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The impact of leadership on organizational performance in small and medium companies in Bosnia and Herzegovina

[a*] Sabina Šehić – Kršlak, [b] Đevad Šašić, [c] Hasiba Džigal
[a] University of Travnik, Faculty of Management and Business Economy, Bosnia and Herzegovina, [b] Master of European Studies, Center for Interdisciplinary Studies (CIS), European Studies Program, University of Sarajevo, Bosnia and Herzegovina [c] Faculty of Administration, associate member of the University of Sarajevo, Bosnia and Herzegovina,

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ABSTRACT

The main goal of this paper is to determine the status of leadership in Bosnia and Herzegovina and its effects on organizational performance, as well as to determine the effects of leadership in general and LMX leadership on organizational performance (job satisfaction, organizational commitment, mutual trust at work, satisfaction with organizational communication). Communication between leaders and associates, empowerment and organizational commitment of employees are variables that are intensively researched and improved in developed countries based on the research results. No research has been conducted in Bosnia and Herzegovina, even on mutual influence of two basic variables of the proposed research, communication between leaders and associates and organizational productivity. The research that will be conducted as part of this paper is in line with previous proposals of authors who have dealt with similar topics on the need to conduct research of this type in non-Western working environments. Based on the obtained research results, a model will be constructed to influence on positive correlation of leaders, their communication and organizational productivity in Bosnia and Herzegovina. The quality, i.e. the exchange level of leaders and associates was measured with a concise LMX-7 questionnaire intended to associates on a standard 5-point Likert scale. The study should create positive contribution to understanding of leaders' role in organizational productivity in small and medium companies in Bosnia and Herzegovina. Innovating suggested strategies, this study should improve the leaders' program communications between organization/company goals and productivity.

I. Introduction

Leadership in modern organizations/companies is seen as a different approach to the functioning of organizations, whose purpose is to initiate revolutionary changes in the organization, with the ultimate goals of improving the performance of the organization.

Unlike developed countries where a significant amount of research on leadership and employee commitment has been conducted, research in this area is very rare in Bosnia and Herzegovina. Academic engagement in the mentioned area is also very rare. The consequence of the lack of adequate research is basic characteristic not only of leadership and commitment in organizations, but also of most other variables related to leadership. A significant problem is that influential variables and their characteristics are not known, as well as the effects produced by certain categories of organizational behavior.

The characteristics of people, their culture, values, business and work environment differ more or less from country to country. Different economic and cultural conditions can reveal different facts about the nature of important organizational variables, and it is frivolous to stick completely to the results reached in developed countries and to use them as the basis of academic and applied development of theory in Bosnia and Herzegovina and other developing countries where research is lacking.

The subject of this paper is to examine and provide quality data on a small part of extremely broad phenomenon of leadership and its impact on organizational commitment of employees, one of the basic variables for the successful functioning of modern organizations.

Communication between leaders and associates, empowerment and organizational commitment of employees are variables that are intensively researched and improved in developed and developing countries based on research results (Erceg et al., 2020; Esenyel, 2020; Gordana & Biljana, 2020; Šehić–Kršlak, 2020; Tatić et al., 2020; Isik & Aydın, 2016a,b, 2017, Isik et al., 2016, 2018, 2019a,b; Akan & Isik, 2006).

Many studies have provided evidence that communication between leaders and associates is related to commitment (ex. Gerstner & Day, 1997; Joo, 2010; Kang, Stewart & Kim, 2011; Lee, 2005; Yousaf & Sanders, Torka & Ardts, 2011), however, none of these studies provided data on deeper nature and characteristics of this cooperation.

Even in developed countries, there has not been enough research providing an organizational behavior model to be in positive correlation with organizational performance.

2. Research Methodology

The concretization of the research was preceded by the analysis of earlier theoretical and empirical research on the phenomenon of leadership on organizational performance.

1. Theoretical and methodological framework of the research has been set;
2. Operationalization of the research content has been carried out, the duration of the research and the sample size have been determined;
3. Defined elaboration and practical distribution of questionnaires;
4. Method of statistical processing and clear presentation of data (descriptive statistics, correlation analysis, regression analysis).

Based on the conceptualization of the research, the research framework has been conceived to be realized, by application of the following methods.

1. Analytical - synthetic method and content analysis method,
2. Expert method of scientific examination (survey and instrument for collection of desired data;
3. Method of statistical processing and clear presentation of data (descriptive statistics, correlation analysis, regression analysis.
4. The collected research results were processed using the SPSS program.

3. Literature review

Northouse (2012) singled out the four most common traits that characterize almost all definitions of leadership. According to him, leadership can be seen as:

- a process;
- a tool for making an impact;
- a phenomenon appearing in the context of the group and presupposing the achievement of goals.

In general, leadership can be defined as the process of influencing others to understand and agree on what needs to be done and how it should be done, and

∗ Corresponding author. E-mail address: : sabina.sehic.krslak@gmail.com (S. Šehić – Kršlak).
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the process of enabling and facilitating individual and collective efforts to achieve common goals (Schermerhorn et al., 2010).
According to House and his associates (House et al., 1999), leadership is the ability of an individual to influence, motivate and enable others to contribute to the effectiveness and success of the organization whose members they are. Drath and Palus (1994) defined leadership as the process of creation of meaning for people's joint activities so that they can understand them and be committed to carry them out. Similarly, Jacobs and Jacques (1990) view leadership as a process of giving purpose (meaningful direction, goal) to a collective effort, and challenging the engagement of a willing effort to achieve a given purpose and goal.

A significant number of authors see leadership as a process of creating and leading of change. For example, for Schein (1992), leadership is the ability to step out of culture "in order to initiate evolutionary processes of change that are more adaptable.

The most important leadership activities are creating, initiating and leading evolutionary processes of change, and the most important characteristics of a leader are creativity, innovation and a positive attitude towards change. There are many theories that explain the complexity of leadership process (Bass, 1990; Rost, 1991, Hickam, 1998, Mumford, 2006).

The impact of leadership on various organizational results and business performance has been the subject of numerous studies (Avey, Avolio & Luthans, 2011; Carmeli, Schaubroeck & Tishler, 2011; García-Morales, & Jiménez-Barrionuevo & Gutiérrez-Gutiérrez, 2011; Barling & Weber; Kelloway, 1996; Ling, Simsek, Lubatkin & Veiga, 2008).

In Russian companies (Elenkov, 2002), transformational leadership positively predicts organizational performance. This impact is stronger than in the case of transactional leadership, but transactional leadership also has positive relationship with organizational and business performance.

Numerous studies indicate a positive impact of high quality LMX leadership on different organizational performance (Ferris & Judge, Chachere & Liden, 1991; Pellegrini & Scandura, 2006; Erdogan & Enders, 2007). Researchers have found that high-quality leader-member exchanges resulted in lower employee departures, higher performance appraisals, better (more positive) attitude towards work, greater attention and support from leaders, more pronounced participation and faster career advancement over a period of 25 years (Graen; UhlBien, 1995, Matias-Reche & Verdu-Jover, 2011), internal communication influences on technological pro-activity, organizational learning and organizational innovation. References (Andersen & Segars, 2001; Yates, 2006) show that improving internal communication provides better financial results for an organization. Similar to the above, a significant number of references confirm the impact of internal (most important) leadership communication on job satisfaction (Kang, 2010; Schweitzer, 1989), which is certainly closely related to the dimensions of mutual trust and organizational commitment. Open communication in the workplace increases productivity and affects employee satisfaction (Irwin & More, 1994). According to Beebe, Blaylock, Sweetser (2009), good communication leads to increased employee satisfaction and motivation. The reference (DiFonzo & Bordia, 2000) indicates feedback, dissatisfaction with work often has an impact on internal communication.

Many studies have examined the relationship between communication satisfaction and employee productivity (Clampitt & Downs, 1993; Pincus, 1986), job performance (Pincus, 1986; Tsai, Chuang & Hsieh, 2009), organizational effectiveness (Gray & Laidlaw, 2004), organizational performance (Snyder & Morris, 1984). Satisfaction with communication also affects employee job satisfaction, commitment and work motivation (Varona, 1996; Orpen, 1997). Dissatisfaction with communication can cause stress in employees, absenteeism, poor feedback, burnout, and a high rate of abandonment (Ahmad, 2006). In addition, satisfaction with communication plays an important role in the development of job satisfaction in an organization and is a significant predictor of various aspects of organizational behavior (Nakra, 2006; Carriere & Bourque 2009). A synthesis of several theoretical approaches to the concept of organizational commitment was offered by Mayer and Allen (Meyer, Allen, 1991, 1997) who proposed a conceptual model of organizational commitment presented through three components, the known three-component model: (1) affective; (2) continuous; and (3) normative commitment. This comprehensive model has been empirically validated in various contexts (Vandenbberghe & Tremblay, 2008). The consulted literature in this area indicates the fact that affective organizational commitment is of the greatest benefit to the organization and that it is positively related to the desirable behavior of employees (Meyer et al., 2002; Meyer, Allen, 2004). It has a positive effect on employee impact on relevant organizational outcomes (Vandenbberghe & Tremblay, 2008; Meyer et al., 2002; Mathieu & Zajec, 1990; Allen & Meyer, 1996).

4.Results of organizational commitment

Different levels of commitment can have different outcomes. Meyer and Allen Topolnytsky (1998) believe that conditions leading to changes in the nature of commitment can have significant implications on employees' morale, motivation and performance and ultimately on the success of the organization.

Angle and Perry (1981) argue that the definite desire of a dedicated member to retain membership in an organization has a clear relationship with the motivation to participate. They also found solid evidence in their research for the claim that there was an inverse relationship between organizational commitment and fluctuation (Angle & Perry, 1981), that was corroborated in various other studies (ex. Meyer; Allen, 1997; Meyer et al., 2002; Ostroff, 1992; Porter et al., 1974; Rusbul &, Farrell, 1983; Steers, 1977).

Job satisfaction is a variable that has a special relationship with organizational commitment. Some authors discuss whether job satisfaction is the cause or outcome of commitment, either input or output. Many of them agree that these two variables have a mutual influence, while some authors call them correlated variables (Meyer et al., 2002). Organizational commitment and job satisfaction can have similar outcomes such as lower turnover rates, absenteeism, higher motivation, participation, better performance.

5.Quality of exchange between leaders and employees

The quality, i.e. the level of exchange between leaders and associates was measured with a concise LMX-7 questionnaire for associates (Graen & Uhl-Bien, 1995; Scandura & Graen, 1984) on a standard 5-point Likert scale. Identical questionnaires were distributed to all respondents and there was no differentiation between leaders and followers, given that the focus of the research was on employees as followers (associates) and not on leaders (i.e. how they evaluate their leadership and exchange with their followers), and how as members they generally evaluate the exchange with all their leaders and what impact the perceived exchange has on their commitment. The field of interest of the research is not the individual leader-follower relations, but the general situation. Employees were asked to assess the level, i.e. the quality of the exchange relationship with all their leaders.

The variable measured in this case is the level of exchange of information in communication of employees and leaders. The LMX-7 questionnaire is one-dimensional and, as the questionnaire label itself indicates, it includes seven items with a different default answer scale for each question. This questionnaire has been validated in a large number of studies (see: Graen & Uhl-Bien, 1995; Greguras & Ford, 2006; Konja, Grubic-Nesic & Lalic, 2012; Maslyn & Uhl-Bien, 2001; Scandura and Graen, 1984; Zhong et al., 2011) and it is the most accepted questionnaire to measure the exchange between leaders and followers (LMX).

Table 1. Component matrix quality of the relationship between a leader and a successor

Item	Component saturation
Evaluate the relationship with your leader	0,820
How well your leaders understand your problem and your needs at work?	0,840
The extent to which your leaders recognize your potential	0,824
Do you know how satisfied your leaders are with you?	0,763
I have enough confidence in my leader and I support all his decisions.	0,842
Your leaders have enough formal authority.	0,866

Source: *Author's research*

The representativeness of items according to Kaiser's KMO criterion is high 0.920. The reliability of the questionnaire is high Cronbach alpha 0.90. All component saturations are above 0.76. The components have the highest saturation: six, five, two.

Table 2. Component authorization matrix

Item	Component saturation
I am confident in my ability to perform work tasks.	0,630
I have control over events in my department.	0,512
I mastered the skills.	0,385
I am independent doing my job.	0,761
My personal contribution at work is significant.	0,630
The job I do is important to me.	0,742

Source: *Author's research*

Factor analysis determined that this part of the questionnaire could be treated as four-dimensional. This was determined by separating the control of events in the ward as a pre-rotation factor
A = 5.12 and a post-rotation factor 3,587.

Table 3. Matrix for a four-dimensional variant of authority

Item	Control of events in the department	Self determination	Influence	Saturation
I am confident in performing work tasks.	0.955	0,055	0.066	0,079
I have control over events in the department.	0,889	0,024	0,022	0,067
I mastered the skills.	0,918	0,124	0.009	0,779
I am independent doing my job.	0.33	0,838	0,116	0,859
The job I do is important to me.	0.66	0,944	0,780	0,114

Source: *Author's research*

Pearson's correlations between the factors are significant and quite high. The highest one is between self-determination and influence. If a three-dimensional solution was made, these two sub-scales would merge into one. This means that the three-dimensional solution would implicate three sub-scales of questionnaires, i.e. three variables. The first variable would be the importance of the job, the second one would be the independence in doing the job, while the third one would be self-determination and mutual influence.

Table 4. Descriptive statistics of the leadership dimension LMX job satisfaction, communication satisfaction and mutual trust

Dimension	Abbreviations	N	Min	Max	Mean	St.dev.	Cronbach alfa
Transformational behavior of leaders	L1	100	1,000	7,000	4.583215	1.34200	0,865
High performance expectations	L2	100	1.000	7,000	4,873112	1.24520	0.963
Encouraging leader behavior	L3	100	1.000	7,000	3,18452	1.67451	0,889
Rewards as part of incentive behavior	L4	100	1.000	7,000	4.234141	1.45002	0.923
Punishments as part of criminal conduct	L5	100	1.000	7,000	4.03225	1.32431	0.945
Exchange leader – member	LMX	100	1.000	5.000	3,98231	1.45620	0.919
Wage	JS1	100	1.000	6.000	2,76899	1,25632	0,875
Advancement	JS2	100	1.000	6.000	3,18975	1,23400	0,891
Supervision	JS3	100	1.000	6.000	3,89723	1,17652	0.921
Additional privileges	JS4	100	1.000	6.000	3,12677	1.17823	0.835
Possible rewards	JS5	100	1.000	6.000	2,98810	1.26578	0.842
Operational procedures	JS6	100	1.000	6.000	3,10230	0.87654	0.701
Associates	JS7	100	1.000	6.000	4,12300	0,98983	0,723
Nature of work	JS8	100	1.000	6.000	4,32010	1.04520	0.865
Communication	JS9	100	1.000	6.000	4.21022	0.89903	0.675
Organizational perspective	CS1	100	1.000	10.000	5,42100	2.09880	0.767
Communication with superiors	CS2	100	1.000	10.000	6,23301	2.33400	0.823
Communication climate	CS3	100	1.000	10.000	6.00200	1.88920	0.985
Personal feedback	CS4	100	1.000	10.000	5,89930	1.89923	0.845
Horizontal and informal communication	CS5	100	1.000	10.000	5,23300	1.77820	0.812
Media quality	CS6	100	1.000	10.000	6,13890	1.65562	0.832
Organizational integration	CS7	100	1.000	10.000	5,89932	1.83401	0.886
Confidence in the intentions of colleagues	ITW1	100	1.000	7.000	4.78820	1.34002	0.987
Confidence in the intentions of management	ITW2	100	1.000	7.000	4.21980	1.53201	0.967
Confidence in the actions of colleagues	ITW3	100	1.000	7,000	4.53002	1.342100	0.875
Confidence in the actions of managers	ITW4	100	1.000	7,000	4.2350	1.655200	0.899
	Valid N	100					

Recently calculated Cronbach's Alpha coefficient is also one of the most frequently used coefficients for determination of reliability of measurement scales. The presented values show that the dimensions included in the research have adequate reliability. Based on the obtained research results shown in the previous table, it can be stated that the managers of companies in Bosnia and Herzegovina have high expectations of results, while employees' salaries are not seen as a significant factor in organizational success. The correlation and the largest relationship between the variables will be shown below with correlations.

Table 5. Correlation analysis leadership, LMX, job satisfaction, communication satisfaction, mutual trust at work

	JS1	JS2	JS3	JS4	JS5	JS6	JS7	JS8	JS9
L1	,450	,430	,566	,340	,504	,290	,189	,286	,345
L2	,107	,034	⩽0,20	,004	,135	,123	,034	,053	⩽0,15
L3	,543	,510	,618	,453	,543	,387	,450	,450	,450
L4	,564	,665	,549	,540	,634	,427	,432	,343	,412
L5	,567	,512	, 872	,284	,675	,580	,286	,503	,509
L6	,812	⩽0,30	⩽0,31	⩽200	,085	,110	,0,30	,209	⩽022
LMX	,675	,654	,723	,612	,723	,765	,630	,510	,586

Source: *Author's research*

6.Discussion

Table 4 shows the results of descriptive statistics of the leadership dimension LMX, job satisfaction, communication satisfaction and mutual trust. The analysis of relation between the organizational commitment and the organizational performance is very significant in this research paper.

The analysis revealed a significant positive correlation between LMX and organizational commitment observed as a whole (main scale), and between LMX and the sub-scales of organizational commitment, commitment to the values of the organization and mutual trust expressed through information exchange and through open communication.

Respondents who enjoy a high-quality exchange with their leaders are more committed to the values and goals of the organization, i.e. employees with a higher level of LMX are more likely to get engaged in achieving of the values and goals that the organization stands for. Commitment to the values of the organization is equated with affective commitment. Affective commitment is defined as emotional attachment to an organization, identification with the organization, and involvement in the organization. An employee who has a high level of affective commitment stays in the organization because he/she wants to and because it is his/her free will (Allen & Meyer, 1990, 1996; Meyer & Allen, 1997; Meyer et al., 1998).

The strongest connection was found between LMX and the commitment to the values of the organization. These results confirm both the theoretical assumptions and the results of some previous research (ex. Konja, Grubic-Nesic & Lalic, 2012).

The commitment to stay in the organization is another term for continuous commitment and it is related to the perceived costs of leaving the organization. Employees with high level of continuous commitment must remain in the organization, since the cost of leaving the organization would be higher than the benefits of leaving it (Allen & Meyer, 1990, 1996; Meyer & Allen, 1997; Meyer et al., 1998) and they often find it very difficult to leave the organization due to the employer's efforts to make it difficult for them to leave the organization (Meyer & Allen, 1997). Employees with a high level of continuous commitment stay in the organization because for some reasons, most often financial ones, they have to stay in the organization.

Based on the results of the research, it was shown that the dimensions L1 and L2 had the highest average score, expectation of high results, as well as transformational leadership. Dimensions of punishment as a part of criminal behavior, and encouraging behavior of leaders had the lowest score. Therefore, the expectation of high results was not accompanied by encouraging behavior of leaders and the application of rewards. This situation may have been created not only by transitional conditions in Bosnia and Herzegovina, but also by the size of the researched companies, for the fact that small and medium companies are much easier to apply the system of punishment.

Table 5 shows the results of correlation analysis leadership, LMX, job satisfaction, communication satisfaction, mutual trust at work.

The results of the correlation analysis show the strongest connection between the variables of job satisfaction and mutual trust, which is understandable due to the fact that these are mainly small and medium companies that have the character of family businesses and where trust relations are nurtured and job satisfaction is entered into.

Based on the results of the correlation analysis, a strong correlation between organizational commitment and financial results can be observed. Organizational commitment is shown through the dimensions C2 - collectivism and exchange in the 'leader – follower' relationship. This further confirms that interpersonal relationships are important to employees in the companies of Bosnia and Herzegovina, both with superiors and colleagues. This is a significant factor in organizational commitment.

Rewarding - L5, and L1 - the behavior of the main leader has a significant positive impact. To employees, job security plays an important role, expressed through the vision of the company, seen by the leader. Punishment has the weakest effect; it does not contribute to organizational commitment.

The results of the research showed a strong correlation between the salaries and organizational commitment. The salaries motivate employees to increase their commitment to work, and greater commitment to work has a positive effect on employees' productivity hence positively affecting the success of the company.

7.Conclusion

Bosnia and Herzegovina is still in the process of transition. In addition, it is evident that in private sector, business and the use of available resources, primarily human ones, as the key for achievement of defined business goals, is not adequate and in line with good practices.

The above statement was confirmed by this research, because the results of the research show, *inter alia*, that leaders in the companies of Bosnia and Herzegovina have high expectations in terms of performance, without enough understanding, support and empathy for employees. Additionally, the penalties are more common than rewards, the dimensions of leadership are approximately average, and the usage of power is above average.

All this indicates a rather bad image of overall situation, speaking of leadership in the companies of Bosnia and Herzegovina. The research shown in this paper obtained significant results that fully represent new scientific information in Bosnia and Herzegovina. Some relationships between variables that have been previously investigated in other studies in Western developed environments have been confirmed. In addition, some results of previous research have been refuted, but some completely new results have been obtained, that represent a significant contribution to understanding of the links among the three researched variables, exchange of information (communication) between the leaders and the associates, according to LMX model, authority usage and organizational commitment itself. The most significant research results are:

- the existence of the connection between exchange of information (LMX) and organizational commitment as a whole, as well as between the exchange and the components of organizational commitment, commitment to the values of the organization and development of a long-term feeling committed to the organization,
- positive connection of an authority and organizational commitment,
- the existence of positive connection between authority, self-determination and job value on one side and the loyalty to the company on the other side.

Scientific justification of the research is reflected in the obtained results and discussion of the results because in the companies of Bosnia and Herzegovina the level (status) of leadership and the extent (intensity) of its impact on different organizational outcomes and business performance was determined on a representative sample. a significant number of companies from various industries were covered.

8. Suggestion

(1) Based on this research, leaders and managers should be aware of the importance of development of their own leadership competencies and development of quality leadership processes in their company, because they can significantly improve certain organizational outcomes and business performance in their company.

(2) This research shows that leaders and managers have enough space to work on their own self-evaluation and self-improvement through acceptance of new business knowledge and skills.

(3) The research should increase the awareness of leaders on the role and the significance of leadership for business operations of small and medium companies of Bosnia and Herzegovina.

(4) The research results can be of great help to leaders and managers in initiating
appropriate actions with the aim of raising the level of organizational outcomes and business performance in their companies, that can ensure growth and development of companies, better competitiveness and market position, and long-term survival of the companies.

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Sabina Sehic - Kršlak, (ORCID ID: 0000-0002-7657-0603) Assistant Professor at the Faculty of Management and Business Economics, University of Travnik, scientific field of management and organization. She worked as an assistant at the Faculty of Business Management, University Džemal Bijedić Mostar from (2008 – 2010). As a senior assistant at the Faculty of Economics of the University Džemal Bijedić Mostar, from (2010-2016).

The assistant professor involved in teaching at the Faculty of Administration, University of Sarajevo. She has published a large number of scientific - research works in the field of management and participation in many scientific conferences.

Đevad Šašić (ORCID ID: 0000-0002-4079-3186) is Assistant Professor for the scientific field Management and Organization of the Public Sector (courses: Public Sector Management, Project Management, Leadership, Strategic Management in Public Sectorand Human Resource Management) at the Faculty of Administration, University of Sarajevo In the period from 2014-2018 he was a senior assistan for the scientific field ''Management and Organization of the Public Sector''

Hasiba Džigal, (ORCID ID: 0000-0002-0290-0227) is a professor of Arabic and English. She has a Master's degree of Arts in European Studies (postgraduate interdisciplinary study organized in cooperation with Bologna University and London School of Economics, Center for Interdisciplinary Postgraduate Studies of Sarajevo University. PhD study currently under run at Faculty of Public Administration in Sarajevo, University of Sarajevo, Bosnia and Herzegovina.

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Perceived leadership styles and employee motivation: A research in Turkish hotel context

[a*] Davut Uysal
[a] Anadolu University, School of Foreign Languages, Eskişehir - Turkey

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ABSTRACT

This paper aims to explore if there is any significant relationship between the perceived leadership styles and employee motivation within the hotel context in Turkey. Survey technique was used in the data collection process of the research. The link of the online questionnaire was delivered to the accessed employees working in the five-star hotels in Turkey and 385 questionnaires were filled appropriately. The items on the questionnaire were about the examined leadership styles and employee motivation. It was found in the study that there is a significant relationship between transformational leadership and employee motivation whereas no significant relationship was found between transactional, Laissez-faire and employee motivation. Relevant recommendations have been provided for the role of leadership styles within the hospitality organisations for their effective management in the future.

I. Introduction

Leadership affects the way employees perform their tasks and obtaining good organizational outcomes. This research paper intends to examine the relationship between certain leadership styles and employees' motivation at the hotel enterprises as leadership styles is considered good predictors of organizational performance ensuring good employee performance. For long years, the term of "leadership" and how leadership styles lead to different reactions of employees have been examined in various researches (Bass, 1985; Davis, 2004; Drucker, 1999; Grensing-Pophal, 2002; Root, 2015; Sehić – Kršlak, 2021; Šehić – Kršlak et. al. 2021; Wheatley, 1999). Leaders and thus their leadership styles are claimed to have had key roles in the achievement of the organizations (Bass, 1985). In this study, which has been designed as a descriptive study, the aim is to find out the hypothesized relationships through a quantitative research approach at the five-star hospitality organisations in Turkey.

Leadership, as a term, could be defined as a process through which ideas could be communicated, and the adopted organisational vision could be presented to employees in the organisation to encourage them to adopt and support the ideas and organisational visions and thus lead the organisation to expected achievement (Achua and Lussier, 2013). Concerning this, Naile et al. (2014) highlighted that leaders are not only managers but also those owning the ability to influence their employees by their natüre, claiming that some individuals might have the skills that both a leader and a manager could possess.

Drucker (1999) claims that leadership tends to ensure the quality of work that employees produce and also ensures that the time and resources that organisations have are spent on the benefits of the organisation most effectively. Considering this, it could be concluded that the skills that leaders have are closely related to setting priorities and management of resources that organisations have to fulfil the organisational goals.

One important characteristic of leadership is to delegate the past for the future benefit of the organisation. In other words, leaders are responsible for predicting the failures well in advance and preventing them before their effects come true within the organisation. Leaders are also supposed to keep themselves and their teammates motivated to serving the shared organisational purpose as well as acting out the assigned roles within the organisation.

Drucker (1999) points out that leaders are often supposed to highlight the goals and objectives of the organisation that they are responsible for and remind employees of the benefits that team members could have if they remain stick to them. Employees should often be reminded of organisational goals by leaders as well as the strategies to be used in achieving these goals. According to Drucker's definition, leaders are presented as a team player, and leaders could adopt various leadership styles in organisational management.

2.Significance of the Study

Motivation and achievement have been claimed to be closely related to one another (Lock, 2001) and motivated employees have always been high achievers. There are various ways of increasing the motivations of employees such as using materialistic rewards, but it is not the only way to achieve this. Leaders and the leadership styles that they have adopted have significant effects on employee achievement, and so leaders cannot ignore individual needs of their employees if they wish their employees' full contribution to the organisation and if they wish their employees feel the work they do is meaningful to them (Morse, 2003). Therefore, further research is needed in various fields to find out the relationship between leadership styles and employee motivation. The relevant literature is full of research on motivation but the number of research on leadership styles and motivation specifically in a tourism context, where the higher motivation of employees is needed as it is a service-oriented sector, is very limited. This paper is considered significant as it;

- Identifies the strategies that leaders at hospitality organisations could employ to create a motivation-increasing atmosphere,
- Adds to new understandings about the relationship between the perceived leadership styles and employees' motivation, organisational well-being.

For this purpose, five-star hotels and their employees were chosen as the research population in this study. The researcher ensured that the chosen hotels have considered effective management of their human resources could provide advantages. In other words, they claim that achieving the organizational objectives is closely dependent on the leadership styles that leaders adopt when managing the employees because the knowledge, skills, and expertise that employees have are the key elements in growing, surviving and remaining competitive in the relevant sector.

1.2 Scope of the Study

This research is limited to the employees of only five-star hotels operating in different geographical regions of Turkey as they were considered to have more mature and professional organisational management systems. The research assumed that the employees who volunteered to participate in the research had spent a significant amount of time in the examined hotels and all of them have been affected by the managerial practices which could affect their views regarding EM.

2. Literature Review

2.1 Transformational Leadership (TRFL)

"TRFL" is defined as a leadership style that aims to change individuals and the

∗ Corresponding author. E-mail address: : davutu@anadolu.edu.tr (D. Uysal).
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social system around them. In other words, this system aims to establish a positive environment within the organisation and thus this environment could raise future leaders for the benefits of the organisation (Kendrick, 2011). TRFL speaks to employees' moral values. Thus the consciousness level of employees rises, and they become prepared for reforming their institutions (Yukl, 2014). When TRFL is employed, employees develop positive feelings towards their leaders, and employees also perform better than organisational expectations. It is important to highlight here that leaders can transform their employees in three ways; increasing their employees' awareness regarding the importance of outcomes of the assigned tasks, increasing their interest for the benefit of their team or organisation, activating their higher-order needs (Yukl, 2014). Kendrick (2011) describes TRFL under four categories; Individual Consideration – making employees feel that their contributions to the organisation are unique, idealized Influence **–** when a healthy relationship between leaders and employees begin following the establishment of trust, Intellectual stimulation – leaders expect employees to come up with innovative solutions, inspiring motivation – the leader shows employees what is the right path or right thing to do.

2.2 Transactional Leadership (TL)

Burns (2010) defined TL as a work-related relationship in which a bidirectional interaction between managers and employees are encouraged. Burns went on to claim that the aims and objectives of the organization adopting this leadership style are the priorities of organisations for transactional leaders and they make it clear that these aims and objectives have been understood by every employee very well. Such leaders tend to ignore the private interest of employees, and they do not care about their emotions. They have a very clear style, and they make employees feel that if they do something they will get something. Burns (2010) claims that this kind of leadership is a "favour-for-favour" exchange. In other words, it is a kind of trade-off of wants, and the primary purpose is the satisfaction of all parties involved in the interaction at the organisation in achieving organisational objectives. The leader adopting this style insists on properly performing the assigned tasks without any exception. This type of leadership has three sub-categories; a- Contingent Rewards b- Management by Exception (passive) and c- Management by Exception (active) (Burns, 2010).

2.3 Laissez-Faire Leadership (LFL)

LFL style, which is also known as delegative leadership, is about avoiding responsibilities and involvement in decision-making (Luthans, 2011; Robbins and Judge, 2013). The leaders adopting an LFL style avoid working with employees that they are responsible for. Therefore, it has always been difficult to observe their leadership style within organizations. The leaders adopting this style are considered passive leaders (Hinkin and Schriesheim, 2008). Therefore, their management style negatively affects employees' performance (Judge and Piccolo, 2004). Such leaders are more likely to put a distance in their social relationships with their employees as they usually avoid interacting with their employees, which also negatively affects businesses and their operations. As such leaders tend to avoid from their employees, they rarely face the business needs and organizational goals and objectives, so businesses tend to fail to satisfy higher expectations. Concerning this, Hinkin and Schriesheim (2008) state that laisser-faire leaders are closely related to absent leaders. Laisser-faire leaders avoid their decision-making responsibilities and thus leave some of their leadership responsibilities to their employees. As a consequence of this, their employees do not consider them as their leaders rather they consider them as the authority assigning the work-related tasks. However, Wong and Giessner (2016) claimed some positive aspects of this type of leadership. Similarly, Chaudhury and Javed (2012) agreed with that claiming that when leaders and employees have equal motivation and expertise through the application of LFL, the organisation could most benefit from this situation.

2.4 Employee Motivation (EM)

The word "motivation" is rooted from the Latin-origin word "mover" meaning "to move". Motivation is defined as "the process that accounts for an individual's intensity, direction, and persistence of effort toward attaining a goal" (Robbins, 1994). Bartol and Martin (1998) claimed that motivation is "the forces that energize behaviour, gives direction to behaviour and underlines the tendency to persist". In almost all definitions, motivation is closely linked to some words such as "effort". Motivation is also linked to success at work or achievement of organisational goals (McClelland, 1985; Miner, Smith and Bracker, 1989). Some research highlight that work-related values can influence the satisfaction levels of employees from their jobs (Chaves, 2001).

A leader could also be defined as someone motivating employees to achieve a shared objective (Sougui et al., 2017). Organizations need enthusiasm as an effective means of motivation to fulfil their goals. Based on this fact, it could be concluded that satisfaction of individuals' needs could increase their motivation (Haque, Haque and Islam, 2014). Haque, Haque and Islam (2014) also claimed that motivation is closely related to achieving organisational goals. With the help of motivation, employees' voluntary actions could be directed to the benefit of the organisation (Mitchell, 1982). Motivation is a fact which could change from person to person, and it could even change within the same individual (Robbins and Judge, 2013).

To be able to fully comprehend what motivation is, motivation theories should be understood well. Mayo, McGregor, Maslow, Vroom and Hertzberg have contributed to the field of motivation theories (Davis, 2004). Maslow suggested one of the most popular theories on motivation, which is named as the Hierarchy of Human Needs Theory (Huit, 2002). This theory claims that people's needs could be ordered as physiological, safety, belonging, self-esteem and self-actualization. Grensing-Pophal (2002) claims that the first of these levels need to be satisfied, and then people need to move to the next level. This chain improves in this way from the first level to the fifth level, which is the final level. Meeting the psychological needs used to be considered enough in the past, but today people tend to have higher needs that they feel they have to satisfy (Creech, 1995),

Another theory on motivation is the theory suggested by McGregor, and it is named as the X and Y Theory. This theory puts people into two groups; X group interested in rewards and compensation and the Y group who is self-directed and needs further challenge (Cited in Grensing-Pophal, 2002). Herzberg (1993)suggested another theory on employee motivation and grouped motivation into two as motivators and hygiene. Hygiene factors are about the extrinsic motivators, and the motivators are intrinsically oriented (Herzberg, 1968). Vroom (1964) suggested the Expectancy Theory for work environments. This theory claims that employees tend to choose one specific behaviour rather than another considering that the chosen behaviour will bring about positive and wanted outcomes. All of these theories still seem to be valid for motivation at today's work environments (Davis, 2004), and the focus in today's work environments is on intrinsic factors influencing employees' motivation (Kotter, 1999; Wheatley, 1999).

Motivation could direct employees in the right direction and help them meet their basic human needs (Kotter, 1999). Different leadership styles have been claimed to have affected employees motivation (Root, 2015). Root (2015) claimed that Autocratic leadership could be beneficial in quick decision making, and thus employees could feel more comfortable and more motivated. Root (2015) claimed that Democratic leadership helped employees feel included in decision-making processes and valued. Root also claimed that in Quiet leadership style, managers delegate some of the qualified employees and thus they feel empowered. The last styles that Root (2015) discussed are the TRFL style in which managers establish a clear vision for the organisation (employees as well), and they are expected to achieve the set vision.

As suggested by Hislop (2003), companies are dependent on their employees to survive in their sector and to succeed in their goals. Similarly, Michie, Oughton and Bennion (2002) claimed that motivated employees are keys for the productivity and quality of the work done. Michael and Crispen (2009) suggested that a motivated workforce leads companies to competitive advantage and higher productivity. Motivation leads employees to higher performance and best work, by saving time and effort (Michie, Oughton and Bennion, 2002; Michael and Crispen,2009).

2.5 Relationship between Leadership and Motivation

Leadership and motivation have caught significant attention in the literature on management (Schaffer, 2008) and they have been often used two collocating words (Sougui et. al., 2017). Leadership, as mentioned before in this paper, has been defined as the ability to influence group members to get the highest productivity from them (Schaffer, 2008). It could be concluded from what has been mentioned about leadership and motivation is that leaders cannot be successful at an organisation without increasing the motivation of employees because motivated employees tend to perform their best in their work. Their best effort is closely related to the satisfaction of their individual needs. Therefore, leadership styles used at an organisation is supposed to directly contribute to employee performance.

As mentioned in Goal-Setting Theory, establishing reasonable and challenging goals can lead to a motivating business environment (Locke and Latham, 1990) because employees perceive that establishing organisational goals for employees is a signal for employees regarding leaders' expectations. In establishing goals, leaders are expected to be careful that the set goals are not too hard or too easy not to make employees feel that they are wasting their time on a task which they cannot complete successfully. Leadership styles could also be based on Expectancy Theory. According to this theory, the individual level of

expectation could contribute to their motivation (Van Eerde and Thierry 1996). In such cases, employees have a strong will to meet their personal goals.

3. Method

3.1 Purpose of the Study

The results to be obtained with this study are expected to determine which organizational leadership styles should be adopted to make hotel employees more motivated and committed to their organizations and thus to increase the sense of trust and loyalty to their organizations. This will also help such organizations in the relevant sector to manage the challenges regarding employee retention in the competitive world and delivering the highest quality services in the sector. This research aims to find out the possible relationship between leadership styles and employees' motivation. For this purpose, the following research hypotheses have been developed in the study;

H1: There is a significant relationship between transformational leadership (TRFL) style and employee motivation (EM).

H2: There is a significant relationship between transactional leadership (TL) style and employee motivation (EM).

H3: There is a significant relationship between laissez-faire leadership (LFL) style and employee motivation (EM).

3.2 Research Design

This paper adopted a cross-sectional and descriptive survey design in the data collection to find out the relationship between three leadership styles and EM. This research used primary data sources because the paper focused on the human aspect. The data were gathered from a sample of employees in the chosen five-star hotels through online closed-ended questionnaires.

3.2 Sampling

This research was conducted at some five-star hotels of Turkey regardless of their geographical regions. The target population of the study was chosen as the full-time employees working at the five-star hotels. The number of certified 5-star hotels was found to be around 720 (TURİZMAKTÜEL, 2020). Each of the hotels was predicted to currently employ about 100 employees and the research population was calculated to be about 72.000. Based on this figure, the sample size was planned to be at least 383 employees from the chosen hotels (Cohen, Manion and Morrison, 2000). The convenience sampling method was employed in the research because of cost and time-related concerns. The managers and human resource (HR) departments of the accessed hotels was sent a personal e-mail and phoned through the contact numbers available on the corporate web sites. The accessed managers or HR responsible were briefed about the aim of the research, its possible outcomes and the methodology of the study. They were made sure that all the data collected regarding their organisation will be kept confidential. They were requested to share the contact numbers of their employees or share the link of the research questionnaire in their organisational communication platforms. They were allowed to check the content of the questionnaire first, and they were provided with any detailed explanation upon their request. After that, all employees whose contact details were taken from their managers or HR departments were sent an e-mail with the link of the research questionnaire. Each participant was also provided details about the research, aims and procedure as done for the managers and HR responsible. They were told that it was optional to complete the questionnaire. The questionnaire was planned to take 10-15 minutes, and the survey was administered between June and July 2020. Before the administration of the general survey, a pilot study on 10 participants was carried out to see if there is any further revision in the questionnaire. Relevant revisions were made on the questionnaire based on the received feedback and the questionnaire was finalised.

Questionnaire technique is the most commonly preferred tool for data collection in such research. The questionnaire was designed to be a close-ended questionnaire. The reliability of the questionnaire was also conducted. Reliability is often used to refer to random errors in the measurements. Reliability indicates the accuracy of the research instrument used in the measurement (Norland, 1990).

The questionnaire used in data collection was designed to measure different variables:

1. Part A Measured Demographic details
2. Part B measured Leadership Styles (under three factors)
3. Part C measured Employee Motivation

To conclude the results, correlation analysis and descriptive statistics were applied. The analyzed data was then interpreted to infer relevant conclusions and to report the findings in line with the objectives of the study.

3.3 Research Instrument

This study was designed as a descriptive research and administered as a self-administered questionnaire. The relevant literature on leadership style was reviewed in detail by the researcher, and Multifactor leadership questionnaire (MLQ) which was developed by Bass and Avolio (2000) was chosen as the most appropriate data collection instrument in the research. A pilot test was also conducted to make the research tool more effective. The basis of the MLQ was developed from Bass's (1985) Augmentation Theory of TLl and TRFL. For data collection regarding EM, the motivation scale (MS) used in the research was taken from Mengesha (2015). In this study, participants were asked to rate their managers as their leaders considering their managerial behaviours. The MLQ form was employed to measure the TRFL, TL and LFL style. This research included only 21 items from the Multifactor Leadership Questionnaire and 10 items from the MS. Each item of the scale was rated on a 5-point Likert scale, which ranges between 1 (Strongly Disagree) and 5 (Strongly Agree).

The validity and reliability of the MLQ and MS were tested and empirically validated in the relevant literature. When the results of the relevant research conducted on different organizations, the used questionnaire were found to have a satisfactory level in terms of internal consistency (Bass and Avolio, 2000) as the reliability score was above .70 (see Table 2), which is the standard reliability cut-off score as suggested by Hair et. al. (2013).

4. Analysis and Results

When the data collection was completed, the collected data were transferred to SPSS 22.00 program for relevant statistical analyses. The data was first submitted for normality test before further tests. The normality test revealed that the Skewness value of the data was -,248 and the Kurtosis value was -,924, which indicated that the collected data had normal distribution as Skewness and Kurtosis values ranged between -1 to +1. (Hair, Black, Babin and Anderson, 2013). Then descriptive analyses were performed on the data. Of the 385 respondents, 78 were found to be female and the remaining 307 male. The questionnaire was administered as an online questionnaire, and no respondent was allowed to leave any of the items blank before submission of the questionnaire.

The items asked in the questionnaire to determine the leadership styles at the hotel organisations and employees' motivation level are given in Table 1.

Table 1. Items on the leadership styles and motivation scale

TRFL
S/he makes others feel good to be around him/her
Others have complete faith in him/her
Others are proud to be associated with him/her
S/he expresses with a few simple words what we could and should do
S/he provides appealing images about what we can do
S/he helps others find meaning in their work
S/he enables others to think about old problems in new ways
S/he provides others with new ways of looking at puzzling things.
S/he gets others to rethink ideas that they had never questioned before.
S/he helps others to develop themselves
S/he lets others know how S/he thinks they are doing
S/he gives personal attention to others who seem rejected
TL
S/he tells others what to do if they want to be rewarded for their work
S/he provides recognition/rewards when others reach their goals
S/he calls attention to what others can get for what they accomplish
S/he is satisfied when others meet agreed-upon standards
As long as things are working, S/he does not try to change anything
S/he tells others the standards they have to know to carry out their work
LFL
S/he is always content to let others continue working in the same ways.
Whatever others want to do is OK with him/her
S/he asks no more of others than what is essential
Motivation
Motivating others and being a good role model for her/his staff contributes towards excellence within the organization
Developing staff and creating opportunities for them to grow in their job is an integral part of her/his job
Providing staff with vision through clear goals and objectives is an important part of the job for her/him
S/he really feels as if this organization's problems are his/her own and make a constant effort to pursue the corporate mission and targets
S/he is able to personally identify with the organizational mission
Rewarding good performance is a very important part of his/her job
S/he believes in empowering staff to take charge of their own development
S/he is very proud of having a high level of personal job satisfaction
Personal development and need for achievement are more important for his/her than the needs and goals of the organization as a whole
S/he welcomes others constructively criticizing our work as it provides a learning opportunity

The reliability scores of the scale used in the research are given in Table 2 below. As could be seen, all of the scales were found to have a score above 0.70 and highly reliable (Hair et. al., 2013).

Table 2: Reliability Statistics for the Research Scales

Scale	Cronbach's Alpha	No. of Items
TRFL	0.84	12
TL	0.88	6
LFL	0.78	3
EM	0.89	10

The mean of participants' ages was found to be 30.07. Of the 385 participants, 37 of them were found to be in a managerial position, and the rest of the participants were found to be in a non-managerial position. Of all the participants, 120 of them were found to have a higher education diploma whereas the rest was found to have a diploma of high school and below. The average year of experience in the sector was found to be 5.

4.1 Hypotheses

The first hypothesis of the research predicted that there is a significant relationship between TRFL and employees' motivation level. Therefore, Pearson Correlation statistics were conducted on the data to find out any significant relationship. The independent variable was taken as TRFL and the dependent variable was taken as EM. As could be seen in Table 3 below, there is a significant relationship between TRFL and EM (r=.469, p <.000).

Table 3: Correlation analysis between TRFL and employee motivation

		EM	TRFL
EM	Pearson Correlation	1	,469**
	Sig.		,000
	N	385	385
TRFL	Pearson Correlation	,469**	1
	Sig.	,000	
	N	385	385

**. Correlation is significant at the 0.01 level.
EM= Employee Motivation, TRFL= Transformational Leadership

The second research hypothesis developed in the study predicted that there is a significant relationship between TL and EM. Pearson Correlation statistics were performed on the data to find out any relationship. The independent variable was set as the TL variable and the dependent variable was set as the EM. As could be seen in Table 4 below, no significant relationship was found between TL and EM (r=-.079, p<,266)

Table 4: Correlation analysis between transactional leadership and employee motivation

		EM	TL
EM	Pearson Correlation	1	-,079
	Sig.		,266
	N	385	385
TL	Pearson Correlation	-,079	1
	Sig.	,266	
	N	385	385

EM= Employee Motivation, TL= Transactional Leadership

The third hypothesis of the study predicted that there is a significant relationship between LFL and EM. Pearson Correlation statistics were performed on the data as done in the other hypotheses of the research. The independent variable was set as the LFL and the dependent variable was set as the EM. As could be seen in Table 5 below, no significant relationship was found between LFL and EM (r= -,191, p <,065).

Table 5: Correlation analysis between laissez-faire leadership and employee motivation

		EM	LFL
EM	Pearson Correlation	1	-,191
	Sig.		,065
	N	385	385
LFL	Pearson Correlation	-,191	1
	Sig.	,065	
	N	385	385

EM= Employee Motivation, LFL= Laissez-faire Leadership

5. Discussion

The findings of this research supported the hypothesis suggesting that there is a significant relationship between TRFL and EM at hotel organisations in Turkey, where this study was conducted. However, the findings have not supported the hypotheses suggesting that there is a significant relationship between TL, LFL and EM. This finding is partly in line with those claimed by Bass and Avolio (1994). This finding also partly supports Bass' Augmentation Theory, which claims that leaders are both transformational and transactional. The significant relationship between TRFL and EM, as found with this study, could also be supported by the fact that TRFL tends to focus on individuals and their traits more than other leadership styles. As claimed by Carlson and Perrewe (1995), when TRFL is adopted at an organisation, employees tend to focus on their self-interest less, and they try to be more beneficial to their organisations, which are the hotel organisations in this case.

This study suggested that there is a significant relationship between consideration of individuals and EM, and this finding is consistent with the research suggesting a significant positive relationship between TRFL and EM (Avolio, 1999; Bass, 1998; Chiok Foong Loke, 2001; Shim et al. 2002; Waldman et al 2001). With this study, TRFL was found to have a significant relationship with work motivation. Therefore, it could be claimed that the results obtained with this study confirm the findings of the earlier research in the field, the definitions suggested for TRFL in the relevant literature and the claims that majority of respondents considered their heads transformational (Bass, 1998; Avolio, 1999). The finding of this research also supports the literature claiming that leaders adopting TRFL style affect their followers and encourage them to move from caring for their self-interest to a focus on organisational interest (Bass, 1998).

5.1 Conclusion

This paper focused on how adopted leadership style could affect EM as a determinant of employee performance. The relevant literature strongly claims that leadership style is a significant determinant in employees' motivation and organisational success. This study tested this view in some hotel organisations, which are the key elements of the tourism sector in all countries. Based on the findings of this study, it could be concluded that leaders' consciousness level should be raised about the roles and significance of the adopted leadership style in managing employees effectively and achieving organisational goals. Thus hotel organisations, as service delivering organisations, could deliver higher quality services to their clients with the effective use of leadership styles to have more motivated employees. Organisations, as should be in all sectors, could develop some training programs for their supervisors and leaders and their leadership behaviours could be improved for the benefit of the host organisation as well as the customers receiving their services. In such training programs, employee and organisational needs could be focused. As found with this study, leaders of our quick-changing era and business environment are recommended to adopt a TRFL style to improve their employees' work performance and organisational success. Another conclusion of the research, based on its findings, could be that leaders of hotel organisations adopting TRFL style are more likely to establish a motivation-increasing atmosphere in their work environments.

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Davut Uysal, ORCID ID: 0000-0001-8241-4407, is a full-time lecturer at Anadolu University, School of Foreign Languages, Eskişehir, Turkey and has been teaching English at varying English proficiency levels for about 20 years. Dr. Uysal earned his BA and MA degree in English language teaching at Anadolu University (Eskişehir, Turkey) and earned his PhD in Tourism Management from Eskişehir's Osmangazi University. His PhD dissertation was on English curriculum development for higher education tourism students based on their needs. He has focused on designing outcome-based English courses and course materials, developing outcome-based English assessment tools and needs analysis. He is also interested in asynchronous learning. He has been an active member of the Proficiency Unit at his department and contributed to the development of many English proficiency and placement exams. He has participated in many international conferences on English teaching and tourism management. He has also received training on curriculum development, developing assessment tools, web-based teaching application and integration of technology into learning environments. He is also the author or co-author of several publications. He is also interested in, besides English for Specific Purpose (ESP), vocational English, tourism management, crisis management in tourism and destination management.

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Understanding COVID-19 virus pandemic in terms of behavioral economics in terms of how people think and learn

[a*] Serkan Kunü, [b] Seçil Duran
[ab] Iğdır University,, Faculty of Economics and Administrative Sciences, Iğdır, Turkey

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ABSTRACT

The COVID-19 pandemic is an active extreme acute respiratory virus syndrome (SARS-CoV-2). It has many effects on many areas ranging from education to culture to economics. However, it can be said that the most important effect is on economics. The outbreak has become the world economy's most destabilizing threat so far. For example, Tourism is among the worst affected industries impacted by travel restrictions, public area closures. Hundreds of millions of jobs could be lost globally. In this context, it is important to examine its economic effects in terms of different perspectives. One way of looking at COVID-19 pandemic can be based on behavioral economics. Although in traditional economics, while the individual is defined as being purely self-interested and at the same time callous, acting for maximum benefit, behavioral economics theory aims to highlight the human factors such as anxiety, fear, risk aversion, motivation, and happiness in the economic decisions. Rather than examining the COVID-19 pandemic based on purely monetary terms, it is important to investigate it in terms of psychological and economical effects to attain a more realistic picture. This study is of great significance for the literature since the application of behavioral economics principles to guiding human behavior is discussed. In this regard, the paper aims to examine the COVID-19 pandemic in the context of behavioral economics. The data analysis is based on a literature review. The sample of the study consists of documents containing the concepts of COVID-19 virus and "behavioral economics". To sum up, we have long known that the cause for change is learning. Hence, if we learn how learning occurs, we can propose some models to increase public awareness regarding the pandemic. In this respect, behavioral economics can give some insights into this issue. According to our results, nudging people towards positive health choices is a successful method of encouraging not only cost-efficient intervention but also healthier behavior. Additionally, biases such as status quo bias, optimism bias, loss aversion, affect heuristic, social contracts can be used to guide to enable people to take more preventive measures. Information is also an important factor for acknowledging the public sick leave is an important issue that will affect the current social contract.

I. Introduction

Economics has emerged as a social science discipline crossing with many different fields and their unique methods. It is a broad discipline influenced by social and natural sciences, including sociology, anthropology, psychology, neuroscience, and evolutionary biology (Baddeley, 2019). Behavioral economics examines the effects and consequences of psychological factors in economical behavior, decisions, and choices. It carries out theoretical, analytical, empirical, and experimental studies, mostly dealing with mental errors. Therefore, theories, analytics, empirical and experimental studies are conducted, mainly about insufficient mental capacity and incomplete information. The starting point of behavioral economics is the idea that the "rationality" assumption prevailing in traditional economics is not always and everywhere hold on (Aktan, 2018). The neglect of psychological considerations in economics has led to individuals being regarded merely as rational beings, sometimes as a kind of machine. Moreover, the unreasonable aspect of human beings has been drawn to various field studies such as neuroscience, anthropology, and sociology. Therefore, the results from various disciplines, particularly in the field of psychology, are of interest to new economic models (Eser & Togonbaeva, 2011).

In traditional economics, whereas the individual is defined as being utterly utilitarian and at the same time callous, acting for maximum benefit, behavioral economics theorists seek to underline the human aspects, emphasize that emotions like anxiety, terror, aversion to risk, excitement, and satisfaction influencing economic decisions (Can, 2012). For instance, emotions play a role, linking to the affect heuristic (Slovic, 2007). The belief that individuals are imperfect processors of knowledge that can make rational choices is weakened by a tendency to rely on cognitive shortcuts underpins liberal paternalism (and behavioral economics in general).

In social psychology and social science, this paradigm has a long history. The perspective that human is "cognitive misery," normally processing and reacting in a way that minimizes analytical demands but creates errors, comes straight from the perspective (Mols, 2020). Therefore, behavioral economists suggest that rational man with unlimited computing ability and full knowledge tends to have limited rational or irrational behaviors (Kapeliushnikov, 2005). Research shows that this understanding can produce healthier and more realistic results, and more realistic economic models can be proposed with stronger predictions (Ruben & Dumludağ, 2015).

The COVID-19 pandemic posed a massive global health crisis. For the first time in human history, nations globally have pushed their citizens into absolute involuntary lockouts to try to stop the death rate from approaching millions. Many firms in the world, which have been considered non-life sustaining," have been forced to shut down their doors, leaving millions of enormous workers. We also established something called social distance which means that you remain at least 6 meters far away from others. On the occasional times where we encounter people we know, we no longer shake hands, embrace, or get in touch physically (Malafarina, 2020). The 'Test, Trace, Isolate' can also have similar points. In short, the technique completely relies on the ability of individuals to be checked, supervised, and then separated. Compliance with locking and mask-wearing is therefore relevant here. A particular problem is the matter of monitoring. Many countries require people to download an application on their telephones that gathers data on their proximity to others or instead to other telephones). This knowledge will also be used by health authorities to monitor the individuals they have had contact with if anyone tests positive. But there are questions raised in this issue such as "Can the system operate by enough people?" and "Will they be

∗ Corresponding author. E-mail address: serkan.kunu@igdir.edu.tr (S. Kunü).
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pleased with the specifics of the social relationships of a state agency?" or, "Groups, who are more anti-government readily submit to this particular type of controlling 'Big Brother?'" (Jetten et al., 2020).

As an outgrowth of COVID-19 strategies, social policies are becoming a priority. Public health and schooling are rapidly in demand with raising awareness of the unequal effect on minority populations. Avoiding adoring capital and encouraging it to manipulate any decision for the benefit of the people have been come to the fore. COVID-19 has encouraged us to learn again how we can appreciate life's simplicity and note that material things are not what make us happy because we have seen that being wealthy does not mean being the best. COVID-19 virus has become a balancing force. (Matthews, 2020). It should be kept in mind that significant macroeconomic consequences over 40 years, significantly suppressing real return rates as seen in a report on the long-term economic results of the major pandemics across history. That is in contrast to wars that have the contrary effect: they destroy resources while pandemics do not – wars cause higher real interest rates and indicate higher economic activity. Consumers often appear to respond to the trauma, either because of new problems or by merely replacing the wealth lost during the outbreak (Schwab & Malleret, 2020). Hence, there's no turning out if states don't want to catch up with public health. Thus, prioritizing public health after a pandemic is politically sensitive to understand something about how the pandemic will be controlled (Guns, 2020).

The reason a pandemic is awful is that it limits our limited resources even more. Without a decline in population health or vice versa, we cannot maintain the amount of the economy we used to have. The two reasons are (1) that a pandemic breaks down our ability to sustain the same equilibrium between health and economy and (2) that our target allocation affects our decisions in the future (Gans, 2020). Therefore, change in economics result in a change in the psychology and behavior of the masses as well. Since the situation needs drastic adjustments in actions and imposes significant psychological pressure on citizens, it is important to examine the economic aspects of it in the context of psychology. We should have a psychological analysis that acknowledges that humans, not the problem, but the solution. First of all, the pandemic COVID-19 still concerns psychology of the society which is why it would be important to consider how people are feeling and grasp why the virus is reacting if we're to cope effectively with pandemic. Secondly, the pandemic concerns of particular group psychology. People are primarily a part of a society and are likely to be best influenced throughout the dark days, for the benefits of their group. However, we have to be particularly cautious about the concept of the group. We are all in serious trouble if we fall from 'we-thinking' to 'we-and they thinking. 'Thirdly, we critically need a framework to explain how individuals shape groups, how they function as groups, how they act in groups, and how groups draw their borders more or less conclusively (Jetten et al., 2020). Therefore, behavioral economics comes to the fore to better understand this subject in this context. The aim of this paper, hence, is to analyze the current crisis within the context of behavioral economics.

2. Methodology

As qualitative research is based on document analysis, this research is a theoretical review. This theoretical review adopts the characteristics in line with the qualitative research design. In particular theoretical reviews are useful where the literature is complex, multidisciplinary, or disputable (Campbell, Egan & Lorenc et al., 2014). The theoretical literature review helps to determine what theories already exist, how they relate to each other, and to contribute and the development of new hypotheses for testing (Bowen, 2009). The analysis method of the research is based on the relevant concepts of behavioral economics in the context of COVID-19 pandemic. Since it is a theoretical review based on document analysis, relevant literature was examined in the context of the keywords as behavioral economics and COVID-19 pandemic and they are synthesized in a way that a coherent theoretical framework can be proposed.

COVID-19 virus pandemic in the context of behavioral economics

One of the consequences of the COVID-19 virus pandemic is fear in social life. Some studies suggest that strong fear calls only yield the greatest change in behavior if people are experiencing a deep sense of effectiveness, whereas deep anxiety induces the highest degree of protective reactions by low-performance signals (Bavel et al. 2020). In this respect, minimization of the spread of virus is the first issue to be handled. To minimize the risk of contamination, individuals can take a social distance if they have awareness of this issue. However, they ignore the consequences they may have on people who are infected while making these decisions (Guns, 2020). Therefore, rather than pumping risk culture, both governments and media enable people to feel a sense of efficacy not by disregarding relevant measures. What governments and we can do can be given as below (Kinder, 2020):

- Continue to work to diversify the ways we reach out to people, children, and their families,
- Prepare ourselves to receive them individually and professionally on the return to their job, school as soon as possible,
- Put together plans to allow all of us to connect and nurture those who are most insecure and vulnerable and,
- Make sure we are solid, energized, and linked ready,
- Help each other in fresh, trauma-informed ways, our students, and their families.

However, those suggestions are very abstract, and we need to make concrete strategies that can be found in behavioral economics. Therefore, we investigate some biases that are focused on behavioral economics to more effectively use public campaigns.

2.1. Present Bias

Humans prefer short-term gains, and these are called present biases, that appear to take part and lend more importance to knowledge that is readily available than information that is not available (Tversky & Kahneman, 1973). For example, politicians may use the availability bias to send people a list of behavioral choices where certain habits they want people to participate in are prominent, while they are less prominent or lacking in them (Mols, 2020). The strange phenomenon of toilet paper hoarding provided some light relief from shocking headlines about COVID-19's brutal spread across the globe, but hoarders' unusual buying patterns, for example, the panicked buying of toilet paper, is difficult to explain in purely economic terms but it can be explained by present bias. It does not suit well to presume that toilet paper hoarding is the product of sound planning choices believed in traditional economics because some individuals have bought vast amounts and trying to return them to shops within weeks (Baddeley, 2020).

In unpredictable circumstances, people prefer to make judgments on the grounds of potential risks instead of the real catastrophe itself (Slovic, Fischhoff, & Lichtenstein 1980). Such destructive incidents (e.g., snowfall, tornados) in which consumers unusually purchased high quantities of stocks in fear of possible future shortages demonstrated the same pattern of customer panic buying (Yoon, Narasimhan &Kim 2018) just as Zizek (2020) emphasized:

> *"Panic has a logic of its own. The fact that, in the United Kingdom, due to the COVID-19 virus panic, even the toilet paper rolls disappeared from the stores reminds me of a weird incident with toilet paper from my youth in Socialist Yugoslavia. All of a sudden, a rumor started to circulate that there, not enough toilet paper was available. The authorities promptly issued assurances that there was enough toilet paper for normal consumption, and, surprisingly, this was not only true, but people mostly even believed it was true. However, an average consumer reasoned in the following way: I know there is enough toilet paper and the rumor is false, but what if some people take this rumor seriously and, in a panic, start to buy excessive reserves of toilet paper, causing an actual shortage? So, I better buy reserves myself. It is not even necessary to believe that some others take the rumor seriously—it is enough to presuppose that some others believe that there are people who take the rumor seriously—the effect is the same, namely the real lack of toilet paper in the stores. Is something similar not going on in the UK and California today?"*

The trouble with availability is that decision-makers have overweight immediate and observable advantages and costs, as well as underweight retarded advantages and intangible costs. This is often related to economic behavioral observations into the existing preconditions – the propensity to extreme short-termism (Baddeley, 2020). Therefore, present bias can be used also to guide people to act following the COVID-19 precautions. We need judgment mechanisms to avoid relying on current events and events which are easy to remember in the fighting against availability biases by asking ourselves questions such as "Does the present COVID-19 virus pandemic look like the previous pandemics?", "Are the causes, signs, or results identical?" or "Is our emotional reaction, our gut instinct then forces us, where none exist to draw patterns?".

In the case of COVID-19, the inability to adhere to stay-at-home policies involves a balance between going to the mall or restaurant now (current benefit) and the potential possibility of COVID-19 contracting in the future (uncertain costs in future). Uncertain future costs imply not every excursion outside the house would lead to a COVID-19 infection. Therefore, individuals with present bias who prioritize here and now are less inclined to conform with COVID-19 avoidance actions, like sitting at home and washing hands. Therefore, reducing the current costs of adherence to social distancing may help people overcome their present bias. To motivate individuals to stick to COVID-19 protective conduct such as providing free internet access at home, temporary suspension of loan repayments, etc. can be useful to overcome present bias in this regard (Soofi, Najafi, & Karami, 2020). Politicians could restrict their present bias tendency by passing legislation demanding an assessment of the impact on saved lives or life-years to support policy responses. Leaders may even improve their commitment to such steps as compulsory quarantine by encouraging their electorates' future thinking (Halpern, Truog & Miller, 2020). In the light of the COVID-19 pandemic, it is more possible that people perceive the sequence of COVID-19 more seriously in terms of mass media coverage so they can more readily remember these harmful effects of COVID-19. To address the state of panic or widespread anxiety, cases of recovery can be presented much more than the cases of infection and mortality. Indeed, the results show that survival rates are far higher than the death or illness incidence (Gaurav, 2020).

2.2.Status quo bias and Nudges

Status quo bias is an emotional bias; a preference for the current state of affairs. A reference point is a current standard (or status quo) and any deviation from it is viewed as a loss. We will never get out of bed if we had to make a deliberate decision. The default is usually accepted[1]. This bias can be used to encourage health improvement by using "nudges." A nudge is any minor aspect that catches our interests and affects our actions in the environment. Nudging takes advantage of our biases and heuristics to direct our choices in a certain way without even understanding we are being driven. Therefore, judging makes us act 'reflexively', rather than 'reflectively'.[1]. In behavioral psychology, the principle of "nudge" was developed to encourage individuals to act rationally and make wise choices (Soofi, Najafi, & Karami, 2020). Nudges use psychology to direct people in making specific choices by designing architectures of choice that frame or highlight options. Initially, the positive behavioral change appears to follow as we begin with infrastructural changes that create attractive and safe environments to interact. It should be reminded that behavioral change does not inherently require altering the climate of the environment, but rather interventions that target psychological barriers such as lack of attention, lack of motivation to change behavior, and poor habits (Meder, Fleischhut, & Osman, 2018). In this way, the Western world's policymakers have used a series of tried and tested nudges to support people in recycling, retirement, and donating organs. Evidence shows that when dealing with comparatively uncomplicated political problems, this strategy can be very successful. Although in dealing with complicated (such as sophisticated) policy challenges, this usefulness is less well-proven (Mols, 2020).

Concerning COVID-19 policies on avoidance, citizens are often motivated by organizing standards in the setting under which COVICD-19 decisions are taken under hygiene activities such as frequent hand washing (Soofi, Najafi, & Karami, 2020). Institutions can build their places of work such that staff may conveniently obey the rules of physical space because the most likely location where you get infected is by a friend or relative who brought them into your house. It's because you have plenty of face-to-face interaction indoors while you are home (Mosley, 2020). Transmission of SARS-CoV-2 infection; The duration of exposure varies depending on the use of personal protection measures and personal factors. The risk of contamination increases especially in close contact, long-term contact, and indoors. Most secondary infections occur in households, healthcare workers who do not use personal protective equipment, or in prisons, homeless shelters, elderly care centers (Geren, 2020). How rapidly an infection is spread from person to person depends on the scale of an outbreak. While the studies have only just begun, scientists expect that any person with the new COVID-19 virus could infect 1,5 to 3,5 people elsewhere without effective containment measures (Osler, 2019). Thanks to smart detective work, Chinese researchers have been able to show just how easily the virus can spread in a restaurant. The following sketch illustrates the architecture in a restaurant in Guangzhou, China of a single bed. On the 24th of January, the guy called A1 and who had no symptoms then came from Wuhan into Guangzhou and had lunch with his family in the restaurant. He felt sick and went to the nearest hospital later that evening, where he checked COVID-19 positively.

Within a week, COVID-19 was also positively evaluated by four other family members, including five other individuals who were at the same time in the restaurant sitting at Tables B and C. The restaurant was air-conditioned, and the fan was well ventilated. No one in tables E or F seems to be infected, maybe because they have been out of the principal airflow (Mosley, 2020).

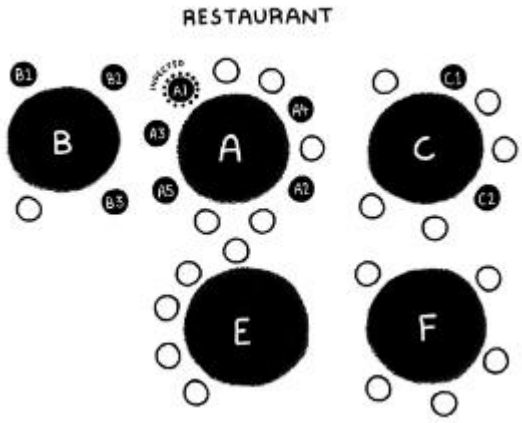

Figure 1: The spread of a virus in a restaurant (Mosley, 2020).

Therefore, we should remove chairs instead of waiting to be in any other position, and schedule "in" and "out" doors and surprising times, instead of waiting for any employee to deliberately keep 6 meters away[1]. Behavioral economics provides a basis for the impact on human decisions and choices in health and safety (e. g. framing effects, moral appeals, defaults, and position effects) (Li & Chapman 2013). For example, Dellaria gives some suggestions in markets and offices in the context of nudges as follows[1]:

- The mixture of simple foodstuffs for each aisle might prevent gathering and long lines of the people who wait to collect those items instead of getting a single product group per aisle (eg, the bread aisle, the canned food aiola, etc).
- Indicating the safe distance by taping it on the floor to ensure that people are in line and comply with safety precautions correctly.
- Developing packets of required items that can quickly be taken and charged by customers, speeding up turnarounds.
- Creating smooth routes in shops to eliminate congestion without sharp turns.
- Playing messages through the speakers with tips and useful information about how to ensure shopping is secure for all customers will help the shoppers always get the right information.
- Replacing the handles, buttons, and other surfaces that come in direct contact with the hands of consumers.
- Resorting to hybrid practices by keeping certain workers at the workplace and others at home or making up unique weekly plans to allow a safe number of people just to go to the office for some days.
- Creating makeshift areas as soon as the workers reach the office, they enter the first area in a locker style in which they are allowed to wash their hands and disinfect their property, often even to change into clean clothes to have super-safe access to the office.

Secondly, the output of a nudge depends on the context where there is extensive literature on which contexts are especially conducive to different types of nudge. To solve the same issue to specific demographic subgroups, successful behavioral change needs a variety of strategies or certain variations of interventions. It should also be remembered that the impact of behavioral action may be diminished or neutralized by opposing factors in the environment. In this sense, politicians and regulators must be mindful of counter-sensitive powers, which may implement unconvincing measures of behavioral modification that ultimately eliminate any significant changes in conduct.

Similarly, compensation effects targeting mostly on a certain part of the decision context, by ignoring several additional variables within the larger system, will weaken intervention strategies unless supported by "hard" policy instruments (taxes, restrictions, mandates) which seek to compensate for more significant environmental considerations (Soofi, Najafi, & Karami, 2020). As far as the policy response from COVID-19 is concerned, it is worth noting that the majority of interventions in Turkey are not nudges. People are not being nudged into a lockdown. They are being told what to do. However, these measures with nudges can only ensure compliance[1].

2.3. Optimism bias

"Optimism bias" is also a problem that leads to an underestimation of the risk posed by the virus, particularly where there are no reported cases in one's community[1]. An 'optimism bias' is a cognitive bias that causes someone to believe that they are less likely to experience a negative event. In other words, the tendency of people to predict outcomes that are consistently more positive than observed effects is high and neurally mediated (Halpern, Truog, & Miller, 2020). Although hope can be beneficial in suppressing harmful feelings, it may overlook people's risk of catching a disease and therefore disregard alerts of safety (Bavel et al. 2020). Too much optimism and ignorance can also be very dangerous for future outcomes. For instance, hospitals cannot handle so many sick people at one instant and the health system may even be collapsed (Soofi, Najafi & Karami, 2020).

There are misunderstandings over the fact that virus infection enhances one's immune system, that it is just the flu" or that it is strong enough to deal with it in particular among young people. This "overconfidence effect" is paired with the inability to care and at least 20 to 30 seconds on the value of washing hands[1]. Feedback from peer comparisons or the correct communication of threats can help to tackle optimism and overconfidence. It can encourage citizens to stick to protective behavior, by explaining what happens to persons or groups who are considered peers (Soofi, Najafi & Karami, 2020). Focusing on mutual feelings in times of distress is as vulnerable as possible to over-simplicity. This is particularly the case for an overall infodemic where people worldwide behave as customers as well as information producers. Although we like to see ourselves as logical people, much emotion affects both consumption and production phases. Pribram (2019) believes in the reality that "collective emotion" and after-effects of meaning-making" are not to be grasped by cognition but by an interpretation of sociocultural influences (Akar, 2020). Therefore, without increasing fear of culture, individuals should learn rational ways of living with such a pandemic. In this context, it should be taken into account that respond much more to a story than to statistics. Companies should attempt to inspire workers through stories of successful attempts to reduce the danger of the COVID-19 virus. Case studies by other reopening organizations, rather than summary local epidemiological conditions, will be more motivating[1].

2.4. Loss aversion

Loss Aversion which indicates that humans hate losses much more than they like gains can be used for COVID measures. The advantage (i.e., gain-framed message) in conducting such actions may be emphasized in a health message or the disadvantages (i.e., loss-framed message) of not engaging in such behavior may be illustrated. In other words, health messages that are framed with the benefit (i.e., 2/3 probability no one is saved) can promote risk-averse preference, while health messages containing the loss-framed context can encourage risk-seeking (Kim, Giroux & Gonzalez-Jimenez et. al., 2020). However, focusing on gains might significantly be more likely to increase preventive behaviors than those framed as losses. Health messages designed to encourage people to adopt preventive behaviors of COVID-19 (for example, social separation) should seem to be framed in terms of gains (Soofi, Najafi, & Karami, 2020). Research reveals that gain-framed messaging helps people keep their health and diseases safer in stimulating preventive comportments, whereas loss-framed messages help them recognize the existence of the disease (Kim, Giroux, Gonzalez-Jimenez et. al., 2020). The hypothetical COVID-19 expectations and emotional reactions were studied in Hameleers (2020), who discovered that loss-framed messages boost risk-saving policy action with a response framed as life-rescued (gain) that leads to risk-averse strategic action.

However, some studies have shown no change when comparing the efficacy of losses and benefit in framing the emerging COVID-19 pandemic in their aim to follow recommendations or adjustments (Sanders, Stockdale, Hume & John, 2020) implying that mixed strategies including both loss and gain messages could be useful for dealing with loss aversion

2.5. Affect heuristic

Affect heuristic is a tendency of a person to judge risks and benefits based on their impact, that is, various effects can produce different perceptions of risk and benefits. In particular, when people are positive about behaviors, they consider their risks to be low or their benefits to be high (Soofi, Najafi, & Karami, 2020). Fear is one of the most commonly used emotional appeals in health communication related to avoidance, with a view to frightening viewers by stressing the adverse consequences on health when message recommendations do not adhere (Nabi 1999; Kim, Giroux, Gonzalez-Jimenez et. al. 2020). Finucane et al. (2000) showed that the more emotional impact a given risk has, the greater the risk itself seems. A recent study has shown fear as a significant indicator of avoidance during COVID-19 pandemics (Harper, Satchell, Fido & Latzman, 2020). A personal sense of risk for infection is expected that the early stages of the pandemic will be more likely to indulge in handwashing and social dissociation (Wise et al. 2020). This argument is confirmed by Zettler et al. (2020), who reported on a higher degree of acceptance of governmentally imposed personal constraints in the HEXACO personalities realm of emotionality (characterizing the exaggerated level of distress, apprehension, and emotional reactivity). Therefore, keeping individuals from infecting with the current SARS-CoV-2 COVID-19 virus demands that health communications be filled with distinct emotion that triggers avoidance (e.g., social distancing). When fear is evocated, the recipient is encouraged to react and respond to the message suggestions (Nabi 1999; Kim, Giroux, Gonzalez-Jimenez et. al. 2020). This heuristic suggests that attempts taken by politicians to build adverse emotions to discourage COVID-19 avoidance can increase the perceived risks associated with not adhering (Soofi, Najafi & Karami, 2020).

2.6. Social standards

Social standards and the attitudes of individuals including peers, families, and employers affect behaviors. Several previous studies have demonstrated that certain ways are likely to be taken to improve individuals' resiliency to COVID-19. It can be concluded that groups and related social features – both previously and as a consequence of the virus – prove a critical mechanism for alleviating traumatic stress symptoms (Muldoon, 2020: 72). Herding is when people regard one behavior as good or bad based on others' behavior and imitate their behavior that they observe. Recruiting social influencers inside the organization may be more successful in trying to implement progressive initiatives than the head of human resources officer's stand-alone efforts[1]. Therefore, it might improve adherence to policies for social distance by advising citizens that "most citizens in your neighboring town or province obey social distance/stay in the house." (Soofi, Najafi & Karami, 2020).

The first error hindering effective policymaking during crises comes from what economists have termed the "identifiable victim effect." People are more aggressive in addressing risks to identifiable lives, i.e., those which a person can readily imagine to be his own or belong to those they care about (e.g., family members) or take care of (e.g., patients at a clinician) than to hidden "statistical" deaths reported in epidemic human studies. Similarly, psychologists described rescue attempts for life in danger as an inviolable objective to prevent urgent efforts to save apparent lives even though more lives are saved by alternate means (Halpern, Truog & Miller, 2020). Hence the social identity dynamics of personality must be taken into account in public health campaigns. It should in particular be concerned that the willingness of people to protect the protection of groups is counter to the fact that they are ineffective in recognizing risks for their health. One main approach is to emphasize that physical distance is the care of others and not a form of mistrust (Cruwys, 2020). Therefore, a central approach to health communication is to express social norms. It can build much-needed solidarity at a time when everyone will experience the side effects of the situation, which are not linked to health (Betsch, 2020).

Finally, governments should realize that promoting the flattening of the curve of the COVID - 19 virus and alleviate the burden on healthcare staff and hospitals

would be less effective than promoting early restaurant and retail store closures by saying "The lives you save when you close your doors include your own." (Halpern, Truog & Miller, 2020). In this respect, it is important to highlight the difference between social distancing and physical distancing. While 'social distancing' is still widely used as a mistaken message it may be contributed the social isolation. "'physical distancing' implies preserving a distance of around 6 feet from others rather than feeling like you would be socially isolated from your family and friends.

2.7. Social contract

The pandemic would cause numerous societies all around the globe to rethink and redefine their social contract conditions. It is almost unavoidable. The social contract, generally defined, refers to an (often implicit) collection of agreements and expectations which regulate individual and institutional relations. In short, it is the "glue that holds communities together with the social structure collapses without it". For decades, it has progressed slightly and nearly imperceptibly in a direction that people have to bear more responsibility for themselves and economic consequences, culminating in the conclusion that vast portions of the population (most obviously in low-income areas) have at best erode, if not in certain cases torn down the social contract. The apparent assumption of low or no inflation is an example of how this depletion happens in real life (Schwab & Malleret, 2020). It is agreed that people are logical and pleasant, both in psychology and in many social studies, whereas individuals are irrational and bad. Rationality is commonly considered to be a straightforward self-interest pursuit (especially in economics). Forming a group means going through a period of subversion-loss: we forget our understanding of ourselves, lose any capacity to reason, throw out the moral compass, become like sheep, and become part of the masses. Following this paradigm, the best suggestion you can give is to act independently and away from your community if you want optimum outcomes (Jetten, et. al. 2020). Therefore, identity leadership is crucial for the management of COVID-19 because the socially shared identity of the leaders offers a key psychology framework to organize joint activities to address the difficulties faced by the community as a whole (Haslam & Reicher, 2006).

Additionally, Solidarity is a component of mutual social identity in a situation like COVID-19. Shared fate and guidance are central to determining stability in a crisis, as well as to preserve cohesion immediately afterward (Ntontis & Rocha, 2020). The true essence of pandemic response should be mutual social identity among the government and the public. Only where trust is mutual will universal principles of health-protection behaviors be formulated, internalized, and unified (Carter, Weston & Amlôt, 2020). Communications from authorities are crucial to directing people's responses to the threat of groups. Governments and public health organizations play a key role in generating communications that help to recognize and respond to COVID-19's threat. The tone they set is capable of getting people into a collective spirit to respond jointly and efficiently (Greenaway, 2020). Behavioral economics, therefore, can be used by empowering people and by responding to the demands for a fairer social contract.

2.8. Information versus misinformation

Research shows that individuals are more inclined to believe that large events require proportionally large causes and are more likely to believe in conspiracy theories or they rely on fake news and misinformation (Bavel et al., 2020). Small awareness and intense feelings can quickly lead to terrifying behaviors and faulty risk management. Uncertainty and unexpectedness create a sense of control that leads to stronger emotional and behavioral reactions to threats (Van den Bos, 2001). Psychologists tell us that cognitive closure frequently involves Black and White reasoning and simple answers, an area conducive to conspiracy theories and rumors, false news, mistakes, and other dangerous concepts. We are looking in such a sense for guidance, leadership, and transparency, such that the issue of whom we trust (in our immediate society and among our leaders) is important (Schwab & Malleret, 2020). COVID-19 has all the features of an occurrence primed for conspiracy theory development: it is fearful, it is hard to explain, the reasons are complicated, and the consequence is government controls on human freedoms. In these cases, a failure to agree with official information sources makes it impossible to process and trust the messages (Greenaway et al., 2015). Willingham, Reynolds & Haslam, 2015).

The countervailing problem, which we mistrust, is also a consequence. Under stressed situations, the appeal for solidarity and harmony rises, causing us to become more social in our community or party, but not behind it. It seems only normal that we should be more insecure and delicate, more reliant on others around us like a baby or a helpless individual. With a reinforced feeling of respect for all those, we love family and friends our commitment to those nearby us strengthens (Schwab & Malleret, 2020).

When leaders get accustomed to conspiracy theories in the battle between intergroup, they will find it difficult o put that genie back in the bottle until they are attacked by the conspiracy theories. Besides, in words and actions, leaders must be frank about working and do everything in their power to alleviate feelings of mistrust, powerlessness, and alienation that lay the foundations for manipulation (Hornsey, 2020). It should be kept in mind that conspiracy theories are not only bad for the psychology of the people, but it is also bad for fighting with COVID-19 because it's chronic it will take a heavy toll on your immune system. Chronic stress raises the cortisol hormone, leading to chronic inflammation. It also decreases certain lymphocytes—white blood cells that aid in battle infections (Mosley, 2020). Another study looking at emotional indicators in a group of Weibo users before and after the announcement of COVID-19 on 20 January 2020 found that negative emotions (anxiety, depression, and anger) and sensitivity to social risks increased after the announcement of the virus and life satisfaction decreased. People were found to be more concerned about their health and family, and less about their leisure time and friends (Liu et al., 2020 cited by Tongar, 2020).

Comprehensive media analysis reveals falsehoods in all knowledge categories that are "farther, faster, deeper and wider" than the truth (Vosoughi, Roy and Aral 2018:2). Therefore, accurate and reliable information is important for cases such as the COVID-19 pandemic. An online survey conducted in China examining the immediate psychological responses and related factors during the onset of the COVID-19 epidemic among the general population of China supports this fact by revealing that specific, up-to-date, and accurate health information and special precautionary measures were found to be associated with lower psychological impact and lower levels of stress, anxiety, and depression (Wang et al., 2020). This can be achieved when authorities treat us equally, when their interactions are trustworthy and polite and when they are listening and asking us if we are involved in lock-out controls, they are telling us that we are united in cooperation rather than being forces that are foreign to us some of the key principles for interacting with the public in a crisis can be given as follows (Carter, Weston, & Amlôt, 2020; Osler, 2019):

- Understand that how responders perceive and manage an incident will affect how members of the public behave – and plan accordingly
- Explain the essence of the case frankly and freely, describing whether such steps will be taken (or not).
- Communicate in a timely way
- Explain how to improve public health by taking prescribed safety steps
- Ensure that members of the public can undertake recommended actions
- Create an infectious disease outbreak response plan that is flexible
- Hold a focused discussion or rehearsal to determine whether or not gaps or questions need to be resolved in advance in the response plan
- Share the plan with stakeholders to describe what staff services, job, and leave flexibilities, salaries, and incentives are available to them.
- To reinforce the community's responses, trade best practices with other organizations in your major cities those within your supply chain).

It should be noted that culture can be regarded as an effective factor in the value estimations and property ownership judgments, as well as their tendency to take social and contextual information into account when making economic and behavioral estimations. The real impact of these cultural disparities may be economic and financial, economic benefits and self-interest perception, organizational strategical strategy, asset portfolios and investment evaluation, and in legal decision-making. Therefore, cultural factors should also be considered in the information process during the pandemic (Levinson & Peng, 2006).

2.9. Sick leave

The material conditions in which people create and live their lives have a significant impact on the way they construct themselves and their social circumstances are well-established. The resulting disparities in ways in which

working-class and middle and higher class citizens think and behave strengthen these effects of the social class context (Mastead, 2018). This is also true in the case of implementing measures for the pandemic. Therefore, sick leave is an important issue that will affect the current social contract decisively. Economists tend to accept that it is impossible to deter an infection from spreading due to the lack of a paid sick leave, simply because workers can be tempted or coerced to operate when sick and thus transmit the outbreak if they are refused access to it. For low-income and service employees, this is especially true (the two often go hand in hand). The American Public Health Association (APA) reported that about 7 million people were contaminated with swine flu (H1N1) and an additional 1,500 died as infectious workers were unable to afford no employment (Schwab & Malleret, 2020). In comparison, low-income workers are less likely than their high-income peers to have stable jobs and are less likely to have safety equipment and interventions that allow them to do their job safely (Scheiber & Conger, 2020). COVID-19 had the worst economic result of a dark recession, in which insufficient jobs are in a position to recover the former degree of economic activity. Therefore, psychological strategies are not enough for taking precautions against the virus. To prevent this, we need to engineer a recession that would accompany social distancing to contain the outbreak. In doing this, the key objective is to be able to preserve job matches and prevent businesses from closing so that economic activity can be restarted again. That needs payments, subsidies, and loan guarantees that will ensure that short-term disturbances do not lead to long-term breakups which take a long period (Guns, 2020).

3. Conclusion

The majority of people did not continue too gradually with COVID-19 virus pandemic, but rather it follows the Kübler-Ross' stages of grief as quoted by Zizek (2020):

"First, there was a denial (nothing serious is going on, some irresponsible individuals are just spreading panic); then, anger (usually in a racist or anti-state form: the Chinese are guilty, our state is not efficient …); next comes bargaining (OK, there are some victims, but it's less serious than SARS, and we can limit the damage …); if this doesn't work, depression arises (let's not kid ourselves, we are all doomed) … but how would will the final stage of acceptance look? It's a strange fact that this epidemic displays a feature common with the latest round of social protests in places like France and Hong Kong, they don't explode and then pass away, they persist, bringing permanent fear and fragility to our lives."

Kessler added five measures during the COVID-19 pandemic in 2020 to the virus' reaction and said: "It's not a map but it provides some scaffolding for this unknown world."[1] and explain the situation as follows:

"We saw much earlier on the denial: "This epidemic will not affect us". In th Anger phase: "You make me sit home and drive my company down". There's bargaining: "All right, if I'm going to have great social isolation for two weeks, right?". There's sadness: "When this is going to end, I don't know." And there's final acceptance: " I have to work out how to continue. This is happening. Acceptance, as you might imagine, is where the power lies. We find control in acceptance. I will wash my hands. I've been able to maintain a safe distance. I will learn how to work."

Kübler-Ross' stages of grief show two possible outcomes of grief which can be either possibly ended with depression and crisis or acceptance rationally. Therefore decision-makers face some very complicated problems in the sense of deep vulnerability in handling all these dynamics. Not only must the relationship between health effects and economic impacts be handled carefully, but also the fragile emotional equilibrium, which determines whether people take sensitive steps or panic (Baddeley, 2020). However, according to Guns (2020), the lines of various phases that arise for the economy during a pandemic can be based on rational and behavioral economics as opposed to models such as Kübler-Ross' stages based on our emotions.

Therefore, phases of the pandemic economy of Guns (2020) seem to be more rational especially for leaders for making public policies rather than following the natural path of Kübler-Ross' stages of grief in uncertainty. According to phases of the pandemic economy of Guns (2020), the first phase is "containment." involving three steps where the virus, outbreak, and potential pandemic have to be identified.

The next step is to stop the propagation of the virus and to stop the brakes. This is the first step to learn about the virus and protect potentially scarce economic resources. The actions to be taken are like those taken during the war by governments. We would be able to continue the pandemic recovery process after resetting and creating a testing system. Who is released from isolation has to be prioritized, because not everyone is designated safely for interactions? The need to rally innovation is an ongoing aspect of the recovery. Innovations are needed for COVID-19 testing, treatment, and vaccines, as well as future management of pandemics. This innovative technology is a major problem, which we are interested in distributing globally, but urgent and other factors do not make it possible to achieve normal market-based innovation processes. We will finally reach a new stage, the future, as we have evolved from the present crisis where we want to find ways to prevent them in the future, as are the major crisis in the past. International coordination is also possible and the unequal effect of these crises and their settlement on multiple groups is taken into account (Guns, 2020).

There has been significant uncertainty about its pivotal point in the pandemic. Governments all over the world, have taken drastic actions such as contact tracking, lockdowns, travel constraints, and curfews. There may be a need in this framework for tough paternalist policies such as extended lockdowns as part of (disease) strategies for mitigation or suppression to combat COVID-19 propagation. At the very same time, governments can use soft paternalism as a nudge (Gaurav, 2019). Nudging people towards positive health choices is a successful method of encouraging not only cost-efficient intervention but also healthier behavior (Li & Chapman 2013). Some experts argue that nudges are of little benefit as a way to dramatically modify the behavior, as the key issue here is that nudges do not secure norm internalization. Additionally, while the overall aim may be to 'save lives and preserve NHS,' the individuals can still take into account their financial condition and their social and emotional health (Angrisani, Cipriani, Guarino, Kendall & de Zarate Pina, 2020; Mols, 2020: 39; Sanders, Stockdale, Hume & John, 2020). According to them while it is possible to use nudges to modify passive habits and produce unthinkable obedience, nudges cannot serve to ensure improvements in actions that entail an in-depth dedication to a new collective strategy structured through a shared purpose. The main approach to shift this form is by encouraging individuals to belong to valued communities – those that describe their group-based feeling of themselves. They can only be inspired to do the hard work required for behavioral transformation as individuals are willing to identify themselves as a group member (e.g., German) and feel that such types of conduct are normative to their group - and therefore important to ensure their future (Mols, 2020). However, the standard economic explanations only answer parts of the phenomenon in the COVID-19 process such as the hoarding puzzle. Rationality is constrained by uncertainty – not only by information limits but also cognitive processing constraints. People use heuristics to guide their decision-making in a dynamic and unpredictable environment. In certain settings, heuristics can be environmentally sound instruments that enhance decision-making. Productive cognitive processes can be heuristic processes that neglect knowledge (Baddeley, 2020). For instance, in countries that have an organ donation default approach people are much more likely to be registered donors (90% to 100%) compared with those countries not using a default donor strategy (Kim, Giroux, Gonzalez-Jimenez et. al., 2020). It should be noted again that nudges do not mean helping people to improve their habits and actions but providing an atmosphere that normal and rational outcomes are the introduction of new habits and behaviors. In developing such an atmosphere, designers, product managers, and corporate executives can play an active role[1].

The exponential features associated with contagious outbreaks, such as COVID-19, make it particularly risky to postpone acts – such as social isolation and who is affected and isolated. The amount of an epidemic will be even greater. Therefore, governments must first control the disease to cope with the pandemic because of insufficient intervention, so that they can reset and introduce policy stabilization policies – including testing and tracing, and advances in care and prevention – to address the outbreak (Guns, 2020). It should be noted that the strategies of behavioral economics don't guarantee to fight with COVID-19. When we observe that on the whole, the countries that can be regarded as the best for fighting with pandemic share the following broadly and similar characteristics (Schwab & Malleret, 2020):

- They were "prepared" for what will happen (logistically and organizationally).
- They took fast and decisive decisions.
- Their health care system is cost-effective and inclusive.

- They are trustworthy communities in which people depend on both leadership and knowledge.
- They seem to have a real sense of unity that favors the greater good rather than individual aspirations and requirements.

We are caught in a triple crisis: medical (the epidemic itself), economic (which will hit hard whatever the outcome of the epidemic), and psychological. The fundamental coordinates of millions' daily lives are declining and the transition will affect everything from flying on holidays to simple physical touch. We must learn to look beyond the stock market and benefit co-ordinates and find some means of generating and allocating the required capital (Zizek, 2020). The COVID-19 pandemic represents a majör global health crisis. As the crisis entails a large-scale shift in behaviors and puts tremendous psychological pressures on people social and conducted observations should be used to align human behavior in terms of behavioral economics (Bavel, Baicker & Boggio, 2020). We have long recognized that understanding is the foundation for change. In a crisis, we need to be mindful of people's actions. This should provide an insight into the general view of risk and avoidance, public confidence, awareness, and misinformation (Betsch, 2020). Therefore, behavioral economics can be used to deal with the COVID-19 pandemic. Nudging people towards positive health choices is a successful method of encouraging not only cost-efficient intervention but also healthier behavior. Additionally, biases such as status quo bias, optimism bias, loss aversion, affect heuristic, social contracts can be used to guide to enable people to take more preventive measures. Information is also an important factor for acknowledging the publicç Sick leave is an important issue that will affect the current social contract decisively.

4. Recommendations

Different research designs can be used to understand how to use the principles of behavioral economics for taking measures against the COVID-19 pandemic. For examples, surveys can be used to seek answers for the questions such as "What consumer behaviors will be studied before and after the pandemic?". Experimental designs can also be used to understand which of the biases are more effective for handling the COVID-19 precautions.

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Serkan Kunü (ORCID ID: 0000-0002-8641-5850)
The author completed his undergraduate education in the Department of Economics at Atatürk University. He completed his master's degree and doctorate education in the department of Economic Policy at Atatürk University. He is currently working as an associate professor in the Department of Economics at Iğdır University.

Seçil Duran, (ORCID ID: 0000-0003-2996-3786)
The author completed his undergraduate education in Department of Economics of Balıkesir University. The author completed his second undergraduate education in the Department of Social Services at Atatürk University and continues his graduate education in the Department of Economics Policy at Iğdır University.

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Economic policy uncertainty and exchange rates before and during the COVID-19 pandemic

[a*] Nagmi Moftah Aimer

[a] Higher Institute of Marine Sciences Techniques Sabratha, Libya

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ABSTRACT

Recently, the extent to which economic policy uncertainty (EPU) affects exchange rate movements has been an important research question. Therefore, this paper examines the effects of both economic policy uncertainty (EPU) and the volatility index (VIX) on exchange rates for the case of four countries, which recorded the highest number of deaths due to the COVID-19 pandemic. Furthermore, we use the bounds testing approach to cointegration and error correction model, developed within an ARDL model. The findings show that: (i) during the pre-pandemic period, the co-integration tests showed that there is a positive effect of the VIX index on the Brazilian real in the long run. Likewise, there is a positive effect of the volatility index on the exchange rates of both the Indian rupee and the Swedish krona during the pandemic period, as well as between the volatility index and the Indian rupee before and during the COVID-19. Regarding the effect of EPU on the exchange rates, we found that during the pre-pandemic period there was no statistically significant effect for the four countries, while during the pandemic period, there is a positive relationship between the EPU and the Brazilian reals. While the case of the before and during the COVID-19, we find that there is a positive relationship between the EPU index and the exchange rates of both the Indian rupees and Mexican new pesos. (ii) we note that the error correction coefficients for the period before the outbreak of the epidemic are lower than during the pandemic period. Specifically, the exchange rate correction in the epidemic period is faster than in the period preceding the outbreak of the epidemic. This indicates that before a pandemic period is more vulnerable to fundamental shocks. (iii) the impact of the VIX shock is greater than the EPU shock. Our results offer practical implications for policymakers and investors.

I. Introduction

Since Keynes (1937), interest in the economic effects of uncertainty has increased dramatically as it has been recognized as an important determinant of the business cycle. When COVID-19 appeared in China on December 31, 2019, the world has been preoccupied with its new spread, which has become a global pandemic and attracted great interest from the international community (Spiteri et al., 2020; Liu et al., 2020 & Özçatalbaş, 2020).

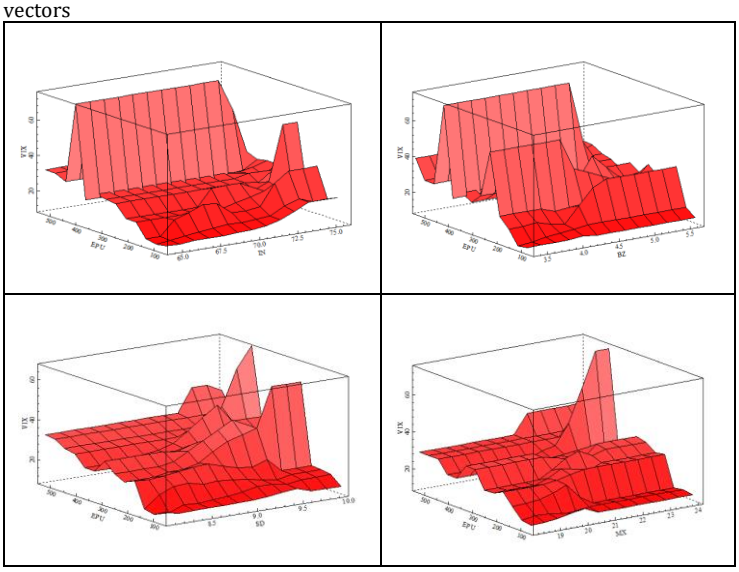
During the recent COVID-19 outbreak, the financial markets experienced massive price fluctuations. Many of those interested have pointed out that the observed volatility in financial markets is unprecedented and immediately attributed to COVID-19 due to its destructive nature.

The global spread of the COVID-19 pandemic is a human tragedy that is still unfolding in various parts of the world (Lombardi et al., 2021). There are complications in the process of quantifying its economic impact, which creates a great deal of uncertainty about the outlook for the economy and the associated adverse developments. Baker et al. (2020) uncover evidence that levels of uncertainty during the 2008 financial crisis are lower than in recent years. Moreover, this sudden increase in uncertainty threatens economic growth and financial stability. In addition to targeted economic policies and fiscal measures, the right policies to achieve monetary and financial stability will be critical in helping to support the global economy.

In fact, the uncertainty affects investment, consumption, imports and exports. First, there is a negative impact on fixed-asset investment, which is also the main way to affect the macroeconomic. Under the impact of economic policy uncertainty, companies will adopt a wait-and-see attitude, tentatively or reduce investment and employment, overall investment and output will fall (D'Mello & Toscano, 2020). Secondly, it may cause a decline in consumption (Basu & Bundick, 2017). Third, it will also have an impact on trade. In recent years, theoretical research on trade policy uncertainty and both positive and negative experiences have shown that uncertainty will hinder international trade and reduce economic policy. In terms of economic volatility, the degree of uncertainty is often related to the depth of a recession and the strength of the recovery. Macro-uncertainty has a strong counter-cyclical feature, that is, it rises during a recession and falls during a boom (Ranasinghe et al., 2012). According to (Thaqeb et al., 2020) the economic slowdown after 2019 is also caused by increased EPU index due to the outbreak of the COVID-19.

Theoretically, the shocks of the EPU and VIX indices have direct and indirect effects on exchange rate fluctuations. Figure 1 shows the weekly averages of EPU and VIX and the exchange rates for the four countries. For the EPU index as it rose from 36 points on November 23, 2018, to 576 points on March 27, 2020, until it reached its highest value in March 2020. Likewise for the volatility index, where it reached its highest value at 74 points on March 20, 2020.

Figure 1. Surface from scatter exchange rate, EPU and volatility index (VIX) are vectors



The newspaper-based EPU index and the one-month VIX index are also showing huge spikes in the wake of the COVID-19 shock due to response to the epidemic and its economic fallout (see Altig et al., 2020; Baker et al., 2020).

∗ Corresponding author. E-mail address: najmimuftah@gmail.com (N. M. Aimer).
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In addition, the two indicators of uncertainty appear to be heading in the same direction. Although there are significant differences between countries in the degree of economic development and exchange rate policies, understanding the heterogeneity of responses to economic uncertainty shocks is important. Indicators of uncertainty and some other unobservable factors such as economic policy uncertainty influence market expectations, therefore, it should be explicitly included in the analysis of economic models to determine exchange rates.

Therefore, our study contributes to the following: First, we link different strands of literature review that separately included: i) Poor empirical performance of macroeconomic variables on exchange rate fluctuations, ii) studies on possible omissions of fundamentals and unobserved factors can explain such weaknesses, iii) studies on the link between macroeconomics and economic policies. Second, we consider two uncertainty indicators as a proxy for unobservable variables. Third, we provide a coherent picture of not only the short- and long-term dynamics between the variables, but we also appreciate the impulse response functions that explain how the exchange rate responds to the EPU and VIX shock.

Anticipating and tracking exchange rate fluctuations has always been an important topic. In this paper, we use the ARDL approach for co-integration developed by Pesaran and Shin (1998) to study the effect of both the Economic Policy Uncertainty Index (EPU) and the Volatility Index (VIX) on an exchange rate for the four countries (India, Brazil, Sweden and Mexico), which have the highest mortality rates due to the COVID-19 pandemic. Moreover, to accurately determine the specific causes of exchange rate changes, we use weekly data where analysis is carried out on a country-by-country basis for the weekly data for the period from 8/1/2017 to 8/1/2021. Specifically, we divide our study into three periods, where the first period is before the emergence of COVID-19, the second period is during the pandemic, while the third period is before and during the outbreak of the pandemic. To the best of our knowledge, applying the ARDL model, our study is not only the first to use the ARDL approach but also one of the rare approaches based on the ARDL approach to quantification. Importantly, our study features a comparison of four countries (India, Brazil, Sweden and Mexico) and simultaneously for three different periods. We also include control variables for economic differences, namely EPU, VIX because these variables measure volatility and uncertainty. However, the volatility indices are a better suitable barometer of the fragility of the markets and the economy. Moreover, our hypothesis is that uncertainty has a noticeable effect on exchange rate volatility (e.g. Nilavongse et al., 2020). For this purpose, the remainder of this paper is organized as follows: The second section briefly introduces the methodology used and the data analysis. In the third section, we discuss the results of the ARDL and IRFs estimation and review the impact of uncertainty on the exchange rate. The last section concludes the paper.

2. Literature review

Many researchers have asserted that the COVID-19 pandemic has significantly affected regulatory and political uncertainty (Sharif et al., 2020; Hitt et al, 2021; Padhan & Prabheesh, 2021). Also, the daily announcements regarding the number of infections and deaths have positive effects on EPU index levels (see, Albulescu, 2020). Many researchers have repeatedly pointed out that uncertainty is a major factor in economic stagnation. Nonetheless, uncertainty about economic forecasts has prompted companies to delay spending projects until the outlook for economic activity clears. In particular, uncertainty not only has an impact on an economic recession but also a transmission and amplification mechanism (Aimer, 2016, 2017). In addition, the EPU index has a strong negative impact on economic growth, investment, employment, income and consumption in the short term, increases in the uncertainty index lead to lower demand for tourism (Işık et al., 2020; Günay et al., 2020; Payne et al, 2021), forming a secondary impact on the economy. After the financial crisis of 2007-2008, most of the global markets were exposed to danger, as countries immediately adjusted their monetary, tax and trade policies, the uncertainty index in economic policies has risen due to the frequent change in economic policies applied in the country, which leads to exchanging rate movements (Longstaff, 2010).

In the context of exchange rates, Basu and Bundick (2017) analysis based on the dynamic stochastic general equilibrium model found that monetary policy, as a stable economy will amplify the negative effects of uncertainty when the zero interest rate lower limit is constrained. Based on simulations and empirical evidence, Bloom et al. (2018) believe that macro-uncertainty shocks caused a 3% reduction in US GDP from 2008 to 2009, accounting for a third of the total changes over the period.

Phan et al. (2021) found a negative impact of the EPU index on financial stability, where an increase in EPU by one unit leads to a decrease in financial stability by between 2.7% - 7.3% of the sample average. This effect is stronger for countries with small financial systems, lower regulatory capital, and higher competition. Nonetheless, the characteristics of a country's financial system affect the correlation between the uncertainty index and financial stability.

According to Albulescu (2021), the impact of the EPU index on financial volatility was not significant during the COVID-19 crisis and that the continuation of the crisis, and the associated uncertainty, increase the volatility of the US financial markets, which affects the global financial cycle.

Bush and Noria (2021) examine the impact of uncertainty on peso exchange rates in Mexico. They noted that the peso exchange rate fluctuations decreased during the period 1999-2018 due to uncertainty measures that capture political, domestic, economic and international uncertainty. However, higher Knightian uncertainty leads to higher exchange rate fluctuations. In addition, domestic and international measures affect exchange rate volatility, international uncertainty measures based on text and financial data (the VIX and the global EPU) and Knightian uncertainty dominate. They also found evidence that during recessions the effect of amplifying domestic economic uncertainty on exchange rate fluctuations.

Naqvi (2021) revealed that the effect of general economic uncertainty on fluctuations in the exchange rate of the dollar against the rupee of Pakistan is stable only when the economy is performing poorly while negative economic growth increases to exchange rate fluctuations. Also, found that uncertainty in economic policy has a significant impact on the volatility of the exchange rate of the dollar against the rupee.

The role of uncertainty in economic fluctuations still requires further theoretical analysis and empirical evidence by scholars. To analyze the relationship between uncertainty and economic variables, studies define uncertainty in various ways, among which is the researcher Baker et al. (2016) where he measures uncertainty using news articles related to uncertainty and defines this as the EPU index. Krol (2014) analyzed the effect of EPU in developing countries on their own exchange rate volatility and showed that an increase in EPU increased exchange rate volatility. As in previous studies, EPU has an influence on macro and financial variables, and an increase in EPU can lead to an economic downturn. Although the literature review explores the heterogeneous effects of EPU or causes of exchange rate volatility. On the other hand, researchers also examined the factors affecting exchange rate volatility in the international economy (Asari et al., 2011; Grossmann et al., 2014; Aimer, 2019; Chen et al., 2020). However, there are few studies on the effect of the EPU and VIX indicators on exchange rate volatility.

However, we find that the variables used in the above literature are mostly monthly and annual data, which may ignore important structural features of the sample variables. Although higher frequency data such as weekly data can obtain more accurate and reliable information in the analysis. Some researchers have demonstrated that the inclusion of high-frequency data can improve prediction accuracy (e.g., Yu et al., 2018; Zhang & Wang, 2019). To bridge this gap, we discuss the autoregressive distributed lag (ARDL) and impulse response functions (IRF) approach to examining the impact of economic policy uncertainty on the exchange rates of the four countries, which recorded the highest number of deaths due to the COVID-19 pandemic.

3. Methodology and data

This paper uses the recently developed ARDL bounds testing approach for co-integration developed by Pesaran et al. (2001). Although there is no need to test the unit root but to ensure the suitability of the ARDL method, we check the stability level of each variable. Therefore, this paper uses the unit root tests to test the integration level by Dickey and Fuller (1981) (ADF), Phillips and Perron (1988) (PP) and Kwiatkowski et al. (1992) (KPSS). The ARDL technology is suitable for situations where the degree of integration does not exceed the I(0) and I(1) levels. However, the major limitation of traditional cointegration methods was that all variables are stationary at the same order (Engle and Granger, 1987). Also, the ARDL-Bounds technique proposed by Pesaran et al. (2001) is more effective than other methods in testing the long-term relationship of the integrated variable I(0) or I(1). It can give both small and large samples efficient and reliable test results. Moreover, by applying, ARDL bounds testing based on F statistics and the error correction term (ECM). Where the null hypothesis states $H_0: \lambda_r = 0$ that there is no co-integration relationship between the variables, while the alternative hypothesis states $H_1: \lambda_r \neq 0, r = 1,2, \ldots$, that there is a co-integration relationship. The delay coefficient suitable for the ARDL model is selected as Akaike information criterion (AIC) or Schwarz criterion (SC). Eq. (1) can be presented at the following the ARDL form:

$$\Delta \ln(EX)_t = \alpha_0 + \sum_{i=1}^{m} \beta_i \Delta \ln(EX)_{t-i} + \sum_{j=0}^{n} \theta_j \Delta \ln(EPU)_{t-j} + \sum_{i=0}^{P} \theta_i \Delta ln(VIX)_{t-i} + \lambda_1 \ln(EX)_{t-1} + \lambda_2 ln(EPU)_{t-1} + \lambda_3 ln(VIX)_{t-1} + \eta_t \quad (1)$$

where η_t the first difference, and Δ is the white noise term.

If there is a co-integration between the variables in the long run, then Eq. (2) is represented by the following formula:

$$EX_t = \alpha_0 + \sum_{i=1}^{m} \beta_i EX_{t-i} + \sum_{j=0}^{n} \theta_j EPU_{t-j} + \sum_{k=0}^{p} \theta_k VIX_{t-j} + \eta_t \quad (2)$$

If there is co-integration between the variables in the short run, then it is represented by Eq. (3):

$$\Delta EX_t = \alpha_0 + \sum_{i=1}^{q} \beta_i \Delta EX_{t-i} + \sum_{j=0}^{s} \theta_j \Delta EPU_{t-j} + \sum_{k=0}^{w} \theta_k \Delta VIX_{t-j} + \emptyset ECT_{t-1} + \xi_t \quad (3)$$

Where ∅ is the coefficient of the error correction term and it should a negative sign and statistically significant and it shows how quickly the variables converge in the equilibrium state.

In particular, we analyze three standard models, so that the first model relates to the first period (before the pandemic), the second model to the second period (during the pandemic) and the third model to the third period (before and during the pandemic). In this context, we try to present two variables (EPU, VIX) as explanatory variables of exchange rate volatility in the ARDL model specifications. In addition, for further inferences, we adopt innovation accounting through the impulse response functions (IRF). This method serves as a tool for evaluating the dynamic interactions between variables in the system.

This empirical investigation focuses on the exchange rate fluctuations of the four countries (India, Brazil, Sweden, and Mexico) with the highest number of deaths due to the COVID-19 pandemic as we perform the analysis on a country-by-country basis for the weekly data for the period from 1/8/2017 to 8/1/2021. These data are defined as shown in Table 1.

Table 1. Variables definition

Variable	Symbol	Source
INR/USD India/U.S. foreign exchange rate, Indian Rupees to one U.S. dollar	INR	FRED[1]
BRL/USD Brazil/U.S. foreign exchange rate, Brazilian Reals to one U.S. dollar	BRL	
SEK/USD Sweden/U.S. foreign exchange rate, Swedish Kronor to one U.S. dollar	SEK	
MXN/USD Mexico/U.S. foreign exchange rate, Mexican new pesos to one USD	MXN	
Economic policy uncertainty index for United States	EPU	FRED[1]
CBOE volatility index	VIX	FRED[1]

Note: The Federal Reserve Bank of Saint Louis (FRED). The measure of U.S. EPU is the Baker et al. (2016)'s index, which is a daily coverage of newspaper articles containing terms related to "uncertainty", "policy" and "economy".

4. Empirical Results and Discussion

According to the ARDL approach, the study of cointegration consists of two steps: the first is the determination of the optimal delay using the AIC. The second is to examine all the possible combinations of the lags of each variable to determine the optimal ARDL model and then test for cointegration. To study the relationship of cointegration between variables, we examine the stability of the variables based on ADF, PP and KPSS tests as shown in Table 2.

Table 2. Unit root estimation

variable	$I(0)$			$I(1)$		
	ADF	PP	KPSS	ADF	PP	KPSS
INR	-2.375	-2.082	1.380[a]	-10.820[a]	-10.896[a]	0.050
BRL	-2.688	-2.278	1.483[a]	-9.597[a]	-9.106[a]	0.050
SEK	-0.326	-0.205	0.853[a]	-7.158[a]	-11.118[a]	0.080
MXN	-3.108	-2.618	0.905[a]	-8.283[a]	-8.113[a]	0.046
EPU	-2.798	-3.189[c]	0.953[a]	-5.714[a]	-13.014[a]	0.041
VIX	-4.088[a]	-3.706[b]	0.784[a]	-7.809[a]	-10.586[a]	0.029

Notes: a, b, and c indicate statistical significance at levels of 1%, 5% and 10%, respectively. The optimal lag selection is based on Akaike Information Criteria (AIC) with constant and trend.

The results of the unit root tests show that none of the variables are integrated with an order greater than one and that they are not all integrated with the same order. From two characteristics we deduce that to test the cointegration between the variables selected, the model best suited to our case is the ARDL model.

4.1. Long-run dynamics

We verify the co-integration for the three models using the bounds testing by Pesaran et al. (2001) approach as shown in Table 3.

The results show that there is a cointegration relationship between the exchange rate and both the EPU and VIX indicators for each country and in the three mentioned periods. With the exception of the exchange rate in Mexico during the pandemic where the F statistics exceed the minimum as in the second model in Table 3. Therefore, the null hypothesis was accepted that there is no co-integration. In the case of the Mexican exchange rate, that is, there is no co-integration relationship between the Mexican exchange rate and both the EPU and VIX index. Regarding the third model (before and during the COVID-19 pandemic), we found that there is a long-term positive relationship between the Mexican exchange rate and both the EPU and VIX indicators, this result is consistent with the study (Bush & Noria, 2019).

Table 3. Results of the bounds test of cointegration.

	Model 1: 8/1/2017 /to 27/12/2019			
Model 1	INR	BRL	SEK	MXN
F-stat.	17.37[a]	16.61[a]	4.36[b]	8.92[a]
LM	0.64	0.43	0.11	0.71
ARCH	0.50	0.35	0.59	0.96
R^2	0.21	0.26	0.33	0.23
	Model 2: 3/1/2020 to 8/1/2021			
Model 2	INR	BRL	SEK	MXN
F-stat.	5.57[a]	6.88[a]	3.88[b]	1.81
LM	0.69	0.55	0.94	0.14
ARCH	0.69	0.44	0.53	0.20
R^2	0.79	0.59	0.85	0.83
	Model 3: 8/1/2017 to 8/1/2021			
Model 3	INR	BRL	SEK	MXN
F-stat.	38.5[a]	19.01[a]	7.97[a]	4.74[b]
LM	0.68	0.27	0.85	0.11
ARCH	0.57	0.59	0.37	0.82
R^2	0.18	0.27	0.38	0.49
Critical Values		I(0)		I(1)
1%		4.13		5
5%		3.1		3.87
10%		2.63		3.35

Notes: a, b, and c indicate statistical significance at levels of 1%, 5% and 10%, respectively. LM is Breusch-Godfrey Lagrange multiplier test. ARCH is Heteroskedasticity test.

The results R2, as shown in Table 3, showed an interesting explanatory power in the long term for the EPU and VIX indicators on the exchange rates for each country during the COVID pandemic compared to the pre-COVID-19 period that ranged between 0.59 and 0.85 during the epidemic. While it ranged between 0.18 and 0.49 during the first and third periods. This reflects the inflexible nature of these indicators. The results of the ARDL approach developed by Pesaran et al. (2001) as shown in Table 4.

Table 4. Results of long-term cointegration test

Country	*Model 1*		
	Variable	Coefficient	t-Sta.
INR	EPU	0.010	1.10
	VIX	0.003	0.58
	C	0.016	0.87
BRL	EPU	-0.195	-1.23
	VIX	0.058*	1.96
	C	0.194	1.32
SEK	EPU	-0.018	0.065
	VIX	0.025	0.016
	C	0.048	0.059
MXN	EPU	0.005	0.896
	VIX	0.001	0.122
	C	0.016	0.432
Country	*Model 2*		
	Variable	Coefficient	t-Sta.
INR	EPU	0.006	0.246
	VIX	0.037*	2.002
	C	-0.013	-0.877
BRL	EPU	0.479***	3.535
	VIX	0.027	0.262
	C	0.091	0.678
SEK	EPU	0.004	0.079
	VX	0.100***	3.187
	C	-0.165***	-4.890
MXN	EPU	0.009	0.425
	VIX	0.209***	4.479
	C	-0.071	-1.1111
Country	*Model 3*		
	Variable	Coefficient	t-Sta.
INR	EPU	0.016***	3.207
	VIX	0.008***	3.184
	C	0.011	0.834
BRL	EPU	0.080	0.610
	VIX	0.083	1.305
	C	0.173	1.221
SEK	EPU	0.005	0.096
	VIX	0.055	1.490
	C	-0.015	-0.292
MXN	EPU	0.015*	1.839
	VIX	0.091**	2.576
	C	-0.021	-0.472

Notes: ***, **, and * indicate statistical significance at levels of 1%, 5% and 10%, respectively.

In the long term, as shown in Table 4, the results of the co-integration tests for the first period (before COVID) showed that there was a statistically significant positive relationship between the VIX index and BRL, which means that when increasing the VIX one unit, BRL will increase by 6%. While there is a positive statistically significant relationship between the VIX index and the INR at 4%, SEK at 9% during the pandemic. As well as in INR at 1% the before and during the pandemic while its impact on the rest of the countries is not statistically significant.

Regarding the effect of EPU on the exchange rate of the four countries, we find that during the first period (before the pandemic) there is no statistically significant effect between the EPU index and the exchange rate of the four countries. Interestingly and perhaps surprisingly, during the epidemic there is a positive statistically significant relationship between the EPU index and the BRL, which means that when increasing the EPU index by one unit, will lead to an increase in the BRL at 48%, while its effect on the rest of the countries is not statistically significant. While the case of the third model (before and during the pandemic), we find that there is a positive statistically significant relationship at a 2% level between the EPU index and the INR and MXN with the same amount of effect. This means when increasing the EPU index by one unit, will lead to an increase in the exchange rate is 2%. As for its effect on the exchange rates of the rest of the sample countries, it has no statistical significance. In particular, in the three models (the three periods), where there were positive effects of both uncertainty and volatility indicators on the exchange rate of these countries.

4.2. Short-run dynamics

As in Table 5, that the error correction coefficients (ECT) in the three models are negative and statistically significant, ensuring the long-run equilibrium relationship of the three models. However, we note that the error correction coefficients for the period before the outbreak of the epidemic are lower than during the pandemic period. During the period leading up to the outbreak of the epidemic, it indicates a correction of 75%, 68%, 67% and 91% of any imbalance between exchange rates and explanatory variables respectively in India, Brazil, Sweden and Mexico is corrected within a week. While in the case of the period during the outbreak of the Covid-19 epidemic, the error correction indicates that approximately 104%, 158%, 145% and 102% of any imbalance between exchange rates and explanatory variables respectively in India, Brazil, Sweden and Mexico is corrected within a week. Specifically, the higher the error correction factor, the faster the adjustment, the faster the exchange rate adjustment in the pandemic period than in the period before the outbreak of the pandemic. This indicates that before a pandemic period is more vulnerable to fundamental shocks than the latter period (see Abid, 2020).

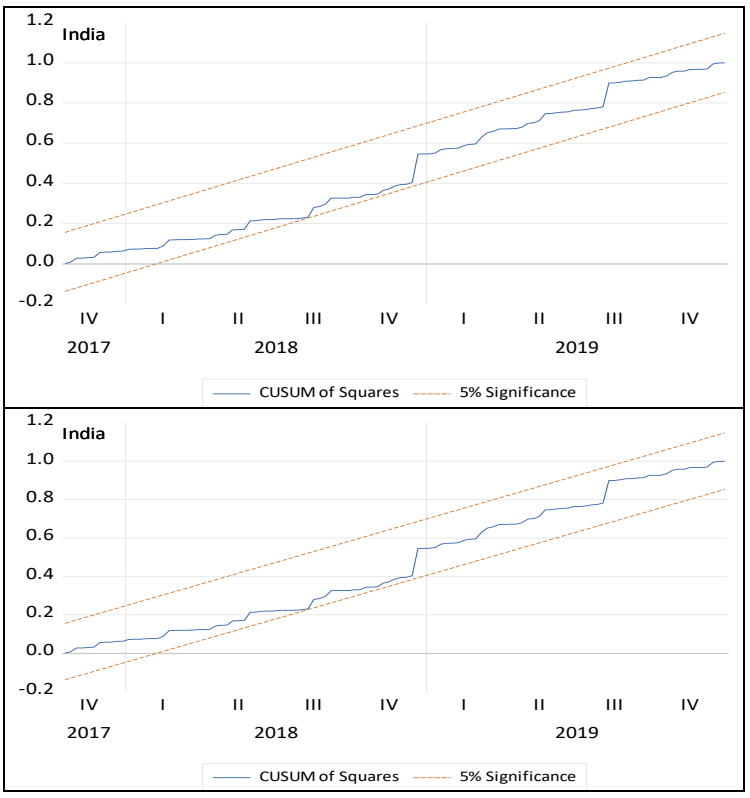
After estimating the short and long run and to ensure the reliability of the statistical models to checking the stability of the CUSUM and CUSUMSQ parameters developed by Brown et al. (1975). However, all the graphs of Figures 2, 3 and 4 confirmed that the parameters are stable.

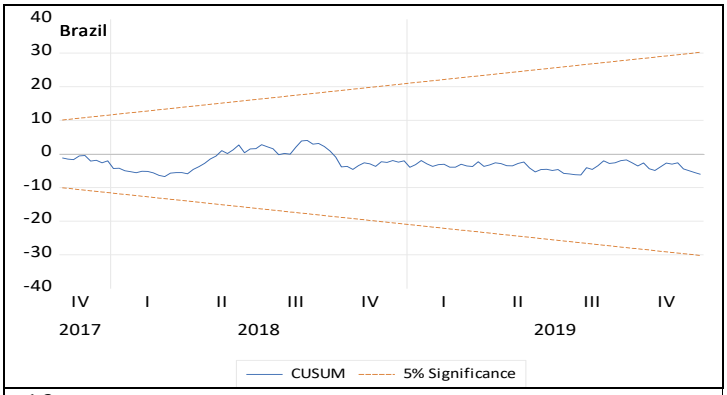
Table 5. Short-run Dynamics

	Model 1: 8/1/2017 /to 27/12/2019			
	INR	BRL	SEK	MXN
ECT_{t-1}	-0.75[a]	-0.68[a]	-0.67[a]	-0.91[a]
	Model 2: 3/1/2020 to 8/1/2021			
	INR	BRL	SEK	MXN
ECT_{t-1}	-1.04[a]	-1.58[a]	-1.45[a]	-1.02[a]
	Model 3: 8/1/2017 to 8/1/2021			
	INR	BRL	SEK	MXN
ECT_{t-1}	-0.81[a]	-0.66[a]	-0.67[a]	-0.78[a]

Note: a, indicate statistical significance at levels of 1%.

Fig. 2. CUSUM and CUSUMQ test for structural change of the first model (1/8/2017 /to 27/12/2019).





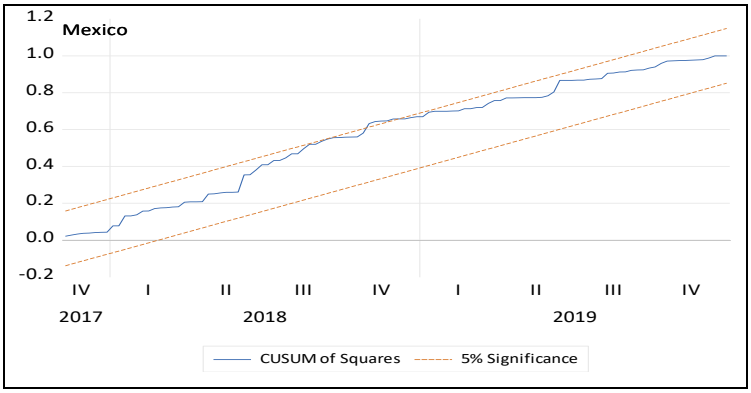
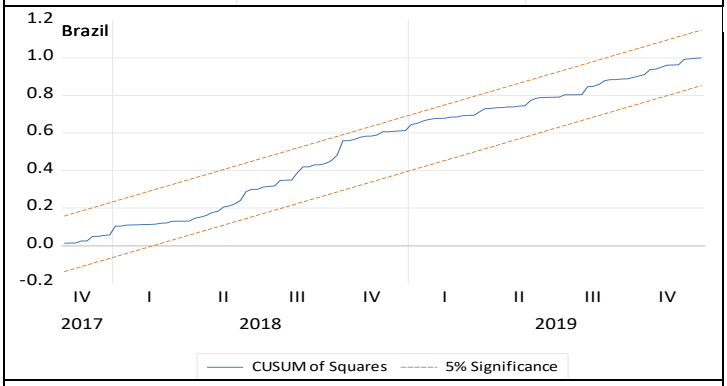
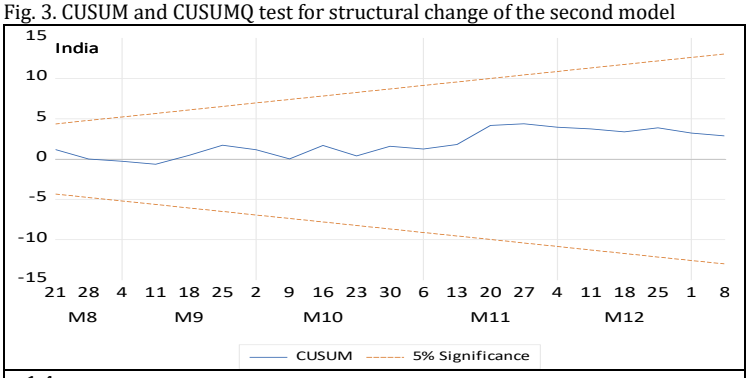
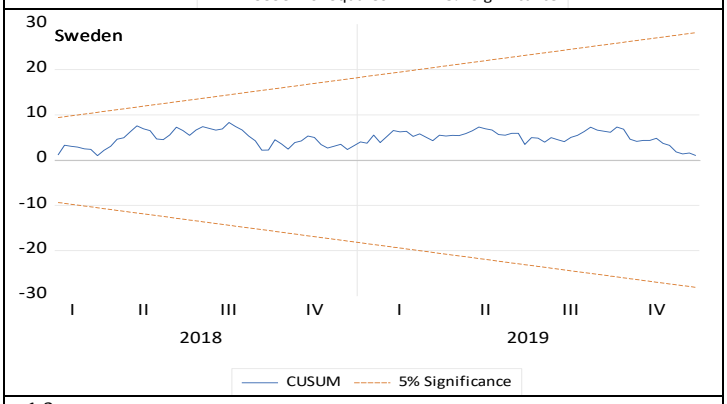
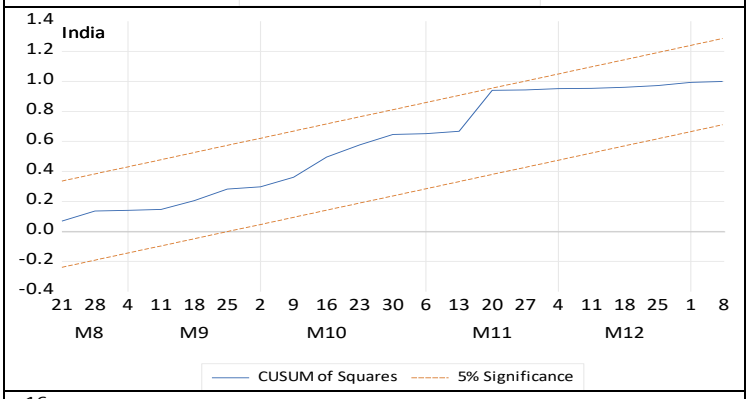


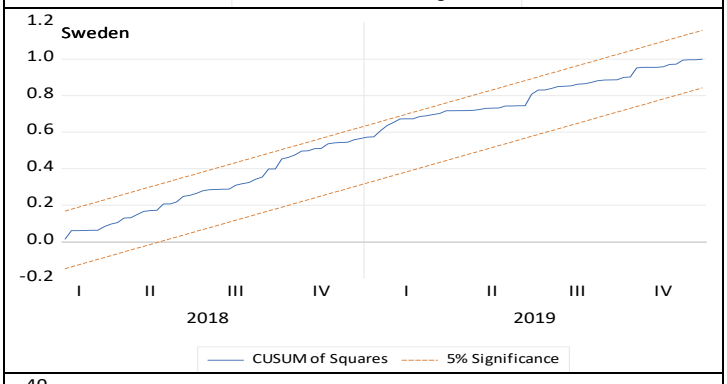
Fig. 3. CUSUM and CUSUMQ test for structural change of the second model

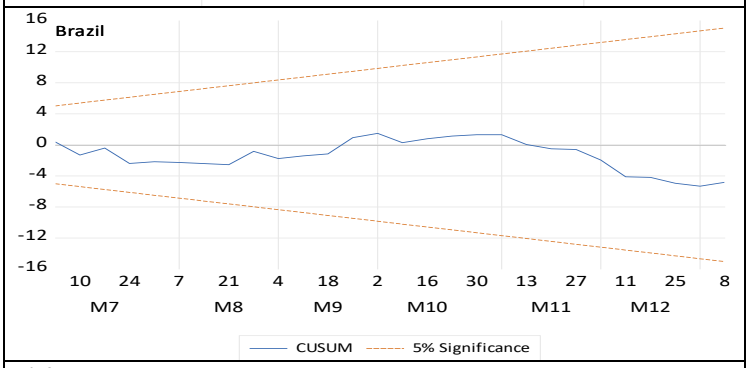


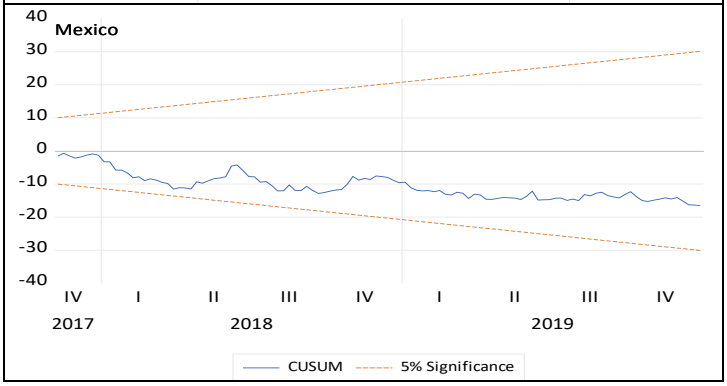


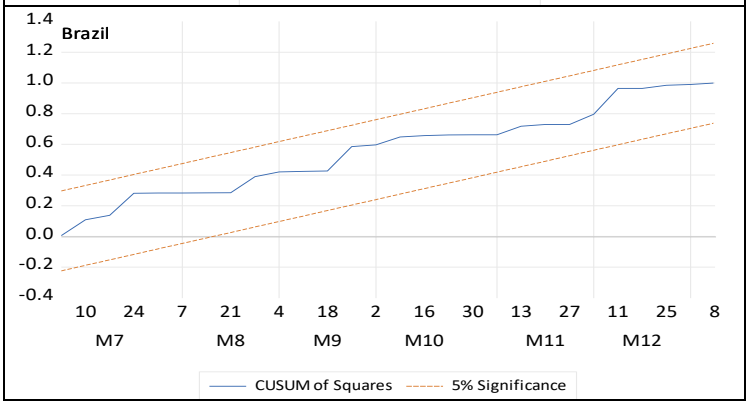


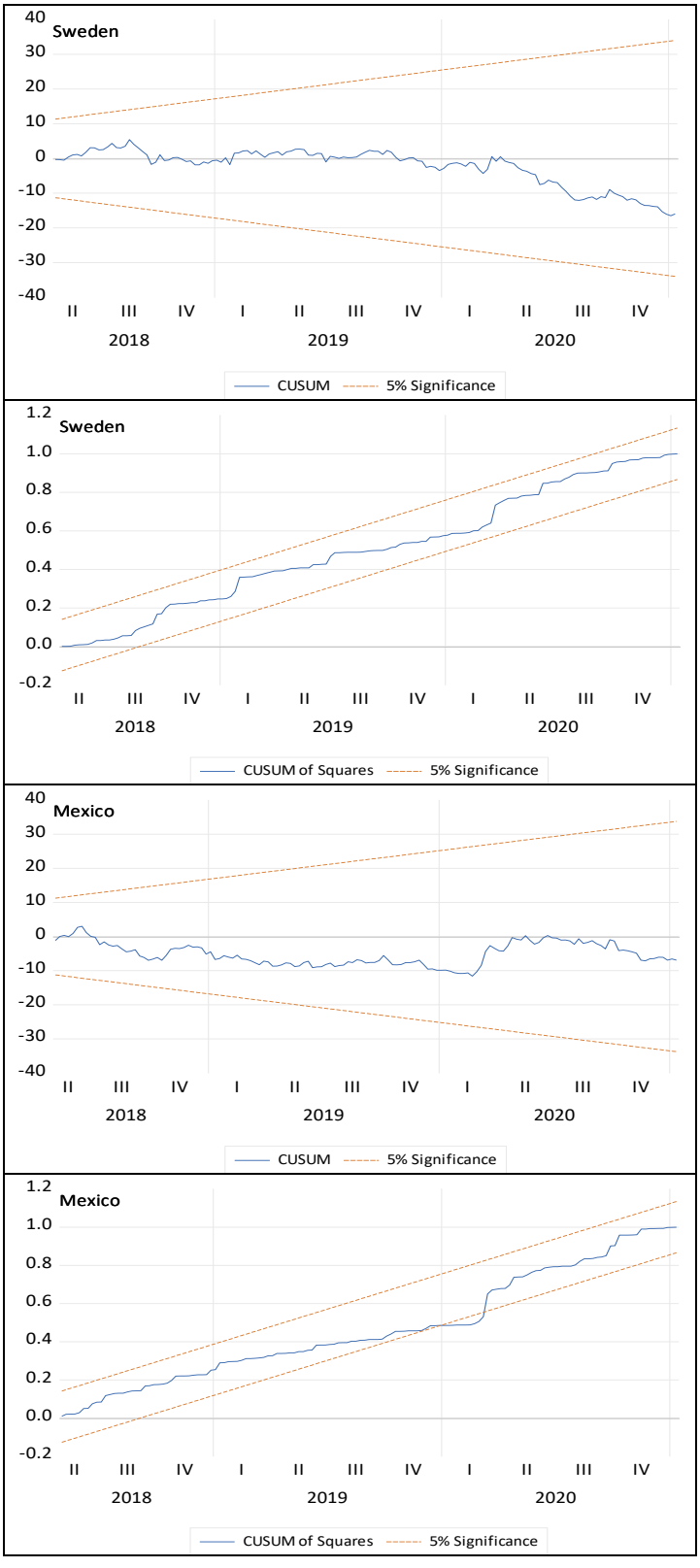












4.3. The impulse response functions

To illustrate the direction and extent of the impact of the shock we use impulse response functions (IRFs) to test the effect of one standard deviation shock on the endogenous variables and their future values. Furthermore, the results of the IRFs within 10 weeks to internal variables that explain the extent of the exchange rate response to a shock of one standard deviation for the two variables, EPU and VIX index as shown in Figures 5 to 7.
Fig. 5. Illustrates the exchange rate responses to structural innovations in EPU and the VIX index.

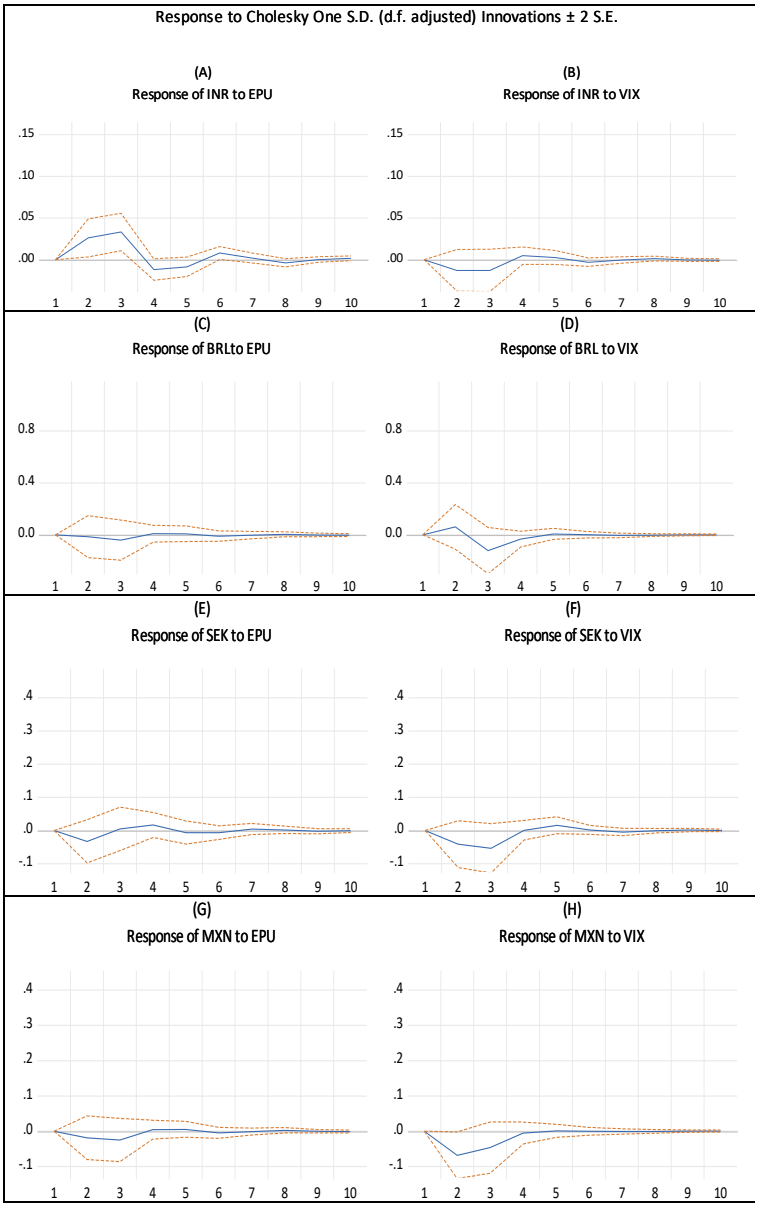
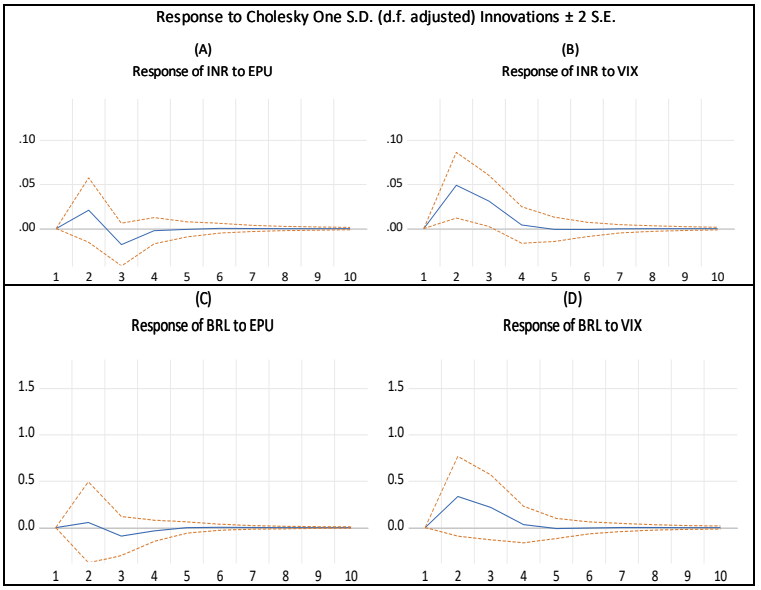


Fig. 6. Illustrates the exchange rate responses to structural innovations in EPU and the VIX index during the pandemic.



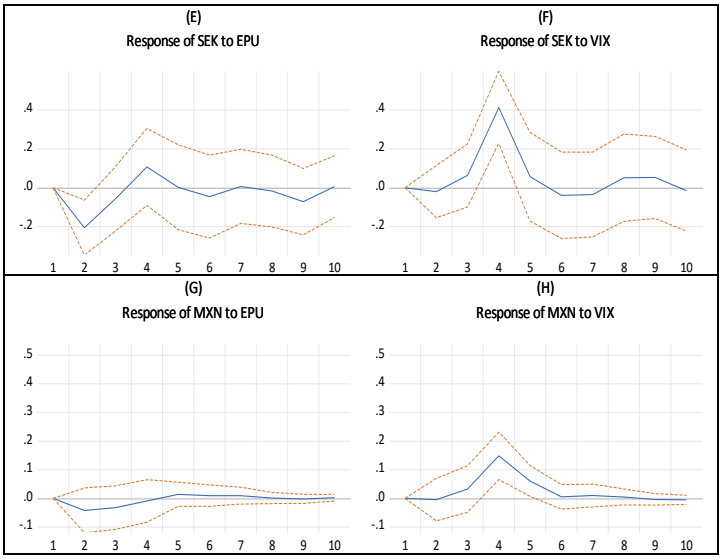
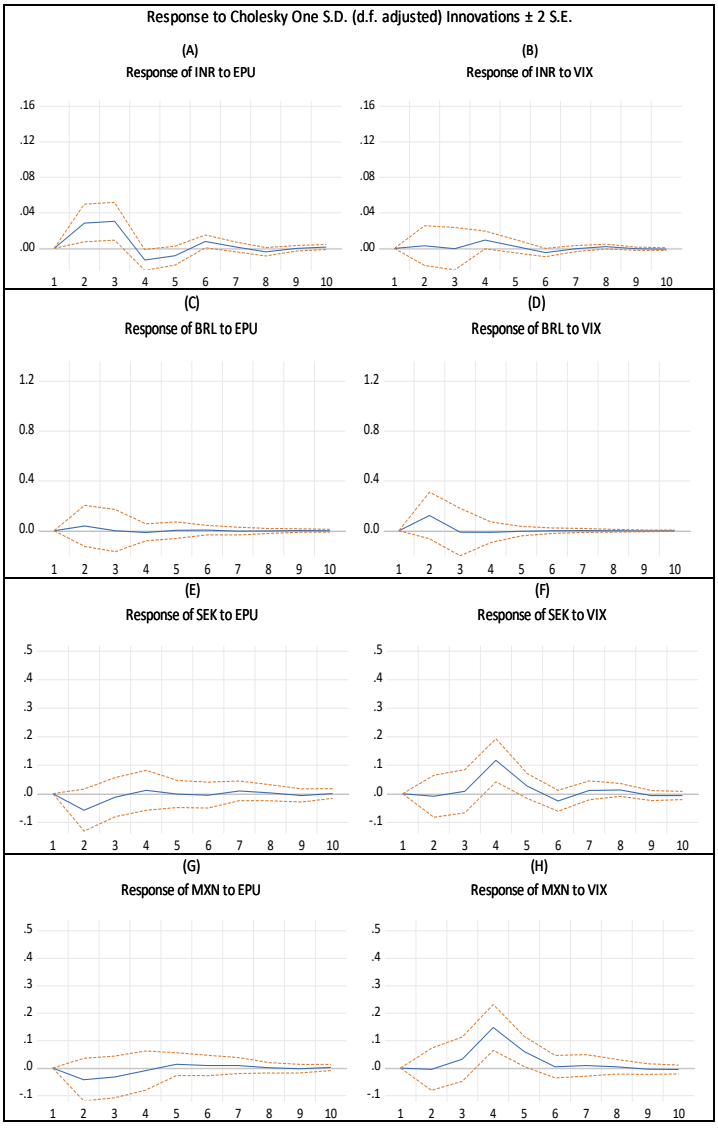


Fig.7. Illustrates the exchange rate responses to structural innovations in EPU and the VIX index

(Before and during the pandemic)



Figures 5 to 7 show impulse response functions (IRFs) to an unexpected shock of EPU and VIX Indices.

Fig.5A shows that during the pre-pandemic period related to INR/USD, that a positive shock of one standard deviation in the EPU has a positive effect on the INR, and reaches the maximum at the third week. After that, the effect becomes negative starting from the fourth week by -2% until it fades. Fig.5B, the positive shock to the VIX index has a negative impact on the INR at the first three weeks, after which its effect stabilizes at 0.1%. Interestingly, a rise in the EPU shock is offset by a decrease in a volatility shock and vice versa.

In Fig.5C, the results show that a positive shock of one standard deviation in the EPU has a positive effect on BRL and lasts for 2 weeks. The positive response then gradually weakens and is followed by a weak negative response, before finally converging steadily. Further, in Fig.5D, a positive shock of one standard deviation in the VIX index has a positive impact on the BRL during the first and second weeks until this effect stabilizes and approaches zero.

Regarding Swedish Kronor, Fig. (5E and 5F) depict the response of Swedish Kronor to VIX index shocks and EPU, respectively. That the occurrence of a positive shock of one standard deviation in the two variables, EPU and VIX index, has a relatively small effect, fluctuating between negative and positive.

Fig.5G, the occurrence of a positive shock of EPU has a negative impact on the MXN, starting from the second week to the third week. Then it turns positive during the fourth and fifth week at a rate of 0.7% until it fades. Fig.5H, a positive shock of VIX has a slight negative impact on the MXN from the second week and until the fourth week. In particular, the results during the before pandemic period showed that the impact of the EPU shock and the VIX shock of the exchange rate response of four countries was negative during the first four weeks, except for its effect on the INR was positive. In addition, the impact of the shock of the VIX is greater than the impact of the shock of EPU, and the biggest impact of the VIX shock on the BRL, where the exchange rate fell around -12%, followed by the MXN, where it decreased around -6%. Likewise, the largest negative impact of the EPU shock of the response of the BRL, as it declined around -0.05%, while the largest positive effect of this shock was the response of the INR around 3%. A high level of economic uncertainty increases fundamentals expectations and as a result, exchange rates show increased volatility (Krol, 2014).

The results show Fig.6A during the epidemic period that the occurrence of a positive EPU shock has a positive effect on the INR at the second week, then negative from the third week to the fifth week. The impulsive response in Fig.6B shows that when a unit of positive affects the volatility index, the exchange rate response is immediately negative. The response speed increases sharply in the second period and then slows down, gradually increasing to the maximum value in the fourth period. Finally, it converges gradually. However, in Fig.6C, the occurrence of a positive shock of EPU has a positive effect on the BRL during the first and second weeks, and then this effect turns into a slight negative that starts from the third week and continues until the end. Whereas Fig.6D, a positive shock of VIX has a positive effect on the BRL until the fourth week and reaches a maximum of 34% at the second week, and finally converges to a steady state at zero.

Fig.6E, In the case of the SEK, that the occurrence of a positive shock of EPU has a negative effect that continues until the third week and declines at the second week around -20% and turns positive at the fourth week by 10%, after which the simple effect fluctuates between negative and positive until the end of the period. On the other hand, in Fig.6F, a positive VIX shock had a negative effect in the second week of about -2%. Then it turns positive until the fifth week and reaches its maximum range at the fourth week of 41%.

Concerning the MXN / USD, Fig.6G, the results show that the occurrence of a positive shock of one standard deviation in EPU has a negative impact on the MXN, starting from the second week and retreating around -4% to the fourth week at -0.8%. Then this effect turns positive starting from the fifth week by 1% and after that, the impact of the shock is slight until the long run. Additionally, in Fig.6H, the occurrence of a positive shock of VIX has a positive effect on the MXN, starting from the third week to the eighth week, and reaching its maximum at the fourth week by 14%.

In general, we notice that from Fig.6, the impact of the EPU shock is negative on both the SEK and MXN at the beginning of the period, while its effect is positive and convergent on the INR and BRL. As for the impact of the shock of the VIX index on the exchange rate, it is positive at the beginning of the period, and its effect diminishes in the end. The positive impact of the VIX shock on SEK at 41%, BRL at 33% and MXN at 14%. By comparing the exchange rates of the four countries, we find that the impact of the EPU shock on the exchange rate is unstable (fluctuating) in the short term. The results also confirmed that its impact is negative and significant by -20% of the SEK during the beginning of the period and then turns into a positive by 10% within four weeks. However, in the long term, the results showed that the impact of the EPU shock on the SEK is not stable over the period, while for the rest of the countries its effect is stable. Additionally, in terms of the impact of the VIX shock on the exchange rate of the countries concerned, the results also confirmed that there is a positive impact on the exchange rate of all four countries. We also found that the largest statistically sig-

nificant positive effect by this shock is on the SEK by 41%, followed by the BRL at 33%.

Also as in Fig.7A (before and during the epidemic) regarding the INR, the occurrence of a positive shock of one standard deviation in EPU has a positive impact on the INR during the first three weeks. Then this effect turns into a slight negative during the fourth and fifth week, and after that, the shock effect starts to tbe positive until it fades. Moreover, Fig.7B, the occurrence of a positive shock of the VIX index has a slightly positive impact on the INR starting from the first week to the second week by about 1%, and the effect of the two shocks is unstable and opposite in direction over the length of the study period.

Fig.7C shows that the positive shock to EPU has a slight positive effect on the BRL since the beginning and until the third week, after which the effect fluctuates and approaches zero between negative and positive. Whereas Fig.7D, a positive shock of VIX has a positive affect the BRL until the fourth week and reaches a maximum of 12% at the second week and finally converges to a steady-state at zero.

As Fig.7E depicts, a shock to one standard deviation in the EPU has a negative impact on SEK, which lasts until the third week and the maximum decline in the second week of -6%. Then this slight effect fluctuates between negative and positive until the end of the period. Additionally, in Fig.7F, a shock of one standard deviation in the VIX has a negative effect, declining by -0.8% in the second week. Then it turns to positive until the fifth week and retreats to the lowest in the fourth week by 12%.

As Fig.7G depicts, the EPU response to the Mexican exchange rate shock declines in the second period and returns to the previous level in the next period, and eventually weakens at a slower rate than the decrease, which means that a sudden increase in the Mexican exchange rate shock can largely suppress the lack of Certainty in economic policy. It is counterintuitive that economic policy uncertainty responds negatively to positive changes in exchange rates. Similarly, Fig.7H, during the same period, a shock of VIX leads to a decline in the exchange rate in the second week, as it fell by -0.5%. Then its effect becomes positive until the eighth week, and its extent at the fourth week reaches about 14%, after which the effect approaches zero at the end of the period. The impulse response in Fig.7 shows that the effect of the EPU shock on the exchange rate is negative for all sample countries except for its effect on the INR. It was positive during the before pandemic in the short term. The impact of EPU is negative on the SEK, where it declined by -5%, and the MXN declined by -3%, while for the rest of the countries the impact of the shock is positive on the BRL at 3% and the INR at 3%, that is, their effect is almost close. While the impact of the VIX index shock on the exchange rate positively for all sample countries (MXN at 14%, BRL at 12%, SEK at 11%, and India at 1%). Looking at the three periods, we find that the impact of the EPU shock on the SEK declined during the period of the emergence of the pandemic, where it declined by -20%, while before the outbreak of the pandemic it decreased by -2%.

Conversely, we find an improvement in the impact of EPU shock on the exchange rate of the countries India, Brazil and Mexico. The figures (5-7) show that regarding the impact of the shock of the VIX index compared to the three periods, the results also confirmed that the impact of the shock is positive on the exchange rate when the pandemic began. When using the whole period, we find an improvement in the impact of the positive EPU shock on the exchange rate of the four countries, despite its impact in the before pandemic period negatively on the exchange rate of the four countries. It also appears that the shock effect of both the EPU and the VIX index on the exchange rate stabilizes after the sixth week and for each country concerned, with the exception of the SEK. The response of all involved variables is statistically significantly over the period length for the three models. In fact, exchange rate fluctuations are altered by changes in economic policy (Alesina & Wagner, 2006) and changes in fundamental expectations (Beckmann & Czudaj, 2017). Of course, the higher the EPU level increases the expectations of the fundamentals. As a result, currencies show increased volatility (Krol, 2014).

5. Conclusion

This paper examined the effects of both US economic policy uncertainty (EPU) and the volatility index (VIX) on the exchange rates of a sample of four countries, which recorded the highest death rate due to the COVID-19 pandemic. For this purpose, we used the ARDL bounds test approach for the weekly period from 1/8/2017 to 1/8/2021. Our main findings are as follows: (1) during the pre-pandemic period, the co-integration tests showed that there is a statistically significant positive effect of the VIX index on the Brazilian real in the long run. Likewise, there is a statistically significant positive effect of the volatility index on the exchange rates of both the Indian rupee and the Swedish krona during the pandemic period, as well as between the volatility index and the Indian rupee before and during the COVID-19.

Regarding the effect of EPU on the exchange rates, we found that during the pre-pandemic period there was no statistically significant effect for four countries, while during the pandemic period, there is a positive statistically significant relationship between the EPU and the Brazilian reals. While the case of the before and during the COVID-19, we find that there is a positive statistically significant relationship between the EPU index and the exchange rates of both the Indian rupees and Mexican new pesos. As for its effect on the exchange rates of the rest of the sample countries, it has no statistical significance. (ii) The results of the IRFs also showed the following: First, before the pandemic that the impact of the EPU and VIX shocks on the exchange rate response of four countries was negative during the first four weeks, except for the Indian rupees responding positively to indicators of uncertainty. In addition, the impact of the shock of the VIX index is greater than the EPU shock. Second, we also found that the effect of uncertainty shocks is only present during a pandemic, and has no significance during regular periods. This may mean that economic policy stability plays a more important role in limiting the extremely negative impact of major crisis events. The empirical results of this study provide policymakers with a better understanding of the uncertainty and exchange rate interrelationships of fiscal policy formulation in these countries. In addition, the governments of these countries must take into account the economic phases (situation) when implementing relevant fiscal policies.

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Nagmi Moftah Aimer (ORCID ID: 0000-0003-1739-2509) Ph.D. in Economics
I completed my undergraduate education at the Department of Economics at Kastamonu University. I completed my master's and Ph.D. degrees in Financial Planning Department at Planning Institute / Tripoli - Libya.
I am currently working as a lecturer in the Department of Management at the Higher Institute of Marine Sciences Techniques Sabratha, Libya.

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The effect of institutional quality on monetary policy in Iran's economy: A DSGE approach

[a*] Seyed-nezamuddin Makiyan, [b] Javad Amareh
[ab] Department of Economics, Yazd University, Iran

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ABSTRACT

The aim of this study is to investigate the effect of institutional quality on the cyclicality of monetary policies in Iran. For this reason, a Dynamic Stochastic General Equilibrium (DSGE) model is developed for Iran. In this study International Country Risk Guide (ICRG) used as a representative for institutional quality. Considering that this representative is a combined index obtained from twenty-two sub-indices in three groups. It seems that there is sufficient comprehensiveness to provide the country's institutional status. This proxy is improvised in profit function of foreign investors and tax leakage which lead to reduction in government revenue. The results obtained from solving DSGE model shows that an improvement institutional proxy can change the cyclical behavior of monetary policy's behavior and transforms it from a cycle-independent state to a counter-cyclical state.

I. Introduction

Regardless of the different theoretical perspectives on the impact of monetary policy on the economy, nowadays monetary policy is considered as a means to influence the variables and structure of the economy. The main objectives of implementing this category of economic policies such as other policy instruments control adverse economic fluctuation, and relative stability at price levels and the maintenance of production around the optimal path. However, it is clear that after recognizing any adverse economic fluctuation, monetary tools are one of the available alternatives to policy makers to control economic fluctuation. The accepted advice in economic literature is that countries must use counter-cyclical monetary policies. In other words, monetary authorities are advised to cut inflation rates by increasing interest rates and in times that experience the recession, monetary authorities will reduce interest rates in order to stimulate production to return to their sustainable path. This recommendation is attributed to Wicksell (1907) and despite all developments which occurred in the last century in the field of monetary theory, which advice is left without any conflict. This policy is found in Chicago plan to get out of the great 1933 recession as well as the IS and LM models.

Theoretical and empirical studies have shown that institutions are important for economic performance. Rodrik and Subramanian (2009) argued that financial globalization does not promote growth in many developing countries because they have a constraint on investment because of poor institutional environment. Therefore, an expansionary monetary policy in these economies in terms of achieving the goal of improving production can potentially be a failure. It is also possible that a reduction in the central bank discount rates can easily be converted into a failure in the field of promotion as banks are allowed to operate in non-competitive methods and not necessarily transfer interest rates whole economy.

Investigation of the literature shows that in spite of theoretical explicit advice about applying counter cyclical monetary policies, empirical studies show that some countries are not complying with these recommendations. According to these observations, the following questions arose as follows:

- Despite the evidence for the policy ambiguities with theoretical bases, are the selected policies in developing countries were selected correctly? In other words, does the implementation of these policies provide economic stabilization of these countries?
- Why does it occur in developing countries between the theory and the implemented policies?

The answer to the first question is vital for the economy of all developing countries. Because choosing the wrong policy in face of economic fluctuations can increase the depth of economic fluctuation.

Reviewing the reasons presented in different studies made it clear that the main emphasis to explain this conflict between policy theoretical advice and implementing policy can be attributed to institutions and institutional quality. In other words, the studies show that institutional quality can be regarded as the main reason for implementing the proposed pro cyclical monetary policy in some countries.

Present study is trying to investigate the impact of Institutional quality on cyclicality of monetary policy in Iran. In this study International Country Risk Guide is used as the representative of institutional quality which is combined of twenty two sub-indices classified in political, financial and economic risks and seems to be a good proxy for the whole status of institutional quality because of its comprehensiveness. Iran achieved the average point of 59.07 in this index from 1984 to 2019 which place the country in the category of moderate to high risk countries and represent not very well status of institutional quality. In the other hand, Iran's Central Bank statistics reflecting increasing trend of M2 in Iran in the same period with average annual rate of 23.7% which made this country to an approporiate case for investigating the aim of this study.

2. Literature Review

Institutional approach emphasizes the importance of creating a guiding institutional and political environment for the smooth operation of markets and the realization of the benefits of business and entrepreneurship. The works of Douglas North (1990), Peter Bauer (1957 & 1972) and Friedrich Hayek (1945 & 1960) provided the basis for institutional theory. Recent writings by Barro (1996), Barro and Sala-i-Martin (1995), Scully (1988 & 1992), Lands (1998), Knack (1996 & 2003), DeSoto (1989) and Hall and Jones (1999) also play a significant role. They have played a role in the institutionalist perspective (Gwartney & Lawson, 2004).

For economic outcomes, economic institutions are of fundamental importance. Economic institutions such as structure of property rights and existence and perfectness of markets are important because they affect the structure of economic incentives. Without property rights, individuals have no incentive to invest in physical and human capital or to use more efficient technologies. Economic institutions are also important because they help to allocate resources to their most efficient uses, they determine who benefits, who owns the revenue, or who controls. When markets are destroyed or ignored, the benefits of trade remained virgin and resources are misallocated.

Societies which have economic institutions facilitate the accumulation of resources, innovation and the efficient allocation of resources. Acemoglu & et al. (2005) provide a framework of a dynamic system in which the relationship of various institutions to economic performance is described.

Relatively limited studies have been conducted on the relationship between monetary policy and institutional development. Mihal (2009) presents a theoretical model consisting of financial authorities determining the level of taxes, government expenditures and debt, the monetary authority regulating the level of real inflation and the private sector determining the expected inflation.

∗ Corresponding author. E-mail address: nmakiyan@yazd.ac.ir (S. N. Makiyan).
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In this model, the government uses taxes and newly issued bonds to finance itself. A parameter of the degree of tax leakage with respect to corruption is presented in the model, which is considered as a measure of institutional quality. This model predicts that increased corruption will lead to higher inflation. This means that the revenue from the multiplier depends on the institutional quality. Another consequence is that for countries with low institutional quality, reducing corruption leads to increased taxes because after reducing corruption, taxes are collected more effectively and, of course, output is reduced. Finally, for countries with moderate to high institutional quality, reducing corruption leads to lower taxes and increased production.

A country's institutional development may change the impact of monetary policy because of its impact on the behavior of macroeconomic actors. These factors are mainly banks and investors, and depending on the constraints imposed by the institutional environment, they respond to the same policy in different ways. Traditional money transfer channels have been described in Boivin, Kiley, and Mishkin (2010). The interest rate channel is the main channel for monetary policy transmission. Interest rates affect the cost of capital and therefore investment costs. The institutional environment may affect this channel because investors' reactions to changes in interest rates depend on the constraints imposed by the institutional environment. Roderick and Subramanian (2009) argue that liberalization of capital accounts and the subsequent reduction in domestic interest rates did not contribute to output growth. Because many economies do not have enough demand for investment. The authors claim that the low investment demand that exists in many countries is the result of low social returns. Poor property rights, poor contract enforcement and fears of expropriation are some of the reasons for private investors' return on investment. As a result, expanding financial resources does not promote increased investment and economic growth.

The bank's lending channel is also subject to institutional quality intervention. Under this mechanism, an expansionary monetary policy increases bank lending, investment costs and returns. The potential impact of the institutional environment on this channel can be found in Mishra et al. (2012). The authors illustrate that imperfect competition in the banking sector can change the effectiveness of this channel. A country's poor institutional quality may be associated with poor quality of regulation, which can lead to poor protection of market competition. As a result of market power, banks tend to limit lending and higher interest rates due to weak institutional environments. The transfer of monetary policy through the bank's lending channel will depend on the institutional environment.

The balance sheet channel arises from the existence of asymmetric information in credit markets. A contractionary monetary policy reduces the net worth of agents, increases unfavorable choices and ethical problems in credit markets. Rising policy rates will be transmitted to the real economy through this channel because lenders will be reluctant to fund, raise interest rates or reduce the supply of loans. As a result, we can say that the balance sheet channel may have different intensities depending on the institutional environment. Porta, Lopez-de-silanes, Shleifer, and Vishney (1998) provide evidence that countries with poor investor protection, due to the nature of legal legislation and the quality of contract enforcement, have smaller capital markets (equity and debt markets) than To countries with stronger investor support. Finally, the authors provide evidence that countries with poor investor protection have smaller capital markets (equity and debt markets) than countries with stronger investor protection due to the nature of the legislation and the quality of contract enforcement

Kaminsky et al. (2004) Claim that their research is the first systematic study in the empirical study of the characteristics of the monetary policy cycle in developing countries. In their research, they have tried to use the data of 104 countries to examine the interactions between monetary and fiscal policies with capital flows and to study the cyclical status of these concepts. In this research, precise quantitative definitions of pro-cyclical and anti-cyclical concepts based on correlation coefficients are presented. The main finding of this study is that monetary policy in emerging economies has exhibited a cyclical behavior. That is, policy rates (short-term interest rates) have fallen in good economic conditions and increased in bad economic conditions.

Calderon et al. (2010) point out that the ability of developing countries to adopt optimal stabilization policies were adjusted due to external borrowing constraints, a fragile financial system and high levels of external debt, and shortcomings in domestic and foreign financial transactions. Also, the lack of financial integration has been adjusted. The authors point out that pro cyclical policies can have political and institutional origins, using data from 115 developing and developed countries (including Iran) for the period 1984 to 2008. They find that institutional quality plays a key role in the ability of countries to implement counter cyclical policies. The results show that macroeconomic policies (both monetary and fiscal) in countries with high levels of institutional quality are counter cyclical and in countries with low levels of institutional quality are pro cyclical.

Duncan (2014) points out that in developing countries, unlike developed countries, monetary policies are counter cyclical and introducing institutional quality as the reason. With this attitude, the author examines the relationship between institutional quality and the cyclical nature of monetary policy and volatility. The results of this analysis indicate that a change in institutional quality can lead to a change in the state of monetary policy against business cycles.

Thornton and Vasilakis (2017) tried to explain why counter-cyclical monetary policies were adopted. In their study, authors examined the relationship between the adoption of an inflation targeting regime and the state of monetary policy cycles in developing and developed countries. The results of this analysis show that the adoption of an inflation targeting regime has a significant effect on the occurrence of counter-cyclical monetary policy. In other words, in this study, different mediating goals have been introduced as the origin of differences in the cyclical behavior of policies in different countries.

Olufemi and Abiodun (2018) examined the state of monetary policy cycles and the relationship of these policies to economic growth and industrial growth in Nigeria. This analysis suggests that monetary policy in Nigeria is counter cyclical. Authors concluded from empirical results that monetary policy in Nigeria has the potential to have a significant impact on the country's economic growth.

Nawaz et al. (2018) examined the impact of institutional quality on the status of monetary and fiscal policy cycles in Bangladesh, India, Pakistan and Sri Lanka using data from 1984 to 2015. In this study, different econometric techniques with panel data have been used. The results of this study show that the monetary and fiscal policies implemented in all countries were counter cyclical due to current level of institutional quality.

Review of the above studies shows that in the literature on the subject it is still couldn't reach to a consensus on issues such as the optimality or non-optimality of counter cyclical (and pro-cyclical) policies and even different effectiveness of cyclical behaviors of monetary policy in different countries. So this situation made the cyclical behavior of monetary policy as a dynamic research field in economic literature.

Investigating the studies conducted in Iran shows that a significant number of studies in Iran have examined various aspects of monetary policy. Among these, many studies can be found that have pointed to the inefficiency and failure and even the negative or adverse effects of monetary policy in Iran.

Mojtahed (2009) reviewing the trend of some macroeconomic variables in Iran. Author concluded that the Central Bank of Iran has failed to achieve its goals. He considers the main reasons for this failure to be coercive and external events (such as war and sanctions), the dominance of fiscal policy over monetary policy and the weakness or lack of appropriate monetary instruments in Iran.

Komijani et al. (2010) state that due to structural issues, increasing the amount of liquidity in the Iran's economy (as an indicator of monetary policy) has not been able to affect investment and production. These researchers believe that fluctuations in oil revenues in Iran have effectively taken control of the monetary base out of the hands of the central bank.

The results of Dadgar and Nazari study (2015) also show that monetary policy, despite creating various fluctuations, has not had a significant effect on national production in the short run and has had a negative effect on economic growth in the long run.

Jalali Naeini and Naderian (2016) acknowledged that the design of monetary policy and the choice of an appropriate exchange rate regime largely depend on the economic structure and political economy of each country. Therefore, it is not possible to prescribe appropriate monetary instruments and policies for Iran based on the assumptions of standard economic models and analyzes. They argue that interest rates in economies experiencing low levels of financial development cannot be considered as a good equipment for stabilization.

Kasaeipour and Erfani (2018) in their study without examining the realized behavior of monetary policy cycles in Iran, using a Stochastic Dynamic General Equilibrium model, have concluded that optimal monetary policy in Iran is counter cyclical.

According to the reviewed studies, in the present study, we will try to investigate the effect of institutional quality on cyclical behavior of monetary policy through a Dynamic Stochastic General Equilibrium model for Iran.

3. Methodology

The use of DSGE models as a potential tool for analyzing the policies has played a role in promulgating and expanding these models from academic settings to the policy-making circles. Before entering the symbolic and exact description of the problem of the business entities and consumers' optimization, a simple diagram will be used for clarifying the interactions between the intra-economy functionaries. The thing underlined in this method of exhibition is that although these models offer a highly molded display of the real economy, the DSGE models offer a regular method for thinking about the vista of economy and its interaction with policies.

The model offered is a small model aiming at the construction of a mechanism for transferring the monetary policy that shares the model's main properties with most of DSGE's specificities. Therefore, the model will be only concentrated on the behavior of three substantial macro-level economic variables, namely inflation, GDP growth and short-term interest rate.

3.1. Households and the total demand block

In the center of the substantial demand side in DSGE models, there is a negative relationship between the real interest rate and the optimum expenditures. In the simple model proposed herein, expenses are the only source of consumption. Therefore, there is a negative relationship manifested between the interest rate and demand in the consumption decisions of the households.

This decision is modeled in such a way that it can stem from the optimal decision of a representative big household (this big household can include the whole population of a country). This household maximizes its expected and discounted lifelong optimality since an arbitrary time (t_0) on:

$$\max_{\{B_{t_0+s}, C_{t_0+s}, [H_{t_0+s}(i)]_{i\in[0,1]}\}_{s=0}^{\infty}} E_{t_0}\sum_{s=0}^{\infty}\beta^s\left\{b_{t_0+s}[\log(C_{t_0+s}-\eta C_{t_0+s-1})-\int_0^1 v(H_{t_0+s}(i)di]\right\}$$

Provided that the budget limitations' tail takes the following form:

$$P_tC_t+\frac{B_t}{R_t}\le B_{t-1}+\int_0^1 w_t\,(i)H_t(i)di$$

To solve the above optimization problem, we make a Lagrangian system in the following form:

$$L=E_{t_0}\sum_{s=0}^{\infty}\left\{\beta^s\left[b_{t_0+s}\left(\log(C_{t_0+s}-\eta C_{t_0+s-1})-\int_0^1 v(H_{t_0+s}(i)di\right)\right.\right.$$
$$-\Lambda_{t_0+s}\left(P_{t_0+s}C_{t_0+s}+B_{t_0+s}R_{t_0+s}^{-1}\right)-B_{t_0+s-1}$$
$$\left.\left.-\int_0^1 w_{t_0+s}\,(i)H_{t_0+s}(i)di\right]\right\}$$

With preliminary conditions in the following form:

$$\frac{\partial L}{\partial B_t}:\Lambda_t=\beta E_t[\Lambda_{t+1}]R_t$$

$$\frac{\partial L}{\partial C_t}:\frac{\Lambda_t}{b_t}P_t=\frac{1}{C_t-\eta C_{t-1}}-\eta E_t\left[\frac{\beta b_{t+1}/b_t}{C_t-\eta C_{t-1}}\right]$$

for $t=t_0, t_{0+1}, \dots, \infty$, and:

$$\frac{\partial L}{\partial H_t(i)}:\frac{v'(H_t(i))}{\Lambda_t/b_t}=W_t(i)$$

Combining the two equations, we will have:

$$\frac{1}{C_t}=E_t\left[\frac{\beta b_{t+1}}{b_t}\frac{1}{C_{t+1}}\frac{R_t}{P_{t+1}/P_t}\right]$$

A linear logarithmic approximation of Euler equation following a little displacement gives the following relation:

$$y_t=E_ty_{t+1}-(i_t-E_t\pi_{t+1})-\delta_t$$

In more precise terms, this equation creates a relationship between a current output and the total expected future path of the real interest rates in such a way that solving of the equation for future (forward) gives the following relation:

$$y_t=-E_t\sum_{s=0}^{\infty}(i_{t+s}-\pi_{t+s+1}-\delta_{t+s}$$

Through this path, the prospective monetary policy expectations directly influence the current economic conditions. As it was explained in the discussion about the role of the policy expectations, this equation actually shows that the prospective interest rates are important for the determination of today's outputs to the extent of the current level of the short-term interest rate.

3.2. Business entities and total supply block

The supply block of a DSGE model deals with the issue as to how the business entities determine their prices as a function of the demand level at hand. The intermediate business entity i hires a number of ($H_t(i)$) units from the workforce of the type i from the completely competitive market so as to produce ($Y_t(i)$) unit of the intermediate goods i with the following technology:

$$Y_t(i)=A_tH_t(i)$$

Where, (A_t) denotes the general efficiency of the production process. It is mostly assumed that (A_t) follows an exogenous stochastic process the random fluctuations of which embrace the unpredicted productivity variations (that are often experienced by the modern economies) in the course of time; business entities determine the prices on the condition of this requirement that they satisfy the demand for their goods. Such a demand is placed by the business entity f and it is in the following form:

$$Y_t(i)=Y_t\left(\frac{P_t(i)}{P_t}\right)^{-\theta_t}$$

Let us call ($\Omega\subset[0,1]$) a subsystem of the business entities that are capable of determining an optimal price at time t; they maximize the discounted flow of the expected future profits through considering the idea that there is this probability (α^s) that they might be obliged to keep on for s periods with the price they have determined in the current period. The objective function for each of these business entities takes the following form:

$$\max_{P_t(i)}E_t\sum_{s=0}^{\infty}\alpha^s\frac{\beta^s\Lambda_{t+s}}{\Lambda_t}\{P_t(i)Y_{t+s}(i)-W_{t+s}(i)H_{t+s}(i)\}$$

For all $i\in\Omega_t$ and conditioned to the production function and also under the condition of this extra limitation that they must satisfy the demand for their products at any point of time, that is to say:

$$Y_{t+s}(i)=Y_{t+s}\left(\frac{P_t(i)}{P_{t+s}}\right)^{-\theta_{t+s}}$$

The first order condition of this optimization problem takes the following form:

$$E_t\sum_{s=0}^{\infty}(\alpha\beta)^s\Lambda_{t+s}Y_{t+s}P_{t+s}^{\theta_{t+s}-1}\left[P_t^*(i)-\mu_{t+s}\frac{W_{t+s}(i)}{A_{t+s}}\right]=0$$

The final cost of a business entity that is still obliged to keep its price equal to $P_t(i)$ at time t+s can be rewritten in the following form:

$$S_{t+s}(i)\equiv\frac{W_{t+s}(i)}{A_{t+s}}=\frac{v'[H_{t+s}(i)]}{\Lambda_{t+s}/b_{t+s}}\frac{1}{A_{t+s}}=\frac{v'\left(\frac{Y_{t+s}}{A_{t+s}}\left(\frac{P_t(i)}{P_{t+s}}\right)^{-\theta_{t+s}}\right)}{A_{t+s}\Lambda_{t+s}/b_{t+s}}$$

An approximation of the New-Keynesian Phillips curve (a relationship between the current inflation, expected future inflation and the real final cost) is resulted in the following form:

$$\pi_t=\xi s_t+\beta E_t\pi_{t+1}+\mu_t$$

Therefore, like before, the previous equation can be repeated forwardly (towards future) and obtain the following expression:

$$\pi_t=E_t\sum_{s=0}^{\infty}\beta^s\,(\xi s_{t+s}+\mu_{t+s})$$

3.3. Monetary policy

It is assumed in the discussed model that the interest rates are determined based on the policy rule:

Foreign Investors:

In this model, the foreign investors have a preferences function in the form shown below:

$$E_0 \sum_{t=0}^{\infty} \beta^t U^*(C_{ft}^*)$$

They also have an optimality function in the following form:

$$U^*(C_{ft}^*) = \frac{(C_{ft}^*)^{1-\chi_f}}{1-\chi_f}$$

The foreign investment can be per se made in the following two forms:

- Direct investment in the production activities (k_f) and
- İnvestment in financial market (D_f^f). Output (R_f) is the weighted average of the investment output in the forms of (k_f) and (D_f^f).

It is worth mentioning that the main variables of this section are based on an intermediate goods produced by a business entity owned by the foreigners with its global price (P_I^*) being fixed and normalized to unity. Therefore, the foreign investment's wealth has been allocated to consumption and investment in the current period:

$$\Omega_{ft} = p_c^* C_{ft}^* + B_{wt} + B_{ft}$$

Where, (p_c^*) is an exogenous relative price defined as $p_c^* \equiv P_f^*/P_I^*$ with the price of the foreign goods being based on the intermediate goods. In order to induce a standing balance, the portfolio's moderation cost is taken into account in the model. Resultantly, the wealth of the foreign investors will take the following form in the next period:

$$\Omega_{ft+1} = R_w B_{wt} + R_{ft+1} B_{ft} - \psi_w(B_{wt}) - \psi_f(B_{ft})$$

Where, (ψ_w) and (ψ_f) are functions that impose a cost for moderating the investment into the investor as explained below:

$$\psi_w(B_{wt}) = \frac{\psi_w}{2}(B_{wt} - \bar{B}_w)^2$$

$$\psi_f(B_{ft}) = \frac{\psi_f}{2}(B_{ft} - \bar{B}_f)^2$$

Where, (ψ_w), (ψ_f), $(\bar{B}_w)$ and $(\bar{B}_f)$ are the fixed and positive parameters.
The first order foreign investment optimization conditions express that:

$$(C_{ft}^*)^{-\chi_f} = \beta E_t (C_{ft+1}^*)^{-\chi_f} [R_w - \psi_w(B_{wt} - \bar{B}_w)]$$

$$(C_{ft}^*)^{-\chi_f} = \beta E_t (C_{ft+1}^*)^{-\chi_f} [R_{ft+1} - \psi_f(B_{ft} - \bar{B}_f)]$$

Considering the certainty of R_w and R_f, the four recent equations determine the optimal choices of $C_{ft}^*, \Omega_{ft}, B_w$ and B_f for foreign investment.

It is assumed in this model that the foreign investors are also active in other economies, as well, and invest an amount of physical capital (K_f) and hire workforce (L_f) services to produce an intermediate goods (Y_f). The business entities owned domestically only need workforce for making productions.

The total size of the portfolio the foreign investor applied in an economy in the form of physical and financial investment is equal to:

$$B_{ft} = K_{ft} + D_{ft}^f$$

It has to be highlighted that it is assumed in the model that the foreign investors make investments in the assets that are based on the intermediate goods and promulgated by the internal households.

When doing business in an open small economy, the foreign investors encounter a thing we call institutional risk which has been defined as the risk including the institutional quality within the format of the costs related to the weak protection of the proprietary rights, weak enforcement of the contracts and inefficient or corrupted judicial system.

The foreign investor is faced with two situations in the presence of this risk:

- A situation wherein the institutional quality is high; under such conditions, there is an exogenous probability $(q \epsilon [0,1])$ that no loss may occur and they can continue their activities normally.
- A situation wherein the institutional quality is low; under such conditions, one part of the output $(1 - \emptyset)$ might be lost with the probability of $(1 - q)$.

In this structure, q represents the level of the institutional quality in the model. Before offering more details for every state, several definitions should be given. Let (δ), (I_f) and (FCF_f) denote the depreciation rate, physical investment and the assets' cash flow in the form of foreign currency, respectively. These two last variables are defined in the following form:

$$I_{ft} = K_{ft} - (1-\delta)K_{ft-1}$$

$$FCF_{ft} = D_{ft}^f - (1+r_d)D_{ft-1}^f$$

In the high institutional quality state, the dividends of the foreign investor would be equal to:

$$\pi_{ft}^H = Y_{ft} - \frac{w_t}{s_t} L_{ft} - I_{ft} - FCF_{ft}$$

Where, W denotes the real wage (which is based on the domestic goods as introduced in the forthcoming sections) and S designates the real foreign currency exchange rate (nominal exchange rate divided by the price of the domestic goods).

If the foreign investor decides to make direct investment inside a country, the production function will be in the following form:

$$Y_{ft} = A_{ft} K_{ft-1}^{\alpha_k} L_{ft}^{\alpha_l}$$

Where, $0 < \alpha_k + \alpha_l < 1$ and L_f are workforce hired from the internal households and (K_f) is the capital directly applied with foreign ownership in the domestic production process and (A_{ft}) is the productivity term that follows a random process as explained below:

$$A_{ft} = (A_{ft-1})^{\rho_{af}} e^{\xi_{ft}}$$

Where, $(\rho_{af} \epsilon (0,1))$ and $\xi_{ft} \sim N(0, \sigma_{ft}^2)$.

In the state that the institutional quality is low, it is assumed that the business entities owned by the foreigners lose one part $(1 - \emptyset)$ of the output (Y_f). In other words, there is a possibility equal to (1-q) for the foreign investors to lose part of their output as a result of low institutional quality. In such a situation, the dividends will be equal to:

$$\pi_{ft}^L = \emptyset Y_{ft} - \frac{w_t}{s_t} L_{ft} - I_{ft} - FCF_{ft}$$

Using the above-presented materials, the expected dividends expressed based on foreign currency can be written in the following form:

$$\pi_{ft} = q\pi_{ft}^H + (1-q)\pi_{ft}^L$$

$$\pi_{ft} = Q A_{ft} K_{ft-1}^{\alpha_k} L_{ft}^{\alpha_l} - \frac{w_t}{s_t} L_{ft} - I_{ft} - FCF_{ft}$$

Where, $Q = q + (1-q)\emptyset$ and we consider it as the institutional quality index. Since the productions made by the foreign investors will be exported, they are faced with a demand with an unlimited elasticity for their goods that are offered with an exogenous price P_I^*. For simplicity, it has been assumed that (P_I^*) and (r_d) are fixed for every period and has been normalized to unity.

Now, considering $\Lambda_{ft} \equiv \beta^t U_C^*(C_{ft}^*)$ as the random discount factor, the foreign investment optimization problem will include the choices of (D_f^f) and (k_f) in an economy for maximizing the current discounted values of the expected dividends, that is to say:

$$E_0 \sum_{t=0}^{\infty} \Lambda_{ft} \pi_{ft}$$

Considering the wealth constraints and the initial values of (D_{f-1}^f) and (k_{f-1}), the optimization of the above expression entails establishment of the two following conditions:

$$E_t \frac{\Lambda_{ft+1}}{\Lambda_{ft}} \left[\alpha_k Q A_{ft} K_{ft-1}^{\alpha_k - 1} L_{ft}^{\alpha_l} - (r_d + \delta)\right] = 0$$

$$\alpha_l Q A_{ft} K_{ft-1}^{\alpha_k} L_{ft}^{\alpha_l - 1} = \frac{w_t}{s_t}$$

3.4. Internal households

In the model used in the present study, the internal households have similar preferences in the following form:

$$E_0 \sum_{t=0}^{\infty} \beta^t U(C_t, L_t)$$

The households' optimality function takes the following form:

$$U(C_t, L_t) = \frac{{C_t}^{1-\chi_h}}{1-\chi_h} - v_0 \frac{L_t^v}{v}$$

Where, (L_t) points to the workforce and (C_t) is a combination of the consumption of the domestic and foreign goods. The combination process is carried out using the following function:

$$C_t = \zeta C_{ht}^{\gamma} C_{ft}^{1-\gamma}$$

Where, $\zeta \equiv \left[\gamma^{\gamma}(1-\gamma)^{1-\gamma}\right]^{-1}$ is a fixed amount and γ denotes the relative preferences for the domestic goods and C_h is a basket of various goods produced internally. This variable has been summed-up using the following function:

$$C_{ht} = \left[\int_0^1 (C_{ht}(j))^{\frac{\vartheta-1}{\vartheta}} dj\right]^{\frac{\vartheta}{\vartheta-1}}$$

Where, $\vartheta > 1$ is the substitution elasticity of various types of goods, assuming that the unit price rule is governing and also presuming that the price of the foreign goods is fixed and normalized to unity ($P_f^* = 1$), the consumption price index (or the minimum cost of a summed consumption unit), P, is defined as shown below:

$$P_t = (P_{ht})^{\gamma}(S_t)^{1-\gamma}$$

With a cumulative function in the following form:

$$P_{ht} = \left[\int_0^1 (P_{ht}(j))^{1-\vartheta} dj\right]^{\frac{1}{1-\vartheta}}$$

Where, (S_t) is the nominal currency exchange rate and (P_{ht}) is the local price of the domestic goods.

Considering the certainty of the prices and interest rate, households have the following budget limitation:

$$P_t C_t + T_t + (1+r_{t-1}) D_{ht-1}^{Nh} + (1+r_d) S_t D_{ht-1}^{f} = W_t L_t + \Pi_{ht} + D_{ht}^{Nh} + S_t D_{ht}^{f}$$

The household chooses the consumption levels, workforce and keeping bonds for maximizing the expected optimality in respect to the budget limitation, the initial values of (D_{h-1}^{f}) and (D_{h-1}^{h}) and the appropriate transversality conditions. Under such circumstances, the optimization necessitates that:

$$v_0 {C_t}^{\chi_h} L_{t-1}^{v} = \frac{W_t}{P_t}$$

$$E_t \frac{\Lambda_{ht+1}}{\Lambda_{ht}} \left[(1+r_t) - (1+r_d)\frac{S_{t+1}}{S_t}\right] = 0$$

The first order conditions express that:

$$C_{ht} = \gamma \frac{P_t C_t}{P_{ht}}$$

$$C_{ft} = (1-\gamma)\frac{P_t C_t}{S_t}$$

3.5. Internally possessed business entities

In this model, the domestic production is carried out by means of a range of the exclusive competitors. The business entity (j), with $(j \epsilon [0,1])$, applies the following linear technology:

$$Y_{ht}(j) = A_{ht} L_{ht}(j)$$

Where, $(Y_h(j))$ denotes the internal output of the type (j) and (A_h) is the productivity expression the behavior of which follows the following random process:

$$A_{ht} = (A_{ht-1})^{\rho_{ah}} e^{\xi_{ht}}$$

Where, $(\rho_{ah} \epsilon (0,1))$ and $\xi_{ft} \sim N(0, \sigma_{ht}^2)$.

The dividends of the internally owned business entities will be in the form below:

$$\pi_{ht}(j) = P_{ht}(j) Y_{ht}(j) - W_t L_{ht}(j)$$

If (mc_t) is considered as referring to the final (real) cost of the business entity, the cost minimization would be indicative of the idea that:

$$\frac{W_t}{P_{ht(j)}} = mc_t(j) \frac{Y_{ht}(j)}{L_{ht}(j)}$$

Again, (Λ_{ht}) is considered as the random discount factor and the business entity is expected to maximize the following function:

$$E_t \sum_{\tau=0}^{\infty} \theta^{\tau} \left[\frac{\Lambda_{ht+\tau}}{\Lambda_{ht}} \left(\tilde{P}_{ht} Y_{h,t+\tau|t} - TC_{T+\tau}(Y_{h,t+\tau|t})\right)\right]$$

Provided that the demand for the domestic goods be in the following form:

$$Y_{h,t+\tau|t} = \left[\frac{\tilde{P}_{ht}}{\tilde{P}_{ht+\tau}}\right]^{-\vartheta} Y_{h,t+\tau}^{d}$$

In this case, the first order condition takes the following form:

$$E_t \sum_{\tau=0}^{\infty} \theta^{\tau} \left[\frac{\Lambda_{ht+\tau}}{\Lambda_{ht}} Y_{h,t+\tau|t} \left(\tilde{P}_{ht} - \bar{\vartheta} MC_{t+\tau|t}\right)\right] = 0$$

Since P_{ht} is the domestic goods' price index, the previous assumption about the determination of the price related to this index takes the following form:

$$P_{ht} = [\theta (P_{ht-1})^{1-\vartheta} + (1-\theta)(\tilde{P}_{ht})^{1-\vartheta}]^{\frac{1}{1-\vartheta}}$$

3.6. Foreign demand for the domestic goods

The foreigners' consumption of the domestic goods features a unit elasticity as explained below:

$$X_{ht} = \frac{S_t X_t}{P_{ht}}$$

Where, (X_t) follows an exogenous random process as explained beneath:

$$X_t = (\bar{X})^{1-\rho_x} (X_{t-1})^{\rho_x} e^{\xi_{xt}}$$

With a stable amount of $\bar{X} > 0, \rho_x \epsilon (0,1)$ and $\xi_{xt} \sim N(0, \sigma_x^2)$.

Monetary and Financial Authority:

The monetary financial authority balances its own budget:

$$QT_t = P_{ht} G_{ht}$$

The monetary authority controls the interest rate to minimize the loss function which is directly dependent on the inflation and the output gap. The loss function corrected in this study is in the following form:

$$(1/2) E_t \sum_{\tau=0}^{\infty} \beta^{\tau} \left[\pi_{ht+\tau}^2 + \psi_y \hat{Y}_{t+\tau}^2 + \psi_s (\Delta s_{t+\tau})^2\right]$$

The central bank follows its goal by controlling R for minimizing the loss function.

Market Liquidation Conditions:

The market liquidation conditions can be written in the following form in this model:

$$D_{ft}^{f} = D_{ht}^{f}$$

$$D_{ht}^{h} = 0$$

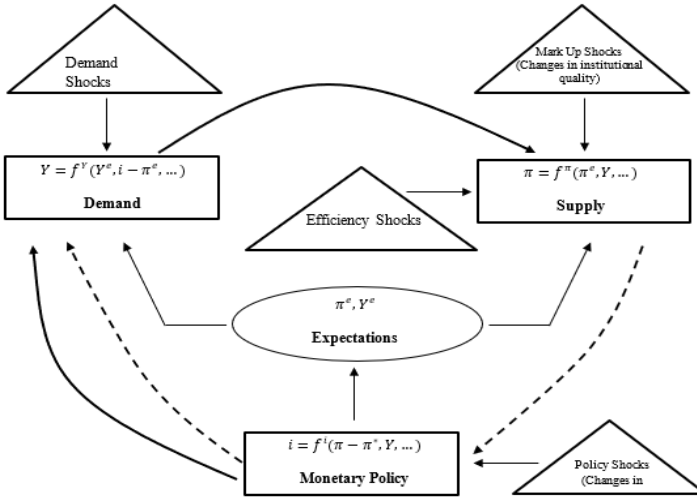
$$Y_{ht} = C_{ht} + G_h + X_{ht}$$

$$L_t = \int_0^1 L_{ht}(j)dj + L_{ft}$$

$$s_t\left(D_{ft} - D_{ft-1}\right) - r_d s_t D_{ft-1}^{f} + \left(W_t L_{ft} + X_{ht} - s_t C_{ft}\right) = 0$$

The last equation points to the balancing of the economy payments based on the domestic goods.

For summarization of the model, a graphic chart which is developed by Sbordone & et al, 2010, with a little changes due to the aim of this study is represented below:



3.7. Important variables

A review of various studies shows that different variables have been used to represent monetary policy. It is clear that the tools of monetary policy in different countries can vary depending on the prevailing economic environment. A review of studies conducted in Iran shows that money supply and interest rates (profit rate) are the most widely used variables to represent monetary policy in the country.

Studies such as Mojtahed (2009), Komijani et al. (2010) and Dadgar and Nazari (2015) have acknowledged that the conversion of oil foreign exchange earnings into Rial (Iranian Currency) and the inability of the Central Bank to neutralize the effect of this fiscal policy, increase the money base and ultimately the growth of liquidity. It is clear that the emergence of this practice challenges the interpretation of money supply as a representative variable of monetary policy. So with considering the aforementioned points and taking into consideration that implementing money supply in DSGE models took monetary policy countercyclical as an assumption, in this study interest rate is used as the proxy of monetary policy. But, it must considered that interest rate in conventional definition is prohibited in Iran's banking system and some forms of Islamic contracts were used instead. For this reason in this study average interest rates (profit rate) on loans granted to different economic sectors is used as monetary policy proxy. International Country Risk Guide (ICRG) index is used as institutional quality proxy improvised in this model.

3.8. Calibration

As it was observed in the DSGE model constructed above, such models usually incorporate a large number of parameters and random processes. The amounts of the used parameters have been summarized in Table (1).

4. Findings and discussion

In line with this, if the coefficient of correlation between the output and the interest rate ($\rho_{r,y}$) is considered as the index of the monetary policy's cyclic behavior, the index's reaction to the changes in the institutional quality (Q) can provide us with the answer to the study question.

Table 1: Amounts of Parameters Used in the Model

Parameter	Explanation	Amount	Method of Value Assignment
χ_h, χ_f	Risk-aversion coefficient	2.5	Tavakkolian and Sarem (2017)
β	Subjective discount factor	0.962	Tavakkolian and Sarem (2017)
$\bar{B}_f$	Cost of (internal) portfolio moderation	7.00	Calibration
$\bar{B}_w$	Cost of (external) portfolio moderation	0.08	Duncan (2014)
$\psi_w, (\psi_f)$	Portfolio moderation cost	0.001	Duncan (2014)
α_k	Capital's share of production	0.35	Devereux et al (2006)
α_l	Workforce's share of production	0.55	Devereux et al
δ	Depreciation rate	0.025	Devereux et al
R_w	Interest rate without global risk	0.01	Duncan (2014)
r_d	Interest rate of the foreign capital	0.11	Study estimations
$1 - \emptyset$	Amount of lost production under unfavorable institutional conditions	0.5	Duncan (2014)
$\rho_{ah}, \rho_{ah}, \rho_x$	Stability of the productivity shock	0.6	Tovar (2005) and Galí and Monacelli (2005)
σ_{af}, σ_{ah}	Turbulence of the productivity shocks	0.005	Duncan (2014)
θ	Degree of price stickiness	0.6	Duncan (2014)
ϑ	Substitution elasticity between the types	6	Galí and Monacelli (2005
v	Work non-optimality curve	2	Duncan (2014)
v_0	Work non-optimality	1	Duncan (2014)
γ	Preferences' inclinations towards domestic goods	0.75	Duncan (2014)
σ_x	Turbulence caused by the foreign demand shocks	0.037	Duncan (2014)
ψ_y	The weight of the output gap in loss function	0.5	Tavakkolian and Sarem (2017)
ψ_s	Currency exchange rate's decline weight in loss function	0.06	Duncan (2014)

As for the institutional quality index, it is necessary to say that since there is no specific subordinate relationship between our experimental representative of the institutional quality (ICRG index) and our theoretical representative of the institutional quality ($Q = q + \emptyset(1-q)$), we have defined the initial value of Q simply in a one-to-one form between Q and ICRG index in percentage. Since the range of the ICRG index's values is above 50% (up to about 0.90%), we have set equal to 0.5 and allowed q change between zero and unity. This results in the generation of Qs with values above 0.5 in unity domain. Next and after preliminary solving of the model, the values of the institutional quality index are increased by 0.1 and the amount of the correlation coefficient for the relationship between the output and the interest rate ($\rho_{r,y}$) is obtained. The investigation of the change process in these two variables in respect to one another leads us to the answer to the study question. The results of this analysis have been reported in Table (2).

The results presented in table (2) are reflecting the idea that the increase in the institutional quality brings about an increase in the coefficient of correlation between the output and interest rate. In more precise terms, the results obtained from several times of solving the Dynamic Stochastic General Equilibrium model show that the increase in the institutional quality makes monetary policies more counter-cyclic. It has to be noted that the higher the coefficient of the correlation between the output and the interest rate, the more the counter-cyclic behavior of the monetary policy will be corroborated.

Table 2: Results of Improving the Institutional Quality on the Cyclic Behavior of the Monetary Policies

Amount of Institutional Quality Index (Q)	0.5	0.6	0.7	0.8	0.9
Coefficient of Correlation between the Output and Interest Rate ($\rho_{r,y}$)	0.002	0.052	0.083	0.132	0.173

5. Conclusion

How does the institutional quality influence the monetary policy's cyclic behavior in Iran's economic environment? To find an answer to this question, use was made of a Dynamic Stochastic General Equilibrium (DSGE) model wherein the studies performed by Duncan (2014) and Kasa'eipour and Erfani (2018) were applied for contriving the institutional quality. The results obtained from solving the DSGE model indicated that the increase in the institutional quality will lead to the improvement of the timing for the implementation of the counter-cyclic monetary policies. In other words, it can be stated in an answer to the study question that the improvement of the institutional quality can change the monetary policy's cyclic behavior in Iran and transform it from a cyclical to a counter-cyclical state corruption.

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Seyed-nezamuddin MAKIYAN (ORCID ID: 0000-0002-8890-3890) is Associate Professor of Economics at the Faculty of Economics, Management and Accounting, Yazd University, Iran, scientific field of Econometrics and Finance. He received his B.A. and M.A. from Iranian universities and Ph.D. from Birmingham University, UK, in 1997. Since that time up to now he works as a member of Economics Department at Yazd University which is one of the biggest and a state university in Iran. Meanwhile, he was Director of Economics Department, 1997-2000, Deputy President, 2000-2002, and also President of the university from 2004-2007.

He has published a large number of scientific - research works in the field of Economics, including two books which are text books in Econometrics, one book in the field of Culture and Economic Growth and almost 100 hundred papers in Farsi and English. Currently, he works as a faculty member, teaching Econometrics and Financial Economics.

Javad Amareh (ORCID ID: 0000-0003-4531-1630) is graduated from Yazd University, Iran, in 2020. He has got his PhD in Monetary Economics. His PhD thesis is about the relationship between institutional quality and cyclicality behavior of monetary economics in Iran. He is working for Iran Ports and Maritime Organisation as a senior expert in credit allocation for civil projects and project management.