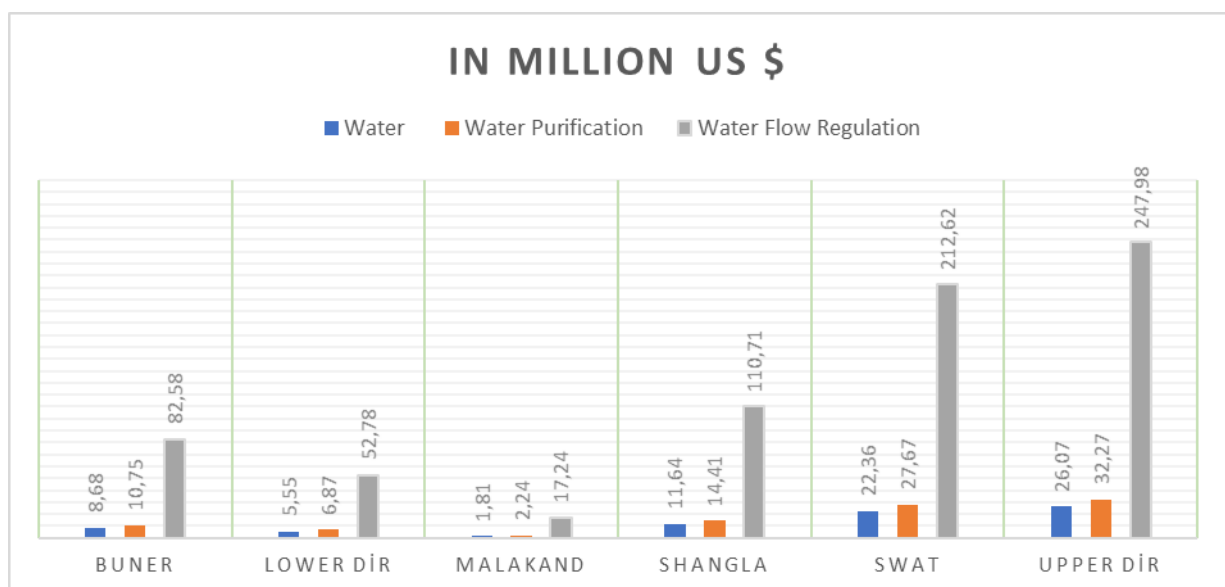
4.4. Contribution to Air Quality and Climate Regulation

The natural conifer forest influence on air quality and climate regulation is given in graph 8, which indicates that these conifer forests have high environmental values. Contributing a total of PKR20200.32 million (US$122.43 million) under the influence on air quality while PKR172580.99 million (US$ 1045.95 million) when climate regulation takes place. The value for air quality and climate regulation is derived using the values from (TEEB Climate Issues Update 2009). District wise contribution of Chilgoza forest for air quality and climate regulation is given in Figure 8.

Figure 7. Contribution of Conifer Forest to Air Quality and Climate Regulation
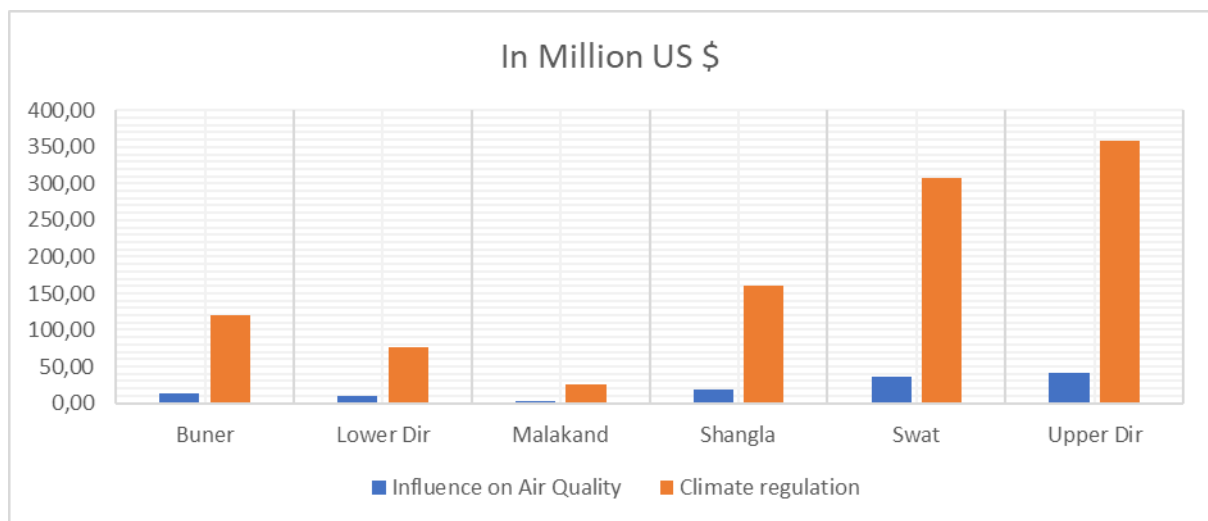
5. District wise valuation of Conifer Forest

5.1. District Buner

Table 2: Annual Value of Conifer Forest Ecosystem District Buner

District Buner	Marketable		Non-Marketable		Total	
Output	Million Rupees	Million US Dollar	Million Rupees	Million US Dollar	Million Rupees	Million US Dollar
Forest Goods	4317.91	26.17			4317.91	26.17
Forest Ecosystem Services (a & b)	42147.18	255.44	14847.19	89.98	56994.36	345.42
a. Environmental Services	33311.00	201.88	11030.20	66.85	44341.19	268.73
b. Sociocultural Benefits	8836.18	53.55	3816.99	23.13	12653.17	76.69
Forest Capital Stock (Environmental Assets)	653554.93	3960.94	36583.17	221.72	690138.10	4182.66
Total	**742167.19**	**4497.98**	**66277.54**	**401.68**	**808444.73**	**4899.67**

Note: the conversion to the dollar was done using July 2020 average exchange rate

The flow value of the annual output of conifer forest ecosystem goods and services of district Buner is nearly PKR808444.73 million (US\$4899.67 million). In which forest goods contribute PKR4317.91 million (US\$26.17 million) while conifer services contribute PKR56994.36 million (US\$ 345.42 million). The contribution of services further divided into environmental services and sociocultural benefits. Conifer forest environmental services output both marketable and non-marketable reach to PKR44341.19 million (US\$ 268.73 million). Among the forest environmental services, water conservation and air purification had the most important role. The value of forest capital stock of district Buner reached to PKR690138.10 million (US\$4182.66 million). In which marketable resources account for PKR653554.93 million (US\$3960.94 million) and non-marketable capital stock PKR36583.17 million (US\$ 221.72 million).

5.2. District Lower Dir

Table 3: Annual Value of Conifer Forest Ecosystem District Lower Dir

District Lower Dir	Marketable		Non-Marketable		Total	
Output	Million Rupees	Million US Dollar	Million Rupees	Million US Dollar	Million Rupees	Million US Dollar
Forest Goods	2760.00	16.73			2760.00	16.73
Forest Ecosystem Services (a & b)	26940.39	163.28	9490.29	57.52	36430.68	220.79
a. Environmental Services	21292.32	129.04	7050.48	42.73	28342.80	171.77
b. Sociocultural Benefits	5648.07	34.23	2439.81	14.79	8087.88	49.02
Forest Capital Stock (Environmental Assets)	417751.02	2531.82	23383.89	141.72	454334.19	2753.54
Total	**474391.80**	**2875.10**	**55563.75**	**336.75**	**529955.56**	**3211.85**

Note: the conversion to the dollar was done using July 2020 average exchange rate

The total flow value of the conifer forest ecosystem goods accounts for PKR2760 million (US\$16.73 million) and services PKR 36430.68 (US\$220.79 million) of district Lower Dir. The contribution of services further divided into environmental services and sociocultural benefits. The natural conifer forest environmental services marketable values PKR21292.32 million (US\$129.04 million) and non-marketable values PKR 7050.48 million (US\$42.73 million). The value of forest capital stock of district Lower Dir is PKR454334.19 million (US\$ 2753.54 million). In which marketable resources account for PKR 417751.02 million (US\$2531.82 million) and non-marketable capital stock of PKR23383.89 million (US\$ 141.72 million).

5.3. District Malakand

Table 4: Annual Value of Conifer Forest Ecosystem District Malakand

District Malakand	Marketable		Non-Marketable		Total	
Output	Million Rupees	Million US Dollar	Million Rupees	Million US Dollar	Million Rupees	Million US Dollar
Forest Goods	901.73	5.47			901.73	5.47
Forest Ecosystem Services (a	8801.77	53.34	3100.60	18.79	11902.37	72.14

& b)						
a. Environmental Services	6956.47	42.16	2303.48	13.96	9259.95	56.12
b. Sociocultural Benefits	1845.30	11.18	797.12	4.83	2642.41	16.01
Forest Capital Stock (Environmental Assets)	136484.55	827.18	7639.81	46.30	144124.37	873.48
Total	**154989.81**	**939.33**	**13841.01**	**83.88**	**168830.83**	**1023.22**

Note: the conversion to the dollar was done using July 2020 average exchange rate

The total flow value of the natural conifer forest ecosystem goods, services, and standing capital stock of district Malakand is almost PKR 168,830.83 million (US$1023.22 million). In which forest goods contribute PKR901.73 million (US$5.47 million) while forest's services contribute PKR11902.37 million (US$72.14 million). Conifer forest's environmental services output contributes both marketable and non-marketable value of PKR9259.95 million (US$56.12 million) while sociocultural benefits account for PKR2642.41 million (US$16.01 million) both marketable and non-marketable. The value of natural forest capital stock of district Malakand reached to PKR144124.37 million (US$873.48 million). In which marketable resources account for PKR136484.55 million (US$ 827.18 million) and non-marketable capital stock PKR7639.81 million (US$46.30 million).

5.4. District Shangla

Table 5: Annual Value of Conifer Forest Ecosystem District Shangla

District Shangla	Marketable		Non-Marketable		Total	
Output	Million Rupees	Million US Dollar	Million Rupees	Million US Dollar	Million Rupees	Million US Dollar
Forest Goods	5789.13	35.09			5789.13	35.09
Forest Ecosystem Services (a & b)	56507.81	342.47	19906.01	120.64	76413.82	463.11
a. Environmental Services	44660.92	270.67	14788.47	89.63	59449.39	360.30
b. Sociocultural Benefits	11846.90	71.80	5117.54	31.02	16964.43	102.81
Forest Capital Stock (Environmental Assets)	876238.06	5310.53	49048.00	297.26	925286.07	5607.79
Total	**995042.82**	**6030.56**	**88860.02**	**538.55**	**1083902.84**	**6569.11**

Note: the conversion to the dollar was done using July 2020 average exchange rate

The annual contribution of conifer forest ecosystem goods to the local community of district Shangla is nearly PKR5789.13 million (US$35.09 million). The contribution of services to local, regional, and global community yearly accounts for PKR76413.82 million (US$463.11 million). The contribution of services further divided into environmental services and sociocultural benefits. District Shangla forest environmental services output both marketable and non-marketable accounts to PKR59449.39 million (US$360.30 million). In which marketable environmental services output reach to PKR44660.92 million and non-marketable environmental services PKR14788.47 million. Conifer forest's sociocultural contribution to the local community both marketable and

non-marketable accounts for PKR16964.43 million (US$102.81 million). The value of total forest capital stock of district Shangla is almost to PKR925286.07 million (US$5607.79 million). In which marketable resources account for PKR876238.06 million (US$5310.53 million) and non-marketable capital stock PKR49048.00 million (US$297.26 million).

5.5. District Swat

Table 6: Annual Value of Conifer Forest Ecosystem District Swat

District Shangla	Marketable		Non-Marketable		Total	
Output	Million Rupees	Million US Dollar	Million Rupees	Million US Dollar	Million Rupees	Million US Dollar
Forest Goods	11117.78	67.38			11117.78	67.38
Forest Ecosystem Services (a & b)	108520.87	657.70	38228.65	231.69	146749.53	889.39
a. Environmental Services	85769.41	519.81	28400.64	172.13	114170.05	691.94
b. Sociocultural Benefits	22751.46	137.89	9828.01	59.56	32579.48	197.45
Forest Capital Stock (Environmental Assets)	1682778.30	10198.66	94194.62	570.88	1776972.92	10769.53
Total	**1910937.83**	**11581.44**	**170651.93**	**1034.25**	**2081589.75**	**12615.70**

Note: the conversion to the dollar was done using July 2020 average exchange rate

The total flow value of the conifer forest ecosystem goods accounts for PKR11117.78 million (US$67.38 million) and services PKR146749.53 (US$889.39 million) of district Swat. The contribution of services further divided into environmental services and sociocultural benefits. The natural conifer forest environmental services marketable values PKR85769.41 million (US$519.81 million) and non-marketable values PKR28400.64 million (US$ 172 million). The total value of the socio-cultural benefits of the conifer forest in district Swat is PKR32579.48 million (the US$197.45 million). The value of forest capital stock of district Swat is PKR1776772.92 million (US$10769.53 million). In which marketable resources account for PKR1682778.30 million (US$10198.66 million) and non-marketable capital stock PKR94194.62 million rupees (US$570.88 million).

18th RSEP International Economics, Finance & Business Conference – Virtual/Online
26-27 August 2020, Kadir Has University, Istanbul, Turkey

www.rsepconferences.com   **CONFERENCE PROCEEDINGS/FULL PAPERS**   ISBN: 978-605-06961-5-8/September 2020

5.6. District Upper Dir

Table 7: Annual Value of Conifer Forest Ecosystem District Upper Dir

District Shangla	Marketable		Non-Marketable		Total	
Output	Million Rupees	Million US Dollar	Million Rupees	Million US Dollar	Million Rupees	Million US Dollar
Forest Goods	12967.10	78.59			12967.10	78.59
Forest Ecosystem Services (a & b)	126572.16	767.10	44587.58	270.23	171159.74	1037.33
a. Environmental Services	100036.23	606.28	33124.78	200.76	133161.01	807.04
b. Sociocultural Benefits	26535.93	160.82	11462.80	69.47	37998.73	230.30
Forest Capital Stock (Environmental Assets)	1962690.45	11895.09	109862.89	665.84	2072553.34	12560.93
Total	**2228801.88**	**13507.89**	**199038.05**	**1206.29**	**2427839.92**	**14714.18**

Note: the conversion to the dollar was done using July 2020 average exchange rate

The annual contribution of the natural forest ecosystem goods to the local community of district Upper Dir is approximately PKR12967.10 million (US$78.59 million). The contribution of services to local, regional, and global community yearly accounts for PKR171159.74 million (US$1037.33 million). The contribution of services further divided into environmental services and sociocultural benefits. District Upper Dir Pure conifer forest environmental services output both marketable and non-marketable accounts to PKR133161.01 million (US$807.04 million). Conifer forest's sociocultural contribution to the local community both marketable and non-marketable accounts for PKR37998.73 million (US$ 230.30 million). The value of forest capital stock of district Upper Dir is almost to PKR2072553.34 million (US$12560.93 million). In which marketable resources account for PKR 1962690.45 million (US$11895.09 million) and non-marketable capital stock PKR109862.89 million (US$ 665.84 million).

6. Conclusion

In order to make forest as an intrinsic part of the sustainable world economy by getting the societal consciousness, the forest's value must be recognized by the method of institutionalized valuation. Although attempts in this regard were made time and again throughout the world but due to huge differences in method and concept, the attempts fail to get consistent and amenable comparison over periods and services.

Among other factors, drastic climate changes in the offing will put greater pressure on ecosystem services and natural capital. This will lead to their increased demand and diminished supplies, consequently, a rise in their expected value may take place. In the presence of such uncertainties, it's impossible to get an accurate estimate of the value of the services provided by the forest ecosystem. However, for decision and policy-making crude estimates are an effective point to start with.

As far as the implications for decision and policy making are concerned this study has made it clear that services of forest's ecosystem play a vital role not only in contributing to economic development but also in the social welfare of Khyber Pakhtunkhwa Province. Thus, the services given by the natural capital stock of forest must be given the necessary weightage in the process of decision making.

To identify bottlenecks in sustainable forestry, it is imperative to analyze the distribution of benefits it gives to different segments of society. To keep the sustainable flow of protection services of the forest, some of the forests use had to forsake in mountainous communities of the Malakand Division. The ditched benefits need to be counterbalanced in an adequate manner. In the absence of befitting gains for local communities, the decline of sustainable forestry is inevitable. For the negotiation of payments over the services of the forest's ecosystem, the stakeholders need to be identified.

For planning and management of forest strategies, it's helpful to estimate the full scope of values from forests. As society gets multidimensional benefits from forests, so both relative values' identification and determining the optimal and secondary targets for the management of forest is possible. Also, using investment and taking befitting steps will help to achieve those targets.

Moreover, it is evident from the valuation of forest that non-forestry policies have an impact on the forest. For crafting a strategy for the forest that considers all the stakeholders, this valuation of the forest may help in determining the potential clash among other sectors, forests' developmental objectives as well as within the forest sector.

The evaluation of the contribution of the Conifer's forest to local, regional, and global communities, the study further recommends a joint approach of highly technological survey (GIS and Remote Sensing) along with field survey of households living in the peripheries of Conifer forest. The study has certain limitations ranging from fields visit to availability of funds. The six project sites very remote and traveling to these is very time consuming and highly costly. Therefore, based on this report a detailed study by the multi-disciplinary team is recommended.

References

Ahmad, et al. (2012). Decline of Conifer forest cover in Pakistan: A GIS approach. *Pakistan Journal of Botany*, *44*(2), 511–514.

Ahmad, S., & Abbasi, Q. (2011). Assessment of Forest Cover Decline in Pakistan: A GIS Perspective. *International Journal of Environmental*, *2*(July), 220–227. Retrieved from http://www.indianjournals.com/ijor.aspx?target=ijor:ijes&volume=2&issue=1&article=023

Eurostat. 2002a. The European framework for integrated environmental and economic accounting for forests-*IEEAF* Luxembourg, Office of the European Communities.

Eurostat. 2002b. Natural Resource accounts for forests Luxembourg, Office of the European Communities.

FAO. 2004. Manual for environmental and economic accounts for forestry: a tool for cross-sectoral policy analysis, by G.M. Lange. FAO Forestry Department Working Paper. Rome.

Hou, Y. & Wu, S. 2008. Recent Progress on theory and method of ecosystem valuation and discrimination on the related concepts popular in China. *World Forestry Research* 21(5): 7-16.

Kornatowska, B., & Sienkiewicz, J. (2018). Forest ecosystem services—Assessment methods. Folia Forestalia Polonica, Series A—Forestry, 60(4), 248–260.

Millennium Ecosystem Assessment. 2003. Ecosystems and human well-being: a framework for assessment. *Millennium Ecosystem Assessment Series.* Washington, DC, USA, Island Press.

Nazir, N., & Olabisi, L. S. (2015). Forest Area and Land Use Change in Pakistan: A System Dynamics Approach. *Proceedings of the 33rd International Conference of the System Dynamics Society.*

Ninan, K.N., Inoue, M. 2013. Valuing forest ecosystem services: What we know and what we don't. *Ecological Economics*, 93, 137–149.

Norgaard, R.B. 2009. Ecosystem services: From eye opening metaphor to complexity blinder. *Ecological Economics*, 69, 1219–1227. doi:10.1016/j.ecolecon.2009.11.009

Tariq, M. (2015). An Overview of Deforestation Causes and Its Environmental Hazards in Khyber Pakhtunkhwa, *Journal of Natural Sciences Research* Vol.5(1), 52–58.

The Economics of Ecosystems and Biodiversity (TEEB): www.teebweb.org

United Nations, et al. 2003. System of integrated environmental and economic accounting 2003 (SEEA–2003). New York, USA, United Nations.

Yu, Z. & Wang, L. 1999. The study on the benefit of water resource conservation forest. Beijing China, Chinese Forestry Press.

Zhang, Y. 2002. Evaluation of forest biodiversity of China. Beijing, China, *China Forestry Publication Press*.

The Bulgarian Labor Market in a Period of Extraordinary Crisis from the COVID-19 Pandemic

Venelin Terziev
Full Member of the Russian Academy of Natural History, Professor, Eng., D.Sc. (National Security), D.Sc. (Economics), D.Sc. (Social Activities), Ph.D.
Georgi Rakovski Military Academy, Sofia, Bulgaria
University of Rousse, Rousse, Bulgaria
Kaneff University Hospital, Rousse, Bulgaria
Russian Academy of Natural History, Moscow, Russia
terziev@skmat.com

Abstract

The article tries to address the changing social processes in the pandemic situation that has occurred in Bulgaria and around the world. Placed in a rapidly changing environment, the social system in Bulgaria reacts slowly and with difficulty to the new different situation that has emerged. Even with up-to-date mechanisms for reporting relevant changes, it is, at least at this stage, incapable of responding adequately and reasonably to the pandemic situation created by COVID 19. To some extent this is anticipated by the experts in this field, because they are well aware of the decision-making mechanism at national and European level. A process that is relatively long and not particularly flexible to meet society's expectations.

Keywords: Social system**,** labour market, COVID 19, pandemic, employers
JEL Codes: O10, J01, J08, P41

1. Introduction

Bulgarian social system, whether we admit it or not, is facing a serious test. Of course, it has experienced much more difficult times, especially in the years of the active political and economic transformation after the change of the social and political system in the late 1990s. Since 1989 it has been in crisis situations a few more times in the following years thereafter. A cyclic recurrence of the deformations of its functions could not be substantiated. However, groups of factors affecting it in one way or another can be distinguished. To a greater extent, they depended on the ability of the economy to bear or not certain burdens. In some cases these burdens were counterbalanced by the natural course of particular events and processes, while in other situations a set of remedial measures and programmes were used to restore the viability of the stalling economic processes.

2. The social system in Bulgaria facing a particularly new challenge in a pandemic period

Placed in a rapidly changing environment, the social system in Bulgaria reacts slowly and with difficulty to the new different situation that has emerged. Even with up-to-date mechanisms for reporting relevant changes, it is, at least at this stage, incapable of responding adequately and reasonably to the pandemic situation created by COVID 19.

To some extent this is anticipated by the experts in this field, because they are well aware of the decision-making mechanism at national and European level. A process that is relatively long and not particularly flexible to meet society's expectations.

The combination of the effects of a great number of factors on our existing social system will force it to take fast decisions during the crisis. Everyone is aware of the fact that making fast decisions is quite risky because they

are objectively not backed up by an accurate analysis of the situation and the apparently positive outcomes we expect sometimes have a sufficient number of negative consequences.

Labour market fluctuations have already begun and they are obviously covered up by the palliative measures taken by employers aiming to maintain a state of equilibrium for a longer period of time. Even not studied, processes are moving so fast and are so clearly visible that we cannot fail to find out the critical components. In this connection, a number of examples can be given, such as the difficulty of moving people and goods, limited access to a wide range of services, including the guaranteed by the state similar activities carried out remotely or semi-remotely at a slow pace, which not only makes it difficult, but also impedes the normal development of economic processes. This is just a brief touch to the situation that has already occurred and analyzing it both in particular and in depth would give a much clearer and more accurate picture and it will certainly be in a sufficiently critical phase.

Unfortunately, in times of crisis or emergency, we do not have enough time to do this notably valuable job and to achieve a good analysis that helps to make sound and correct decisions.

The policies we use to intervene in the labour market are regarded as passive and active. The first group includes precise regulations which in one form or another have been applied for more than 30 years. Over this period, only the mechanism of determining the unemployment benefit has been changed, or a larger amount of cash flows (again in the form of a cash benefit) has been directed to one target group or another. In the post-1989 period, for example, it was accepted that young graduates should be supported and stimulated to find a suitable job by cash benefits for a fixed period (up to 6 months). In the subsequent period, this mechanism was abolished and options for incentives under another mechanism were sought.

In periods of dramatic increases in unemployment rate (Figure 1-2) (2020; 2020a) or in massive layoffs of large groups of people and 'quelling' social discontent, benefits were paid off in a lump sum for the whole period, and it was expected that this would help to set up small family businesses. Under difficult conditions, this did not actually happen and the expected impact on the primary local labour markets was either temporary or not realized at all. This mechanism is practically impractical in the current situation, or if a similar option is sought, it should be developed to satisfy those groups of people who would not be able to manage without this type of benefit in the initial phase of the crisis (survival benefit).

Figure 1: Unemployment rate (15 years and over, total for Bulgaria, quarterly data)
(Source: NSI)
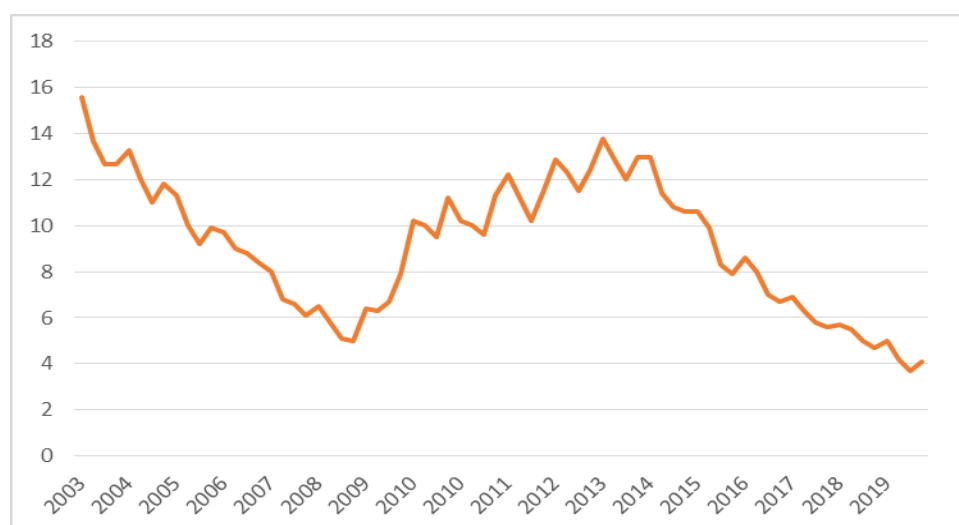
In the current situation, the mechanism of passive support could be improved or partially changed, although the result of these actions would not be the expected one or will not respond to the current difficult social situation at all.

The effects we would anticipate from a change in active social policies are much more interesting. In the general sense of the term, they are expected to be sufficiently flexible and to respond to expectations, critical situations, or negative processes.

There is no time for a detailed analysis. However, it is obvious that they will directly or indirectly affect almost all sectors of the economy. The current tools of the so-called active policy rely primarily on the programming approach, taking advantage of the potentiality of a set of projects. Such competitiveness created expectations and attitudes during the different programming periods that projects would become better and more successful while the result would increasingly affect the respective group of users. The question now is whether this is possible in the current situation and whether we have enough time to implement a similar mechanism.

Figure 2: Unemployment rate by years (percentage of active population)
(Source: Eurostat)
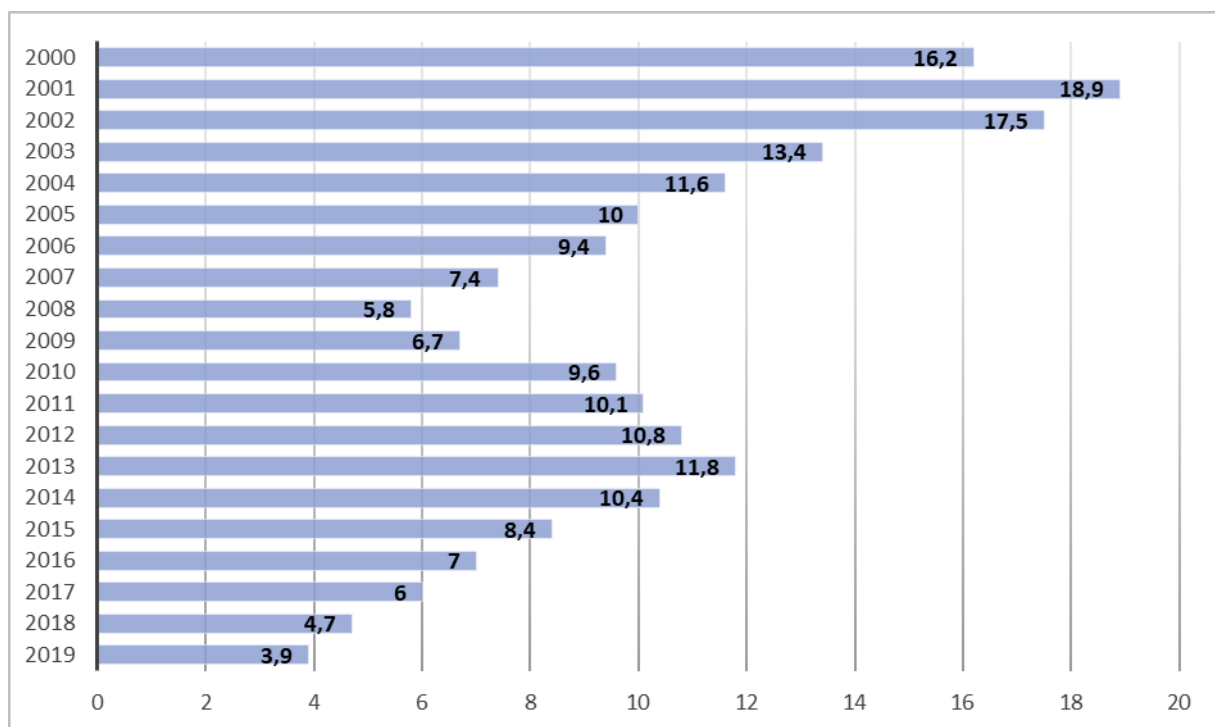
The temporary employment programmes (much more important in small municipalities) are recollections from the recent past. They were used as economic and political tools to satisfy the need for engaging a large number of people in community service activities and to give the same people the opportunity to earn some income. This gave some reassurance to both government and local authorities that employment would be offered to those who were out of the labour market for a long time. Another issue is how sufficiently substantiated this activity was (Terziev and Bogdanova, 2019, pp. 477-484).

Processes of mass layoffs of labour force have not been registered yet on the labour market, rather possibilities of labour legislation for collective paid leave or for determining the situation as a production downtime are used.

In fact this would be great if it is evident that the critical situation will end in the foreseeable future. Even if we assume that in the next three months the pandemic situation will be overcome, there will be a recovery period of not less than a few months, and for some of the economic entities even much longer.

Maintaining a relatively good situation on the labour market in Bulgaria is possible for a very short period of time, and as long as these processes are already underway, it can be anticipated that a highly problematic and critical situation will occur in a month or two at most (Terziev, 2019a, pp. 331-336; Terziev, 2019b, pp. 354-362).

Undoubtedly, people's lives and health are of paramount importance, but it is also undeniable that these people must continue living in a certain social comfort. Both circumstances arise regardless of the fact whether we anticipate them and whether we are prepared for them. And if we are currently experiencing serious problems with limiting the scope for spreading a disease while trying to protect our health system from collapse, we should not forget that this system is also part of the functioning social system and the ongoing social processes. Without any delay, we must think about all the other elements of our social system. Experts, as well as everyone else, are aware of the fact that these elements cannot function on their own. Obviously, we make crisis decisions and take measures in one direction only – the health system. The other elements of the system still operate in the usual way and rhythm. Even with a delay, the processes will occur in the other elements of the system as well. They are also vulnerable, in some cases even at a greater extent.

Here is another element of the social system's functions – the educational system in its distance form of learning (Terziev, 2019c, pp. 363-373; Terziev, 2019d, pp. 363-373). Some politicians and even experts say that we have made a leap in that direction, something that would have cost us at least ten years in the ordinary course of events. This comment refers to the fact that the system of primary, secondary and higher education functions in a distance form of learning, or at least that is what the governing bodies of these systems expect. It is difficult to accept that this 'leap' is as successful as it is presented to us. Without arguing against the potential of digital education and distance learning, it should be noted that in addition to technological and technical preparation, it requires the so called social preparation i.e. how and in what way to deliver what needs to reach the users digitally – pupils, students, workers or, generally speaking, associates. The good interactive methods, interactive classrooms, shared common electronic space are all a possibility, although not always the best one. Each party must be well prepared for both delivering and obtaining knowledge. It's not about conveying information, but about knowledge. This process seems to be quite easy and pragmatic for people who have sufficient experience in this field. However, to a certain extent traditional teachers, and not only teachers lack skills in this direction (Terziev, 2019e, pp. 381-395; Terziev, 2019f, pp. 301-308).

3. Conclusion

In recent years, a lot of research has been done on the processes of social adaptation, which are quite difficult and not always successful. We have a similar experience in Bulgaria, in fact not a very good one, in the process of reducing the Bulgarian Army staff and the subsequent dismissals of highly qualified specialists, tens of thousands who have failed to be successful in the primary labour market. After a process of social isolation, which may take another month, two months or even more, a great number of people will need specialized help and an adaptive process, which may be accompanied by other critical situations and negative consequences Terziev, 2019g, pp. 309-316; Terziev, 2019h, pp. 317-323).

This is just an oblique reference to the whole complex of problems that will accompany the already qualitatively new and different social process, which requires very precise and measured actions and the expertise of a large number of professionals who must create a crisis action plan in this direction, as it is obvious that the currently developed ones are either not working or are only partially applicable.

References

https://www.nsi.bg/ (Access: May, 2020).

https://ec.europa.eu/eurostat/home? (Access: May, 2020a).

Terziev, V. & Bogdanova, M. (2019). "The academic capitalism and the new business model of the universities". *Proceedings of ADVED 2019 - 5th International Conference on Advances in Education and Social Sciences, 21-23 October 2019*, International Organization Center of Academic Research, Istanbul, Turkey, 2019, pp. 477-484, ISBN: 978-605-82433-7-8.

Terziev, V. (2019a). "Social technology as a method for management of the social processes". *Proceedings of SOCIOINT 2019- 6th International Conference on Education, Social Sciences and Humanities 24-26 June 2019- Istanbul, Turkey*, International Organization Center of Academic Research, Istanbul, Turkey, 2019, pp. 331-336, ISBN: 978-605-82433-6-1.

Terziev, V. (2019b). "The role and place of social programming in public governance". *Proceedings of SOCIOINT 2019- 6th International Conference on Education, Social Sciences and Humanities 24-26 June 2019- Istanbul, Turkey*, International Organization Center of Academic Research, Istanbul, Turkey, 2019, pp. 354-362, ISBN: 978-605-82433-6-1.

Terziev, V. (2019c). "Assessment of the effectiveness of social programing". *Proceedings of SOCIOINT 2019- 6th International Conference on Education, Social Sciences and Humanities 24-26 June 2019- Istanbul, Turkey*, International Organization Center of Academic Research, Istanbul, Turkey, 2019, pp. 363-373, ISBN: 978-605-82433-6-1.

Terziev, V. (2019d). "Social efficiency as a measure of social activities". *Proceedings of SOCIOINT 2019- 6th International Conference on Education, Social Sciences and Humanities 24-26 June 2019- Istanbul, Turke*y, International Organization Center of Academic Research, Istanbul, Turkey, 2019, pp. 363-373, ISBN: 978-605-82433-6-1.

Terziev, V. (2019e). "Effects of the impact of the active policies on the labor market". *Proceedings of SOCIOINT 2019- 6th International Conference on Education, Social Sciences and Humanities 24-26 June 2019- Istanbul, Turkey*, International Organization Center of Academic Research, Istanbul, Turkey, 2019, pp. 381-395, ISBN: 978-605-82433-6-1.

Terziev, V. (2019f). "The legacy for the beginning of the market economy transition in Bulgaria". *Proceedings of SOCIOINT 2019- 6th International Conference on Education, Social Sciences and Humanities 24-26 June 2019- Istanbul, Turkey*, International Organization Center of Academic Research, Istanbul, Turkey, 2019, pp. 301-308, ISBN: 978-605-82433-6-1.

Terziev, V. (2019g). "Policies for building a functioning labour market in Bulgaria". *Proceedings of SOCIOINT 2019- 6th International Conference on Education, Social Sciences and Humanities 24-26 June 2019- Istanbul, Turkey*, International Organization Center of Academic Research, Istanbul, Turkey, 2019, pp. 309-316, ISBN: 978-605-82433-6-1.

Terziev, V. (2019h). "Factors influencing employment and unemployment policies in Bulgaria". *Proceedings of SOCIOINT 2019- 6th International Conference on Education, Social Sciences and Humanities 24-26 June 2019- Istanbul, Turkey*, International Organization Center of Academic Research, Istanbul, Turkey, 2019, pp. 317-323, ISBN: 978-605-82433-6-1.

Working from Home During the COVID-19 Outbreak: A Study on Employee Experiences

Gulbahar Turkmenoğlu
PhD Student/Independent Researcher, Turkey

Esra Ulukok
Dr., Kirikkale University, Turkey

Imdat Dogan
Dr., Independent Researcher, Turkey

Adnan Akin
Prof., Kirikkale University, Turkey

Abstract

New working models emerging throughout the World have been experienced during Covid-19 disease outbreaks in Turkey. Although some examples have been implemented in the past years, flexible working model - remote working, telecommuting or working from home- was applied for the first time at private and public organizations concurrently in Turkey. This research aims to determine the experiences and opinions of the measures taken and applied to those who have worked from home during Covid-19 disease outbreak in Turkey. The interview method, one of descriptive analysis and qualitative research methods, was adopted to employees at expert and managerial positions levels working in private and public banks in Turkey. The views of the participants about the flexible working system were obtained with their answers to the interview questions prepared in June 2020. With the analysis and findings obtained, it was concluded that the home-working model was adopted by all participants.

Keywords: Banking and Insurance, Education, COVID-19, Flexible working, Working from Home, Telecommuting and Interview Method.
JEL Codes: M10

1. Introduction

COVID-19, called the new type of coronavirus, was first encountered in December 2019 in Wuhan, China, among an anonymous group of patients shared with a history of visiting the Huanan seafood market. (Peeri et al., 2020). World Health Organization declared COVID-19 as a pandemic (Cruz & Dias, 2020: 2230). The pandemic has turned into a global health and economic crisis over time. Worldwide, as of 19 August 2020, 21,938,207 confirmed COVID-19 cases, including 775,582 deaths, were announced by WHO. (WHO, 2020). COVID-19 in the first case was detected in Turkey on March 11, 2020. As of August 18, 2020 date, the total number of cases in Turkey has reached to 251 805 people (Ministry of Health, August 19, 2020).

COVID-19 outbreak deeply affected economic and social life, especially tourism, aviation, stock market along with supply chains. (Alpago & Alpago, 2020). The pandemic in question and the measures taken to prevent it have affected many areas in all countries, from daily life to travel, from transportation to business life. Quarantine applications across the world, border closure, curfew, remote maintenance of the educational activities, measures such as the transition to flexible working hours along with wroking from home have been implemented gradually in Turkey. In March, various measures were implemented such as suspending education in primary and secondary schools and universities, entry and exit bans for metropolitan cities, and a home-based working models.

18th RSEP International Economics, Finance & Business Conference – Virtual/Online
26-27 August 2020, Kadir Has University, Istanbul, Turkey

www.rsepconferences.com   CONFERENCE PROCEEDINGS/FULL PAPERS   ISBN: 978-605-06961-5-8/September 2020

More than a third (37%) of employees in the EU started teleworking as a result of the pandemic, according to the report of Eurofound, which launched an online survey in the European Union and beyond on April 9 to identify the immediate economic and social impacts of the COVID-19 outbreak. According to the report, the proportion of workers who work from home is about 60% in Finland and over 50% in Luxembourg, the Netherlands, Belgium and Denmark. (Eurofound, 2020). Meanwhile, in countries where more people started working from home as a result of the pandemic, fewer workers reported reduced working hours. Another country that implemented working from home system during the pandemic period is Hong Kong. Hong-Kong has implemented a policy of flexible working hours (Cowling et al., 2020) in January-February to control the spread of COVID-19. In Turkey, the transition to flexible working methods officially has been initiated with the Presidential Circular No. 2020/4 published on the Official Gazette dated March 22, 2020, regarding to remote working of employees in public institutions and organizations. Within the scope of this Circular, employees who benefit from flexible working methods and those who are deemed on administrative leave are deemed to have actually fulfilled their duty of employment during this period " as announced in the form. (Official Gazette of the Presidency of the Republic of Turkey, 2020). Many companies in the private sector have implemented remote working system.

With COVID-19 first case was detected, various social and economic impacts created on many countries including Turkey. This desease with no question has marked the most influentil pandemic in Turkey as well. Both research conducted about the COVID-19 in both the global pandemic Turkey's health system generally focuses on public health and economic impacts. For the first time such a large-scale outbreak of the determination of a living COVID-19's effect is seen in Turkey. The purpose of this research; COVID-19 measures covered investigate the public and has been applied in the private sector flexible working method that manage and retrieve information about the thought of employees and positive emerging on the business processes of the home study process-negative results in Turkey.

2. Literature Review

The adoption of the flexible working system, which emerged in some countries of the world in order to solve the unemployment problem after the 1970s (Bayrak, 2015), became more possible when technology with communication features became a business tool in the late 90s (Tavares, 2015). Flexible working practices allow the staff to choose at what time, when and where to work, and provide flexibility to the employee (Shagvaliyeva & Yazdanifard, 2014). In addition, the fact that the boundaries of individuals in sharing family and social life become more flexible according to the vital needs of people in different areas (Tavares, 2015) can be seen as another positive result that can make flexible working system useful.

Sabuhari et al. (2020) found that the flexibility in human resources of a state-owned company in Indonesia significantly affects employee competencies and job satisfaction. There are many researches about flexible working system in the world and in Turkey. In the study conducted to investigate and analyze the effects of human resources flexibility on employee performance, it was determined that this flexibility was also effective on the performance of the personnel. Taner and Avşar Negiz (2018) consulted the employees' opinions on flexible working hours through interview and survey method. It has been concluded that the participants are satisfied with their current working hours, but positive results can be obtained if such a system is adopted. The views of the managers about the flexible working system, in which female personnel approach more positively, are generally that the working discipline may be disrupted and the work may be delayed. The administrators have also stated clearly that the implementation will not be successful in public institutions due to reasons such as the obligation to work between 08: 00-17: 00 in institutions.

The study, in which the female personnel's partially positive perspective on the subject was conducted by Dockery and Bawa (2017) in Australia between 2001-2013. In the study, which was found to be highly preferred in terms of the presence of young children and parental responsibilities, it was found that some female personnel approached this model negatively due to the increase in their burden as unequal division of labor when they were at home.

Aydıntan and Kördeve (2016) studied the relationship between flexible working arrangements and organizational commitment levels of 224 employees in Ankara. It has been determined that there is a relationship between employees' attitudes towards flexible working practices and organizational commitment. Another study in which employees' views on flexible working were consulted Baert et al. (2020) in Belgium during the peak of the COVID-19 pandemic, and employees' perceptions of working remotely about various life and career aspects were examined. According to the results of this research; It has been determined that some of the employees have a positive view of working from home due to increased productivity and low risk advantage, while some of them are of the opinion that this working order causes them to miss promotion opportunities and weakens relations with their colleagues and employers. Bloom et al. (2015) found that as a result of the 9-month experiment of working from home four days a week, there was a 13% increase in the performance of home workers, a 50% decrease in work-related attrition and a higher job satisfaction.

During the COVID-19 outbreak, the results of the research conducted by OnePoll with more than 10,000 participants in 6 countries showed that more than half of the participants in all countries had the same / higher level of productivity. In addition, this research has revealed that most of the employees in the USA, France, Australia, Germany, Italy and England adapt to work from home and believe that this system will become permanent (HR Magazine, 2020).

In April 2020 PERYÖN Mercer Turkey - Turkey People Management Association was held in collaboration 'Coronavirus 103 global and 64 of the Impact Survey of Working Life of an outbreak According to a study provided by 167 companies in attendance, including local; It has been determined that the rate of companies that had work from home practice before the pandemic was 45%, while this rate reached 95% on the basis of head office employees after the pandemic. In the same study, it was stated by 40.7 percent of companies that there were difficulties in employee motivation in this process (NTV, 2020).

In China, where working from home is more limited than in the West, the opinions of both managers and employees were consulted in a study conducted during the pandemic period, and some employees stated that they were distracted by other family members living at home and had difficulty focusing on the work. On the other hand, some participants complaining about the intrusive bosses who do not believe that their employees can work from home stated that they are more productive in this system, where they do not fear loss of time and being late for work due to transportation. The opinion of a participant in a managerial position was that he was less able to control the employees in this model. Complaining about the delayed feedback from home-based staff, the participant expressed the difficulty of constantly trying to be aware of employees and seeking ways to motivate them (BBC, 2020).

According to the findings of the research conducted by Global Workplace Analytics between 30 March and 24 April 2020 and with approximately 3000 people, 68% of the staff working from home during the pandemic period were successful in this system, 69% of the global employees did not work remotely regularly before the pandemic. 78% of office workers globally have the resources they need to be successful at home. 77% of respondents found that they feel fully productive at home. Another result of the study shows that managers are satisfied with this system, provided that some improvements are made in their remote management and collaboration skills (Work From Home Experience Survey Results, 2020).

According to the research conducted to determine the impact on workers in Turkey by Deloitte on COVID-19 pandemic for remote operation of the related purchased / received by the actions, almost half of the participants, all employees now stated that home runs; the rate of those who continue to work in the company / field is below 10%; It has been determined that the rate of partial transition is at the level of 43.2% (Deloitte, 2020). The whole world was unprepared for the COVID-19 outbreak. The pandemic has caused changes in many areas of life, especially working life, from the moment it first appeared. The method of working remotely / from home has been a method that many sectors have benefited from and regarded as a way out, in order to protect the health of employees and to ensure the continuity of economic activities. Faced with such a large secretion Turkey for the first time, the remote working model was tested using digital technologies. The benefits, shortcomings and whether it will turn into a permanent working model will become clearer in the future.

3. Methodology

Qualitative research method was utilized in the research. Qualitative research can be defined as "a study in which qualitative data collection techniques such as observation, interview and document analysis are used, and a qualitative process is followed to reveal perceptions and events in a realistic and holistic manner in the natural environment" (Yıldırım & Şimşek, 2016: 41). In the study, the data were collected by the interview technique, and the descriptive analysis method was used in the analysis of the data. In descriptive analysis, "the data obtained are first described systematically and clearly. Later, these descriptions are explained and interpreted, cause-effect relationships are examined and some results are achieved ”(Yıldırım & Şimşek, 2016: 239-240).

The research questions were prepared by the researcher in accordance with the purpose and scope of the study, and the necessary arrangements were made by seeking expert opinion. Participants were selected from managers and employees who experienced the home-working system, which was considered to be beneficial for the study and constitutes the basis of the study. Participants were provided with a voluntary interview form, in which it was declared that their names and information about the institution they work at would be kept confidential. During the interview, the data were recorded and recorded.

Research on COVID-19 outbreak in Turkey, according to flexible working hours scheme at the time of application of the measures which public institutions and private sector staff of six employees, has provided on individual participation in four managerial position. Participants are in active desk positions in education, banking and insurance sectors. In order to keep the identity of the participants anonymous, the participants were coded as A1 (Participant 1), A2 (Participant 2) during the interview, and some of the participants' views were directly quoted in the findings section. The opinions of the participants about the flexible working system were obtained with their answers to the interview questions prepared in June 2020 and presented in the findings and comments section.

4. Results

One of the research questions in this study is "***Did you actively use information technology while working from home? If you used it, did you have any difficulty in this?***" was the question. All of the participants stated that they did not have difficulty in using information technology while working from home within the scope of pandemic measures.

"***Did the "working time" for which you were responsible in your organization differ from the period you worked from home, did you work longer or shorter than the workplace?***"

5 out of 10 respondents stated that they work at home for shorter periods compared to the time period in which they are responsible; 3 participants stated that the working time spent at home is the same as in the workplace. The responses of the other two participants to this question are as follows:

> A2 (Manager- Public Sector): *"It showed differences. I worked at home for shorter periods of time. I was not at the computer all the time. But since there is no time concept, I have worked late at night outside of working hours a lot ".*

> A3 (Manager-Private Sector): *"As you know, we cannot reach everyone at any time while working from home, so the shift continues until we reach and complete the job. Therefore, from time to time we worked longer at home than office".*

According to the statements of the participants, the time spent on work at home is often shorter than in the workplace. However, it is understood from the responses given by the two participants that the time frame especially for ending the shift may change. This may be due to the fact that no rules are bound between the institution and the employee when the relevant working system is switched to. Another reason may be that when working from home, the work started during the day has not come to an end and all channels used to do the work can be used 24 hours a day.

When you compare your work from home and your work at office, do you see any difference in efficiency between the two? If you saw a difference, could you explain in what direction and angle?

2 out of 10 participants who answered the question are at home; 6 of them stated that they worked efficiently in the workplace; the other 2 pointed out that they can obtain efficiency while working in both places. Some answers to this question are as follows:

A2 (Manager-Public Sector): "*It was not partially efficient as we were not ready for such a process. I had trouble accessing documents at home* ".

A6 (Employee-Public Sector): "*I think I work more efficiently at home. There was no time spent on the road either. Also, since the workplace was crowded, I was able to pay more attention to my work at home* ".

A10 Participant (Employee-Private Sector): "*There is a more flexible environment at home. The concept of work in the workplace was more active, and the time I spent with this feeling in the workplace was more efficient*".

As can be seen from the answers, opinions about efficiency differ. One participant stated that he had problems due to the availability of the necessary work-related materials in the workplace, and therefore the work at home was not efficient. Another view that suggests it affects productivity is that a participant declares that he is less productive in the flexible and comfortable environment he / she has while working at home.

"During the time you work from home, have you ever had any concerns about loss of control over the personnel you work in separate places, and if so, what could be the source of this?" To the question (addressed to the managers), 2 out of 4 manager participants stated that they were concerned about possible loss of control over the personnel.

A1 (Manager-Public Sector): "*Yes, I lived. The reason for this was the technical problems caused by the electronic system during organizing and sharing*".

A3 (Manager-Private Sector): "*Yes, I was concerned. This is because I think not everyone has the same motivation*".

In the classical manager-employee relationship, the negotiation on the work to be done, the manager's instructions and controls, etc. it can become simpler when working from home. Especially in this model where the working system of our country is foreign, the dominance of the managers over the employee may not be visible. In a way, it happens to the extent that the virtual communication channel that can be provided allows. As a matter of fact, one of the participants stated that he was affected by the technical difficulties experienced in the virtual environment. The manager, who is sure that the instructions given to the physical work have been received or even understood by the other party, may be concerned about the possibility of losing control due to possible technical problems in this model. Another participant's declared anxiety about the subject is the possibility of the motivation of the staff. The participant expressed the idea that not every individual may have the same motivation.

"Did you have any difficulties in working from home during the pandemic process? If your answer is yes, what did you have difficulty with?" 5 out of 10 participants who answered the question stated that they had difficulty working from home.

A1 (Manager-Public Sector): "*Yes, I did, since 2013 our institution has switched to the electronic document system. Since the documents we have processed between 2013 and 2020 are in electronic environment, we can access them very easily when necessary. However, I had difficulties in accessing the documents that are not registered electronically due to their special circumstances (confidential, service-specific or wet signed documents) and documents that are archived*".

18th RSEP International Economics, Finance & Business Conference – Virtual/Online
26-27 August 2020, Kadir Has University, Istanbul, Turkey

www.rsepconferences.com   CONFERENCE PROCEEDINGS/FULL PAPERS   ISBN: 978-605-06961-5-8/September 2020

A5 (Employee-Public Sector): "*Yes of course there were some difficulties. I could not access the files that I could access immediately. I received the feedback of the questions and issues I sent to the relevant units and persons with delay, and I sent the answer to the relevant authorities late.*"

A9 (Employee-Private Sector): "*Yes. Even if not technically, the load increased 2 or even 3 times when we talked about taking care of children, cooking and housework while working from home*".

Participants mentioned the different difficulties they experienced while working at home. One participant expressed the difficulty of working from home as not being able to access the necessary materials except for the materials within a certain period of time, and not being able to access some special documents without going to the office. Another participant mentioned another difficulty of working at home, that is, the workload increased. In line with these opinions, it is stated that dependence on the workplace continues due to some private and security-based jobs; It is understood that the working time at home is not independent from the time devoted to housework.

"Did working from home provide any convenience for you during the pandemic process, and if yes, could you explain these facilities?" 9 out of 10 participants stated that the period of working from home provided some convenience.

A2 (Manager-Public Sector): "*I spent more time at my house, my wife and my children. Therefore, I spent more positive, calm, happy, peaceful, stress-free, resting at home*"

A5 (Employee-Public Sector): "*Yes of course it did. The home environment was relaxed and stress free. I saw that some processes are progressing every day without going to work*".

A7 (Employee-Public Sector): "*There was no obligation to work at home, travel time, ease of waking up and eating and drinking*".

Participants' opinions about the convenience of working at home differ. According to the participants, the work at home; The benefits of flexible working are the calm environment, ease of nutrition, the possibility of rest during the day and an arrangement without transportation problems.

"Have you noticed a difference in your economic situation during the process of working from home? If yes, would you please indicate in which areas of your budget there are differences?" 6 out of 10 participants who answered the question stated that they were economically relieved when they worked from home.

A1 (Manager-Public Sector): "*During this period, my budget has relaxed economically. I have saved. My budget was relieved as there were no transportation costs or shopping*".

A2 (Manager-Public Sector): "*I was very comfortable economically while working from home. Since I did not go to work, I did not have clothing costs or travel (petrol) costs*".

A8 (Employee-Private Sector): "*Grocery shopping has increased a little more. Purchases have decreased in the field of clothing*".

A9 (Employee-Private Sector): "*As consumption decreased while I was working from home, it had a positive reflection on my budget*".

As it is understood from the answers, the participants stated that there was a difference and variability in their expenses during the period when they were working from home. While some have saved more at home, one participant stated that the cost is the same and only the type of expenditure changes.

"If there is someone living at home other than you, how and to what extent were they affected by the process you work from home?"

A1 (Manager-Public Sector): "*Yes there was. Everyone was happy when there was sharing and togetherness during the working from home process. I had the opportunity to do activities with my family that we have not been able to do for a long time*".

18th RSEP International Economics, Finance & Business Conference – Virtual/Online
26-27 August 2020, Kadir Has University, Istanbul, Turkey

www.rsepconferences.com   **CONFERENCE PROCEEDINGS/FULL PAPERS**   **ISBN: 978-605-06961-5-8/September 2020**

A2 (Manager-Public Sector): "*My wife and children were extremely pleased and happy when I was at home, that my responsibilities were reduced and we spent more time together*".

A6 (Employee-Public Sector): "*I have a mother at home. Being at home has had a positive impact on his psychology, as he is over 65 and has restrictions*".

A8 (Employee-Public Sector): "*I had a child at home, it gave him confidence to be at home*".

Participants stated that the individual benefit of working from home has some reflections on other individuals at home. From the answers given, it was understood that working from home model positively affected the existing home order, and all family members of the employees were satisfied with this situation.

"In your opinion, did working from home during the pandemic process contributed to your individual satisfaction and quality of life, and if so, how did you feel this in yourself?"

A2 (Executive-Public Sector): "*I read more books, did my work more enjoyable, and took longer without rushing. My quality of life improved as I rested at home, read books, devoted time to myself and worked regularly*".

A4 (Manager-Private Sector) "*I felt more peaceful. It helped me gain time, as I spent the time I spent at home on the way to work and after work. I was able to do something urgent, waiting at home*".

A7 (Employee-Public Sector): "*Yes it is. Working comfort and stress-free environment positively affected my quality of life. I always felt fresh as there was no fatigue and stress*".

As can be understood from the answers of the participants, the benefits of working from home differ for each participant. As a result, all of the participants who thought in the same direction experienced how the benefits of this system were integrated into the parts necessary for their lives and expressed their satisfaction with this situation.

"Do you think flexible working system is beneficial? If it is useful, which actors (who) can benefit from it in what way?" 7 out of 10 participants answered the question that they found this working system useful.

A2 (Manager-Public Sector): "*First of all, I think that working from home can be beneficial if all kinds of opportunities and possibilities are prepared and come to the workplaces on certain days and hours of the week to work at home. First of all, my family can benefit as we spend more time together. Of course, my family budget could benefit. Also, because less energy is consumed in terms of electricity, internet, water, etc., the public institution I work for can benefit*".

A5 (Employee-Public Sector): "*Yes, it is a useful process. In the home-working system, many things can be done without meeting the crowds one on one*".

A6 (Employee-Public Sector): "*I think the flexible working system is beneficial and I would like it to continue after the pandemic process is over. Especially those who work with information technologies benefit more from this. In addition, online training also opens the way to reach everyone*".

From the opinions of the participants on the subject, it is revealed that people and institutions can benefit from the home-working system as well as the staff. Participants who experienced working from home during the pandemic period stated that many works and transactions could be carried out with this working model, and one participant expressed his wish to continue this system after the pandemic measures. For jobs with special content, it is also among the opinions that it can be applied as office-home rotation as applied by many institutions in this period.

"Is there anything you want to add about the topic?" Some of the answers to the question are as follows:

A2 (Executive-Public Sector): "*I think that the home-working system should be reviewed and tested more professionally at a time when there are no negative effects of corona disease on people, curfews and*

18th RSEP International Economics, Finance & Business Conference – Virtual/Online
26-27 August 2020, Kadir Has University, Istanbul, Turkey

www.rsepconferences.com   **CONFERENCE PROCEEDINGS/FULL PAPERS**   ISBN: 978-605-06961-5-8/September 2020

restrictions. And I believe that the results will be much more positive, people will work happier, more peacefully, away from stress, there will be no waste of energy, and the country's economy will relax".

A4 (Manager-Private Sector): "*During this period, we saw that we can get efficiency while working from home. I also saw that this model made me and my team happier as there was more time left at home after work. Being able to wear more comfortable clothes and not being obliged to certain things makes people more comfortable*".

A6 (Employee-Public Sector): "*In this period when the pandemic process is still ongoing, I would like the flexible working system to be implemented longer*".

A7 (Employee-Public Sector): "*Flexible working model should be applied in all institutions / organizations that serve as bureaus, if necessary it should be enacted by law. I think this working system will be economical for the employer, and flexible working will prevent time and economic losses for employees*".

After the questions asked to the participants, they were asked to convey their thoughts about flexible working. Accordingly, the said system was put forward opinions on the implementation of business life in Turkey. In the period when the pandemic measures ended, the participants, who expressed their opinion on the planning and implementation of the home-based working system, if necessary, to be considered as an official model and to make a decision, also stated that they would like to benefit from the advantages of this system from now on.

5. Conclusion and Discussion

According to the literature, for the transition to a home-based working system and its legalization, the nature of work done should be suitable for this system; It is necessary to understand the benefits and difficulties of working from home and to be compatible with the corporate climate where the model will be applied (Aguilera, Lethiais, Rallet & Proulhac, 2016). However, after the COVID-19 outbreak around the world, these requirements have also become obligations to some extend.

In the period before COVID-19, the workforce qualifications / requirements required by the stages in business show that it is highly likely that it will take a different character than the current workforce structure in the coming decades. In this context, the transformation of new workforce structures into personnel structures is very intensive, bringing along a brand new workforce mobility within the framework of the accelerations in digitalization and the requirements required by the production of goods and services.

The home-working system, which is among the measures taken against the COVID-19 outbreak and this pandemic, has brought an important innovation, especially in Turkish business life. In this period, with the working order; motivation, perception, behavior towards work; It is thought that all dynamics such as individual satisfaction and quality of life (Spurk & Straub, 2020) may have been affected by this new system.

As a result of the analysis made on the answers to the interview questions; The participants, who generally expressed their views on working from home, also mentioned the difficulties and downsides of this system. Some participants stated that the workload at home increased, work hours were not over, and work-related materials could not be accessed; some participants also stated that when they work from home, they are not as productive as in the workplace. In addition, despite the logic that managers can manage organizational activities anywhere (Mustajab et al., 2020) thanks to the developing technology, it has been determined that the managers participating in the study are concerned about losing their control over the personnel.

On the other hand, some participants also think that working from home is positive for other family members. This system was the solution for staff who left their children to grandparents and had to give up due to the measures taken for the elderly (Alon et al., 2020). This research is important as it reveals the benefits of working

from home, as well as allowing us to see some of the barriers that arise as a result of the hard experiences and views of the employees. In this direction, it may be beneficial to organize a working and implementation procedure between the employer and the personnel before starting to work in the relevant system. In addition, before moving to home working system; Ensuring that the technological infrastructure of the institution, the technological competence of the personnel and the psychological state are appropriate, can be a precaution for the problems that may arise.

In Turkey, working from home with advanced computer and communication network, software technologies that allow remote access (Soylu, 2018), personnel with different skills and who can work in accordance with the current conditions (Koç, 2018) can be more applicable for many institutions. Home-based working system will provide many benefits such as energy and labor consumption, happy workforce, and being able to maintain service in extraordinary situations that may occur in the coming years. Based on this research result, the following suggestions can be made for future research:

- This research was conducted with participants selected from various sectors in order to evaluate the flexible working experience applied in different conditions. Future work can be implemented on employees in a single sector.

- Comments and evaluations regarding the opinions of the participants in the study are limited to the answers given. Investigation of depth in the answers is another field. With interdisciplinary cooperation, studies in which participants' views are analyzed with more advanced analysis techniques can be conducted.

- This research has tried to convey the profile of changing business dynamics in an unexpected and extraordinary situation such as a pandemic from the perspective of 10 people working in different sectors and positions. In future studies, it can be carried out with more participants.

- One of the work groups most affected by the pandemic is female employees. With the closure of schools, the difficulties and expectations of female employees in the role of mothers in this process can also be a subject of research.

18th RSEP International Economics, Finance & Business Conference – Virtual/Online
26-27 August 2020, Kadir Has University, Istanbul, Turkey

www.rsepconferences.com   **CONFERENCE PROCEEDINGS/FULL PAPERS**   ISBN: 978-605-06961-5-8/September 2020

References

Aguilera, A.,Lethiais,V.,Rallet, A.&Proulhac,L. (2016). Home-based telework in France: Characteristics, barriers and perspectives. *Transportation Research Part A,* 92, pp. 1-11.

Akca, M., Tepe Küçükoğlu, M. (2020). Covıd-19 ve İş Yaşamına Etkileri: Evden Çalışma. *Journal of International Management, Educational and Economics Perspectives,* 8 (1), pp. 71–81.

Alon, T.M., Doepke,M., Olmstead Rumsey,J & Tertilt, M.(2020). The Impact of COVID-19 on Gender Equality. (Rapor No. 26947). Cambridge: NBER.

Alpago, H., Alpago Oduncu, D. (2020). Koronavirüs Salgınının Sosyoekonomik Sonuçları. *IBAD,* (8), pp.99-114, DOI: 10.21733/ibad.716444

Aydıntan, B., Kördeve, M.K. (2016). Çalışanların Esnek Çalışma Modeli Çerçevesinde Örgütsel Bağlılık Düzeylerinin Değerlendirilmesi. *Gazi İktisat ve İşletme Dergisi,* 2(3), pp. 27-48.

Baert,S., Lippens,L., Moens,E., Sterkens,P.& Weytjens,J.(2020). The COVID-19 Crisis And Telework: A Research Survey on Experiences, Expectations And Hopes. The IZA Institute of Labor Economics Dıscussıon Paper Series, Iza Dp No. 13229

Bayrak, S. (2015). Bir İskandinav Refah Devleti Modeli Olarak İsveç'te Esnek Çalışmanın Genel Görünümü. *ÇSGB Çalışma Dünyası Dergisi,* 3(1), pp. 32-54.

BBC, Lu-Hai Liang (9th March 2020). How COVID-19 led to a nationwide work-from-home experiment (2020). https://www.bbc.com/worklife/article/20200309-coronavirus-covid-19-advice-chinas-work-at-home-experiment

Bloom, N., Liang J., Roberts, J., Ying, Z.J. (2015). Does working from home work? Evidence from a chinese experiment. *Quarterly Journal of Economics*, 130(1), 165-218. https://doi.org/10.1093/qje/qju032

Cruz B.S., Dias, M.O. (2020). COVID-19: From Outbreak to Pandemic. *Global Stientific Journals,* 8(3), pp. 2230-2238.

Cowling, B.J., Ali,Ş..T., Ng,T. WY., Tsang,T.K., Li,T.C.M., Fong,M.F., L.,Q.,Kwan, M.YW.,Lee,S.L., Chiu, S.S., Wu,J.T., Wu,P. &Leung,G.M. (2020). Impact assessment of non-pharmaceutical interventions against COVID-19 and influenza in Hong Kong: an observational study. *The Preprint Server For Health Sciences* (yayımlanmamış makale). doi:https://doi.org/10.1101/2020.03.12.20034660

Deloitte (2020). İşin Geleceği: Uzaktan Çalışma Sisteminde Organizasyonel Dayanıklılığı Korumak. https://www2.deloitte.com/content/dam/Deloitte/tr/Documents/human-capital/isin-gelecegi-uzaktan-calisma-sisteminde-organizasyonel-dayanikliligi-korumak.pdf (Accessed: 19.08.2020).

Dockery, A. M., & Bawa, S. (2017). When two worlds collude: Working from home and family functioning. *International Labour Review, Forthcoming.* 157(4), pp. 609-630.

Eurofound (2020). Living, working and COVID-19 First findings – April 2020. https://www.eurofound.europa.eu/sites/default/files/ef_publication/field_ef_document/ef20058en.pdf

HR Dergi (2020). Citrix'in Araştırması'na göre, çalışanlar uzaktan çalışmaya uyum sağlıyor. https://hrdergi.com/citrix%E2%80%99in-arastirmasina-gore-calisanlar-uzaktan-calismaya-uyum-sagliyor (Accessed: 19.08.2020).

HR Dergi (2020). Esnek çalışmak motivasyonu artırıyor. https://hrdergi.com/esnek-calismak-motivasyonu-artiriyor (Accessed: 19.08.2020).

Koç, N., (2018). Havayolu Taşımacılığında Çalışma Sürelerinin Esnekleştirilmesine Yönelik Bir Uygulama: Split Çalışma Modeli. *Gaziantep University Journal of Social Sciences,* 17 (1), pp. 1054-1073.

18th RSEP International Economics, Finance & Business Conference – Virtual/Online
26-27 August 2020, Kadir Has University, Istanbul, Turkey

www.rsepconferences.com   **CONFERENCE PROCEEDINGS/FULL PAPERS**   ISBN: 978-605-06961-5-8/September 2020

Milliyet, Seyhan Akıncı (2020). İş hayatının yeni normali 'Home office'. https://www.milliyet.com.tr/pazar/is-hayatinin-yeni-normali-home-office-6228389

Mustajab, D., Bauw, A., Irawan, A., Rasyıd,A., Akbar,M.A.,Hamıd, M.A. (2020). Covid-19 Pandemic: What are the challenges and opportunities for e-leadership?, *Fiscaoeconomia*, 4(2), pp. 483-497.

NTV (2020). "Evden çalışma yüzde 95'e ulaştı". https://www.ntv.com.tr/ekonomi/evden-calisma-yuzde-95e-ulasti,IAYBNnOVNUa_6OvGUVpJAA (Accessed: 18.08.2020)

Peeri, Noah C., Shrestha, Nistha, Rahman, Md Siddikur, Zaki, Rafdzah, Tan, Zhengqi, Bibi, Saana, Baghbanzadeh, Mahdi, Aghamohammadi, Nasrin, Zhang, Wenyi, Haque, Ubydul (2020). The SARS, MERS and novel coronavirus (COVID-19) epidemics, the newest and biggest global health threats: what lessons have we learned?. *International Journal of Epidemiology,* pp. 1–10.

Sabuharia, R., Sudirob, A., Irawantob,D.W.& Rahayu,M. (2020). The effects of human   resource flexibility, employee competency, organizational culture adaptation and job satisfaction on employee performance. *Management Science Letters,* 10, pp. 1777–1786. doi: 10.5267/j.msl.2020.1.001.

Shagvaliyeva,S.&Yazdanifard, R.(2014). Impact of flexible working hours on work-life balance. *American Journal of Industrial and Business Management*, 4, pp. 20-23. doi:http://dx.doi.org/10.4236/ajibm.2014.41004

Soylu, A.(2018). Endüstri 4.0 ve girişimcilikte yeni yaklaşımlar. *Pamukkale Üniversitesi Sosyal Bilimler Enstitüsü Dergisi,* 32, pp. 43-57. doi: 10.30794/pausbed.424955.

Spurk, D.&Straub, C. (2020). Flexible employment relationships and careers in times of the COVID-19 pandemic. *Journal of Vocational Behavior,* 119, 103435. https://doi.org/10.1016/j.jvb.2020.103435.

Taner, D.&Avşar Negiz, N. (2018). Kamu idarelerinde esnek çalışma saatleri uygulaması üzerine bir inceleme. *Süleyman Demirel Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi,* 23(3), 1131-1152.

Tavares, A.I. (2015). Telework And Health Effects Review, Anda A Research Framework Proposal. *Munich Personal RePEc Archive.* https://mpra.ub.uni-muenchen.de/71648/

T.C. Cumhurbaşkanlığı Resmi Gazete (2020). COVID-19 Kapsamında Kamu Çalışanlarına Yönelik İlave Tedbirler Hakkında Genelge (2020, 22 Mart). Resmi Gazete (Sayı: 31076 (Mükerrer). https://www.resmigazete.gov.tr/fihrist?tarih=2020-03-22&mukerrer=1

T.C. Sağlık Bakanlığı (Ağustos 2020). Türkiye Günlük Koronavirüs Tablosu, https://covid19.saglik.gov.tr/ (Accessed: 19.08.2020).

Uysal, Y. (2020). Klasik kamu yönetiminden eni kamu işletmeciliği ve post-iky'ye kamu hizmetlerinin değişimi ve dönüşümü üzerine bir değerlendirme. *International Journal of Management and Administration*, 4(7), pp.112-135. https://doi.org/10.29064/ijma.680548

WHO (2020). WHO Coronavirus Disease (COVID-19) Dashboard, https://covid19.who.int/ (Accessed: 19.08.2020).

Work From Home Experience Survey Results. (2020). https://globalworkplaceanalytics.com/global-work-from-home-experience-survey

Yıldırım, A.&Şimşek, H. (2016). *Sosyal bilimlerde nitel araştırma yöntemleri.* Ankara: Seçkin