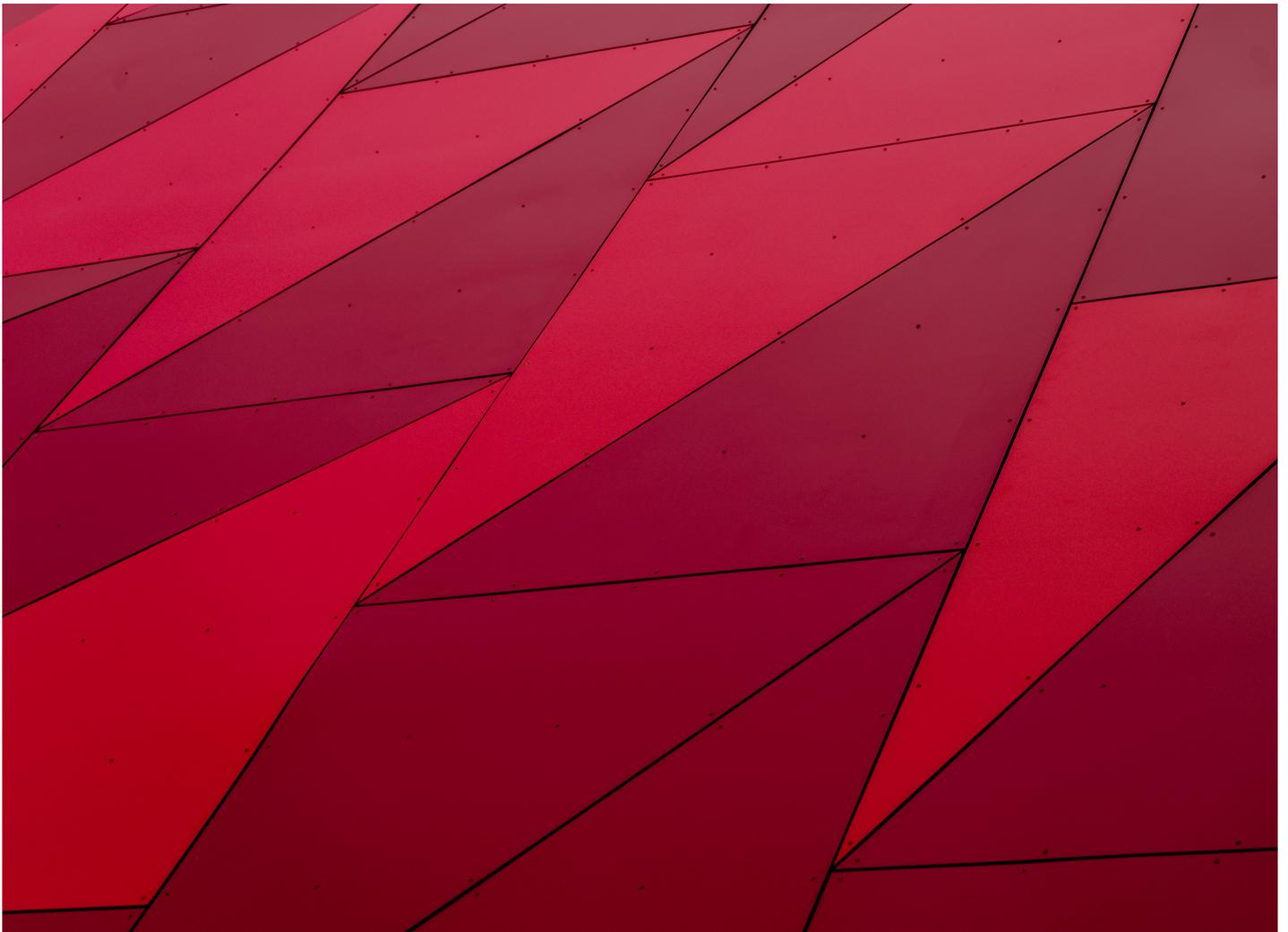


MAY ISSUE 2020

**CIT
REVIEW
JOURNAL**

C | R | J

crj.cit.edu.al



ISSN 2523-6962

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PUBLISHER
Canadian Institute of Technology
Tirana, Albania
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Prof. Dr.
Sokol Abazi
Editor-in-Chief

Dear reader,

I am honored to welcome you to the May Issue 2020 of CIT Review Journal (CRJ). CIT Review Journal (CRJ) is a multidisciplinary journal which provides a platform to researchers, academicians, professionals and students to share research achievements and their perspectives.

As Editor-in-Chief of CIT Review Journal (CRJ), I would like to gratefully acknowledge the contributions of all editors and reviewers, who were engaged for May Issue 2020. Their expertise and the valuable criticism on the content and style of the submitted manuscripts contributed very much to maintain the high standards of the journal.

I am also grateful to the experts and researchers who have shared with us their knowledge and findings in this Issue and look forward to the new submissions for the next Issue of the CIT Review Journal.

All the best,

Prof. Dr. Sokol ABAZI



Prof. Dr.

Petraq Papajorgji

Perceptions Regarding Distance Learning in Higher Education

Smoothing the Transition

Before the COVID-19 crisis, it could be said that the Distance Learning approach played a supporting role; it has now assumed a central role, and, in human relations terms, the faculty and the students are getting 'on the job training.' During these pandemic times of COVID-19, institutions of higher education had to close their doors, to stop in-person teaching. In order to keep educating, these institutions chose to use DL, and to continue educating. Most higher education institutions had not previously mastered the intricacies of DL, even though the COVID-19 crisis forces the paradigm shift with unexpected speed.

The goal of the study is to understand what students and professors think about this approach, to have a feeling of the kinds of problems that are to be addressed so that the efficiency and the interactivity of the traditional teaching process are not negatively impacted. Four topics that could present an interesting 'story' about DL became the pillars of the study; effectiveness, interactivity, feasibility and the future of DL, respectively.

This study presents results obtained from a Mind Genomics experiment with both students and professors of different group-ages, genders and stated reasons why distance learning is relevant to the respondents, i.e., the participants in the Mind Genomics experiment. The underlying theoretical framework is the narrative persuasion theory, which divides the message into logically different components; for whom; under what circumstances; how; and when does each message achieve optimum effect.

Results show that 37% of respondents (the value of intercept) are inclined to use the distance learning in absence of any other information about elements. This is a rather encouraging result. In general, most of students and professors, 49.41% of them, use distance learning for the reason any time and everywhere learning. This result reinforces the idea that 37% of respondents are in favor of this learning paradigm in absence of any other information. Next, 27.06% of respondents use distance learning for Learning through tutorial services. Learning while working is the least appreciated reason, 23.53%.

Results show that based on their statistical relevance the four pillars/groups considered for this study are ordered as follows: The perspective of distance learning as a learning approach is evaluated with the value of 3. The effectiveness pillar is evaluated with the value of 2.75. The interactivity pillar is evaluated with the value of 2.5. And last, the feasibility pillar is evaluated with the value of 0.25.

The element that had the highest evaluation from respondents in the study was distance learning platforms push students towards rational thinking evaluated with the value of 5. Students evaluate this element with a value of 6 and all professors excepting the ones of group age 35 – 44, agree. Professors of age 45-54 evaluate this element with 14. Instead, professors of age 35-44 years old don't think that distance learning platforms push students towards rational thinking. Males evaluate this item very high, with value of 10 and are more favorable than females that evaluate this item with 3. Regardless of the value, both male and female think that distance learning will push students to be more rationale during their studies.

The results obtained from this study independently from age group, gender and reasons for, demonstrate that the most significant issues derived from students and professors` distance learning experience are that:

- distance learning platforms push students towards rational thinking;
- distance learning is more appropriate for people that have a job;
- distance learning platforms should provide interaction as in the classroom;
- distance learning is more an individual learning approach.

Meaning, that when these questions are introduced into the vignette at least an additional 4-5% of the respondents rate positively distance learning approach in addition to the autonomous evaluation of the approach. Any attempts to create new DL tools or to further improve the existing ones, must take into account the abovementioned points.

AALEN'S ADDITIVE HAZARD MODEL: AN APPLICATION IN ANALYZING JOB TENURE FACTORS IN PRIVATE AND PUBLIC COMPANIES IN ALBANIA

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Abstract

There are several statistical methods for time to event analysis, among which is the Cox proportional hazards model, that is most commonly used. In this model, the effect of the covariates is assumed to act multiplicatively on the baseline hazard rate and the ratio of the hazards is constant over survival time. However, when the proportionality assumption for the Cox proportional hazards model is not satisfied, an additive hazard regression model may be more appropriate.

In this study, we give an overview of this approach and then apply Aalen's additive hazard regression model to a data set which contain the job tenure for Albanian employees and variables that are thought of as important factors in the job tenure. The Aalen model allows for time-varying covariate effects and is used to assess the impact that age of the employee, the age at which he started the job, salary, gender, position and years of work in front of the current position may have in job termination.

Keywords: *Job tenure, Survival analysis, Cox proportional hazard model, Aalen's additive hazard regression model.*

1. Introduction

Survival models are frequently used in analysis of employment processes and estimation of factors that affect the job tenure. Job tenure is of paramount interest to workers and company since it can be interpreted as a measure of job stability [1]. Job tenure is the length of time an employee has been continuously employed by the same employer and in the same job position. Theodossiou and Zangelidis [2] estimate the relationship between job tenure and job satisfaction. They assess whether job tenure depends on career advancement opportunities. Ng and Feldman [3] evaluates the relationship between job tenure and job performance. Their results suggest that job tenure is largely unrelated to job performance. Grzenda and Buczyński [4] have studied the estimation of employee turnover with competing risks models. Jiang and Wang [5] examined the relationship between career adaptability and the job content plateau, focusing on the moderating roles of job tenure and job self-efficacy.

Proper analysis of processes related to employee job tenure is vital for both employee and employer. From the employee's point of view, the knowledge about individual employee's characteristics, such as the length of time, that this employee stay in the current job, give a competitive edge on the labour market is crucial. Nowadays, many companies struggle with problems related to the lack of sufficient information about the nature of job tenure processes.

Since the year 2000, the job tenure distribution has shifted away from jobs that have been held for a short duration toward jobs that have been held for a longer duration. From the U.S. Bureau of Labor Statistics [6], the median number of years that wage and salary workers had been with their current employer was 4.2 years in January 2018, unchanged from the median in January 2016.

The point at which half of all workers had more tenure and half had less tenure for men was 4.3 years. Among them, 30 percent of employees had

a job tenure which is 10 years or more. The median tenure for men with less than a high school education was around 4.7 years and those with at least a college degree had median tenure of 5.2 years.

The median job tenure for women was around 4 years, where only 28 percent of women, had been in the same job and with the same employer for more than 10 years. The median tenure for women with less than a high school education was around 4.2 years and those with at least a college degree had median tenure of 5 years. For an employee in the public sector, his job tenure was 6.8 years, which is considerably higher than job tenure of an employee in the private-sector, with 3.8 years.

The data, which were used in this analysis, describe the employment duration (survival times) of 887 present and former employees from several different companies, in Albania. Dependent variable was defined as time in months of employment. The main aim of this study is modeling the duration of job tenure and evaluations of factors which are considered important in this time using survival analysis. In particular the Kaplan-Meier method [7] is used to estimate the survival function, and Aalen's additive hazard model [8] to assess the impact that independent variables have on survival time.

Having in mind the main aim of this study as well as the availability of the data, the use of the following independent variables has been proposed: the current age of the employee, the age at which he started the job, salary, gender, position, education, marital status and years of work in front of the current position. Given that some employees have not completed their tenure by the end of the sample, a hazard based analysis is useful to deal with right censoring.

Model validation and results were obtained through R package software, *survival()*, *timereg()*, *ggplot2()*.

2. Materials and methods

Survival analysis refers to the general set of statistical methods developed specifically to model the timing of events.

Let Y_1, \dots, Y_n be a variable of interest with density f and distribution function F , and let C_1, \dots, C_n be a censoring variable with continuous distribution

function G .

We assume that Y is independent of C . Under random right censoring, the variable is not completely observed. One can only observe (T_i, δ_i) where $T = \min(Y_i, C_i)$ and $\delta_i = I(Y_i \leq C_i)$ with $I(\cdot)$ being the indicator function [9].

2.1. Cox proportional hazards (Cox PH) model

A popular regression model for modeling the relationship of covariates to a survival time is Cox proportional hazards model (Cox PH model). This model has been proposed by Cox, 1972, [10] and hazard function relates with covariates as follows

$$h(t|Z) = h_0(t) \exp\left(\sum_{j=1}^p \beta_j z_j\right) = h_0(t) \exp(\beta^T Z) \quad (1)$$

where $Z = (Z_1, \dots, Z_p)^T$ is the vector of explanatory variables for a particular individual, $\beta = (\beta_1, \dots, \beta_p)^T$ is a parameter vector of regression coefficients and $h_0(t)$ is the baseline hazard function, which represents how the risk changes with time. Baseline hazard function can be interpreted as the hazard function when all covariates are ignored. This model assumes that covariates have a multiplicative effect on the hazard function and possesses the property that different individuals have hazard functions that are proportional.

2.2. Aalen's additive hazard regression model

In the Cox PH model, the effect of the covariates was to act multiplicatively on some unknown baseline hazard rate. Covariates which do not act on the baseline hazard rate in this fashion were modeled either by the inclusion of a time-dependent covariate, by stratification or by separate analyzes on disjoint time intervals.

An alternative model based on assuming that the covariates act in an additive manner on an unknown baseline hazard rate, is Aalen's additive hazard model. The model was first suggested by Aalen [8]. The unknown risk coefficients in this model are allowed to be functions of time so that the effect of a covariate may vary over time. Unlike the proportional hazards model which estimates hazard ratios, an additive model estimates the difference in hazards: the change in hazard function due to the exposure of interest or stated

more simply the absolute difference in the instantaneous failure rate per unit of change in the exposure variable.

The conditional hazard rate in Aalen's additive hazard model is:

$$h[t | Z(t)] = \beta_0(t) + \sum_{k=1}^p \beta_k(t)Z_k(t) \quad (2)$$

where $Z(t) = (Z_1(t), \dots, Z_p(t))^T$ is the vector of, possibly, time-dependent covariates, for a particular individual, and $\beta_k(t)$, $k=1, \dots, p$ are unknown parametric functions to be estimated from the data [8]. Direct estimation of the $\beta_k(t)$ is difficult in practice, so we can directly estimate the cumulative risk function $B_k(t)$, defined by:

$$B_k(t) = \int_0^t \beta_k(u)du, \quad k = 0, 1, \dots, p \quad (3)$$

To find the estimates of $B_k(t)$ a least-squares technique can be used, by define an $n \times (p+1)$ design matrix, $X(t)$, where $X_i(t) = Y_i(t) \cdot (1, Z_j(t))$. Let $I(t)$ be the $n \times 1$ vector with i th element equal to 1 if subject i fail at t and 0 otherwise. The least-squares estimate of the vector $B(t)$ is:

$$\hat{B}(t) = \sum_{T_i \leq t} [X^T(T_i)X(T_i)]^{-1} X^T(T_i)I(T_i) \quad (4)$$

The variance-covariance matrix of $B(t)$ is:

$$\hat{D}(\hat{B}(t)) = \sum_{T_i \leq t} [X^T(T_i)X(T_i)]^{-1} X^T(T_i)I^D(T_i)X(T_i) \{ [X^T(T_i)X(T_i)]^{-1} \} \quad (5)$$

here the matrix, $I^D(t)$ is the diagonal matrix with diagonal elements equal to $I(t)$ [11]. Vansteelandt Martinussen and Tchetgen [12] showed that Aalen's least square estimator is an unbiased estimator.

2.3. Counting process

Estimation in Aalen's additive model can be performed with counting process:

$$dN_i(t) = Y_i(t)\beta_0(t)dt + Y_i(t)\sum_{j=1}^p \beta_j(t)z_{ij}dt + dM_i(t) \quad (6)$$

where $dN_i(t)$ indicates event for individual i at time t , $Y_i(t)$ the at risk indicator for individual i at time t and $M_i(t)$ the martingale increment [13]. This

may be interpreted as a linear regression model at each time t with $dN_i(t)$ as responses; $\beta_j(t)dt$ as regression coefficients and $Y_i(t)z_{ij}$ as covariates. The problem of estimation, testing and model fitting were discussed in [14, 15].

The cumulative regression functions, $\hat{B}_k(t)$, estimation of $\hat{B}_k(t)$, with counting process, can be interpreted as: if $\hat{B}_k(t)$ is increasing in an interval, than we have higher risk with high value of z_k ; if $\hat{B}_k(t)$ is decreases in an interval, than we have lower risk with high value of z_k and if $\hat{B}_k(t)$ is roughly constant in an interval, than we have little effect of z_k in the interval. An important contribution to the counting processes and martingale theory formulation is given by Aalen [13, 14, 15].

3. Study population

We have analyzed the length of time that employees have been in their current job or with their current employer for 887 employees, in Albania. With survival time we refer the time from the beginning of the relationship with the company, until the end of the term, where the time is in month. The sample contain employees who were still working at the time when the data was last updated, December 2018, 534 respondents were still working, while 353 of them had interrupted the employment relationship with the employer. For these employees we do not know the exact job tenure, but we cannot consider the time we have, as missing data because it contains information. Here, we have to deal with right censoring data, which is referred as the indicator variable, whether or not an employee is still working.

In this study, the survival function gives the probability that the employee will stay in a working relationship for a certain time. On the other hand, the hazard function gives us the potential risk that the employee will terminate the relationship with the company after a certain time. Aalen's additive hazard model is used to estimate the effect that some variables may have on job tenure. The factors studied are: the current age of the employee, the age at which he/she started the job, salary, gender (male, female), position (engineer, supervisory, specialist, financier and other positions (driver, cleaner, babysitter, etc.)) and years of work in front of the current position.

4. Results

There are in total 887 employees. Among the employees surveyed, 58 are financiers, 135 engineers, 108 supervisors, 265 specialists and 314 work in other positions. There are 254 women and 633 men. The average age is 45 years old, where the average age for women is 41 years old, while for men is 46.5 years old. The average salary is 68000 Lek. The shortest time that an employee has been in a current position is one month, while the the longest stay time is around 28 years, 26% of the employees have been in their current position for more than 10 years, where 77% are men, and 30% have been with the same employer for less than 1 years.

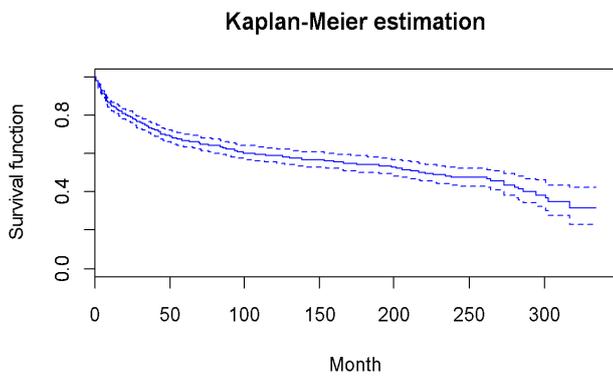


Figure 1. Estimated survival function with Kaplan-Meier method, for job tenure.

Figure 1 shows that for the employees, job survival is up to one year for 84.6%, up to 2 years for 80%, up to 3 years for 73%, up to 4 years for 69% and up to 5 years for 66%. An employee with tenure of less than 3 months has a median expected time in work of 2 months. Which means that 50% of the employees who have joined the company less than three months ago are expected to leave within 2 months of their joining. Similarly employees who have lasted for more than 3 months but haven't still completed 6 months, 50% of them will leave within 5 months. Thus if we somehow increase the percentage of employees staying beyond three months, we will have a higher percentage of people staying beyond the sixth month. An employee with tenure of 1-2 years has a median expected time in work of 21 months.

In the next step, in order to assess the impact of the factors in job tenure, the Aalen's In the next

step, in order to assess the impact of the factors in job tenure, the Aalen's additive regression model is fitted to the data.

Table 1. Aalen's additive hazard regression model.

	Test for non-sig effects, p-value	Test for time invariant effects	
		Cramer von Mises test	p-value
(Intercept)	0.000	1.54e+03	0.005
Age	0.000	8.06e-01	0.000
Ywb	0.000	1.78e-04	0.515
Sal	0.000	6.46e-04	0.639
genderM	0.065	1.28e+02	0.000
Agebi	0.002	1.21	0.008
profFinancier	0.026	2.25e+01	0.025
Profother	0.000	2.39e+01	0.016
profSpecialist	0.000	2.86e+01	0.008
profsupervisory	0.000	5.97e+01	0.000

Table 1 shows that the covariates: the current age of the employee, the age at which he/she started the job, salary, position and years of work in front of the current position, turned to be statistically significant at the level of $\alpha = 0.05$. The covariate gender have no effects on the job tenure. Also this table shows the values taken from test for time invariant effects, where years of work in front of the current position and salary have a time-varying effect. Number of simulations in resampling is 1000.

The slope of an estimated cumulative regression function is positive when covariate increases and this fact correspond to an increasing hazard rate. On the other hand, if the slope is negative while the covariate increases, then this fact points to a decreasing hazard rate. If the slope of cumulative sums approaches zero then a covariate has no effect on the hazard.

The plots of estimated cumulative regression functions are obtained to see the effect of covariate over time. The estimated cumulative regression coefficients for covariates with 95% pointwise confidence intervals are shown in Figure 2.

Figure 2 indicates that the estimates of cumulative regression function for gender are constant at a

level of zero. The regression function plot for age at which the employee started the job and salary have a significant and fairly constant increasing effect.

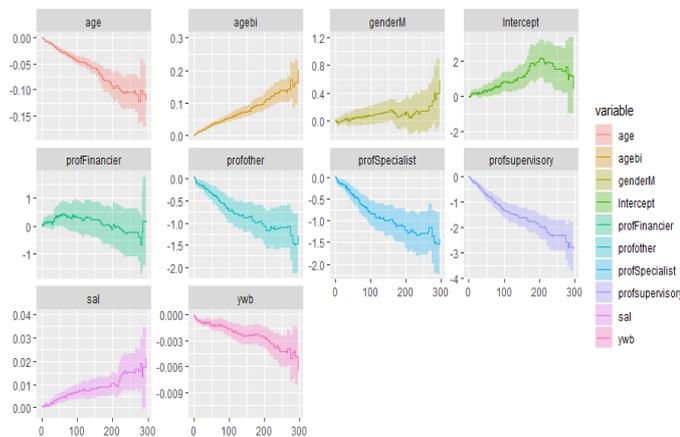


Figure 2. Estimated cumulative regression functions with 95% pointwise confidence intervals based on Aalen's additive model

The slope of estimated cumulative coefficient for age and years of work in front of the current position have a decreasing effect on hazard.

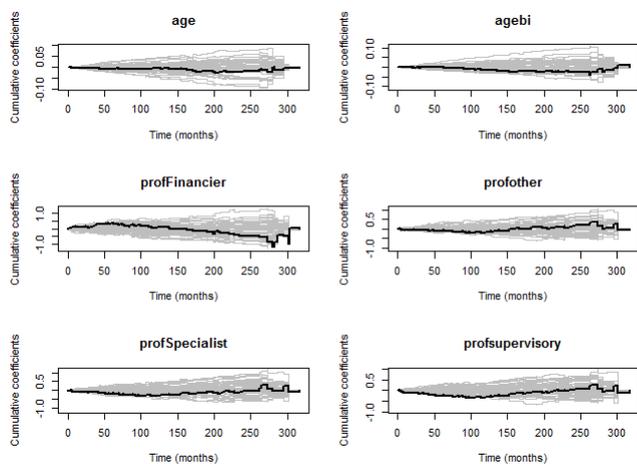


Figure 3. Score test for constant multiplicative effect for age, the age at which he/she started the job and position

The score processes to test proportionality for age, the age at which he/she started the job and position, are given in Figure 3 with 1000 random realizations under the null hypothesis of constant multiplicative effects. Figure 3 indicates that constant multiplicative effect is satisfied for these covariates.

From the final Aalen's additive regression model, based on the above results, that the gender has no effect on the hazard and years of work in front of the current position and salary have a time-varying effect, we conclude that one unit change in salary extends survival time by 1.01 times. One unit change in age shortens survival time by 0.86 times, while one unit change in age at the beginning of the current position in the company extends survival time by 1.16 times.

The estimated risk of dismissal for an employee, with age less than 30 years is approximately equal to 4.853 times higher than an employee older than 50 years old. Employees aged between 30 to 50 years at the time they start the job have 75% less risk of being dismissed than an employee over 50 years old at the moment he/she begin the job. If the job position of an employee is an engineer, this reduces the risk of leaving with 45% compared to a financier.

5. Conclusion

The objective of the study was to assess the impact of actual age, age at the beginning, salary, years of work in front of the current position, in the length of time that employees have been in the current job or with their current employer, known as job tenure. Analysing job tenure and the factors which affect on it, is important for companies, as well as for employees. Sometimes employers, consider it as criteria for hiring new employees.

The analysis is made by Aalen's additive regression model, which allows for time-varying covariate effects. This model provides a graphical method to check on a time dependence of covariate effects and it may be used for the significance test of Cox's model.

The findings showed that gender has no effects on the job tenure, while years of work in front of the current position and salary have a time-varying effect. The average job tenure of an employee on a given company is approximately 187 months and job survival is up to one year for 84.6% of the employees. If we somehow increase the percentage of employees staying beyond three months, we will have a higher percentage of people staying beyond the sixth month in the same job.

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PROTECTION OF DOCUMENTS AGAINST SOPHISTICATED PHOTOCOPYING AND SCANNING

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Abstract

A novel method, for designing pantographs, is presented. An iterative algorithm is used to design a distribution of bright and dark spots to be embedded in the original document. This distribution should make the word “void”, “invalid”, or “copy” visible on the photocopy or the scanned version of the original document. We used an iterative algorithm to optimize the pantograph. We can start from a random distribution, or from a deterministic distribution based on Dirac pulses properties.

Keywords: *Pantographs, Protection of Documents, Fourier Optics.*

1. Introduction

There is a need to protect original documents in order to distinguish them from forgeries or fraudulent duplications. For example, it is illegal to photocopy prescriptions provided by doctors and present them as original documents to pharmacists. In order for a copy to be different from the original there are two main avenues: 1) the optical system of the photocopying machine or the scanner is not perfect, or 2) the original paper is physically different from the paper on which the photocopy is performed. In this spirit, many technologies have been proposed such as (Ref. [1-9]): void pantographs, latent words, control numbers, scrub, gilding, special inks (brighter metallic ink, blind ink, UV-reactive ink, iridescent ink, optically variable ink, Phosphorescent ink), holograms, reactive tags, RFID tags, dry stamps, pigments and fibers responding to the flash of the photocopier, optically variable brands (Crystagram, Kinogram, Exelgram, Movigram, Pixelgram, Stereogram), tapes (magnetic stripes, optically stripes), micro-line printing, and perforation (needle perforation, laser perforation, micro-perforation).

Void pantographs remain one of the most efficient methods and least expensive technologies. There is, however, a serious challenge. Recent developments in photocopying and scanning technologies have made void pantographs less effective. According to pantograph providers [10], the

imaging system of the photocopier is not behaving as a “low-pass filter” [11] anymore. Thus, the word “void”, “invalid”, or “copy” does not appear anymore in the photocopy or scanned version of the document as requested by the standards dictated within the marketplace. To the best of our knowledge and of our industrial partner’s knowledge there today is no solution for this very recent problem.

In reality sophisticated photocopiers and scanners are still behaving as low-pass filters because the optical systems of these machines include optical components of a finite extent. However, the cut-off frequency is higher.

A pantograph is a distribution of spots that does not present readable information. For example, if the word “void”, or a similar version of it, appears on the original documents, the use of the pantograph would not be appropriate, since the original document is useless. When photocopying pantographs, because of the low-pass behavior of the optical system of the photocopier, the suppressed high frequencies make the word “void”, “invalid”, or “copy” appear.

2. Method

In this paper we present an iterative method designing pantographs with variable cut-off frequencies f_c . We use the constraint-degrees of freedom approach [12-13]. As freedom degrees, we can use

the size and the way “void”, or equivalent, is written. The main two constraints are: first, the word “void”, or equivalent, should clearly appear in the copy or the scanned version of the paper containing the pantograph; second, the pantograph does not contain any readable information and should not include large dark or white areas otherwise the original document looks tarnished. This leads to the following quantitative constraints:

Dark spots should have a small density (for example, one dark pixel for each 20 pixels in average).

No large white areas. For example, after a set of 30 white pixels we should impose one dark pixel.

Cannot allow long sequences of dark spots. For example, after a set of 3 dark spots we should impose a white spot.

The pantograph should be implementable on a paper in a 2D way (no 3D holograms). A binary pantograph (black and white) is easier to implement.

Frequencies beyond f_c are cut in the Fourier plane. After low-pass filtering the word “void” should be seen by the naked eye. A cost function should be defined and minimized during the iteration process.

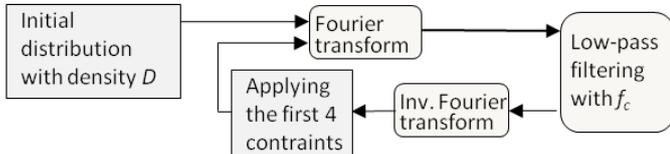


Figure 1. Simulated annealing based algorithm for designing pantographs.

Figure 1 illustrates the principle. We start from an initial distribution, which may be random or determined. We apply the Fourier transform back and forth. The first four aforementioned constraints are applied in the signal plan, whereas the fifth constraint is applied in the Fourier plan. The sixth constraint is applied in the signal plan by calculating the cost function. In this optimization process the cost function is the uniformity of the word “void” or equivalent.

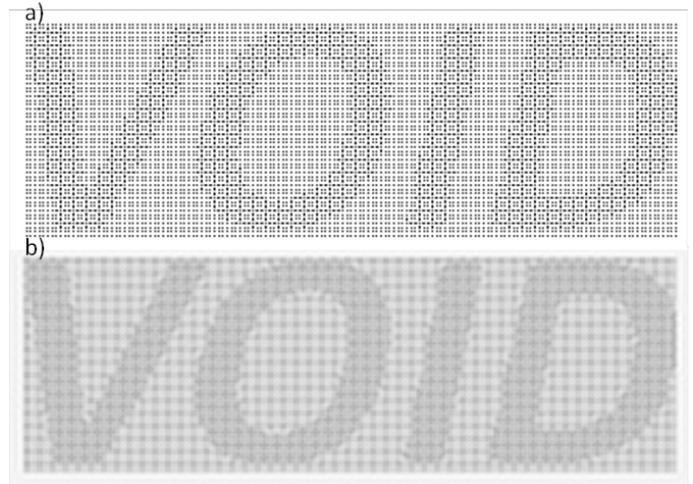


Figure 2. a) The pantograph is the binarized version of the signal $h(x,y)$ which generates $H(u,v)$ in the Fourier plan, respecting Eq (3), with the special frequency $u_o = v_o = 3/8 N \Delta u > f_c = R_c \Delta u$, where $R_c=100$ and $N=512$. b) The expected photocopy or scanned version which corresponds to low-passed filtered of the pantograph.

Let us call the image containing the word “void” $f(x,y)$, and $f_{Low}(x,y)$ the low-pass version of the pantograph. The cost function is as follows:

$$cost = \frac{1}{N_{void}} \int_{void} (f(x,y) - |f_{Low}(x,y)|)^2 dx dy \quad (1)$$

N_{void} is the number of pixels over the word “void”. Of course, before calculating the cost function, the function $f_{Low}(x,y)$ should be normalized so that it contains the same amount of energy as $f(x,y)$ over the word “void”.

We embed the void image into an $N \times N$ image, with $N=512$, in order to use the fast Fourier transform (FFT). The sampling interval of the pantograph is Δx , which is referred to as the pantograph resolution. Depending on fabrication process it may vary from the 1 nm-range to the 10 μm -range. See for example Table 1 in reference (Ref. [14]).

The sampling interval in the FFT plane is Δu with:

$$\Delta x \quad \Delta u = \frac{1}{N} \quad (2)$$

The cut-off frequency is $f_c = R_c \Delta u$, where R_c is an

integer between 1 and $N/2$.

Here we considered a random initial distribution. The convergence of the Algorithm depends on this distribution. We could accelerate the convergence by starting from a deterministic distribution. One of the ideas is the following. We can start from the image containing the word “void”, $f(x,y)$. In order to hide it, the image can be drowned in another distribution $h(x,y)$. The operation of drowning is merely an algebraic addition. The distribution $h(x,y)$ should disappear after low-pass filtering is performed. This means it should contain only high-frequencies beyond the cut-off frequency f_c . It may contain only one high frequency, which means that the spectrum is a unique shifted Dirac: $H(u,v) = \delta(u-u_0, v-v_0)$, where the frequencies, u_0 and v_0 , are bigger than the cut-off frequency f_c of the photocopier.

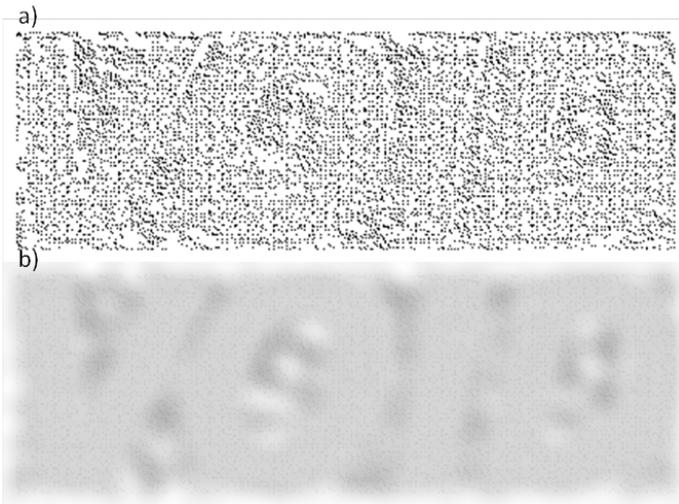


Figure 3. a) The designed pantograph for a cut-off frequency $f_c = R_c \Delta u$ with $R_c = 25$, b) The expected photocopy or scanned version which corresponds to low-pass filtered of the pantograph.

The optical signal $h(x,y)$, generating $H(u,v)$ in the Fourier plan, is complex. In order to obtain a real distribution, we could make $H(u,v)$ an even distribution, such as $H(u,v) = 1/2 [\delta(u-u_0, v-v_0) + \delta(u+u_0, v+v_0)]$, or:

$$H(u,v) = \frac{1}{4} [\delta(u-u_0, v-v_0) + \delta(u-u_0, v+v_0) + \delta(u+u_0, v-v_0) + \delta(u+u_0, v+v_0)] \quad (3)$$

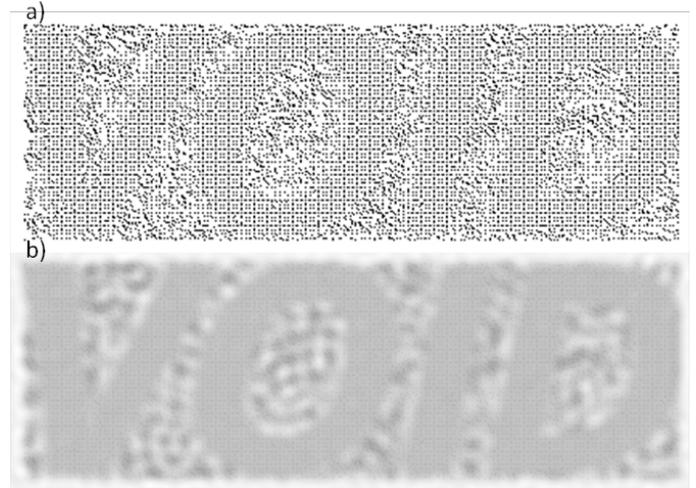


Figure 4. a) The designed pantograph for a cut-off frequency $f_c = R_c \Delta u$ with $R_c = 50$, b) The expected photocopy or scanned version which corresponds to low-pass filtered of the pantograph.

Eq. (3) was our choice for Figure 2, where $u_0 = v_0 = 3/8 N \Delta u$, and Δu satisfies Eq (2). We clearly see a pattern in Figure 2a, which corresponds to a 2D binary grating. We binarized the grating (constraint 4) by attributing the value 0 if $H(u,v) < 0$, and 1 otherwise. The word “VOID” is visible in the pantograph; it would be less visible if the dark spots are replaced by gray level spots and a logo of the pantograph supplier is put in the background. Preferably, the logo of the pantograph provider should contain significant high frequencies. In Figure 2b we see that the distribution is more uniform and there are no abrupt transitions between white and black spots.

3. Results and Discussions

In our experiment, we embedded the pantograph in a canvas of size $N \times N$ with $N=512$, and considered a cut-off frequency $f_c = R_c \Delta u$ with $R_c = 25, 50, 75, 100, 150, 200$. It worth noting that if $f_c = R_c \Delta u = N/2 \Delta u$, no frequency is cut. The results are given in images 3 to 8, where, in each figure, a) represents the pantograph and b) represents the low-pass filtered version with the respective cut-off frequency $f_c = R_c \Delta u$ with $R_c = 25, 50, 75, 100, 150, 200$. Figure 3a to Figure 8a are different from the initial distribution of Figure 2a since the pantograph spots are optimized through the iterative process of Figure 1. Energy is normalized

in all Figures 2 to 8. To avoid having the algorithm trapped in a local minimum of the cost function, simulated annealing (Ref. [15-16]) is applied. Figure 3b is very blurred, because the low-pass filtering is very selective and most of the frequencies are filtered out since f_c is low. Figure 4b is less blurred because f_c is higher.

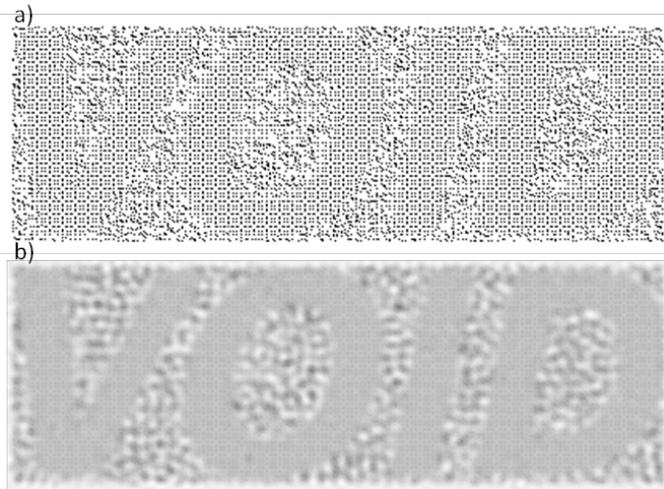


Figure 5. a) The designed pantograph for a cut-off frequency $f_c = R_c \Delta u$ with $R_c = 75$, b) The expected photocopy or scanned version which corresponds to low-pass filtered of the pantograph.

In Figure 5b to 7b, the “void” pattern is very uniform. In Figure 8, the filtered version, Figure 8b, is not very different with respect to the pantograph, Figure 8a, since only a small part of the frequency domain is filtered out. We notice in Figure 3a to 6a that there are insignificant changes over the “void” area compared to the initial distribution of Figure 2a. However, over the remaining area (between the letters, for example), the iterative process introduced significant changes. In Figure 7a and 8a we see significant changes performed by the iterative algorithm in both the “void” area and the rest of the image. By following the changes through iterations we noticed that the simulated annealing was very active. This means many changes are accepted, although the cost-function is worse, in order for the algorithm not to be trapped in local minima. The reason behind this, lies in the fact that only a small zone of the frequencies is filtered out, making the algorithm very likely to be trapped in local minima. The first minimum corresponds to the initial deterministic distribution itself.

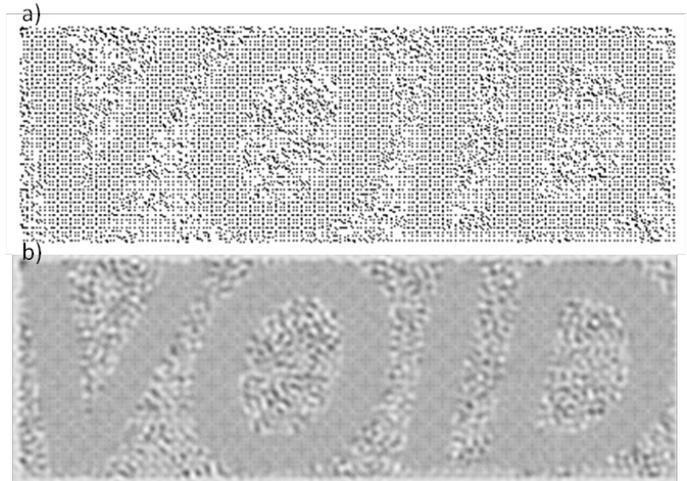


Figure 6. a) The designed pantograph for a cut-off frequency $f_c = R_c \Delta u$ with $R_c = 100$, b) The expected photocopy or scanned version which corresponds to low-pass filtered of the pantograph.

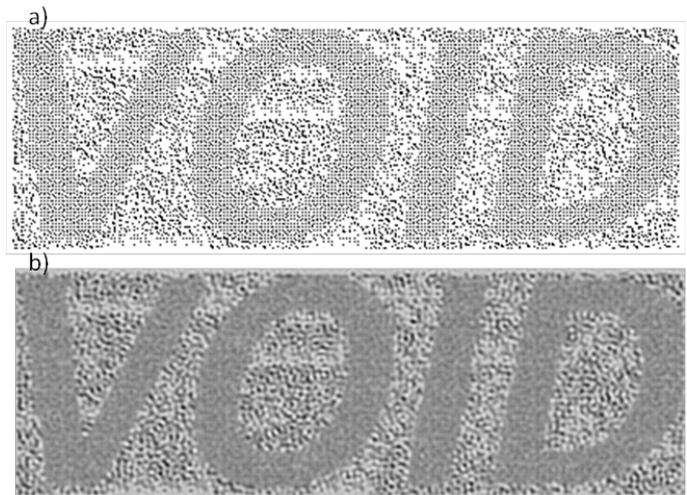


Figure 7. a) The designed pantograph for a cut-off frequency $f_c = R_c \Delta u$ with $R_c = 150$, b) The expected photocopy or scanned version which corresponds to low-pass filtered of the pantograph.

For all Figures 3a to 8a the simulated annealing based iterative algorithm starts from the signal $h(x,y)$ which generates $H(u,v)$ in the Fourier plan, respecting Eq (3). For Figures 3a to 6a the special frequency $u_0 = v_0 = 3/8 N \Delta u$, whereas for Figures 7a and 8a $u_0 = v_0 = 7/16 N \Delta u$, to ensure that $u_0 = v_0 > f_c = R_c \Delta u$.

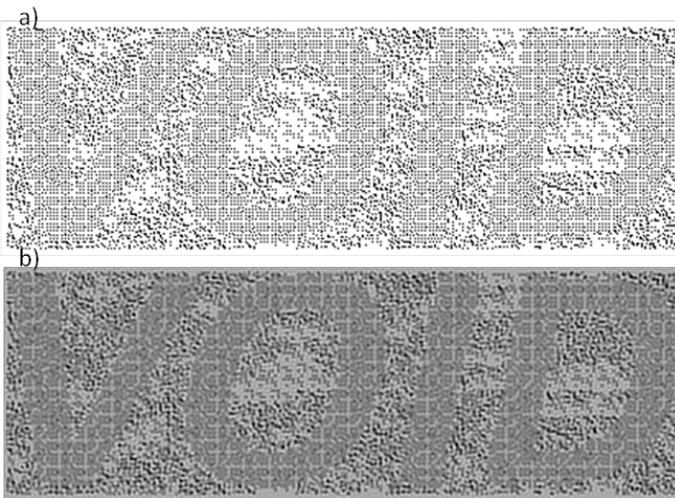


Figure 8. a) The designed pantograph for a cut-off frequency $f_c = R_c \Delta u$ with $R_c = 200$, b) The expected photocopy or scanned version which corresponds to low-pass filtered of the pantograph.

4. Conclusion

In conclusion, a new method for designing pantographs has been proposed. The idea surrounds an iterative process where constraints are applied in both the pantograph and its Fourier plan. Among the constraints, the pantograph should not contain visible information on the word “void”, “invalid”, or “copy”. However, this word should disappear after low-pass filtering with a high cut-off frequency.

We did not carry a real experiment since the production of a pantograph requires a very expensive process. A film should be developed for massive production of high-resolution pantographs. We started a collaboration with an industrial that is specialized in pantograph production, and we hope to soon be able to perform real tests.

In a future work, we also intend to consider different cut-off frequencies in the same pantograph. For example, we will seek to consider two cut-off frequencies f_{c1} and f_{c2} , where f_{c2} is higher than f_{c1} . Whether the sophisticated photocopier or scanner cuts at f_{c1} or at f_{c2} , the pantograph should work.

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COMPARING THE EFFECTIVENESS OF ONLINE AND TRADITIONAL LEARNING IN COMPUTER RELATED FIELDS

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Abstract

The traditional classroom environment is gradually losing its monopoly as the sole setting of learning. Digital learning is becoming an attractive model across the higher education spectrum as new innovative information technologies have become widely available. Online learning is used as a tool that improves learning performance while combating the reduction in resources.

This work presents a novel study focusing on estimating the efficiency of online learning in comparison to traditional learning for computer related fields in education institutions in Albania. A survey is conducted to estimate the impact that the learning modality has on students enrolled in computer technology related fields. The study focuses on measuring the role that intrinsic factors, teaching practices, learning intentions and programming expertise have on the perceived usefulness and the efficacy of online learning.

Measuring the role and effect of the learning modality will be important to estimating whether students and higher level education institutions are ready to shift towards online learning, or to integrate it into the current traditional framework. The results of our study are useful to have a better understanding of the benefits of online learning alongside with the challenges that need to be addressed in order to improve the teaching experience and outcomes.

Keywords: *Online learning, traditional learning, course delivery methodology, blended learning, computer-related fields.*

1. Introduction

The rapid technological revolution of the past decade has increased the popularity of online learning across the higher education spectrum. Digital learning – a cost saving approach that comes with increased learning and teaching flexibility and higher opportunities for students to learn at their own pace – appears convenient and beneficial for students and higher level education institutions.

Recent events, such as the Covid-19 pandemic oblige countries and education institutions to shift towards online learning (Kanwar, 2020) (Morgan, 2020). For learners, convenience of learning alongside the ability to bypass geographical constraints has replaced many of the traditional

educational environments and has given them more and greater opportunities to continue their education. The flexibility of learning “*anytime, anywhere*” comes with additional advantages such as convenience, saved time, and increased participation.

Despite the impactful advantages that online learning offers, it is not accepted without criticism. Removing the instructor from the distance and the time dimensions, alongside scattering students in the digital world might cause a sense of loss in terms of the vital context of the learning environment. Decreasing the social interaction makes students less motivated and provides them with fewer opportunities for hands-on experience. Furthermore, technical issues and increased distractions might reduce

the dynamics of in-class engagement.

Examining the inherited advantages and challenges presented with each learning environment is vital to create a common ground of principles that allow learning to thrive. The continuous exchange between the teacher and the student is a crucial component, despite the learning setting. Without it, learning is either greatly hindered or arguably nonexistent.

In an attempt to further refine, explain and compare the importance of physical attachment to a learning environment, this work will focus on a contextual comparative study for Albanian higher level institutions, focused on the field of technology related areas such as computer science and engineering, information technology, or other related fields based on computer programming. The purpose is to measure the effect of key components such as: i) teaching presence, ii) learning satisfaction, iii) learning results alongside with the link and the strength of connection between these components, while considering intrinsic factors, perceived usefulness, teaching practices, learning intentions and programming expertise.

To that end, this paper not only provides a theoretical framework for comparing the effectiveness of online and face-to-face learning for computer technology-related areas, but it supports such claims with data collected from 205 students across several private and public higher education institutions in Albania. A detailed analysis follows.

The rest of this paper is organized as follows. Section 2 provides a review of related work and literature. Section 3 highlights the central research questions that this work aims to address and presents the research used. A thorough analysis of the data is provided in section 4. This report ends with a summarized discussion and recommendations provided in section 5.

2. Literature Review

Extensive research is focused on the role and impact that the learning environmental setting has on results and satisfaction. This work focuses on comparing the effectiveness of online learning

methodologies for computer related fields.

Advanced computer literacy is a fundamental skill for the academic and professional world (Lam, 2008). Worldwide statistics show that out of 19,7 million students enrolled at some form of post-secondary institution, 6.6 million students enrolled in online classes to some extent (Bastrikin, 2020), listing personal circumstances as major reasons for their choice.

Another study conducted in Europe on 2015 addressing the choices between different types of learning methodologies such as: face to face, blended, blended/online, face to face/blended/online, face to face/online, online and blank showed that a notable majority of 69.63% of participants preferred traditional (face-to-face) classroom settings. The greatest motivation for pursuing online classes at a rate of 31.27% was that online education is easier to combine with the student's other occupations. (Owusu-Boampong & Holmberg, 2015)

Focusing on computer programming courses, according to a study from West Virginia University, which tested the efficiency and satisfaction from a student's perspective on one online course for first-year engineering students, the author concluded that learning programming online was a difficult task. Also, it was concluded that better platforms and technology will be necessary to maintain the students' engagement and to stimulate better the dynamics created in a real classroom. (Santiago, 2014).

Online programming classes are a novelty not only for students but also for teachers and thus many issues are associated with it even from a teaching perspective. According to a study conducted by researchers from USA and Finland: *“Teaching programming online is an area where experience reports still heavily predominate the literature, indicating that the research still remains in the early stages. Part of the reason may be that many educators have their first teaching experiences in a face-to-face environment. This makes it natural to replicate that experience when creating online courses, which requires using tools to produce the types of interaction seen in the on-site classroom. While approaching teaching programming online as a translation process from existing face-to-face*

experiences is natural, it may be also limited by personal experiences and things that we do not know.” (Settle, Vihavainen, & S. Miller, 2014)

Our study focuses locally on the city of Tirana by addressing the role that the learning methodology plays on students' satisfaction in computer related areas. The development of our survey bases some methodological elements of the main factors that contribute to the development of programming skills in e-learning among undergraduate students on the work of (Rafique, Dou, Hussain, & Ahmed, 2020).

The authors propose that programming education should follow the Technology Acceptance Model (TAM), which shapes and conditions the attitude of students toward learning. Moreover, they have extended the TAM model by adding elements of teaching practices, perceived usefulness, intrinsic factors, and efficiency problems with the learning intentions in their research framework which involves the 460 final year student's responses, enrolled in a Computer Science and Software Engineering B.A. at an e-learning institution. Structural Equation Modelling (SEM) and Confirmatory Factor Analysis (CFA) have been employed in order to evaluate the relationship among the model's factors.

In conclusion, empirical evidence shows that effective teaching practices, the perception of usefulness & value, and coherent intrinsic motivations are the main instigators of the aspiration to study and learn programming.

At an institutional level, effective learning management systems must be provided that might encircle the face-to-face communication features in e-learning. Also, an effective student-teacher interaction must exist as students generally need immediate help during complex programming problems and the quick response availability can potentially be highly effective as students may plunge into difficulties and lose motivation.

Therefore, an interactive teaching environment and immediate assistance can help students broaden their knowledge, enhance their learning intentions, and facilitate the process of obtaining useful programming expertise in the e-learning context. (Rafique, Dou, Hussain, & Ahmed, 2020)

3. Central Research Questions and Research Methodology

The key objective of this work is to perform a comparative analysis on the effectiveness of learning delivery methodology by contrasting online learning to traditional face-to-face learning. The purpose of our survey is to identify if there exists (strong) correlations between the effectiveness of learning and the learning setting environment. In particular, this work investigates the following

1. What relationship, if any, exists between student satisfaction and teaching presence in online or face-to-face learning environments?
2. What role, if any, does the learning modality (online or face-to-face) have on the learning outcome / results?
3. What is the role of the teaching practices, learning intentions, expertise and efficacy on the learning outcome
4. What role, if any, play factors such as gender, level of study and type of higher education institution on the learning satisfaction and perceived effectiveness

To address these hypotheses, this paper uses quantitative research strategy and aims to measure the level of effectiveness of online learning in comparison to traditional learning for students enrolled in computer related fields.

The study was conducted among 205 students overall, 172 of which are bachelor students, and the remaining 33 are master students. 63% of all participants are enrolled in private higher education institutions, while the remaining 37% are enrolled in public institutions. 54.6% of participants are females.

The survey is organized in five thematic blocks, namely

- **Intrinsic factors** measuring the generic satisfaction with online learning methodologies and internal factors that might influence that
- **Perceived usefulness** aiming to compare the usefulness of online learning to

traditional learning and the main reasons behind these choices

- **Teaching practices** addressing the quality of online teaching materials alongside technologies that are used for digital learning
- **Learning intentions and programming expertise** estimate the level of (programming) expertise of participants.
- **Efficacy problems** measure the effectiveness and accessibility of online resources during programming challenges

These building blocks aim to explore not only the comparative differences between online and traditional learning but also to measure the most influencing factors behind these choices and the role that each of them plays.

4. Data Analysis

This study examines the links that exist between the student satisfaction and the teaching presence in online or face-to-face learning environments. It estimates the role that the learning modality has on the learning outcome and results for students enrolled in computer technology related areas. The conducted survey measures key components, such as: i) the intrinsic factors, ii) the perceived usefulness and direct comparison of the two learning methodologies, iii) the teaching practices, and iv) learning intentions, expertise and efficacy. A detailed analysis of results follows.

4.1. Intrinsic Factors

Our study shows that students are slightly in favor of considering their online learning experience as satisfactory, with 38,9% evaluating it either 4 or 5 on a 5-scale, 24,6% evaluating online learning satisfaction either 1 or 2, and the remaining 36,5% being neutral on the matter, as shown in figure 1. Similar results are encountered when asked if they prefer to enroll in an e-learning institution because of its flexible accessibility, or to take another higher degree course in their chosen field at an e-learning institution. They are generally able to follow up the online learning course materials alongside their regular schedule.

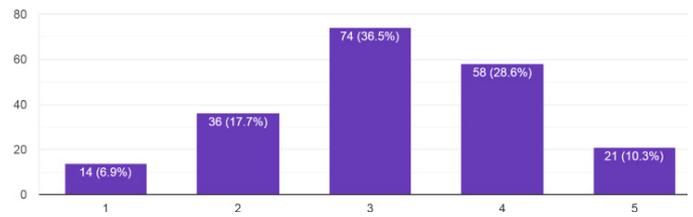


Figure 1: Level of satisfaction with online learning. The X-axis measures the level of satisfaction (from 1 to 5) while the Y-axis denotes the number of respondents

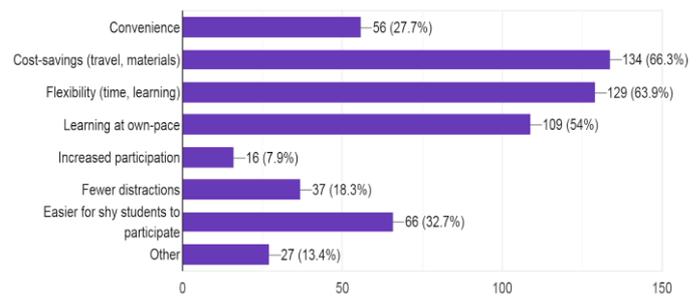


Figure 2: The major benefits of online learning. Note that participants are allowed to select as many alternatives as they consider appropriate. This causes the sum of all probabilities to be larger than 100%

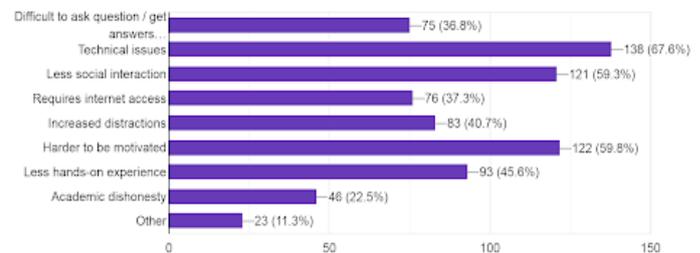


Figure 3: The greatest drawbacks of online learning. Note that participants are allowed to select as many alternatives as they consider appropriate. This causes the sum of all probabilities to be larger than 100%

Students consider online learning as a good opportunity to enhance their skills, complementary to their traditional learning environment. When asked regarding the greatest benefits of online learning, the majority of students highlighted cost-saving (travel, materials), flexibility (time, learning), learning at own pace, easier for shy students to participate as the most important benefits. Other factors such as convenience, fewer distractions and increased participation were considered moderately important.

In contrast to these advantages, participants in our survey considered technical issues, less social interactions, less motivation, less hands-on experience as the most important factors of the challenges encountered on online learning methodologies. Other factors such as difficulty to ask questions and get answers, the need for internet access, increased distractions and academic dishonesty are examples of other moderately important factors. Figure 2 and 3 provide a summary of these results.

4.2. Teaching practices

Our pool of participants generally agrees that the content quality of the course material presented online and the delivery of professors through online mediums is good and favorable. In particular, as shown in figure 4 a notable majority of 56.1% rate the content quality of course materials as satisfactory (they value it with either 4 or 5 on a 5-scale basis). Only 13.7% of students oppose. Similarly, as shown in figure 4, a majority of 54.2% of participants rate the delivery of online lectures as positive (they value it with either 4 or 5 on a 5-scale basis). 16.3% of participants disagree by rating the quality of online courses with either 1 or 2. The remaining students in both categories have a neutral opinion of the matter.

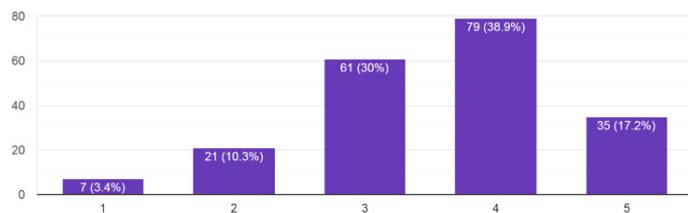


Figure 4: Students are asked “how they rate the quality of the course content presented online” from a scale from 1 to 5

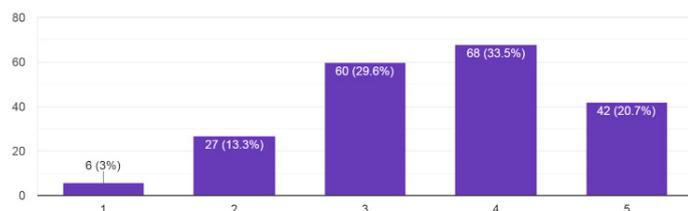


Figure 5: Students are asked “how they rate the lecture delivery of professors during the lectures presented online” from a scale from 1 to 5

However, as one can observe from the results in figure 6, students consider it as highly important to have step by step guidance for programming tasks (79% agree, 4% disagree, 17% are neutral) and to have one and one conversations with their lecturer (57% agree, 9% disagree, 34% are neutral). We consider both results to be correlated to one another. Though generally the content quality of materials presented online is satisfactory, students consider the presence of the instructor and interactivenss as important factors in their learning experience.

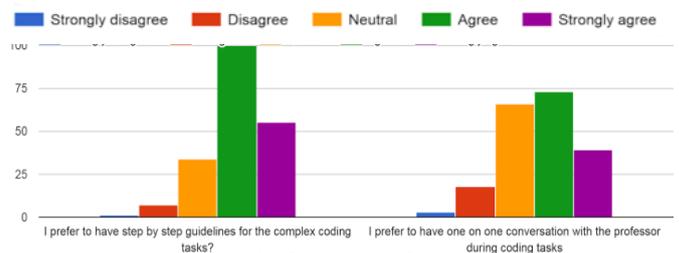
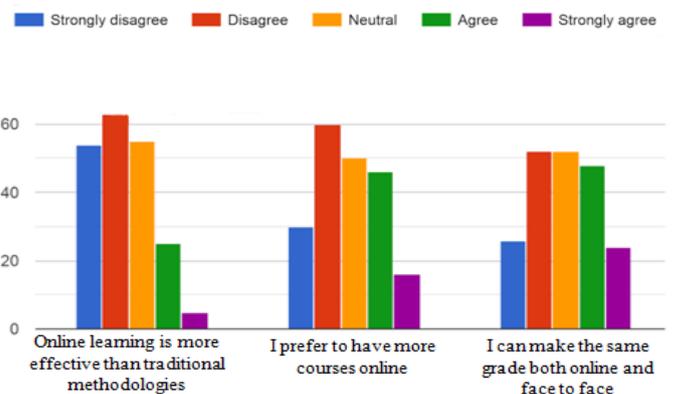


Figure 6: (on the left) I prefer to have step by step guidelines for the complex coding, (on the right) I prefer to have one on one conversation with the professor during coding tasks

4.3. Comparison of online to traditional learning

A key objective of this study is to directly compare the estimated efficiency of online learning methodologies to traditional approaches. For that reason, participating students were asked to value the effectiveness of each learning methodology, and their perception of the importance that the learning environment will have on their future jobs and careers.



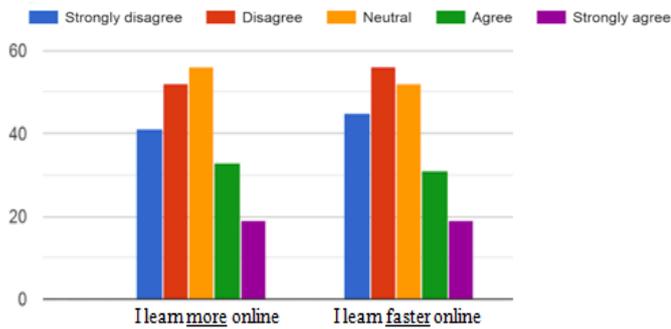


Figure 7: (both this and the previous graph) a comparison of the perceived usefulness of online learning in comparison to traditional learning

A notable majority of students (57.9% to 14.8%) think that online learning is less effective than traditional learning. Participants are generally undecided whether or not they can make the same grade in both learning environments (39% disagree, while 35% agree), and slightly not in favor of having more courses taught using the online methodology. In particular 45% of students do not prefer to have more courses taught online, while 31% are in favor of having more digital courses. A majority of students do not think that they can learn more (46% to 25.7%) or faster (50% to 24.8%) through online methodologies in comparison to traditional settings. Detailed results are shown in figure 7. In each category, the remaining students have a neutral opinion of the matter.

The impact of the learning methodology on future jobs and careers is correlated. Students seem dubious whether having online courses or the entire school curriculum delivered online will have a positive impact on their jobs (38.6% disagree, while 19.3% agree) and disagree that a total digital school curriculum will impact positively their future careers (57.4% disagree, while 14.3% agree). Again, the remaining students have a neutral opinion of the matter. Figure 8 shows detailed results.

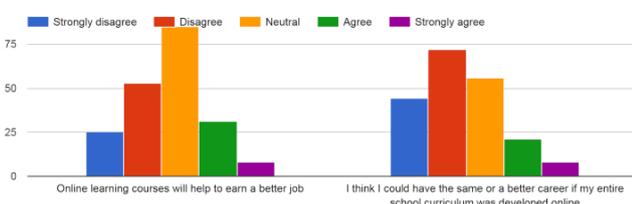


Figure 8: (on the left) Online learning courses will help to earn a better job

will help to earn a better job (on the right): I think I could have the same or a better career if my entire school curriculum was developed online

4.4. Learning intentions, expertise and efficacy

A notable majority of the participants of our study assess that they have a sound knowledge of programming, are motivated to expand their knowledge and work mainly on their own to complete assignments and projects. Figure 9 shows detailed results

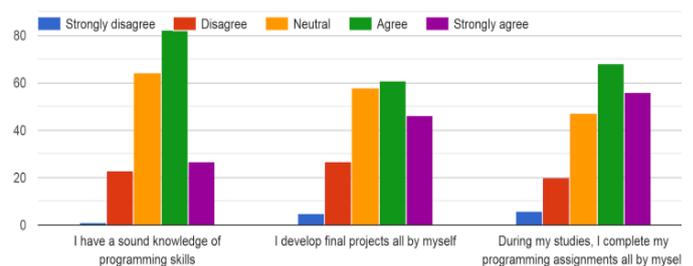


Figure 9: (left) I have a sound knowledge of programming skills; (center) I am motivated to learn programming; (right) I develop final projects and assignments by myself

As one can observe on figure 10, it appears that the main reasons for which students shift to online resources include requiring complementary help, online support, discussion forums, and to expand their knowledge. They seem to consider the online learning environment as a tool that complements their traditional choice of study.

As one can observe on figure 9, it appears that the main reasons for which students shift to online resources include requiring complementary help, online support, discussion forums, and to expand their knowledge. They seem to consider the online learning environment as a tool that complements their traditional choice of study.

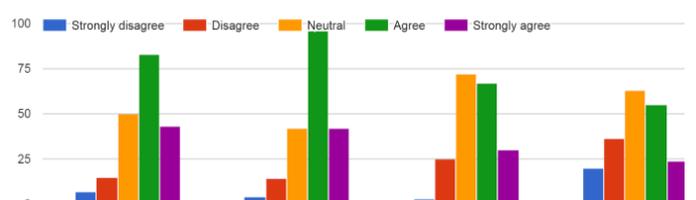


Figure 9: from left to right, students were asked the following

- a. I can easily find support when I am stuck at a programming task
- b. I find it easy to find the appropriate help online
- c. I think software development tools (IDE) are easy to use
- d. I find online platforms such as Zoom, Google Meets, Skype etc, efficient for learning programming.

Students are generally undecided regarding the effectiveness of online learning platforms such as Zoom, Google Meet, Skype, and similar software for learning programming.

4.5. Impact of Gender, Level of Study and Other Factors on the Survey Results

This section analyzes the impact that factors such as the gender of participants, their level of study (i.e., bachelor or master students) and the type of higher education institution (private or public) have on the survey results.

Our data analysis is focused only on a group of questions part of the survey. We are interested to investigate the role, if any, of the above mentioned factors on the perceived usefulness and the self-evaluation of the online learning methodology. In particular, consider the following statements:

- *Online learning is more effective than traditional methodologies*
- *I learn more through online methodologies than through traditional ones*
- *I learn faster through online methodologies than through traditional ones*

We have investigated the role that independent variables such as *gender, level of study* and *type of education institution* have on the result set. Table 1 provides a summary of our findings

Table 1 the role and impact of gender, level of study and type of education of the result set.. On each cell, the table shows the percentage of people who agree with the statement, are neutral, and disagree with it. For example, the numbers 15-27-58 in the first cell mean that 15% of participants agree, 27% have a neutral opinion and 58% disagree

	OL is more effective (in %)	I learn more through OL (in %)	I learn faster through OL (in %)
Overall	15-27-58	26-28-46	26-26-48
Female	10-23-62	19-31-50	17-26-57
Male	19-31-50	32-24-44	33-25-42
Private	15-25-60	25-24-51	23-25-52
Public	14-30-55	28-25-37	28-26-46
Bachelor	15-24-61	26-27-47	25-23-52
Master	16-41-43	32-32-36	22-38-40

As one can observe from the table, the most influencing factor is the gender of participants. A pattern is observed denoting that male students are more likely to consider online learning as more effective (19% males agree, while only 10% of females agree with the statement). Furthermore, male participants consider online learning a methodology that allows them to learn more (32% of males while only 19% of females) and faster (33% of males while only 17% of females). Female students, on the other hand, favor more traditional learning.

Another interesting observation is the fact that master students have the tendency to think that they can learn more through the online learning setting in comparison to bachelor students. Note that the pool of participants of master students is only 16.3% of the overall number of students.

The type of the higher level institution (private or public) or the level of study (bachelor or master) does not seem to have a notable impact on the results of our study.

4.6. Analysis of Results and Key Findings

A key objective of our study is to estimate the impact that the learning modality has on the learning outcomes for students enrolled in computer technology related areas

Results show that students enrolled in computer technology related fields view online learning as a favorable instrument for complementing their traditional learning environment and for providing instant access to high quality resources. Students assert that they have a sound knowledge of computing and keen to advance their programming skills. They are generally satisfied with the content quality and delivery of online courses and

highly appreciate cost-saving and flexibility advantages of online learning.

The consensus is uniformly distributed on issues such as the hypothesis that online learning will help students to earn a better job, or to have a better career if their curriculum is based entirely online. Students are generally undecided when asked if they would enroll in an e-learning course because of its flexible accessibility, or if they want to pursue another computer related degree at an online learning institution.

Our study shows that when asked for a direct comparison of the two learning settings and environments, students do not believe that online learning is more effective than traditional methodologies. The majority of students think that online learning does not allow them to learn more or faster than traditional learning. Technical issues, less social interaction, less motivation and less hands-on experience are the key factors behind such choices.

However, students highly appreciate cost-saving, flexibility (time, learning), ability to learn at their own pace, convenience and easy participation access for shy students as key elements of online learning. They tend to consider the digital learning methodology as a complementary tool that can enhance and improve their performance.

5. Summary and Recommendations

The rapid technological changes alongside with the opportunities to learn anytime, anywhere in a cost-effective approach have made online learning a popular and efficient model across the higher education spectrum. Despite the inherited advantages, the online learning methodology comes along with several challenges and difficulties ranging from technical issues to less social interaction, less motivation, and less hands-on experience among other factors.

This work presented the results of a study conducted to estimate the impact of the learning modality on bachelor and master students enrolled in computer technology related areas. The study focuses on measuring the role that intrinsic factors, teaching practices, learning intentions and programming expertise have on the perceived

usefulness and the efficacy of online learning.

Although the results of this study provide valuable insight into to benefits and difficulties of online learning in comparison to traditional learning, they can be extended even further to account for:

- a wider demographic distribution
- a broader range of areas of study in order to see the impact, if any, that the chosen degree of study has on the perception of the effectiveness of online learning
- a larger pool of participants from public universities
- a refinement of factors that affect the choices between favoring one learning environment to another and the links between them

The results of this work might be proven beneficial to students, instructors, administrators and policy makers on their process of adapting to continuous technological changes and improvement of the learning process. The following recommendations can be drawn from the results of our study

- i) Online learning is considered as a useful complementary methodology for students enrolled in computer technology related fields.
- ii) Higher education institutions must advance their technological environments to create effective, cost-saving and innovative approaches for distance education
- iii) Online learning challenges such as technical issues, less social interaction, less motivation, less hands-on experience need to be addressed in a principled manner as implications might arise and affect the education system in its fullness, rather than online learning in particular.
- iv) Unexpected events alongside with the need to minimize the effect of geographical boundaries, time and distance dimensions require the higher education institutions to be prepared for integrating the online learning methodology in an effective manner to a preparedness for shifting towards it if and when necessary

Finally, the learning process is a multi-way

partnership between students, course providers, education institutes, and regulatory systems among others. The notable advancements in the technology related fields demand an all-considering effective integration of learning methodologies in order to successfully tackle the numerous challenges of the education system.

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THE INFLUENCE OF A HIGHLY-VALUED MARKET ON M&A ACTIVITY

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Abstract

Merger and Acquisition decisions are about timing, opportunity, and decision. In the business world, these three words are partially influenced by the strength of the stock market. The timing is when the stock market is highly valued which results in high stock valuation, after that is the opportunity which means to find a target or if an existing target has lower stock valuation and finally comes the decision to make whether to use cash or equity for the transaction. Since companies can use its stock as leverage to acquire companies, a highly valued market gives the companies the resource with which to make purchases. Therefore, the question arises whether the stock market influences the decision for companies to engage in M&A transactions. This question is addressed in this study using a relatively large panel data of M&A activity for the period 2008-2017. The econometric tool used in this study is regression analysis. The measurement that this study used to value the stock market is by measuring the stock market capitalization to GDP ratio of a country. The results displayed that the stock market to GDP ratio is statistically significant at 5% risk on the M&A activity and with a 1% increase in the stock market we expect a 0.1729% increase in the M&A activity. Additionally, the paper suggests the development of a regression model that can measure the FDI inflows in Albania, and this is achieved by adjusting the regression model variables in order to become more suitable for its economy.

Keywords: Mergers & Acquisitions volume, market value, developing markets, emerging markets, Albanian economy.

1. Introduction

It is a mistake to think that finance is only about the time value of money because if it was only about the time value of money that would be so simple and boring at the same time. Finance is more about creativity and complexity, like art itself. People think the concept of finance is like the concept of traditional banking which is selling money that the bank has with interest, while in reality finance is more creative and its creativity lies in creating a market where there is none, by offering something that hasn't existed before. Finance gives the ability to financial institutions to monetize everything possible an example of that is the collateral debt obligation which is a type of derivative, in simple words is just a contract that derived its value from an underlying asset and was first introduced in 1987.

I think is important for finance to be considered as a capability, which by definition means that it has

P.21

the ability to do or create something. When this capability is combined with strategic choices, it results in Merger and Acquisition decisions.

Merger and Acquisition is a corporate capability deployed to support a strategy and as a strategic choice is commonly used for organizational growth in companies that choose to grow by taking an additional market share, reach a new customer base, increase efficiency and decreasing costs through synergies. An M&A is a capability that creates value and provides returns for their stakeholder. The role of finance in M&A is very important because it is in charge of everything and through finance companies are looking at all different functions of the target firm in the due diligence process, whether that is the supply chain, sales, procurement, technologies or everything that has an impact in the financial statements.

When companies do due diligence, they are try-

ing to value a company and to confirm a price to pay and these things are reached through financial metrics. Additionally, finance is also included in the decision of which method of payment to use for the transactions, whether a company should use its company's stock for the transaction because it is more valued in the market than the target's stock or should use a combination of cash and equity for the transaction.

Today the growth of companies in many cases occurs through M&A. According to the Institute of Mergers, Acquisitions, and Alliances (imaa) in 2019, there were 49,386 M&A transactions worldwide, which means approximately 135 transactions a day. In previous years, the global M&A market has increased significantly. In 2017 the M&A market reached a transaction volume of \$3.7 trillion, which turned into the fifth most active year on record (Hernan Cristerna, January 2018). In addition, according to the same report of J.P Morgan, the M&A market in 2006 reached a transaction volume of \$3.9 trillion and in 2016 reached a transaction volume of \$3.8 trillion making them the third and the fourth most active years respectively. In particular, the US M&A market has never stopped growing, as we can see in Figure 1 the transaction volume is increasing over the years. Additionally, the US stock market has experienced a 468% gain for the S&P 500 from March of 2009 to November of 2019 (Li, 2019), as can be seen in Figure 2.



Figure 1: M&A (Number & Value of transactions) in the United States in the period 2009-2019

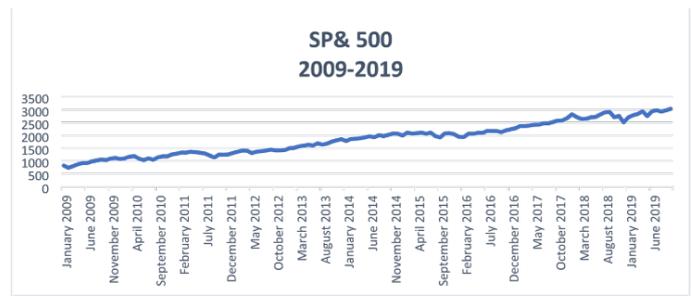


Figure 2: United States stock market measured in the S&P 500 index in the period 2009-2019

Therefore, the question arises whether the M&A activity is driven by the valuation of the stock market. First of all, let's observe some graphs related to M&A activity and the stock market in the United States over the past years. The graph in Figure 3 illustrates the S&P 500 index from 1990 to 2008. If we compare this graph with the graph in Figure 4 which illustrates the M&A activity in the United States in the same period, we can understand that at the same time when there was a bull market the M&A activity increased tremendously. Additionally, the 5th (1993-2000) and the 6th (2003-2008) M&A wave occurred in the period of a higher stock market valuation.

Furthermore, the authors Matthew, David, and Robinson (2004) tested the theory of stock market-driven M&A idea and they found that listed companies are more likely to engage in M&A activities when the stock market is overvalued. (Matthew Rhodes-Kropf D. T., 2004). Moreover, Shleifer and Vishny (2002) analyzed the same theory and concluded that companies make equity-financed acquisitions when their equity is highly valued, more specifically when it is more highly valued than the target's equity. On the other hand, companies with relatively less overvalued equity than others usually become takeover targets. Hence, it's obvious that the stock market is one of the most important factors that influence these increases in M&A. In particular, M&A transactions are often financed fully or partially with stocks, thus a high stock value gives companies the resources with which to make those transactions.

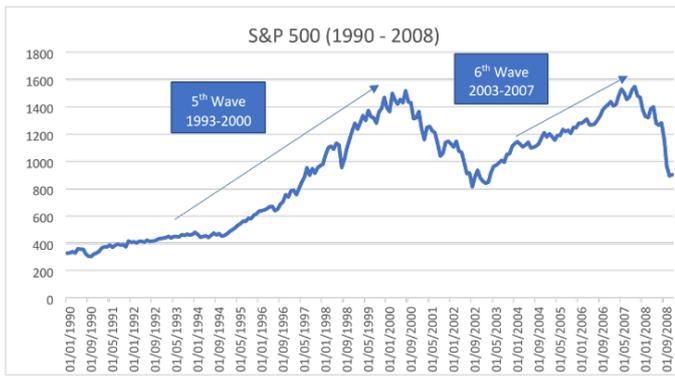


Figure 3: United States stock market measured in the S&P 500 index in the period 1990-2008

Considering all the above information, this article aims to identify if the M&A activity is driven by the high valuation of the stock market not only in the U.S but on other countries, also taking into consideration both developed nations and emerging markets from the period 2008 to 2017.



Figure 4: M&A (Number of transactions) in the United States in the period 1990-2008

2. Literature Review

The relationship between market valuation and the M&A activity, it's quite obvious. Many researchers and executives count on market valuation as a crucial element of a company's decision for growth. According to the study of RhodesKropf and Viswanathan (2004) which suggest that both bidders and targets have exclusive information about the real value of their firms, but the value presented is the valuation of the firm that is affected by the market and firms' specific components. Therefore, the misevaluation occurs when a firm's stock is more highly valued than its actual value, which results the bidders rationally adjust the overvalued-stock offer for potential misevaluation of the target. This

increases the chances that the target will accept the bids and assigns some probability to synergies too. But the more overvalued the market is, the greater is the estimation error of the synergy. Thus, overvaluation at the market level increases the probability that the target overestimates the potential synergies due to the underestimation of the misevaluation (Matthew Rhodes-Kropf D. T., 2004). In accordance with the study of Rhodes-Kropf and Viswanathan (2004) is the study of Shleifer and Vishny who support the idea of the stock-financed acquisitions when firm's equity is more highly valued than the target's stock, therefore, the management of the firm respond accordingly when perceive the company's stock to be misvalued by an inefficient market.

In addition, Rhodes-Kropf and Robinson and (2005) conducted another study and found that companies with a high market-to-book ratio use stock-financed transactions in M&A than companies with a lower market-to-book ratio. (Matthew Rhodes-Kropf D. T., 2005) Furthermore, James and Cheng (2006) who used the same measurement, the market-to-book ratio, reached the same conclusion. The finding of Jovanovich and Rousseau emphasize the correlation between M&A activity and market valuation. They used the Q value to represent the market valuation, in addition, there are empirical studies which found that the higher the Q value, the more likely M&A transactions occur.

Indeed, the study of Chousa, Tamazian, and Vadlamannati (2008) found that the stock market in emerging economies during the period from 1990 to 2000 experienced really fast growth. This level of high growth in capital markets resulted in high volumes of M&A activity throughout the 1990s at a domestic level. Moreover, Giovanni (2005) found that the size of the capital market, measured by the ratio of stock market capitalization to Gross Domestic Product (GDP) has a positive correlation to M&A volume. In particular, his estimation shows that a 1% increase in the stock market capitalization to GDP ratio is associated with a 0.955% increase across the border M&A activity.

3. Methodology

In my thesis, I analyzed three specific

macroeconomic factors, which are: Economic Freedom, Economic Growth and Stock Market Size (market value). The reason behind why I chose to include the Economic Freedom component in my regression equation is because I believe that policies that promote foreign direct investments are very important for a country to have a prosperous and healthy economy in the future. The Economic Freedom from the Heritage Foundation is measured into four broad categories which are: Rule of law, Government Size, Regulatory Efficiency, and Open markets. Each of these categories is measured in terms of trade freedom, government integrity, business freedom, judicial effectiveness, investment freedom and so on. This macroeconomic component is crucial for economically free societies because the government allows labor, capital, and goods to move freely. These important benefits can encourage foreign investors to invest their money more in foreign countries, resulting in a higher volume of cross-border M&A activity. Moreover, most of the CM&A deals have occurred between developed countries that promote such policies. I believe the advantages of financial openness lead primarily to higher economic growth and lower volatility in a country, thus, encouraging foreign investors to invest their capital in these countries. Therefore, it should be the governments' best interest to abandon anti-foreign restrictions and make sure that their policies promote financial openness.

Additionally, the reason why I chose to add Economic Growth as another component in the regression model is that it represents the future prospect of a country. Companies might seek to exploit markets where there are signs of inflation, which primarily comes when the demand for goods and services is higher than the supply and it's often an indicator of a robust economy. In such economy, the interest rates are low which translates to more spending by the costumers and the more customers spend, the more the economy grows, resulting in a surge in demand for products and services which make a country attractive for foreign investments because an increase in demand that can't be met by supply results in inflation. An example of that is that the emerging markets and MNEs want to become part of that accelerating economic system, and in the last years, the traditional pattern of M&A activity which primarily occurred

between developed nations changed, meaning that emerging markets have been attracting FDI in the form of CM&A also. Therefore, I believed that with higher economic growth in a country the more M&A activity will occur because for a company to compete with both domestic and foreign competitors, it should have to look for better opportunities for the continued growth of its business, whether it has the intention of market expansion or diversification of its business. As a result, it would be better for a company to invest in fast-growing economies rather than in slow-growing economies, because fast-growing economies would better accommodate the investment and yields better returns than slow-growing economies where consumer spending is not yet a strong indicator of the economy.

However, both of these macroeconomic factors didn't have any impact in the regression model and I was rebuilding the model over and over for one month to confirm if I did any mistake in the data set. I also changed the application where I analyzed the data but were the same results again. After all these attempts, I concluded that there are many explanations for that contradictory results, but the main underlying reason I believed was due to the relatively small sample size compared to the previous studies. (Visic & Skrabic (2010) and Dabla-Norris, Honda, Lahreche & Verdier (2010), Garita & Marrewijk (2007))

Another reason might be also that the focus of that study was different from the previous researches, meaning that I investigated countries from different regions around the world, such as North American, Latin America, Africa, Asia and Europe and in a different period from 2008 to 2017. Therefore, since in my thesis, I found only the stock market to GDP ratio to be statistically significant in the first regression model, I chose to include only this finding in this article.

3.1. Research Approach

The methodology in which this study was conducted was built around a comprehensive review of M&A literature about the impact of stock market valuation in the M&A activity. Furthermore, I used a deductive research approach, meaning that the hypothesis was formulated based on existing theories. One theory that triggered my

attention stated by Giovanni (2007) in his research study that the size of the capital market measured by the ratio of stock market capitalization to GDP has a positive impact on M&A volume and he found a 1% increase of the stock market resulted in a 0.955% increase in CBM&A volume.

After that, I designed a research strategy to test the hypothesis. In order to test the hypothesis, I applied a quantitative method through the use of a regression analysis. The quantitative approach was the most appropriate since the main purpose of this study was to draw a general and statistical conclusion about the M&A transaction in international markets. This is the reason why I chose to analyze a relatively larger sample rather than focusing on a single unit (country) because the focus of this study was to analyze the impact of the stock market size on the M&A volume and not how it does a country affect the M&A volume. Additionally, the quantitative nature of the approach ensures that the analysis is objective. The objectivity of this research is reached by using reliable data from trustworthy institutions. Finally, the conclusion is reached through the analysis of 5 developed and 5 emerging markets and the results were statistically tested in order to determine whether or not to reject the hypotheses using the mentioned quantitative strategy, the regression analysis.

3.2. Data and Sample

This research study focuses on 10 different countries around the world in the period from 2008 to 2017. The reason why I chose this period is that the years in which the deals took place are important, as it allows it to be linked to the macroeconomic data. 2008 was chosen as the starting year due to the limited access I had in databases for the financial data, thus more complete information regarding the variables was easier to gather from 2008 onwards. The sample consists of 10 countries from which 5 are developed and 5 are emerging markets. The idea behind why I chose 5 developed markets and 5 emerging markets is because M&A transactions used to occur primarily in developed markets due to political and economic stability. However, the emerging markets have been growing rapidly over the past years, therefore, have become one of the main engines for growth of multinationals firms,

as a result, M&A transaction in emerging market are significantly important and should be taken into consideration.

The requirement for the countries selected for this research study was for them to have a stock market because the value of the stock market relative to the GDP of the country is used in the regression analysis. Additionally, the requirements for the deal volume of a country were that the type of transaction should have been as Merger & Acquisition, the M&A transaction was announced between the period 2008 to 2017, and all the M&A transactions had a known value. The financial data (Observation) of a total of 100 for those 10 countries were collected with the intention to achieve enough statistical power for the regression analysis in order for this study to provide reliable results. The country's variables are observed in a panel format from 2008 to 2017. The set of data includes the dependent variable Deal volume, which I used to represent the volume of M&A activity as a whole in these countries. Moreover, it is measured in billions of dollars that occurred in a given country in a given period from M&A transactions.

Table 1: Transactions volume (bn \$) of M&A activity (2008-2017)

DE	SG	FR	JP	U.S	ZA	CN	IN	MX	BR	Cou ntry
146.9	61.47	186.99	130.49	1,215.09	26.10	215.68	48.44	11.2	105.1	2008
118.4	21.6	81.99	109.37	877.61	32.56	191.55	41.08	10.2	70.4	2009
55.9	40.74	107.05	111.56	981.80	27.46	309.78	59.20	54.2	160.2	2010
75.7	37.75	104.27	131.01	1,247.04	20.64	229.67	34.88	26.8	92.5	2011
94.4	65.35	51.40	162.27	995.65	15.65	231.34	36.53	34.0	69.4	2012
101.1	36.29	96.57	114.17	1,214.79	11.43	325.23	31.61	32.2	69.13	2013
182.1	73.9	250.72	112.69	2,153.80	20.07	519.37	31.44	23.1	56.74	2014
115.9	65.48	157.64	162.32	2,417.39	44.89	1,038.12	52.77	19.2	50.12	2015
222.8	62.55	151.41	150.98	1,784.77	22.32	757.06	51.77	13.7	47.34	2016
141.2	79.54	201.42	127.08	1,761.54	16.69	739.72	68.35	16.6	65.63	2017

Table 2: Stock market value as a percentage of GDP to its corresponding country (2008-2017)

DE	SG	FR	JP	U.S	ZA	CN	IN	MX	BR	Cou ntry
29.60	137.85	50.45	61.85	78.75	168.32	38.68	54.53	21.09	34.91	2008
37.81	250.12	72.34	63.20	104.57	270.00	69.93	98.68	39.11	80.22	2009
41.84	273.76	72.33	67.15	115.50	246.44	66.02	98.50	42.95	69.97	2010
31.52	216.79	54.31	54.01	100.79	189.48	45.06	55.25	34.62	46.97	2011
41.94	263.21	67.37	56.08	115.56	229.03	43.19	69.12	43.72	49.79	2012
51.59	244.51	81.86	88.12	143.99	257.15	41.11	61.34	41.27	41.27	2013
44.69	241.65	73.13	90.26	151.09	266.35	57.29	76.42	36.53	34.36	2014
50.83	210.44	85.65	111.38	138.34	231.77	74.00	72.12	34.36	27.22	2015
49.34	206.75	87.65	100.12	146.86	321.67	65.42	68.89	32.66	42.28	2016
61.52	243.05	106.46	127.72	165.65	352.85	71.18	89.65	36.23	46.45	2017

The Deal volume in the regression model was calculated by logging the deal volume values of every year (2008- 2017) for each country because it results in a better normal distribution of the variable's observation, which is necessary for the panel data regression. This measurement is scaled on the model with respect to its corresponding country during the period from 2008 to 2017.

The independent variable, the macroeconomic factors, in this case, which is the Stock Market Capitalization to GDP ratio measures the overall market value relative to GDP. Following Giovanni (2005) found a positive correlation relating to M&A flows. However, many investors use this financial measurement to determine if the market of a country is overvalued or undervalued compared to a historical average.

Furthermore, this variable in the regression model is transformed into its logarithm for the same reason as for the dependent variable. Finally, the years of the macroeconomic data observation of a country has been included to be able to match the year of each deal volume data of that country.

3.3. Regression Model

In order to make an analysis to find if there is any correlation between deal volume and the stock market to GDP ratio a regression with panel data set is run using the OLS method and was developed in Stata software. A regression analysis was built to identify the impact of the stock market value relative to GDP on the deal volume for the period 2008 to 2017. The equation of the model that is going to estimate the relationship will be:

Equation 1: Ordinary Least Square Regression:

$$Y = \beta_0 + \beta_1 \times x_1 \quad (1)$$

Where,

Y: The deal volume of the countries (2008 - 2017)

β_0 : The regression constant

β_n : The coefficient of the factor (x_i)

x_i : The stock market to GDP ratio of the countries (2008 - 2017)

To determine whether there is any correlation between the stock market and deal volume, I have come up with a hypothesis:

- **Null hypothesis H_0** : The Stock market to GDP ratio does not affect the M&A activity of a country.
- **Alternate hypothesis H_1** : The stock market has an impact on the M&A activity of a country.

The interpretation of the regression analysis is carried out by examining the determination coefficient (R^2), which explains to what percentage the dependent variable is explained by the independent variables. This study uses as a measurement of the significance level for the independent variable the p-value approach. The p-value for the independent variable tests the null hypothesis that the coefficient is equal to zero, meaning that it does not affect the model because it suggests that changes in the independent variable value are not associated with the changes in the response variable Y.

This occurs when the p-value is higher than the significance level α . Contrary to a low p-value indicates that you can reject the null hypothesis, meaning that the independent variable is meaningful to our model because a change in the independent variable value is related to changes in the dependent variable value. Additionally, the significance level α chosen for this study is equal to 5% ($\alpha=0.05$), meaning that for each explanatory variable (x_n) with a p-value higher than 5% the conclusion is that this variable has no effect or is not significant at all on the response variable Y.

4. Data Analysis

In the following table, the results after performing the econometric analysis using the STATA software are presented.

Table 3 Regression Model output (2008-2017)

Variables	Coefficient (x_i)	Std. Error	P-Value
Stock Market to GDP ration	0.1729	0.069	0.015
Observations	100		
No. Of Groups	10		
R-square	0.9819		
Adj. R-square	0.9799		
Prop > F	0.0152		

The regression model for the stock market to GDP ratio as an independent variable and deal volume as a dependent variable for the entire data sample displayed an adjusted determination coefficient (Adj R-squared) of 0.9799. This means that the variation in the deal volume is 97.99% explained by the included independent variable the stock market to GDP ratio according to our investigation period (2008-2017).

Moreover, the model yielded a p-value of 0.015, which means that the stock market to GDP ratio has achieved significance in the regression at the 5% significance level. In other words, the M&A deal volume in a country is significantly influenced (with a 95% confidence level) by the stock market to GDP ratio. The p-value means that there is a 1.5% risk that the assumption of the included variable does not hold. Additionally, the sign of the coefficient of the independent variable was expected to be positive. Therefore, it was also expected that the higher the stock market value relative to the GDP of a country the bigger the chances that the M&A activity will increase. I support this argument with the results above when I found that the stock market to GDP ratio was significant in the model at a 5% risk. Therefore, the results from the coefficient show us that a 1% increase in the stock market to GDP ratio we expect the Deal Volume (Y) to increase by 0.17%. Thus, the null hypothesis (H_0) is rejected and the alternative hypothesis (H_1) is accepted.

- The null hypothesis can, therefore, be rejected, meaning that there is a statistically significant effect between the Stock market to GDP ratio in the Deal volume according to our sample.

Finally, the result of this analysis is in line with the result that Giovanni (2005) found in his study that the stock market relative to GDP has a positive impact on M&A volume.

5. Conclusion

The purpose of this paper has been to investigate whether the M&A activity can be explained by the stock market to GDP ratio using a combined sample of developed and emerging markets for the period 2008 to 2017. This research aimed to provide a better understanding of whether the stock market value has an impact on M&A activity. The hypothesis was formulated based on previous literature and a regression analysis was performed using the macroeconomic factor to determine whether it has an impact on the M&A activity. Based on the results of the regression analysis, it can be concluded for the entire sample that the stock market to GDP ratio has a statistically significant effect on the M&A activity. In particular, the coefficient for this indicator implies that a 1% increase in the stock market to GDP ratio is associated with a 0.1729% increase in M&A activity. This number is both economically and statistically significant. In accordance with previous studies mentioned in the literature, the impact of the stock market to GDP ratio on M&A activity is similar to the results that Giovanni (2005) found in his analysis.

The bottom line of this study tells us that an increase in the stock market results in an increase in M&A activity in a country. This finding is reliable and should be taken into consideration because an important factor in encouraging companies to engage in M&A transactions is the strength of the stock market. Merges and Acquisitions are often financed with stocks and high stock values give companies the resources with which to make purchases. The company's shares can be used as a currency because a company can use its stock as leverage to buy companies or acquire competitors. For instance, consider a company in growth mode with a highly valued stock the company can use

the portion of the agreed upon purchasing price of an acquisition to be done by giving stocks instead of cash and the target company will consider it as a good deal due to the strong outlook of the acquiring firm because its stock has a high value, therefore, it represents the investor's confidence and the prosperity of the company. A highly valued stock of an acquiring company allows them the financing process to be more favorable for them than paying the entire transaction with cash.

5.1. Adapting the regression model in the Albania market

The conclusion that is drawn from the results of this study and the regression model that I applied in my thesis leads us to new potential questions and different approaches that can be carried out. Albania is a country that hasn't a sophisticated and suitable market for M&A transactions because such corporate transactions occur primarily in developed nations and fast-growing economies and Albania is not one of them. Therefore, in order to apply the regression model in the Albanian market, we should adapt it and change it according to the circumstances.

The regression model that I built in my thesis is as follows:

Equation 2: Multiple Regression Analysis

$$Y = \beta_0 + \beta_1 \times x_1 + \beta_2 \times x_2 + \beta_3 \times x_3 \quad (2)$$

Y : The deal volume of the countries (2008-2017)

β_0 : The regression constant

β_n : The coefficients of factors (x_1, x_2, x_3)

x_1 : The stock market to GDP ratio of the countries (2008-2017)

x_2 : The GDP growth of the countries (2008-2017)

x_3 : The Economic Freedom of the countries (2008-2017)

This particular model is not possible to be applied in the Albanian market because in the first place this equation measures the macroeconomic factors that make a country attractive to M&A transactions. The Albania market from an

economic point of view isn't an advanced market that supports M&A activity, meaning that it is not attractive to both domestic and foreign companies to engage in such transactions. However, since M&A is a component of Foreign Direct Investments, we can build a regression model specifically for Albania that measures the impact of some elements on FDI inflows.

Before I suggest the regression model, I'll explain my reasoning behind each component of the equation. The Albania legal system has a civil law system that consists of the Constitutional Court, the Supreme Court, First Instance Courts and Courts of Appeal (Gentry, 2005). All legal acts must be in compliance with the Albanian Constitution, which is the highest law. "The Constitutional Court has jurisdiction over the review of constitutionality of law and guarantees and maintain compliance with the Constitution and reviews the compatibility of laws and normative acts of central and local bodies with the Constitution or international agreements and has the right to interpret its content" (Gentry, 2005). Additionally, individuals or legal entities that also include foreign companies that are regulated under Albanian laws can address the Constitutional Court if they claim that the right for a fair legal process has been violated.

In August 2016, the law on Reassessment of Judges and Prosecutors was first introduced in Albania known as "vetting". It is part of a wider judicial reform demanded by the EU and its purpose is to cleanse the justice system of corruption and political influence and increase the system's effectiveness and the public trust in the justice system, therefore, to acquire the foreigner's trust also. In 2018 the vetting process started in the Constitutional Court and after 10 months there was only one judge remained in the court because the other judges were dismissed for the unjustified assets they held or resigned in order to not been evaluated in the vetting process (Hoxha, 2019).

This is leaving the country in a political crisis because it is lacking a key pillar of democracy the Constitutional Court since the court is not able to make any decision by one member. Its absence has given the government the opportunity to pass a number of laws through the Parliament, in spite of their unconstitutionality that could not be canceled in the absence of the highest court of the country.

Therefore, political uncertainty and corruption negatively affect the decision to make investments in a country, leading to a negative impact on FDI inflows. Considering the above information my suggestion is to include an independent variable in the development of the regression in Albania and that variable should be corruption or political stability. The reason why someone should choose between those variables is that most metrics that measure the political stability in a country include the corruption in that measurement, therefore, taking into consideration in the model both variables will result in multicollinearity, meaning that both variables are affecting each other which is forbidden in statistical analysis. However, I may suggest another way to measure corruption and political stability in a country since an important part of that stability comes from the legal system. Since the Index of Economic Freedom is measured by 10 components, we can use some of the components in our analysis according to our needs.

My suggestion, therefore, will be the variable that will include corruption might be gathered from the Transparency International's Corruption Index (CPI) or The Economic Freedom Index since both are the same. The component Government Integrity from the Economic Freedom index measures corruption and is derived primarily from the CPI, but I suggest to use the Government Integrity rather than the CPI because CPI is based on a 10-point scale in which higher score indicates lower corruption and a lower score indicates very corrupt government. On the other hand, Government Integrity is based on a 100-point scale which is helpful to the researcher since the variables will be better normally distributed with the other independent variables when they are transformed in logarithmic variables to provide a better statistical analysis. The other explanatory variable that measures the stability of a country should be the Judicial Effectiveness which is also a component in the Economic Freedom Index.

An effective and well-functioning legal system is important for protecting the rights of the citizens and of the companies against unlawful acts by others, including also governments and powerful private parties. Judicial effectiveness requires an efficient and a fair judicial system to ensure that laws are respected and legal actions are taken against violators and this is measured

by the Judicial Effectiveness component of the Economic Freedom Index since its score is derived by measuring and averaging the factors of judicial independence, quality of the judicial process and favoritism in the decision of the government which all are weighted equally to provide the score. I strongly suggest for these variables to be taken into consideration since they are reliable and objective because according to the Heritage Foundation their sources of the index rely on trustworthy institutions, some of them are the World Bank, The World Economic Forum, World Competitiveness Report, and Transparency International.

Financial sector development goes beyond just having financial intermediaries that provide financial access to enterprises, it entails having strong policies for regulation and supervision of all the important entities. The characteristics of a developed financial sector are access, efficiency, and stability, which facilitates the transactions between entities and the access of companies to information. It is very important for a country to have a developed financial sector since plays an important role in economic development because it promotes economic growth through capital accumulation, producing information about investment, facilitating and encouraging the inflows of foreign capital and optimizing the allocation of capital thus increasing investment and productivity that result in higher economic growth. (Global Financial Development Report, 2019).

Albania doesn't have some of the mentioned elements that create a developed financial sector because the development occurs when financial intermediaries and policies ease the exchange of goods and services, the accessibility to credit and the access of information about possible investments and allocation of capital. Therefore, Albania lacks the ability to provide the key functions of the financial sector in the economy that companies are looking for when considering to invest in a country. For these reasons, I believe that financial development should be included in the regression model as an explanatory variable. Another, good measurement of financial development is the ratio of private credit to GDP that captures the size of banks loan relative to the economic output and many studies have used that measurement in order to determine the financial development of a country, however, the World

bank provides the Global Financial Development Database that besides the accessibility to credit, it indicates also the quality, efficiency and the stability of the financial sector which is a more complete measurement about the development of the financial sector.

Considering all the above information, the development of the regression model would look like this:

$$FDI (inflows) = \beta_0 + \beta_1 * FnclD + \beta_2 * Cr + \beta_3 * JdclEf \quad (3)$$

Where

FDI: Total of FDI inflows in Albania

β_0 : The regression constant

β_n : The coefficients of factors

FnclD: Financial Development score

Cr: Corruption score

JdclEf: Judicial Effectiveness score

We expect all the independent variables to positively affect the dependent variable, meaning that the higher the score of Albania in the independent variables, the more FDI inflows will attract. Finally, this equation is my suggestion, however, future studies might change and adapt the variables according to the judgment of the researcher.

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THE EFFECT OF CORONAVIRUS IN THE STOCK MARKET

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Abstract

Living in the era of globalization made the spread of the virus to affect the entire world's economy. The stock market plays a huge role in the well-going of the economy and for this reason the changes that have happened due the pandemic affected on everyone's lives.

Stock market is a perfect investment for all because saving in the stock market is the safest way to produce returns over time that can surpass inflation and now it is being affected by the virus. It is a fact that the stock market and the economy are related together. Many industries have been badly hit by the virus but also some other companies have had major benefits and for this reason the financial market changed directly in an unexpected way. So the market itself reacts to these changes and also should continue to deal with problems that have existed in it before the virus.

Many of the problems surfacing now are actually derived from the great crisis that happened in 2008. Recession might happen if the situation goes on for too long but there are facts that also throw this down.

Keywords: Covid-19, Stocks, Epidemic, Economy, Industry, Impact.

1. Introduction

Stock market is one of the best ways for investors to make money while companies grow larger, and is pretty easy how it all works. Stock market is where different investors connect to buy and sell investments, like shares of ownership (stocks) in a public company. These buyers and sellers negotiate the prices and make trades through the network of exchanges of the stock market (the New York Stock Exchange or the NASDAQ). The exchange tracks the supply and demand of each stock which helps determine the price for each security, or the levels at which stock market participants are willing to buy and sell.

This is a great opportunity for everyone since investing in stock market is the best way to achieve returns that beat inflation over time. There are several benefits of investing in the stock market. First of all, stock ownership takes advantage of a growing economy. Also, it's very easy to buy stocks and just as easy to sell. Best of all, you can make money in two ways: Investors may let their stock

appreciate in value over time or they may prefer stocks that pay dividends to provide a steady income stream. The mathematical modeling and machine learning methods, strong as they are, are not able to accurately determine what the environment is going through. For example, we are living through a worldwide epidemic at the moment so the economic environment and the stock market have endured big changes, lows but also record growth highs. The Covid-19 situation has been posing a lot of threats to the stock market which we will see in the following paper.

This paper illustrates the exact situation of the stock market and how it is being affected by this virus that just appeared from nowhere. Since this big indicator of the economy faced some changes due to this pandemic the whole economy is affected too.

1.1. Connection between stock market and the economy.

In fact, the stock market is a leading econom-

ic indicator and we are aware of that. How it all works has become very easy now so everyone can trade stocks while they are lying in the living room couches and just by using their mobile phones. But it seems that the stock market wasn't ready to face the pandemic. Due to the spread of the virus people are forced to stay home and are not working anymore, which means that the business and corporation are not operation at the same way that they used to. Some services are still being provide but the majority of them cannot be performed if someone is not there physically and this causes a problem in how everything around us works. Several businesses in the US, including Twitter, CNN, and Amazon, have confirmed they are reducing travel for workers to try to reduce the transmission of the disease.

Stock market works based on predictions that are made. So if it is predicted that the value of a specific brand will be increase it affects the stock market supply and demand for this specific brand, so investor will tend to buy it know and sell it later when its value will be increased. But with this virus appeared from nowhere, even what will happen in the future cannot be predicted. It is obvious that the corporation and businesses will be directly affected, and somehow their value will be seen as lower. People are constantly concerned about being ill, about cutting paychecks, about being able to care for their children so it means that they need money even though they are not working and they have to find a solution in this condition. In this moment, economy is facing a crisis due to the virus, and since the goal now more than before is to stimulate economic growth, banks are trying to lower their interest parentage for loans by making it cheaper to borrow money. For this reason taking a loan can be seen as a better opportunity at this moment than investing the money that you have. The first thought is that you can use that money to invest later when the stock market becomes more stable. Since stock market is a strong indicator in the economy, instability in it means instability in the economy as well.

1.2. How stock market reacted to Coronavirus.

Throughout recent days, the financial market has been in a rapid decline as concerns about the coronavirus have circulated across the global economy. The stock market reacted with alarming uncer-

tainty to the COVID-19 pandemic, as traders sold their stocks panicked out of terror. That is the reason why in the first three months of the year, financial markets across the world experienced unprecedented declines in the wake of a major sell-off related to coronavirus. The market has replied with significant drops to the recent unpredictability, causing four times in March a world-wide circuit breaker. Investors sold their shares in order to bring their capital out of the economy, or into "safer" assets and \$5 trillion was washed out of global financial markets last month.

Last month the Dow Jones Industrial Average and London's FTSE 100 saw their biggest quarterly drops since 1987, plunging 23% and 25% respectively. The S&P 500 lost 20% during the quarter, its worst since 2008. The drops come as authorities order a halt to most activity in an effort to slow the spread of the virus. Something like this never happened before so obviously there is no background on the stock market which is completely comparable in order to take some actions.

There is a reason behind this decrease in values of course. The ensuing uncertainty has led the financial market to experience the worst time since the crisis ended in 2008. Markets just don't want confusion, so companies have trouble preparing. And the introduction of a new infectious epidemic is going to fuel tremendous hysteria. Since the stock market works based on predictions and for this reason the values of stocks can sometimes be very high based only in the predictions made. It makes sense that part of the stock market decline is the result of stocks being overvalued, meaning the drop was partly just the market correcting itself the virus just pushed this to happen faster in time.

1.3. Is the stock market causing problems due to the pandemic, or is it just a sign of problems that already exist?

In fact valuing things more than they really are is a problem even though that is how the stock market works. People that study the stock market and the economy predicted that something like this would happen, they knew based on how thing were going so far in the economy and they has warned us about a financial crisis. It is happening now. We have seen it over and over again,

especially with natural disasters such as coronavirus that stock market values tend to decline when a recession is close and we can say that it is the type of downward trend that is placing the world in recession

For America it all started in 1971 when the president of that time Richard Nixon took the dollar off the gold standard. That changed the way how everything has worked in the economy so far because from that time the US government (US Treasury) could now print money. So, US Treasury would sell a bond to the FED in US with a Bank of England or Bank of Japan etc., so they were basically pumping money into the system just to fix the economy. This effect the inflation of course and when in 80s when the big crash happened they just pumped more and more money into the system just to deal with the crash. That is how the economic problem started.

1.4. Which stocks are being most affected?

It can't be just one, all of them are being highly affected. Without any research we can mention oil reserves which have collapsed as transport has been cut, factories throughout China have been stopped and production and exports have been halted. From recent overviews and analysis done to the stock market the industries that have taken the biggest hits are the travelling companies, leisure's, retailers, properties, catering, public transport and events. Since many countries are applying lockdown rules they also directly and/or indirectly affected these industries by rendering them undoable.

Reviewing a couple of cases around the world we read that: The Stoxx 600 Travel & Leisure index has fallen 50% in 2020, with the worst hit being cruises firm Carnival Plc, down 76%. Airlines EasyJet Plc, British Airways-owner International Consolidated Airlines Group SA and Air France-KLM have all plunged and are seeking state aid. In addition to events like the Glastonbury music festival and the Euro 2020 soccer tournament being delayed, corporate conferences have also been suffering from the virus outbreak. Firms which put those events on have therefore been slammed as more are canceled or postponed, with Informa Plc falling 56% and Hyve Group Plc down 78%.

Actually, not all parts of the stock markets have taken decisive hits from this outbreak, a couple of industries, for example grocers, spread betting, gaming, online casinos and telecoms, have actually seen major gain from it. Video-gaming offers both entertainment and a way to socialize online. Game-makers like Ubisoft Entertainment SA should benefit strongly from social distancing in the wake of the coronavirus's spread, adding that a 10-20% increase in sales over the period. As workers set up home offices, telecoms are set to benefit from an increase in data and phone usage. The week saw analyst upgrades for names such as Orange SA and KPN NV, while the Stoxx Telecommunications Index itself was the week's top-performing sector, rising 8.3%.

1.5. Dealing with a recession?!

The virus is not just a matter of days, it is not something that goes around and then we continue repairing. This is a creeping disease and a crisis that possibly will last for months. There are several families in the country who are one paycheck removed from severe financial hardship. And what is so upsetting about some people right now is that they don't know whether they're going to get sick. They don't know whether they would be placed on furlough without compensation by their companies or bosses. And even though it turns out the infection isn't as serious as everyone thinks, the harm would be done anyway. It's occurring right now and communities don't quickly heal from it. World has always experienced those types of reactions from people and economy before and it may escalate to a recession.

So, the decrease of the value in stock market due to this virus is generally not a good thing. But the market is always fluctuating, and we can also see high values while day or weeks pass. On Apr 12 the president of United States, Donald Trump wrote on his twitter: THIS PAST WEEK the S&P 500 went up 301 points, or 12 percent, its best performance in 46 years. Also 2 days before this he wrote: " This week, in only for days, we had the biggest tock Market increase since 1974. We have a greate chance for the really big bounce when the Invisible Enemy is gone!"

Through the history it appears to peak before the start of an economic crisis and fall before an eco-

conomic rebound, the strange existence of the current COVID-19 outbreak has made it especially challenging to predict a potential stock-market rebound.

1.6. Keep protecting yourself.

Even with everything that is going on now, investors can protect themselves by:

1. Constantly checking the division of their assets.
2. Rebalancing the portfolio if it seems appropriate.
3. Considering a diversified investment strategy.
4. Also meeting a finance adviser always helps

Furthermore, the government should also take some actions according stock market because people taking hold of this downward trend and there has to be help for customers and companies, as everybody is flipping out.

Conclusion

As we researched the impact of COVID-19 on the stock market we came up to many different conclusions and many of them reach to different points of view since we see that this situation is hitting negatively a large part of the market, but has also drastically improved other aspects of it and made some great improvements to industries that were 'left behind' so we just classified this situation as "Inevitable". We came across many speeches, documents that actually predicted the markets behaviour in the next pandemic but still no one was prepared to deal with a virus that experience mutation. The only reasonable 'solution' we have concluded by seeing how the whole world is reacting to the economic downfall, is that we have to analyse and do what's best with what we have in hand to stabilize the situation for ourselves so gradually we can reach an economic balance and recuperation from these damages. So keep yourself informed to take the right actions related to yourself first and also try to help in the community.

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THE BEHAVIOR OF ORGANIZATIONAL AND POLITICAL LEADER

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Abstract

This article aims to study the behavior of political and organizational leaders as well as identify common areas and differences between them. Four objectives have been set for this and it is thought that the methodology used will be as effective as possible in achieving the goal and objectives. Organizational leadership has been studied in companies with experience and expertise, with the results of the work of leaders, while political leadership is mainly focused on the behavior of political leaders during their tenure. Organizational and political leaders have been studied not only currently but mainly in the past. This constitutes a difficulty in reaching accurate conclusions, but not an inability to observe leadership behaviors and traits. Various research techniques and methods have been used to gather information, including data processing. At the end of the article are given the conclusions, the conclusions and some recommendations for both types of leaders.

Keywords: *leadership, organizational, politic, characteristics, behaviors, features.*

The objectives of study

- Identifying the nature and behavior of organizational leaders;
- Identifying the nature and behavior of political leaders;
- Determining the average life expectancy of political leadership;
- Comparison of the two common leaders and the differences between them.

Methodology

The study was initially conducted on the basis of the theoretical part which is based on the collection of information from various primary and secondary sources, hard & electronic books, economic journals, materials, reports, etc. Based on the objectives of the study was conducted research, one of the objectives has been assessed in the form of a simple satirical hypothesis. The study aimed to identify the nature of the leader, organizational, political and comparison between them. For this purpose, questionnaires were designed to identify the features of organizational leaders and some surveys and surveys in cases of behavior of political leaders. Their distribution is

mainly based on various electronic tools, forms and channels, using computerized networks.

The study of the behaviors of political and organizational leaders belongs to a long period of time, both from the point of view of the study and the observation of their behaviors. In order to reach the most accurate conclusions, the leaders of successful companies inside and outside the country have been studied, at the same time for political leaders the scope is mainly outside Albania but also the features of Albanian leaders.

In order to achieve a better study of their behavior, various electronic documents (e-library) have been carefully read, videos from YouTube, information from Wikipedia, etc. have been used. The questionnaires were developed with various computer programs to identify the features and behaviors of the leaders of the two categories, common areas and the differences between them. However, the study also has its limitations in terms of time and finances.

The theoretical part

1. Organizational Leader

Leadership is a process by which a person influences others to meet objectives and directions in the organization in order to make it timely and coherent. Leaders carry out this process by applying their leadership attributes such as: beliefs, values, ethics, character, knowledge and skills. Leadership differs from management because it creates the opportunity to achieve higher goals than the objectives set by the organization and management. (Bass, Bernard, 1989).

Unborn and lifelong qualities such as initiative, courage, intelligence, and humor together determine what a person can become a leader or not. With desire, will and perseverance these qualities can develop but the most important thing is to be born a model leader. (John Adair, 1993). The difference between a leader and a manager is an issue that has been raised many times and received different responses. The biggest difference between them is that they motivate the people around them in different ways. But it happens in some cases that some people are managers and behave like leaders. (Bennis and Goldsmith, 2003).

There are four main factors that affect leadership. Leading employees require different leadership styles. The type of leader and his abilities can significantly change the situation. If you leave a task and you would like it to be fulfilled, in this case the way it is communicated, affects its realization or fulfillment. You notice that one situation does not resemble another. Then your leadership style should adapt to these changes. However, we must say that leadership is influenced by many variables, which of course do not have the same weight of importance and impact. (Paul Kearley CS, 2007).

Strengthening leadership would lead to improved service delivery as well as better interaction of actors, including central government, civil society, the private sector, local government, and other supporting and supporting actors in the process. (Kigali, 2005).

In his book *Skills for the Future* (Gino Bonissone, 2005), he points out that future leadership is predicted to face more complex and dynamic new problems with a higher uncertainty than routine, repetitive lines, linearly defined and structured. In these conditions, he recommends that the leadership should be much more prepared and adapted to these types of situations. Situations of change in environments in general and organizations in particular are and are considered the most difficult. What is required here is the

best possible adaptation of leadership to these circumstances.

Adaptation means managerial indicators studied according to the importance of the impact they have on leadership. While in "Leadership Models for the 21st Century" Richard Rarson (2008), treats the future leader or leader who can offer solutions to problems, ideas and not complaints. Leadership needs to be given more attention than ever before, especially when it comes to the development of the organization and society at large. Andrew Kakabadse (1998). It is thought to be more olfactory and intuitive. While according to William C. Taylor in "The Leader of the future" (2009) he says that the leader of the future must be more courageous to face reality.

A successful leader is one who is never satisfied with this status quo but aims to strengthen and advance it. For this, leadership requires the transformation of power which will be achieved through greater influence on others, the development of effective strategies for influencing others, the elimination and minimization of resistance and insults. Drafting various strategies to maintain and increase power is one of the most important weapons of leadership and leadership.

These strategies should be based on a high degree of flexibility in relation to people, tasks and situations. This flexibility of power is expressed in the form of appeal, persuasion, consultation, integration, qualification, legality, pressure and coercion.

There is no exact formula for the form of power of the leader. Successful leaders are those who create or combine their power on the basis of the situations that are created and change it whenever they are not sustainable. (Michelson J. Barton, 2010).

Leadership aims to improve revenue management and their most effective distribution, increase the efficiency of investment and financial resources, connect with groups and individuals within and outside the sector that have the capacity and have the opportunity to significantly improve its work, improve and continuous technology. It is for this purpose that advanced technologies have yielded more results in the advancement of leadership (Kaitzen 1996).

Creativity also means engaging and engaging with new partners and that policies stemming from energy, agriculture, tourism, social protection, etc., can bring more progress. Engagement also

means the completion of changes in the needs for change and the political involvement of the opposition in reforms. The ability of leadership is that from these forums meetings and workshops, etc. of this nature, to benefit from all the systems and solutions that have been left for this sector. (John Marya Kauzya, 2002)

2. Political Leader

All tables should Politicians are people who are politically active, especially in party politics. Positions range from local offices to executive, legislative, and judicial offices of regional and national governments. Politicians are known for their rhetoric, as in speeches or campaign advertisements. They are especially known for using common themes that allow them to develop their political positions in terms familiar to the voters.

Politicians would be defined as power-seekers according to Lasswell (in Kellerman, 1986, p. 70). Lasswell explains that some individuals have an "unusually strong need or striving for power as a means of seeking compensation for damaged or inadequate self-esteem" (in Kellerman, 1986, p. 71). Thus, power would represent the solution to resolve this inadequate self-esteem by securing the satisfaction for personal values (such as rectitude, respect, affection, as described by the author). Alexander George describes reasons explaining the desire of power (in Kellerman, 1986, p. 75): the feeling of being dominated, in contrary, the two others would provide satisfaction by complying with personal needs and/or values. Politicians of necessity become expert users of the media. Politicians in the 19th century made heavy use of newspapers, magazines, and pamphlets, as well as posters. In the 20th century, they branched into radio and television, making television commercials the single most expensive part of an election campaign. In the 21st century, they have become increasingly involved with the social media based on the Internet and smartphones. Rumor has always played a major role in politics, with negative rumors about an opponent typically more effective than positive rumors about one's own side. Once elected, the politician becomes a government official and has to deal with a permanent bureaucracy of non-politicians. Historically, there has been a subtle conflict between the long-term goals of

each side. Civil service reform was initiated to eliminate the corruption of government services that were involved. However, in many less developed countries, the spoils system is in full-scale operation today. The research and findings concluded that five types of political leaders exist, which are as follows.

Surgeon Leaders

They're incredibly decisive and incisive, somewhat Machiavellian, and rule-breaking by nature. They focus on delivering short term impact by quickly identify what's not working. These leaders believe they're mandated to build performance shifts using their trusted blueprints and rulebooks of which people must obey to the latter. In the short-term, this strategy can work well, and performance typically improves significantly, usually within the first two years they're tenured. Observant will claim to have witnessed an incredible transformation. But this is temporary because the entity has become cult-like in operation, meaning it is heavily reliant and dependent upon one person – themselves – the "chosen one." And after the Surgeon leaves, performance crashes back to earth.

Soldier Leaders

These leaders often cut staff and non-essential activities, automate processes, and fixate on operational details, which in turn drives a culture and climate of fear and uncertainty.

Accountant Leaders

They appear more moderate and liked than Surgeons. They're keen to invest and grow, focusing on the top line, unlike Soldiers, because they subscribe to the view that entities fail if they're small and weak. These leaders oppose Austerity Politics and are resourceful leaders who operate systematically, focusing on economic growth. During their tenure, economic performance usually increases and continues to do so after their departure.

Philosopher Leaders

They're passionate debaters and love to discuss the merits of alternative approaches, often guided

by principles driven by dogma. They are adept with words and very inspiring to those who share a prevailing ideology but often jarring and stubborn to those who don't.

Architect Leaders

They're the most long-termism of the five and focus on redesigning and transforming to build long-term sustainable impact. These leaders are often insightful and visionary, subscribing to the view that entities fail because they don't adequately serve. In many ways, they're a combination of the best attributes of the other four leaders. Architect Leaders refuse to make quick wins - long-term sustainability is their singular agenda item. Perversely, this means the work of an Architect Leader is often unappreciated in the moment - for it takes time for the fruits of their labor to blossom, and there is, unfortunate reluctance within society to recognize genius in its own time - *Surgeon Leaders are valued much more.*

Mattozzi and Merlo argue that there are two main career paths which are typically followed by politicians in modern democracies. First, come the career politicians. They are politicians who work in the political sector until retirement. Second, are the "political careerists". These are politicians who gain a reputation for expertise in controlling certain bureaucracies, then leave politics for a well-paid career in the private sector making use of their political contacts.

Numerous scholars have *studied the characteristics of politicians*, comparing those at the local and national levels, and comparing the more liberal or the more conservative ones, and comparing the more successful and less successful in terms of elections. Many politicians have the knack to remember thousands of names and faces and recall personal anecdotes about their constituent.

Many critics attack politicians for being out of touch with the public. Areas of friction include the manner in which politicians speak, which has been described as being overly formal and filled with many euphemistic and metaphorical expressions and commonly perceived as an attempt to "obscure, mislead, and confuse".

In the popular image, politicians are thought of as clueless, selfish, incompetent and corrupt, taking money in exchange for goods or services,

rather than working for the general public good. Politicians in many countries are regarded as the "most hated professionals".

The practical part (The part of study)

1. Organizational Leader

The organizational leader is considered with clear deadlines, generally has a smaller number of supporters, comes naturally that makes it even more original, enjoys pure popularity, has less controversial results, the results benefit more employees up to the whole organization. The organizational leader strives to be as efficient and effective as possible. He is considered more productive (because he has no political interests), but due to his originality he has more moral interests and seeks to improve the life of the organization and not just a certain segment. The most difficult part is considered to be the partial support of employees and the benefits can only be for the supporters. The organizational leader acknowledges that his work and vision may have an indefinite period of time and he may be replaced by another leader with more advanced vision and initiative. Organizational leaders are considered more occasional and not "premeditated" as political ones can be perceived.

Organizational leaders improve many managerial aspects. An important aspect is the influence and improvement of the culture. Leaders increase the authority and power of their employees, or especially those who support them. They can greatly change attitudes toward work-related problems.

The leader creates and improves the norms of the organization, increasing the system of positive values. The leader significantly influences the design and sketching of jobs, but also the products and services that the organization offers in the market. The leader is considered part of the organizational change and development.

Successful leaders can be used effectively in conflicts and negotiations. Through the political behaviors that they can exercise, they can greatly improve the life of the organization, because they mainly think about general (or organizational) interests

rather than personal ones (narrow, individual). The organizational leader either paves the way for cultural change or creates a new culture depending on the time he creates a form of "expert power" in the area in which he operates. Culture is a very important variable for creating a favorable climate for business and organizational performance. The nature of culture according to studies to be created or changed cannot be achieved immediately, it takes time. The organizational leader improves the elements of communication, values, traditions, aims through his vision, the improvement of assets and the environment and in this way he recreates a more advanced and progressive environment. Recreating a new format within the existing context according to the study, brings cultural changes because its basic elements have been improved according to the work and vision of the leader.

Usually organizational leaders are successful in the vision they undertake in their work. They coordinate some action styles to achieve their goals and according to the study rely mainly on employees who capture, accept and understand the vision they have. In the role of organizational leader, they behave as inspiring and motivating to the managerial function of control. For this reason, organizational leaders are considered more flexible than managers. According to the study, successful organizational leaders have displayed these basic traits in their behaviors:

- a) Have good knowledge and are competent in the area they lead;
- b) They rely on the right people who have not only understood and accepted their vision, but know how to really implement it. This is also considered one of the keys to success;
- c) They have used different action plans and strategies, all depending on the identities and situations;
- d) Readiness, high physical and psychological resistance;
- e) When the employees with whom he cooperates to realize the visions are persons with high skills, positive values, favorable culture, motivation, etc.
- f) High individual values such as perseverance, integrity, honesty, tolerance, finesse, simplicity,

attention to suggestions and problems, etc.

- g) They have adapted very well to the various situations they have faced;
- h) Promise and support in a favorable reward system;
- i) Establishment of a reward system based on contributions and meritocracy;
- j) Reinforcement of behaviors based on managerial principles of reinforcement;
- k) Use of different styles of behavior depending on employees and situations;
- l) Efficiency and effectiveness in various sources of the organization such as financial, material, human, time, etc.

2. Political Leader

The study shows that political leaders generally have a cyclical nature. Unlike organizational leaders, they are often "implemented", "predicted" and initially entered the "difficulty phase", is the period when they, as the opposition, reveal their visions of what they could really do if they were in leadership positions, or how would they behave in the same positions if they had legitimate power? This general behavioral nature creates a pattern, which according to the study generally has a similar behavior, time, phase, and action from one political leader to another on how the cycle works. Each leader has his own management strategies and techniques and behaviors, based on these visions, goals, etc. Political and opposition leaders have set deadlines that run according to the study for up to eight years. Rare cases this type of model can deviate in 4 years until the most extreme case over 20 years. In countries with a totalitarian direction, or with a high economic stability, with culture, without much fluctuation and where politics has no impact on changing the lives of individuals, the rule generally does not exist and it is difficult to define a clear model.

In general, the nature of "implemented" or "predicted" political leaders makes them lose the originality of the leader, who in general should be born naturally and born according to skills and meritocracy and not to fulfill the cycle of a beginning of new. Unlike organizational leaders,

political leaders can stay on track even if their vision is over or they do not yet have a clear vision. This is the most difficult period which then turns into an obstacle and creates a situation of dissatisfaction or impatience.

The study notes that leaders who have just gained legitimate power have just emerged from the opposition phase and are beginning to have very favorable behavior, a high desire to fulfill their visions, and for those who are engaged. After the first period of running in the second period, there is persistence in behavior which begins to decline until the sixth year and after that the visions and energies are not the initial ones (fig 1).

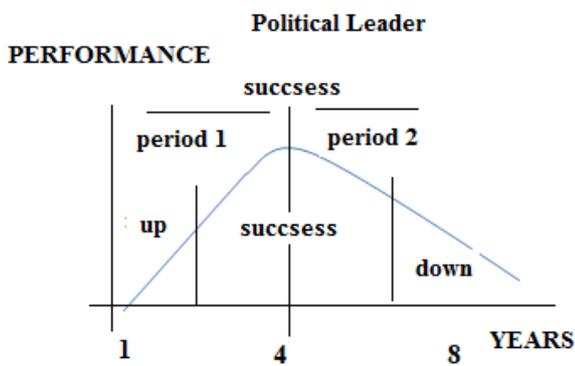


Fig.1. The model of behavior of political Leader during period of his direction (Life cycle).

In some cases, political leaders appear to be leaders of visible or indirect agreements to fulfill their goals and guarantee power. This nature can create a decline in image and popularity, but for political leaders the priority is their goals. Leaders in general and those in particular are considered individuals who influence different changes. The group of changes can include those in culture, technology, reform, social impact, etc. Leader and leadership have influenced the transformations of different cultural, social, business and different sectors of life. This change has come about due to their political strategy, vision and goals during their tenure and work.

Usually, political leaders claim that the purpose of their work is to improve their lives in economic, social, etc. perspectives. Meanwhile, from the opinions and results of the work, significant differences can result.

One of the most important impacts of leadership

and leadership is cultural change. Changes that can occur in the economic, political environment, technological developments, education, etc., create a new cultural environment. Of course, to change the culture, even according to the theoretical literature, is not considered an easy and short-term task. But the leader and leadership during his tenure can modify existing culture or create a new culture.

According to studies, the cultural environment can significantly affect the results of work or life performance. In this context, if new cultures have a positive content, it tends towards social behaviors that have a positive impact on the economy and beyond. If the political leadership has aimed at improving the education system and increasing its quality (both academically and professionally) then various companies and organizations will have the opportunity to employ employees with high knowledge and who successfully meet market demands in general.

If the political leadership, according to its agenda, aims to significantly improve the health system, in all its indicators, then life expectancy is expected to increase, citizens or employees in particular feel safer for their health and family. This would give them more peace of mind in their work and family decision-making.

If political leadership, according to its agenda, has significantly improved the economy through job creation, depending on the various policies pursued at home and abroad, then citizens or employees in particular will feel more secure to take various initiatives both in the family context and beyond.

In general, the success of the work of a leader or his leadership during leadership time is considered, the evaluation of the results implemented with the claimed ones and their effectiveness. Many political leaders claim that reforms have had a positive impact on the economy or society. They even claim that they are very effective and that their effects will often be understood in the distant future. This way of behaving or pretending is also considered as avoiding certain responsibilities, but in general the evaluation of performance should be visible and in the not too distant time, possibly within their political mandate.

To confirm the hypothesis that political leadership has a leadership cycle of about 8 years, they were examined by selective observation of the management history of 40 political leaders elected by different states, considering their political leadership after the 1940s. In this study, countries such as USA, Germany, England, France, Spain, Albania (after 1990), Italy, etc. were included in the elections. The behavior of political leaders varied from one place to another with indefinite and often irregular cycles. More stable in behavior, for the study of the third objective were the USA where political leaders led for a minimum of 4 years and a maximum of up to 8 years.

At the same time, countries like Italy have a trendy leadership trend in the short-run. In opposition to this trend, Germany tended to take a long-term approach, in some cases 15 to 20 years (Helmut Kohl)

The data survey showed that political leaders varied in time from 2 to 20 years. To be convinced about the average time of running a political leadership, we construct two hypotheses. Ho political leaders run for 8 years and Ha political leaders do not follow an 8-year trend.

Ho: $\mu = 8$ years (Zf within Zt area) Ha: $\mu \neq 8$ years (Zf outside Zt area)

Frequencies for each year of management vary as follows:

Number	1	2	3	4	5
6	7	8	9	10	11
12					
Years (xi)	2	3	4	5	6
7	8	9	10	11	12
15					
Frequency (fi)		1	1	4	2
3	2	20	1	2	1
1	1	40			

$$Zf = (\bar{x} - \mu) / (S/\sqrt{n}) = (7.75-8) / (1.78/\sqrt{40}) = (-0.25) / (1.78/6.32) = -0.89 \quad Zf = -0.89$$

$$\bar{x} = (\sum Xi * fi) / (\sum fi) = 310 / 40 = 7.75 = Xmes$$

$$\sigma^2 = \sum_{i=1}^{n=13} (X - \bar{x})^2 * fi/n \quad \sigma^2 = 398.8/40 = 3.16$$

$$s = \sigma = \sqrt{3.16} = 1.78 \text{ with } \alpha = 5\%$$

Zt results from $P = P_{\mu-\alpha}$ in our case since the error lies in two areas we consider $\alpha/2 = P_{\mu-\alpha/2} = 0.5 - 0.05/2 = 0.475$ $Zt = \pm 1.96$, since $Zf = -0.89$ then $Zf = -1.96$, since Zf inside Zt (ose $Zt < Zf$) win the hypothesis Ho (Ho: $\mu = 8$ vite) and fall the hypothesis Ha (Ha: $\mu \neq 8$ vite).

3. Organizational vs. Political Leader

The leader is considered a factor that can significantly affect the life and performance of the organization. Studies show that leaders have increased the frequency of organizational objectives through their vision by "overcoming" the defined managerial area in an even wider area and often times independent and specific.

Leaders use many tools, strategies and people to achieve their visions. Studies show that leaders have different visions and generally all think that their visions are positive, or aim to achieve something positive. In reality, after ascertaining the results of their work, the leaders have not always realized positive visions.

According to one of the aims of the study, the organizational and political leaders are identified, seeing the common and special features between them. It is very important to note that the nature of the political leader differs significantly from the organizational one. Political leaders are more expansive in their visions, have more people, and seek to achieve many goals through the vision and philosophy that guides them. While organizational leaders have a more limited scope (within certain organizational boundaries) both from the point of view of the human resources with which they interact and collaborate, and the range of goals or objectives they want to achieve, guided by vision beyond managerial objectives.

The study shows that organizational and political leaders have common areas and different differences. This approach is understandable and explainable by the nature and area of their action. An organizational leader is considered to have a narrower scope of action, while a political leader

is considered to have a broader scope.

Organizational leaders can present a narrower spectrum of visions, while political leaders extend their visions more according to the area of action. We also notice significant changes in their working time, in energy, promises, etc. in favor of political leaders.

Usually the political leader has more influence on the organizational one than vice versa. Between these two types of leadership we find more differences than common areas. Common areas are considered in terms of the changes they bring, in the areas where they operate and affect culture, economy, society, etc.

4. Conclusions and recommendations

Leadership is considered an important factor in the performance of the organization and life in general. Organizational leaders have a more limited scope than political ones. Many successful organizational leaders (or businesses) can be studied and integrated into politics even though they work in different fields and take different risks. Donald Trump's case is a link between successful business leaders (organizations) and their connection to the political environment. In general, successful business leaders have behavioral characteristics that can achieve similar performance in the political arena. Political leadership has a mandate that according to the study goes on average up to 8 years. From the culture of the country, the type of organization, etc. this rule may not be as accurate as in the case of Italy or Germany.

Organizational leaders must be constantly supported by organizations and companies not only morally but also financially, for all their visions, especially when their work has yielded results.

Political leaders need to be studied more carefully because they are generally implemented differently from organizations where they are born naturally, as is their real function. In this context, the countries that have studied the leader and the leadership have given higher results. Studying the leader and implementing it is not an easy task, but it is worth undertaking because the leader can

interfere in many aspects of a country's life with its nature, personality, features and functions.

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