

"Do not fear to be eccentric in opinion,
for every opinion now accepted was
once eccentric."

Bertrand Russell



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Editorial Foreword

Dear Readers,

Welcome to an exciting new issue of our scientific journal ***Review of Applied Socio-Economic Research – Volume 22 / issue 2 / 2021***. Unfortunately, this issue is also published in the unprecedented challenge of Covid-19 pandemics, which negatively affected the business and society. In this context, topics related to the pandemics are still central in the academic and research debate, so in our journal, too. The current issue brings to your attention an empirical investigation into resistance management in the healthcare organizations in Bangladesh, focusing on the concept of resistance to change and interesting analysis on moral, sanction, and tax relaxation during the pandemic in Indonesia.

Review of Applied Socio-Economic Research – Volume 22 / issue 2 / 2021 provides a venue for high-quality research works of academics and researchers from worldwide - the United Kingdom, Ukraine, India, Russian Federation, Vietnam, Indonesia, and Republic of Korea. Besides the subjects related to pandemics mentioned above, they also approached various interest subjects for the transformative period we live in, such as sustainability. You can read interesting articles approaching the case of the Indian rural economy and the necessity of a regulated market in Tripura (India), the policy of payment for forest environmental services in Vietnam, or the resources' availability and state regulations measures to improve the regional economic performance and specificity of the zones of influence of the Great Silk Road and the Tea Road in Russian Federation.

Other topics are also of the same importance. For example, another research paper approaches current European challenges, such as financial inclusion, Fintech, and crowdfunding. New research questions arise in marketing dynamics, enlarging on the power of advertising claims for credence goods. Important concepts such as economic security or challenging concepts such as fine moving value in behavioral anomalies are also approached in this issue.

We want to thank our authors who found in our review an appropriate forum of academic and research debate on the above topics and to all those who contributed to the Review of Applied Socio-Economic Research – Volume 22 / issue 2 / 2021!

Enjoy your reading!

Cristina Barna
Editor in Chief
Review of Applied Socio-Economic Research

Resistance to change during uncertainty-perspective of Covid-19: An empirical investigation into resistance management in the healthcare organizations

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Abstract: *Resistance to change is widely recognized as the main reason for failure when it comes to any kind of change initiative. Despite its importance, there is still rather limited knowledge concerning the factors that trigger this behavior in the workplace. The primary purpose of this research study is to uncover the reason behind the resistance to change during uncertainty (perspective of covid-19). A mixed methodology approach was used in this research study to identify the factors that facilitate resistance management in healthcare organizations in Bangladesh. Data collection was semi-structured interviews with purposive sampling to select respondents which included top executives, human resource managers, CEOs, and line managers. To create themes and sub-themes computer software NVIVO has been used and 10 total interviews were recorded by the software. Clustered probability sampling method has been carried out for the questionnaire survey and analyzed the data with computer software SPSS. The results show that effective communication reduces the intensity of resistance in healthcare organizations. The study also revealed that resistance to change often helps to explore alternative perspectives.*

Keywords: change, communication, covid-19, healthcare, resistance to change, uncertainty.

JEL Codes: M10

1. Introduction

Resistance to change is one of the most frequently cited causes of change management failure (Erwin and Garman, 2018) and change resistance is the most common reaction of change recipients (Oreg et al, 2016). Many scholars like Lawrence (2009), Maurer (2017), Strebel, (2016), Waddell and Sohal, (2016) highlighted that the reason behind the failure of many change initiatives can be found in the resistance to change. It is often also thought that resistance is the consequence of an employee's reaction to organizational change (Keen, 2011; Folger and Skarlicki, 2011). Haslam et al, (2014) pointed out that the top reason for an organizational change programmed failure is the employee's resistance to change at all levels. Often the negative reactions (cognitive, behavioral, and affective) occurred in response to organizational change, and it is inherently a psychological response to an external event (Erwin and Garman, 2018; Witting, 2013). The reaction of the change recipient is often marked by illogical fear (Goncalves et al, 2012) but often recipients, the fears are real and significant losses are related to the change in the workplace (Mulki et al, 2012). Whether it is real or imagined, the fears and losses result in intellectual, behavioral, and emotional responses that create obstacles to change that many organizations cannot easily overcome (Smollan, 2016).

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Moreover, identifying and managing change resistance begins with defining the phenomenon and the key factors associated with the resistance. Often change resistance is the natural response to an external event (Ford and Ford, 2014) and many researchers have recognized its role in the change management since Lewin's (2001) development of the three-step model. Smollan (2016) stated that change recipients may resist the change by demonstrating a lack of interest, ignoring the change agents, vocally opposing the change initiatives, spreading rumors, boycotting, subverting the leadership, and destroying the leadership.

Additionally, in some modern healthcare organizations, change has occurred rapidly and continuously. As a result, it is very common for the employees to resist change because resistance itself works as a defense mechanism to maintain the status quo. Hultman (2017) highlighted that some employees are predisposed to resist change, even though the change outcome might ultimately be their benefit. Dent and Goldberg (2016) termed that resistance is the conduct adopted by employees to preserve their status quo when they feel insecure in the workplace, or their existing status is threatened by external matter. By doing so, they maintain their status and often engage in behavior that serves to disrupt, confront, and challenge the change authority. Resistance to change in the organization also carries negative behavior like confrontation, symbolizing an undesirable attitude and counter-productive behavior (Waddell and Sohal, 2016).

Furthermore, exploring change resistance, Ford and Ford (2014) identified the importance of change agents, integrity, honesty, authenticity, the ability to communicate, resolve conflicts and realistically appraise limits when addressing the phenomena of change resistance. It is very important to acknowledge, address and use change agents to focus on building relationships with the recipients, rather than avoiding resistance. To develop this focus, it is necessary to engage participatory management, and this is the attribute of an empowered workforce (Kanter, 2013).

Conversely, resistance often is viewed as a positive force for organizational change (Ford and Ford, 2014). Robbins (2016) asserted that resistance can help to test the commitment of those initiating the change, if resistance to change is based on valid viewpoints, then the important truth could be heard, understood, and considered by the change agent to make the change successful. Often resistance can help to weed out a bad idea that might not have been vetted by the change agent at the initial time, or any idea that might create an impulsive reaction by external events. Often resistance can be the outlet for the employee's reaction and energy during times of intense pressure. Resistance to change only becomes negative when it hinders the employee's adaptation to change and organizational progress (Kanter, 2013).

2. Research Elaboration

This research study is based on the private sector healthcare organizations in Bangladesh. The primary purpose of this research is to uncover reasons behind the resistance to change during uncertainty (perspective of covid-19). Besides, some important references have been made and invited key employees to share their views and experience about change resistance during the change management in the healthcare organizations. This research study used a mixed methodology approach to gather a collective voice of employees for the major debate of resistance management within healthcare organizations. As the study followed a mixed methodology approached, the sampling strategy was also a mixed-method sampling approached. Data collection was a semi-structured interview with purposive sampling and computer software NVIVO has been used to create themes and sub-themes. On the other hand, a clustered probability sampling method has been carried out for the questionnaire survey and analyzed collected data with the computer software SPSS.

Further, resistance to change is well thought out and one of the basic, fundamental causes of change failure (Lawrence, 2009; Maurer 2016; Strebel, 2014; Waddell and Sohal, 2016) and the major reason why change does not get implemented. Resistance can be defined as an expression of reservation that usually arises in reaction to change (Block, 2016). In addition, to make change successful, a lot of work needs to be done by different authors and researchers to find the major causes of employee resistance, and which properly deals with the symptoms of resistance. This will lead the organization to solve the problem which is causing the challenge to the change.

The result of the member's defiance to change is very necessary to mention, to reveal the miseries of resistance for the organization and the change programmed. The consequence of resistance is a slowdown in the change process and thereby an increase in the cost (Bryant, 2016), causing less productivity, high employee turnover, disturbance, and trouble with the change programmed. In an extreme situation, resistance can lead to organization weakening and breakdown (Coetsee, 2011; Coch and French, 2008).

Additionally, resistance to change cannot be denied, but constructively handled it can facilitate the change process and can be used to gather more ideas from the employees (Dent and Goldberg, 2016). It may help by improving the change process by utilizing objections rather than just overcoming them (Waddell and Sohal, 2016). The causes, natures, and factors of resistance to change, have been discussed by many authors and researchers. This has led to the causes being divided into different categories, based on the nature of resistance to change. There are four categories identified as different causes of resistance which are:

a) Psychological-Employee's negative perception, frustration, anxiety, preference for status quo, cognitive comfort, fear, past failure, cynicism, and mistrust (Kreitner, 2015; Dubrin and Ireland, 2013).

b) Materialistic-Loss of payment, comfort, status quo, and threat to job security (Dent and Goldberg, 2016).

c) Employee's Constant Capabilities-Employee's knowledge and expertise become obsolete, existing skills, capabilities gap, and embedded routine (Lawrence, 2009).

d) Employee's Concern for Firm-Weakness and fault of the change programmed, poor change communication, and conflict of perception about change (Dubrin and Ireland, 2013).

In fact, it is a very common saying that employees don't just defy all the changes, they merely resist changes that they cannot comprehend, or find psychosomatically intimidating (Baired et al, 2010; Hayes, 2010). To understand the resistance to change, Hayes (2010) pointed out that it is very necessary to identify factors associated with such resistance. Hayes (2010) identified these key factors as parochial self-interest, panic for failure, group-pressurized, and sluggishness. Another empirical research study reviewed by Piderit (2017) identified that there are three different underlines put on the conceptualization of change resistance as a cognitive state, an emotional state, and a behavior state.

This construct might be comprehended by the different sources of change resistance, and which can be at the individual or organization level (Strebel, 2016; Hellriegel et al, 2011; Dent et al, 2016). In fact, resistance to change is an action taken by an individual or group of people that is often perceived as a threat. Often resistance is the behavioral phenomenon that appears as a form of rejection or sometimes it is called negative action towards a change or adaptation to new methods (Franklin and Aguenza, 2016). Though plenty of reasons have been discussed for resistance to change, the Kotter and Schlesinger article entitled "Choosing Strategies for Change" is one of the widely known and most acceptable models as to why people resist change. This article was published in 1979 and recently re-edited and published in the "Harvard Business Review" in 2018. Kotter and Schlesinger (2018) identified four common reasons why people resist changes, and these are parochial self-interest, low tolerance for change, misunderstanding, and lack of trust, and difficult assessment.

This is the time when people think that they will lose something valuable because of the change. In this situation, people just think about their interests, not for their organization or other people. This often results in toxic political activities being revealed. Lack of trust and misunderstanding are the major reasons for change failure and severe resistance in the workplace. Frequently people perceive the opposite to what the change result will look like. Different assessments reveal that people often judge the change matter negatively. It is often considered that change might cost them without a valid reason, and the last one is low tolerance for change. These are psychological matters because people often fear that they will not be able to develop new skills to cope with the change.

2.1 Factors influencing resistance to change:

Resistance to change is an action taken by an individual or group that perceives change as a threat. Most of the time employees have a high inclination to change when the environmental factor presents no other options except change (Franklin and Aguenza, 2016). Therefore, there are so many factors influencing the resistance to change. These factors are either related to the organizational environment or the perception of the

employees for their own job. Kanter's (2013) and Traders (2012) identified some factors that influence the employee's resistance to change. There are some other factors also found by Davis et al, (2017). Davis (2011) pointed out that Trader's (2012) factors influence resistance are not practical and often these factors are not aligned with the organizational change implementation process. The factors influencing the resistance to change from Kanter's (2013) perspective are more practical, than those of Trader (2012) and Davis et al (2017). From both Trader (2012) and Davis et al, (2017) the perspective of their factor is more general than specific. For example, Trader (2012) has divided his factors affecting resistance into four general categories: personal interest, psychological effects, tradition and custom, and redistribution factor so that each of the categories can be considered in Kanter's perspective. Such psychological effects mentioned in Trader (2012) can be found in Kanter's model as a lack of confidence or showing tenacity in Kanter's perspective.

In contrast, Davies et al (2017) have classified factors that are more general and are divided into three categories which are economic, personal, and social factors, and that Kanter's (2013) and Traders, factors also can be considered. For example, fear of losing image or fear of losing competence can be replaced by another. These three factors provided by Kanter, Trader, and Davis et al (2017) are almost similar. But that method of classifying them is very different in terms of the holistic and realistic view. Kanter's (2013) factors influencing resistance to change are fear of the unknown, lack of control, being stubborn, the pressure of the habits, lack of support, and losing competence.

2.2 Overcoming resistance to change:

Resistance to change is the undeniable reaction towards change. Most of the time people naturally attack the change to defend the present situation to keep it intact (Bradutanu, 2015). Especially, when people think that their situation might be harmed by the change implementation in the workplace. But organizational change can master the feeling of uncertainty and severe resistance just by following a few steps. Ford and Ford (2014) proposed five organizational behaviors that help to minimize resistance to change, which boost awareness, return to purpose, building participation, complete the past, and change the change.

Boost awareness means promoting the dialogue between the change agent and change recipient across all levels of the organization. When people are informed about the journey for any change then they will be less resistant to change. The second point is returning to purpose. It means employees need to know the purpose of the change programmed and therefore they will co-operate with the journey. The third factor of change means here promoting discussion about the change and helping people to understand the objective of the change journey (Ford and Ford, 2014). When any change initiative is taken by an organization, it is very necessary to evaluate the past change and its lesson (Ford and Ford, 2014).

Furthermore, many managers and change agents underestimate not only the variety of ways people react to organizational change but also the ways they can positively influence the specific individual and group during the change (Kotter, 2016). Often, due to experience, most managers cannot understand the advantages and disadvantages of the methods with which are very familiar. Kotter and Schlesinger (2018) stated that there is nothing tougher to carry out or initiate than a new order of things. They highlighted some strategies for dealing with the resistance to change and these are education, participation, facilitation, negotiation, and coercion.

3. Results

3.1 Quantitative findings:

The first hypothesis testing 'effective communication has a negative association with the resistance to change' and to discuss it the Chi-square testing is essential. First, the case processing summary is discussing, and it is as follows:

H1. Effective communication has a negative association with resistance to change.

The table-1 described the case processing summary of the hypothesis of effective communication and resistance to change. The table-1 shows that all the datasets are valid and there are no missing values.

Table-1: Case processing summary.

Case processingsummary						
	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Effective Communication * Resistant to change	300	100.00%	0	0.00%	300	100.00%

The table-1 also described that all the responses are valid and therefore, there is no potential for invalid data in the data sets. The variable effective communication and least resistance to change was selected by all N=300 participants valid its 100%, the missing percentage is 0.00%. Now the next phase of the Chi-square test in cross-tabulation is going to discuss. Generally, cross-tabulation is called the joint distribution of the frequency based on two or more variables. it is usually used in categorical data analysis. The following cross-tabulation represents the two variables where the count indicates the actual frequencies obtained in the research survey. On the other hand, the expected count represents how many we would expect to find in this combination if the null hypothesis was true. The percentage of cross-tabulation provides a better representation of the data because there might some uneven numbers in the categories.

Table-2: Cross-tabulation of selected variables.

Effective communication* Resistant to change cross-tabulation							
		Resistance to change					Total
		1	2	3	4	5	
Effective Communication	1 Count	6	2	3	0	2	13
	Expected Count	9.1	1.8	0.9	0.3	1	13
	% Within Resistant to change	2.90%	4.90%	14.30%	0.00%	9.10%	4.30%
	2 Count	202	39	17	5	17	280
	Expected Count	196	38.3	19.6	5.6	20.5	280
	% Within Resistant to change	96.20%	95.10%	81.00%	83.30%	77.30%	93.30%
	3 Count	2	0	1	1	3	7
	Expected Count	4.9	1	0.5	0.1	0.5	7
	% Within Resistant to change	1.00%	0.00%	4.80%	16.70%	13.60%	2.30%
	Total Count	210	41	21	6	22	300
	Expected Count	210	41	21	6	22	300
	% Within Resistant to change	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Table-2 cross-tabulation table shows that when communication is effective it means participants agreed that they have effective communication, then resistance to change is also reduced. For example, only 6 participants, the observed value, who stated yes to effective communication participants then strongly agreed to least resistance to change while the expected value is also low at 9.1 participants and number of participants who

stated they are agreed also low at 2 participants only. When on the other hand, communication is not effective and participants stated no to effective communication, then resistance to change is high. It means there is a negative relationship between the two variables. The second row shows those who stated no to communication but indicated resistance to change was recognized at 202 participants, this is the observed count while the expected count is 96. The observed count is a more than expected count here. Overall, only 4.30% of participants stated that communication is effective, and 93.30% of participants stated no to communication and only 2.30% stated they did not know about effective communication.

However, an examination of the Chi-square test enables us to make sure whether the pattern developed in the cross-tabulation table is significant or not. In the following Chi-square test table, it can be noted that the Chi-square test is a non-directional hypothesis and that is indicated by the asymptotic significance (2 sided).

Table-3: Chi-square test.

Chi-square test			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	29.041a	8	.000
Likelihood Ratio	19.234	8	0.014
Linear-by-Linear Association	0.834	1	0.361
N of Valid Cases	300		

a 9 cells (60.0%) have an expected count of less than 5. The minimum expected count is .14.

The analysis of the above table-3 output shows that one of the important assumptions of Chi-square test has not been violated, expected cell frequencies should not be less than 5. The important thing in the Chi-square test is the value of Pearson Chi-square 29.04 with the 8 degrees of freedom, which is significant at the $p < .001$ level. So that it can be like,

$$X^2 = 29.04, df=8, p < .001 \text{ are}$$

The Chi-square test is usually used to determine whether the association in the cross-tabulation is a significant one. In the above Chi-square table, the p value is less than $p < 0.05$. However, to be statistically significant, the probability value needs to be 0.05 or less. In this case, it is found that the p value is less than 0.05. So that it can be concluded that there is a significant relationship between the two variables. Hence, the hypothesis better understanding of change management will provide a competitive advantage has a statistically significant association.

Another important thing is Cramer's effect size. The table-4 showed that Cramer's effect size statistics is 0.22 out of the possible maximum value of 1, which represents a weak association between effective communication and resistance to change.

Table-4: Symmetric measures.

Symmetric measure			
	Value	Approximate Significance	
Nominal by Nominal	Phi	0.22	.000
	Cramer's V	0.22	.000
N of Valid Cases		300	

This value is highly significant ($p < .001$), indicating that a value of the test statistics that is at least this big if the null hypothesis were true is unlikely to have happened if there were no association in the population.

These results confirm that the Chi-square test already told us but also give us an estimate of the effect size. The fourth hypothesis is that a high level of resistance will negatively affect the organizational change management process. To discuss the Chi-square test case processing test is essential and these are the following:

H2. High level of resistance will negatively affect the organizational change management process.

The table-5 showed that the case processing summary of the hypothesis resistance to change will negatively affect the organizational change management process. The output shows that all the 300 participants are valid, and no data set is missing.

Table-5: Case processing summary.

Case processing summary						
Cases						
Valid		Missing		Total		
N	Percent	N	Percent	N	Percent	
Resistant to change * Change Implementation process	300	100.00%	0	0.00%	300	100.00%

The table-5 also described that all the responses are valid which means there are no potential invalid data in the data sets. The variable resistance to change and change implementation process was selected by all N=300 participants 100% will no missing values and so the missing percentage is 0.00%. Now the next phase of the Chi-square test, the cross-tabulation will be discussed. Generally, cross-tabulation is called the joint distribution of the frequency based on many two or more variables. it usually used in categorical data analysis. The following cross-tabulation represents the two variables where the count indicates the actual frequencies obtained in the research survey. On the other side, the expected count represents how many we would be expected to find out in this combination if the null hypothesis was true. The percentage of cross-tabulation provides a better representation of the data because there might some uneven numbers in the categories.

Table-6: Cross-tabulation of selected variables.

Change implementation process * Resistance to change cross-tabulation						
		Resistance to Change				
		1	2	3	Total	
Change Implementation process	1	Count	30	6	0	36
		Expected Count	25.9	9.1	1	36
		% Within Resistance to change	13.90%	7.90%	0.00%	12.00%
		% Of Total	10.00%	2.00%	0.00%	12.00%
	2	Count	182	69	6	257
		Expected Count	185	65.1	6.9	257
		% Within Resistance to change	84.30%	90.80%	75.00%	85.70%
		% Of Total	60.70%	23.00%	2.00%	85.70%
	3	Count	4	1	2	7
		Expected Count	5	1.8	0.2	7

	% Within Resistance to change	1.90%	1.30%	25.00%	2.30%
	% Of Total	1.30%	0.30%	0.70%	2.30%
Total	Count	216	76	8	300
	Expected Count	216	76	8	300
	% Within Resistance to change	100.00%	100.00%	100.00%	100.00%
	% Of Total	72.00%	25.30%	2.70%	100.00%

The cross-tabulation table-6 shows that the change implementation process and resistance to change have a negative association. When participants stated yes to the change implementation process total percentage was 12.00% but also 30 participants responded yes resistance to change and that is the observed count but the expected count at 25.9 is less than the observed count and of 25.9 participants. It means there is a very little positive relationship between the two variables. On the other hand, among all the participants 85.00% believe that the change implementation process was not openly communicated to them when resistance to change is heavily increased by 185 observed counts where the observed count is larger than the expected count and it is 185 participants in total. When the change implementation process is not openly communicated when their resistance to change stated yes by 60.70% and no stated only 23.00% and don't know only 2.00% participants overall. It means resistance to change has a negative relationship with the change implementation process variable.

Therefore, an examination of Chi-square test table-7 will enable us to make sure whether the patterns developed in the cross-tabulation table are significant or not. In the following Chi-square test (table7), it can be noted that the Chi-square test is a non-directional hypothesis and that is indicated by the asymptotic significance (2 sided).

Table-7: Chi-square tests.

	Chi-square test		
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	21.226a	4	0.000
Likelihood Ratio	10.628	4	0.031
Linear-by-Linear Association	5.809	1	0.016
N of Valid Cases	300		
a 3 cells (33.3%) have an expected count of less than 5. The minimum expected count is .19.			

In analyzing output from the above table (table 7), one of the important assumptions of the Chi-square test has not been violated. That is the expected cell frequencies must not be less than 5. The important thing in the Chi-square test is the value of Pearson Chi-square of 21.226 with the 4 degrees of freedom, which is significant at the $p < .001$ level. So that it can be like,

$$X^2 = 21.226, df = 4, p = < .001 \text{ are}$$

The Chi-square test is usually used to determine whether the association in the cross-tabulation is a significant one. In the above Chi-square, table the p value is less than $p < 0.05$. However, to be statistically significant the probability value must be 0.05 or smaller. In this case, it is found that the p value is smaller than 0.05. So that it can be concluded that there is a significant relationship between the two variables. Hence, the hypothesis that a high level of resistance to change will affect negative the change implementation process has a statistically significant association.

Another important thing is Cramer's effect size. The table-8 showed that Cramer's effect size statistics is 0.18 out of the possible maximum value of 1, which represents the very weak association between the high level of resistance affecting resistance to change and the change implementation process.

Table-8: Symmetric measures.

Symmetric measure			
		Value	Approximate Significance
Nominal by Nominal	Phi	0.188	.000
	Cramer's V	0.188	.000
N of Valid Cases		300	

This value is highly significant ($p < .001$), indicating that a value of the test statistic that is at least as big as this, if the null hypothesis were true is unlikely to have happened if there is no association in the population. It results confirm what the Chi-square test already told, but it also gives us an estimate of the size of the effect.

3.2 Qualitative results - main findings:

Qualitative research is a messy and complex process. Using Nvivo, some visual illustration has been presented in this section of the research. At the end of this chapter, there is a table of themes included with frequencies, meaning, and evidence. Overall, 10 interviews have taken place for this research, and the most used words or most frequencies are presented below:

Table-9: Key themes of qualitative interview data.

Themes / Sub-Themes		Frequency	Meaning	Coded evidence
Key Factors of Resistance	Resistance to Change	4	Resistance is inevitable and part of change management. Understanding the level of resistance participant opinion is important.	<ol style="list-style-type: none"> 1. "Change resistance is ubiquitous and inevitable in the change management implementation process." (Jewel) 2. "Resistance is an integral part of the change management process. One of the important things of resistance is that the resistance can be many forms. It can be a grudge and abnormal behaviour." (Jumel) 3. "One of the most baffling problems I face is employee resistance to change. Such resistance may take a number of forms like persistent reduction in output, increase in the number of quits and requests for transfer, chronic quarrels, sullen hostility, wildcat or slowdown strikes, and, of course, the expression of a lot of pseudo logical reasons why the change will not work." (Nayla) 4. "Resistance to change is the most frequently cited cause of change failure and change resistance is the most common reaction of change recipients." (Asma)
				<ol style="list-style-type: none"> 1. "I think the key reason of change resistance is fear of the unknown, lack of trust among the employee's, loss of job security, bad timing and

	Factors Associated with Resistance	6	Some factors are vigorous and identifying these participant experiences would be much effective.	<p>individual predisposition towards change.” (Asma)</p> <p>2. “If the manager is new and has not yet earned the trust of their employees, then mistrust can manifest itself into resistance to change.” (Jumel)</p> <p>3. “I think of the biggest reason for workplace resistance is poor communication. Poor communication has many bad effects in the organization in short-run and long-run business benefits.” (Monuj)</p> <p>4. I think the key factor of resistance to change is the environment of mistrust and lack of respect. If the individuals in a department highly respect their manager because the manager has built up trust over a period, the team will be more accepting of any changes.” (Nayla)</p> <p>5. “I think one of the important factors of resistance to change is workplace culture. It is a fact that there is an intimate connection between our beliefs and business organization, our value and workplace relationships.” (Rownak)</p> <p>6. “I think workplace culture is the main source of resistance to change. In a bad culture all types of negative and dysfunctional activities are a practice and that creates building blocks to change.” (Rownak).</p>
	Steps to Overcome Resistance	6	What might be the steps to overcome the resistance from the participants' perspective is necessary for the effective solution.	<p>1. “My recommendation for overcoming resistance to change is to be trustful and supportive. Managers can deal with potential resistance to change is by being supportive.” (Jumel)</p> <p>2. “My recommendation for overcoming resistance to change is to identify the importance of change agent integrity, ability to communicate, resolve and realistic appraisal of limits for the phenomenon of change resistance.” (Asma)</p> <p>3. “My recommendation for overcoming resistance to change is being more aware of the reasons people resist change will help you implement change with fewer issues. Avoid mistrust and the feeling of loss of control by getting others involved in the changes before they occur and asking them to offer input and feedback.” (Nayla)</p> <p>4. “If you provide the reward for the change process, they will help you rather than resistance. There is a very common saying in the corporate culture and that people don’t resist change, but they believe in their best interest.” (Rajib)</p> <p>5. “My recommendation for overcoming the resistance to change due to culture is all about leadership. Leaders must model the new behaviours to provide a good example for employees and to demonstrate that these changes are not temporary.” (Rownak)</p> <p>6. “My recommendation for overcoming resistance to change is many folds. In my opinion one of the</p>

				important solutions, which has become increasingly popular for dealing with resistance to change is to get the people involved to participate in making the change.” (Sadia)
Recommendation for Change Management	Critical Success Factors for Change	6	Participant understanding of success factors could be more effective.	<ol style="list-style-type: none"> 1. “I think critical success factors for organizational change depends on right leaderships.” (Foyasal) 2. “I think human behaviour is the key for organizational change process success or failure. Modifying the organization’s infrastructure to support the change effort is key to sustaining the change.” (Jumel) 3. “I think critical success factors for organizational change is effective communication. Using a blend of formal and informal communication allows you to ensure that all employees receive the news about the change in some way or another.” (Monuj) 4. “There is a common humanistic theme that needs to be taken into consideration. That theme is fairness, at least the perception of fairness, to all involved and it can affect the outcome of the change process.” (Nayla) 5. “I think critical success factors for organizational change is to think bottom-up. Top-down change always generates resistance and cynicism. To win support, change must be constructed collectively using channels that give everyone the opportunity to make suggestions, offer solutions and set priorities.” (Rownak) 6. “In my opinion, the critical success factors that determine change management success mostly determine on top executive leadership style.” (Sadia)
	Recommendation for Solution	7	Getting participant opinion for the change management complexity and solution would be the nice strategy because the	<ol style="list-style-type: none"> 1. “The change management team must prepare a strategy to equip managers to successfully coach their employees through the change. They will need to provide training and guidance, including how to use individual change management tools with their employees.” (Asma) 2. “I can say that the monitoring the implementation process. No matter how good a job one does of initially selecting a change strategy and tactics, something unexpected will eventually occur during implementation.” (Foyasal) 3. “My overall recommendation for making change management successful is to be participative in the change management process.” (Jewel) 4. “Change needs to be dealt with in an effective and responsible manner, and if done correctly, it will seriously benefit the company and make it a smooth transition for further growth.” (Monuj) 5. “My key recommendation in my workplace to eliminate the fear of the unknown by letting affected groups know there will be changes coming. Develop a culture of respect and trust

			participant is the only people who experience the existing change management problem in the organization.	<p>and the feeling of loss of control by getting others involved in the changes before they occur and asking them to offer input and feedback.” (Nayla)</p> <p>6. “Prevent bad timing by providing a clear vision and reason for the changes along with a timetable or schedule of what to expect and when to expect it.” (Nayla)</p> <p>7. “Most important thing I could say that start with the end in mind – make plans according to your overall goals and ensure that all staff is also able to see exactly where an organisation is heading throughout a change process. A solid direction makes employees more likely to accept and embrace changes.” (Rownak)</p>
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Sources: Nvivo output-key themes of qualitative interview data.

4. Discussions

Resistance to change was found to be one of the most frequently cited causes of the change failure (Erwin and Garman, 2018) and change resistance found one of the common reactions of the change recipient (Oreg et al, 2016). According to Haslem et al (2014) one of the major reasons for organizational change programmed failure is the resistance to change at all levels. Further, identifying and managing change resistance begins with defining the phenomenon and the key factors associated with the resistance. Often change resistance is the natural response to an external event (Ford and Ford, 2014) and many researchers have recognized its role in change management since Lewin’s (1970s) development of the three steps model. According to Smollan (2016) change recipients may resist the change by demonstrating a lack of interest, ignoring the change agents, vocally opposing the change initiatives, spreading rumors, boycotting, subverting the leadership, and destroying leadership.

Additionally, in some modern healthcare organizations change occurs rapidly and continuously. As a result, it is very common for the employees to resist change, often resistance works as a mechanism of defense to protect the status quo. Hultman (2017) sometimes some employees are predetermined to resist, even though change ultimately becomes their benefit. Added to this, Kotter’s (2016) model of organizational change identified several factors that contribute to change, including complacency, self-interest, misunderstanding, mistrust, and overall low tolerance for change. These factors can be traced back to fears of the unknown, loss, and lack of support (Hede’s, 2011). In support of Kotter, Witting (2013) identified that emotion, cognition, communication, and active participation in decision-making can play significant factors contributing to the change resistance or acceptance. In a sole effort to assess the level of change resistance, Oreg (2017) has organized various factors associated with change resistance into six categories. These are fear of losing control, cognitive intransigence, emotional rigidity, avoidance of change inconvenience, preference for predictability, and reliance on habitual behavior.

As the correlation coefficient value ($r=0.072$) and it is positive and ($p=>0.212$) it means the probability of getting correlation coefficient at least big a sample of ($N=300$) people if the null hypothesis were true there was a relationship between these variables were very high. In fact, all the significance values up to the standard criteria of $p>0.05$ and means a statistically significant relationship is not existent. It means that a high level of resistance to change will negatively affect the change management process is not true.

Another important test has been done to test the hypothesis. The Chi-square test has been used in the research to determine whether there is a difference between the counted and expected frequencies in one or more categorical variables. The output 4 cross-tabulation table shows that the change implementation process and resistance to change have a negative association. Some of the participants stated yes to the change

implementation process and that percentage was only 12.0%. On the other hand, resistance to change stated yes only 30 participants, which means the expected count is less than the observed count and that is only 25.90 participants. Overall, it means there are very few positive relationships between the two variables.

On the other hand, most of the participants provided an opinion that the change implementation process is not openly communicated to them. As a result, resistance to change is very common and the observed count increased heavily by 185, where the expected count is much less, and participants were 185 in total. Most of the participants stated change implementation process is not openly communicated and strong resistance to change is available stated by 60.70% in total, participants stated no, only 23.00%, and don't know only 2.00%. It is now proved that the resistance to change has a negative relationship with the change implementation process.

The important thing in the Chi-square test is the value of Pearson Chi-square 21.226 with the 4 degrees of freedom, which is significant at the $p < .001$ level. The Chi-square test is usually used to determine whether the association in the cross-tabulation is a significant one. In the output-4, Chi-square figures the p value is less than $p < 0.05$. However, to be statistically significant the probability value needs to be significant it must be 0.05 or smaller. In this case, we have found that the p value is smaller than 0.05. So that it can be concluded that there is a significant relationship between the two variables.

Hence, the hypothesis that a high level of resistance to change will negatively affect the change implementation process has a statistically significant association. Another important thing is Cramer's effect size. The output 7, showed that Cramer's effect size statistics is 0.18 out of the possible maximum value of 1, which represents the very weak association between how a high level of resistance will affect resistance to change during the change implementation process. Thus, H2: a high level of resistance will negatively affect the organizational change management process is rejected.

Factors of resistance to change and how to overcome it:

Resistance to change is a common phenomenon in the change management process. It is inevitable and an integral part of the change management process. Often resistance is considered a common reaction to the change initiatives because people do not accept or trust the change output. However, resistance to change in the context of the healthcare organizations in Bangladesh plays an important role and demands attention from the change agent.

In the literature, resistance to change is one of the most frequently cited causes of change failure (Erwin and Garman, 2018), and change resistance is the most common reaction of change recipients (Oreg et al, 2016). Additionally, some important factors are associated with the resistance to change in healthcare organizations. According to Kotter and Schlesinger (2018), the parochial self-interest and individualistic thinking of the employees for their own best interest instead of the companies or collective interest is a key reason for resistance in the workplace. In this research, it has already been discovered that the culture of the healthcare organizations in Bangladesh is individualistic and driven by a silo-mentality. This is also supported by the interviewees, who stated that they are afraid of losing power due to change in the workplace. Some of the participants in this research shared their views and mentioned important factors relevant to the resistance to change. These participants' names are Nayla and Rownak. Their comments are as follows:

"I think the key factor of resistance to change is the environment of mistrust and lack of respect. If the individuals in a department highly respect their manager because the manager has built up trust over a period, the team will be more accepting of any changes." (Nayla)

"I think one of the important factors of resistance to change is workplace culture. It is an established fact that there is an intimate connection between our beliefs and business organizations, our values and workplace relationships." (Rownak)

However, in the context of this research, participant 'Rownak' is one of the senior executives who stated that the important factor of change resistance is workplace culture. On the other hand, participant 'Nayla' stated that an environment of mistrust and lack of respect are the vital reasons for workplace change resistance. The above views also have a similarity to the previous research which is highlighted by Kotter and Schlesinger's article "Choosing Strategies for Change." It contains some of the most widely known and most acceptable factors identified for resistance to change. This article was published in 1979 and recently re-edited

and published in the “Harvard Business Review” in 2008. Kotter and Schlesinger (2018) identified four common factors of resistance to change which are: parochial self-interest, misunderstanding and lack of trust, difficult assessment, and a low tolerance for change. Among the four factors identified by Kotter and Schlesinger (2018) two are directly mentioned by the participants in the interviews described above.

In fact, the above participants mentioned factors of change to resistance which have an association with the previous research done by Kotter and Schlesinger (2018). But there is also some remedy for overcoming the resistance to change. According to the theoretical models of Hiatt and Creasey (2018), and Kotter and Schlesinger (2018) to overcome the resistance to change in the workplace, education, and communication are necessary to create awareness of the change. Regarding the above literature, some participants of this research provided opinions about how to overcome the resistance to change, which are highlighted in the following:

“My recommendation for overcoming resistance to change is to identify the importance of change agent integrity, ability to communicate, resolve and realistic appraisal of limits for the phenomenon of change resistance.” (Asma)

“If you provide the reward for the change process, they will help you rather than resistance. There is a very common saying in the corporate culture and that people don’t resist change, but they believe in their best interest.” (Rajib)

“My recommendation for overcoming resistance to change is many folds. In my opinion, one of the important solutions, which has become increasingly popular for dealing with resistance to change is to get the people involved to participate in making the change.” (Sadia)

However, participants' recommendations for overcoming resistance to change have similarities with the previous research. Important things highlighted by participant Rajib's is that people don't resist change, rather they believe in their best interest, this statement has an affinity with Kotter and Schlesinger (2008) who developed a model of strategies to overcome the change resistance, and these are discussed in detail in the literature review chapter. The components of the model are education, participation, facilitation, negotiation, and coercion. Participant Asma's statements hold a similar view about education, participation, and facilitation. On the other hand, participant Rajib's agrees with the negotiation element for overcoming resistance to change. Participant Sadia's views for overcoming resistance to change are completely agreed about the elements of participation and facilitation. Overall, the participants' views are reflected by Kotter's and Schlesinger's (2018) model that was developed to overcome the resistance to change. Thus, factors associated with resistance to change and overcoming resistance to change have almost similar views within this research and previous research.

5. Conclusions

In summary, the key factors of resistance to change have been identified in the previous research as well as this research. But not all resistance to change is bad (Raza and Standing, 2013) although it is inevitable in nature it is not always a negative predictor of the change outcome. Often resistance offers different sources of alternative ideas that improve change initiatives, but if the resistance remains unresolved then change resistance undermines change implementation (Witting, 2013). According to Ford and Ford (2014) resistance to change often works as a positive force for organizational change. Often resistance can weed out bad ideas that might not be vetted by the change agent at the initial time, or any ideas that might create an impulsive reaction by external events, and often resistance can help to be the outlet for the employees' reaction and energy during the times of intense pressure. Therefore, the above hypothesis has been rejected that the high level of resistance will negatively affect organizational change. Factors that affect resistance to change often can be overcome by communication, collaboration, and cooperation by the change agent.

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Tax Compliance Option during the Pandemic: Moral, Sanction, and Tax Relaxation (Case Study of Indonesian MSMEs Taxpayers)

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Abstract. This study aims at empirically analyzing the effect of tax moral, sanction, and tax relaxation on taxpayer compliance. This study result is expected to provide an option to increase tax compliance during the Covid-19 pandemic. The type of this study is a quantitative study. It collects the data using a questionnaire in the form of Google form. The sampling technique of this study uses purposive sampling. The number of samples is 95 MSMEs members registered at the Department of Cooperative and Micro Enterprise, Magetan Regency, Indonesia. The data were analyzed by the multiple linear regression analysis techniques. The analysis result shows that during the Covid-19 pandemic, tax moral function was neglected in increasing tax compliance. The focus of MSMEs owners is trying to maintain their business to survive while their tax obligations are the next priority. The considerations as their basis to carry out their tax obligation are sanction and tax relaxation. The sanction plays a strong role in increasing tax compliance which means the tax compliance of MSMEs owners is in compliance due to coercion. Tax relaxation is another option as a solution to increase the taxpayer's compliance with MSMEs owners during the pandemic. It gives ease and relief for MSMEs owners to fulfill their tax obligations.

Keywords: MSMEs, Sanction, Tax Moral, Tax Relaxation, Tax Compliance

JEL Codes: H26, E26, O17

1. Introduction

Micro, Small, and Medium Enterprises (MSMEs) play a very important role in a country's economy. In the social aspect, MSMEs are the medium to overcome poverty, reduce unemployment numbers and even reduce the crime rates. In the economic aspect, MSMEs play a role in improving society's economic level by providing employment opportunities. They are also potential in their contribution to the state budget by the tax they pay. The growth and contribution of MSMEs on employment and Gross Domestic Product (GDP) are reflected as follows:

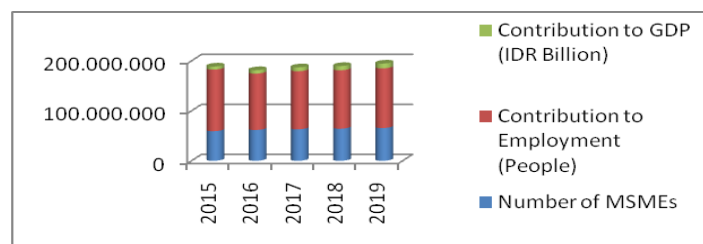


Fig. 1: Growth of the number of MSMEs and their contribution in Indonesia.
 (Source: Data processed by authors)

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This trend illustrates the number of MSMEs in Indonesia is increasing each year. The growth of MSMEs is also in line with their role in absorbing employment and their contribution to GDP in Indonesia. Figure 1 is also supported by the data in Table 1:

Table 1: Contribution of MSMEs to Employment and GDP

Year	Number of MSMEs	MSMEs contribution to Employment (people)	Total Employment	(%)	MSMEs contribution to GDP (IDR Billion)	Total GDP (IDR Billion)	(%)
2015	59.262.772	123.229.387	127.423.438	96,71	6.228.285	10.141.340	61,41
2016	61.651.177	112.828.610	116.273.356	97,04	7.009.283	11.712.450	59,84
2017	62.922.617	116.431.224	120.260.177	96,82	7.820.282,60	12.840.859	60,90
2018	64.194.057	116.978.631	120.598.138	97,00	8.573.895,30	14.038.598,50	61,07
2019	65.465.497	119.562.843	123.368.672	96,92	9.580.762,70	15.832.535,40	60,51

(Source: The Minister of Cooperative and Small and Medium Enterprises)

Table 1 explains that the growth of the number of MSMEs has increased from year to year. The contribution of MSMEs in absorbing employment from 2015 to 2019 is in the range of 96,71% -97,04%. The contribution of MSMEs to GDP from 2015 to 2019 is in the range of 59,84% - 61,41%. However, since the Covid-19 pandemic, MSMEs and various other large-scale business fields are facing a slump. The Covid-19 has a huge impact on various life and business aspects, including MSMEs around the globe. Various policies have been issued by each country to help MSMEs to survive during the pandemic. Malaysia, Singapore, Thailand, Vietnam are some examples.

Table 2: Policy Responses of some ASEAN Countries in facing the Covid-19

Country	Labor	Suspension		Financial Instrument		Structural Policy		
	Wage Subsidy	Income/ Cooperate Tax	Value Added Tax	Direct Loan to MSMEs	Subsidy	Digitalization	Innovation	Training
Malaysia	√	√		√	√	√		√
Singapura	√	√		√			√	
Thailand	√	√	√	√			√	√
Vietnam	√	√	√	√				

(Source: Organization for Economic Co-Operation and Development (OECD), 2020)

The Indonesian Government has declared the Covid-19 pandemic as a non-natural disaster since mid-March of 2020. According to the Asian Development Bank survey, as of September 16th, 2020, approximately 48,6% of MSMEs owners in Indonesia were temporarily closed due to the pandemic. It is worrying since MSMEs have contributed to the Indonesian economy by more than 60%. The effect of the Covid-19 experienced by MSMEs has weakened their contribution on tax. The weakened

contribution in various business sectors on tax is illustrated by the trend of tax revenue performance, which declined drastically in May of 2020.



Fig. 2: Monthly growth of tax revenue (yoy) on the same month in the previous year

(Source: the Minister of Finance, the Republic of Indonesia, 2021)

Currently, the number of MSMEs in Indonesia is approximately 65 million. Due to the large number and their role as tax contributors, the implementation of MSMEs' tax obligations needs to be optimized. One part of its optimizations is by increasing the role of entrepreneurs in the process of policymaking related to tax reporting order. Data gained by the Directorate General of Tax at the Ministry of Finance to the year 2021 show that only around 2 million MSMEs registered as taxpayers and pay their taxes to the state out of a total of 65 million MSMEs (DGT, 2021). The Directorate General of Tax (2018) noted the number of MSMEs taxpayers registered on the tax administration system and tax revenue originating from MSMEs were still far from what they should be.

Furthermore, the Directorate General of Tax of the Ministry of Finance also stated that MSMEs' contribution on tax payment is still low. This circumstance is contradictory to their contribution to Gross Domestic Product. In 2017, the Ministry of Cooperative and Small and Medium enterprises noted the contribution of MSMEs on GDP is around IDR 7.820.282,60 billion or around 60,90% of the total contribution of business on GDP. Meanwhile, the Directorate General of Tax in 2017 noted that the income tax of MSMEs (final income tax) contributed 2,2% to the total income tax revenue. Moreover, in 2019, MSMEs contribution to GDP in Indonesia, which was around 60,51% or around IDR 9.580.762,7 billion of the total IDR 15.832.535,40 billion (Statistics Indonesia, 2019). Meanwhile, the utilization of tax incentives for MSMEs as of July 10th, 2020, was around 201.880 MSMEs owners. This amount is still far from the total of MSMEs taxpayers who reported their income tax in 2019, which was around 2,3 million MSMEs taxpayers. MSMEs' contribution on tax-paying, which is lower than MSMEs contribution on GDP, indicates the tax compliance level of MSMEs owners is still low. The big challenge for government is inviting more MSMEs owners to contribute to the country by paying taxes obediently.

More massive efforts are needed to follow up the Covid-19 pandemic effect on the slump in the business sector, the decline of economic growth, and tax revenue in Indonesia. One government effort in the National Economic Recovery is by the policy issuance in the taxation field. The policies in the taxation field to support National Economic Recovery include tax incentive policy. Tax incentive policy aims to help the economic growth during the pandemic. The tax incentive applied by the time this study was conducted the Ministry of Finance Regulation (MFR) No. 82/MFR.03/2021, which is until the end

of 2021, since the Covid-19 pandemic effect has not subsided. This study focus is only on the tax incentive given to MSMEs for final income tax borne by the government. In this tax incentive, MSMEs taxpayers do not have to need to pay taxes. The government issued tax incentive policies to ease the burden of various business sectors affected by the pandemic. The government committed to helping MSMEs by the National Economic Recovery program in 2020 with a total budget of IDR 114,81 trillion. From this budget, the government gives budget allocation as much as IDR 1.08 trillion for MSMEs tax incentives. In fact, the evaluation result of its implementation in 2020, the realization of tax incentive utilization had only reached 53% or IDR 0,57 trillion. It means there are still many MSMEs taxpayers who have not enjoyed the tax incentive stimulus.

Tax incentive policy is one of the tax relaxation forms. The author's critical thinking is that tax relaxation is not merely in the form of tax incentive but also the ease of submitting the incentive proposal, the speed of incentive utilization process, the ease of tax reporting, and the extension of the tax incentive period. Through tax relaxation, it is expected to increase the number of business sectors, especially MSMEs, which are assisted. That increase is hoped to be beneficial for MSMEs sustainability. MSMEs sustainability is a reflection of National Economic Recovery. Tax relaxation, which helps MSMEs a lot, will encourage MSMEs taxpayers' compliance. The studies on tax relaxation have not been conducted much. In the previous studies, the referred tax relaxation only included tax incentives and their socialization. The tax incentive is a taxation policy given by the government to certain taxpayers, either individuals or organizations, to provide encouragement and convenience. Tax incentive aims to ensure taxpayers keep obedient in carrying out their taxation obligation both now and in the future. Andrew and Sari (2021) confirmed that the tax incentive socialization of MFR 86/2020 had an effect on tax compliance. In his study, Munandar & Hamdalah (2020) used the tax relaxation term only referred to the tax incentive. Munandar & Hamdalah (2020) explained that tax relaxation In Indonesia has been effective, yet it still requires other supporting steps to increase Indonesian economic resilience.

Efforts to improve the level of taxpayers' compliance are relevant to the study of factors supporting the formation of tax compliance. These supporting factors include moral, sanction, and tax compliance. This study uses the attribution theory, which was introduced by Heider (1958) and developed by Kelley (1972). Attribution theory describes one's attitude, which can be influenced by internal and external factors (Nugraheni and Purwanto, 2015). The authors use attribution theory since it is accurate in explaining internal and external factors as an option to increase tax compliance during the pandemic. Based on Attribution theory, moral is the internal factor, and sanction and tax relaxation are the external factors.

This study is different from the previous studies. Its difference and newness are relaxation variables that include tax incentives and the ease of submitting incentive proposal, the speed of incentive utilization process, the extension of tax incentive period through the issuance of the Ministry of Finance Regulation No 82/MFR.03/2021. The urgency of this study is to see the effect of tax relaxation on tax compliance during the Covid-19 pandemic. Besides, it is for proving the extension of the incentive period through the issuance of the Ministry of Finance Regulation, which has been amended/evoked and replaced several times, is still effective in overcoming tax compliance. Subjects of the study are the owners of Micro, Small and Medium enterprises registered at the Department of Cooperative and Micro Enterprise, Magetan Regency, Indonesia. This study result is expected to provide an option to increase tax compliance during the Covid-19 pandemic.

2. Literature Review

2.1. Tax

According to Pandiangan (2014:3), tax is a contribution to the state (which can be enforced) which owed by those who are obliged to pay it according to the regulations, without getting back in return that can be directed appointed, and its usage is to finance public expenditures related to state duties to run the government. Law no 28 (2007) defined tax as a mandatory contribution to the state which owed by individuals or corporates which is coercive based on the law, without getting direct compensation and is used for the purposes of the State for the greatest prosperity of the people. Tax is coercive so the government can enforce taxpayers to fulfill their obligation, and if it is violated, the sanction or punishment can be given. Purwono (2010) stated several characteristics embedded in tax are as follows: 1) it is a mandatory contribution of the people to the State; 2) it is collected by the government based on the law, so it is coercive; 3) it is without direct compensation; 4) it is used to finance public expenditures related to government implementation; 5) it is used for the people prosperity/ welfare distribution.

2.2. Attribution Theory

Attribution theory was introduced by Harold Kelley (1972). It explains when someone observes another's behavior, and meanwhile, that person tries to re-explain the cause of another's behavior, whether it comes from internal or external factors (Nugraheni and Purwanto, 2015). The behavior influenced by internal factors is the in-controlled behavior of the person. Meanwhile, the behavior influenced by external factors is the behavior caused by the impulse outside of the person, either directly or indirectly. This attribution is one process of forming an impression by observing behavior in society, which is based on situational factors. This attribution is given when observing someone's behavior and re-expressing how this behavior can be formed. This behavior is formed whether there is an influence of others or purely from within oneself. This attribution theory is used as the basis to classify the independent variable of the study becomes internal and external factors. According to attribution theory, taxpayer morale is categorized as an internal factor. The moral is formed within an individual's personality, which can influence attitude and behavior, including obedient behavior. Tax sanction and tax relaxation are categorized as external factors. Sanction and tax relaxation are factors outside of the individuals which can influence their attitude directly or indirectly.

2.3. Tax Compliance

Tax compliance is the impulse that comes within a person sincerely to carry out his taxation obligation (Amah, 2019:3). According to Tahar (2014), the compliance in taxation triggers taxpayers to be responsible to God, government, and society to fulfill all rights and obligations as taxpayers. This taxpayer compliance is a conscious behavior of his tax obligations in accordance with the provision of taxation laws applied in Indonesia. Amah (2019: 39) stated taxpayer compliance consists of: 1) Formal compliance is a state where the taxpayer fulfills his obligation formally according to the provision of taxation laws. Formal compliance reflects obligation fulfillment of tax deposit and reporting according to pre-determined schedule; 2) Material compliance more emphasizes its substantial aspect, that is, the amount of tax payment in accordance with the provisions. It means the calculation and tax deposit have been correct. The high level of taxpayer compliance will have an impact on the improvement of society's welfare level.

2.4. Taxpayer's Moral

Mardiasmo (2011) stated that society is reluctant to pay taxes can be triggered by society's moral and intellectual development, complicated taxation system, and control system which is properly implemented.

Moral compliance is an individual motivation owned by a professional tax but possibly not owned by other professional tax. Widodo (2010: 9), defined tax moral as a motivation which emerged within the individual to paid taxes. This motivation can emerge from moral obligation or belief to contribute to the State by paying taxes, or an individual's willingness to pay taxes. Based on the above definition, it can conclude that tax moral is a motivation coming from within the individuals or taxpayers to pay their taxation obligation. The self-assessment system adopted in Indonesian taxation gives taxpayers the freedom to calculate, pay taxes owed, report, and be responsible for their own tax obligations. Self-assessment system can create an opportunity for taxpayers to be obedient or disobedient. If taxpayers hold a good tax moral, the compliance level will be high even though there is an opportunity for being disobedient. The tax moral concept helps solve the tax compliance puzzle, explaining the high level of tax compliance in many countries by a very low prevention level (Torgler dan Schneider, 2007).

Taxpayers' moral is a strong encouragement within the individuals, who believes that tax obligation is mandatory which should be fulfilled by every individual for the sustainability of the governance and the development of the Republic of Indonesia (Pertiwi, 2017). Tax moral is an internal motivation from within the taxpayers to comply with their taxation obligation so they could contribute voluntarily to the state. Tax moral is a determinant of one's compliance level in complying taxation regulations (Cahyonowati, 2011). Pertiwi (2017) confirmed moral has a significant positive effect on tax compliance. Previous studies (Cahyonowati, 2011; Sriniyati, 2020) agreed that moral has a significant positive effect on the formation of tax compliance. It is because paying taxes is an obligation that cannot be separated from the state of taxpayers. Moral can lead to self-motivation in the society to increase the compliance in paying taxes. The good tax moral can be in the form of an intention not to escape the obligation to pay taxes both legally and illegally. However, the study of Salman and Farid (2008) as well as (Sani and Habibie, 2017) found a different result that is taxpayer's moral has not to effect on taxpayer compliance. Tax moral factor always becomes an interesting study to reveal tax compliance of MSMEs owners during the Covid-19 pandemic. The Covid-19 pandemic has had a negative impact on the cash flow of the majority of MSMEs. In that condition, there are two possibilities that will emerge, that is the moral keeps playing an important role in moving the individual of MSMEs owners to keep carrying out the taxation obligation in accordance with the applicable laws and regulations or vice versa.

2.5. Sanction

The orientation of the good moral tax is the formation of voluntary tax compliance. However, the existing fact shows that tax compliance of the majority of taxpayers is still coerced compliance. Taxpayers are obedient in order to avoid tax sanctions (Pertiwi, 2017). Tax sanction is the guarantee that the taxation norm will comply. Mardiasmo (2019) explained that tax sanction is a deterrent so taxpayers will not break the taxation norms. The Taxation General Provision and Procedure Law no 28 the Year 2007 explained the taxpayers could be subject to administrative fines, interest, and criminal sanctions. Tax sanctions will be imposed on taxpayers if they violate the regulations of tax laws. Taxpayers consider the sanctions they receive will add to the burden they have to bear even more. Taxpayers will attempt to fulfill their taxation obligation to avoid sanctions. Sanctions in the form of interest and administration fines will disadvantage the taxpayers themselves. They have to spend an even higher cost. Disobedient taxpayers are worsening the company's cash flow, especially if it is related to their condition during the Covid-19 pandemic. Tax sanction encourages taxpayers to be obedient and punctual in carrying out their taxation obligation in accordance with the specified time. Several studies (Muliari & Setiawan, 2011; Alfasadun, 2016; and Arisandy, 2017) proved that tax sanction has a significant effect on taxpayer compliance. There are also inconsistent results. Several studies show that there is no effect of tax sanction on taxpayer compliance because the sanctions given to

taxpayers are not strict (Ermawati and Afifi, 2018). Besides, some taxpayers assume sanctions are merely a regulation formality.

2.6. Tax Relaxation

In some previous studies, tax relaxation only refers to the tax incentive. The tax incentive is in the form of positive persuasion, which can encourage taxpayers to comply with the relevant laws and taxation regulations (Slemrod, 1992; Smith, 1992). In Indonesia, the tax incentive is a policy in the taxation field to support National Economic Recovery. This policy aims at helping to move the declining state's economic growth due to the Covid-19 pandemic. Tax incentive policy is written in the Ministry of Finance Regulation no 86 Year 2020. This regulation is the revision of the previous regulation, that is MFR no 44 Year 2020 on tax incentives for taxpayers affected by the Covid-19 pandemic. MFR no 86 Year 2020 revised by MFR no 110/MFR.03/2020, then replaced with MFR no. 9/MFR.03/2021 as lastly revised by MFR No. 82/MFR.03/2021.

MFR no 44 Year 2020 includes five tax incentive policies, namely, Income Tax Article 21 incentive, Income Tax Article 22 on import, Income Tax Article 25 on installment payment, MSMEs tax and Value Added Tax. Based on the Ministry of Finance Regulation no 44 Year 2020, the government will bear final income tax of MSMEs based on Government Regulation no 23 Year 2018 concerning income tax on income from businesses received or obtained by taxpayers who have a certain gross turnover until December 2020. Tax incentive currently is extended through MFR No. 82/MFR.03/2021 that is until the end of 2021, since the impact of the Covid-19 pandemic has not subsided. In contrast to MFR no. 44/MFR.03/2020, on MFR No. 82/MFR.03/2021 03/2021 there are 6 tax incentive policies including: a) Income Tax incentives article 21 borne by the Government; b) MSME tax incentives or final Income Tax borne by the Government; c) Final Income Tax on construction services is borne by the Government; d) Income tax article 22 imports e) income tax instalment incentives article 25 for taxpayers who are engaged in one of 216 certain business fields; f) Value Added Tax incentives. The focus of the authors is tax incentive given to MSMEs final income tax borne by the Government. Ayuba et al., (2006) agreed that tax incentives as a form of positive persuasion for taxpayers to comply with the applicable laws and tax regulations.

2.7. Hypothesis

Tax moral is a motivation within an individual (internal) to pay taxes (Pertiwi, 2017). The moral is a value or principle on right or wrong, which is built in a person by the influence of family and social environment. Wanzel (2004) concluded that moral, ethics, and norm of taxpayers greatly influence their behavior. Tax morality is a positive motivation derived from within to obey and comply with tax regulations. Therefore, when a person has a good and positive moral, his behavior will be good, including his obedient behavior on tax regulations. Alm and McClellan (2012) found that tax moral has a significant positive effect on tax reporting, which is a part of tax compliance. In line with the study of Alm and McClellan (2012), several studies (Cummings et al., 2004; Torgler et al., 2017; Sjoberg et al., 2019; Noviyanti and Azzam, 2021), Alm et al., (2021) also showed that tax moral has a significant positive effect on tax reporting which is a part of tax compliance.

H₁: Tax moral has a positive effect on tax compliance of MSMEs owners.

Tax sanction is applied to create a deterrent effect on taxpayers who violate the tax laws regulations. There are binding tax sanctions in the tax law and all kinds of regulations embedded in it. Mardiasmo (2011) explained that tax sanction is a guarantee that the provisions of tax law (tax norms) will be complied with, adhered to, and obeyed. The existence of tax sanctions is required to create taxpayer awareness to comply

with the applicable tax regulations. Strict rules of the consistent implementation of tax sanctions will definitely be able to solve the issues of taxpayer compliance. It is in line with the result of several studies (Arisandy, 2017; Rapoport, Mendez, and Scartascini, 2020; Castro and Scartascini, 2014; Lopez and Scartascini, 2019) which agreed that the use of intervention on behavior, one of which is tax sanction would decline tax avoidance. Thus, it means sanctions will affect the formation of taxpayer compliance.

H2: Tax sanction has a positive effect on tax compliance of MSMEs owners.

Tax relaxation given by the government is expected to increase the number of business sectors, especially MSMEs, which are assisted. This increase is hoped to be the stimulus for the sustainability of MSMEs. The sustainability of MSMEs reflects the National Economy Recovery. Tax relaxation, which eases MSMEs, will encourage the taxpayer compliance of MSMEs. In the previous studies, there were more studies using tax incentive variables to describe tax relaxation. Brockmann et al. (2016) found that incentives in the form of rewards given to taxpayers will have an effect on the increase of tax compliance. It is in line with previous studies (Tung and Cho, 2001; Ullah, 2016; Ayuba et al., 2016; Munandar & Hamdalah, 2020; Riyanto and Mudara, 2021). Based on this logic, the proposed hypothesis is:

H3: Tax relaxation has a positive effect on the tax compliance of MSMEs owners.

3. Research Methodology

The population in this study is all MSMEs owners both in service and trade sectors registered at the Department of Cooperative and Micro Enterprise, Magetan Regency, Indonesia. The authors chose Magetan Regency because that region has many MSMEs owners in various businesses, including the culinary sector, leathercraft, and other sectors. The technique used for the sampling is Purposive Sampling. The authors applied MSMEs sampling criteria in accordance with the MSMEs Laws in 2008. The author's consideration using the MSMEs Laws in 2008 is to collect samples according to the interests of authors and to distinguish the characteristics of each sample. The sampling criteria used include a) The samples are Micro, Small, and Medium businesses; b) The micro-business category is having a net worth/working capital of a maximum of IDR 50,000,000 and annual sales of a maximum of IDR 300,000,000; c) The Small business category is having a net worth/capital of more than IDR 50,000,000, - up to a maximum of IDR 500,000,000 and annual sales of more than IDR 300,000,000 up to a maximum of IDR 2,500,000,000; d) The medium business category is having a net worth/business capital of more than IDR 500,000,000 up to a maximum of IDR 10,000,000,000 and annual sales results of more than IDR 2,500,000,000 up to a maximum of IDR 50,000,000,000. Sources of data in this research consist of primary and secondary data. Primary data is MSME taxpayers' perception data about taxpayer compliance, morale, sanctions, and tax relaxation. Primary data was obtained by distributing questionnaires to respondents. The Google form link containing the questionnaire statement is distributed via the WhatsApp group of MSMEs owners. The distribution of the questionnaires was carried out in mid-July 2021. Secondary data is the number of MSME owners obtained from the Department of Cooperatives and Micro Enterprises, Magetan Regency.

This study uses 1 dependent variable, namely the taxpayer compliance of MSMEs (Y) and 3 independent variables, namely moral (X1), sanction (X2), tax relaxation (X3). **Tax Compliance** is an impulse that arises from within a person to carry out his tax obligations in accordance with the applicable laws and regulations. The study uses several indicators to identify taxpayer compliance which consists of: being obedient in reporting himself to the tax office, being obedient in depositing Annual Tax Return punctually, being obedient in calculating tax payable, being obedient paying tax arrears (if one has arrears) (Rahayu,

2013:139). **The moral** is a self-motivation of a person who will define his attitude in fulfilling his taxation rights and obligations. The indicators to measure moral variable was adopted by Nabila (2018). Those are a violation of existing ethics, guilt feeling if taxpayers have not fulfilled their obligations, the life principle on taxation. **Sanction** is a mechanism to improve compliance with regulations. This study uses the perception of taxpayers on sanction measured by indicators: severe tax sanction for violators, tax sanction as a means to educate taxpayers, imposition of tax sanction without tolerance. Those indicators were adopted by (Muliari & Setiawan, 2011). **Tax Relaxation** is freedom given by the government for taxpayers in carrying out their taxation obligations. The authors use the perception of taxpayers on tax relaxation. The developed indicators consist of: the provision of tax incentive policy by the government, the ease of submitting incentive proposals, the speed of incentive utilization process, the extension of the tax incentive period, the ease of tax reporting. The independent and dependent variables measurement used the Likert Scale with a range of 1-5 with answer choices for statements including strongly disagree, disagree, neutral, agree, and strongly agree. Indicators to measure each variable developed into 5 statements in the questionnaire.

The authors use multiple linear regression analysis by SPSS v.16 to analyze data. Before that, the authors processed the data so descriptive statistics could be presented. The authors also conducted a classical assumption test as a requirement of multiple linear regression analysis. Classical assumption test consists of normality test, multicollinearity test, heteroscedasticity test, and autocorrelation test. Equation of Multiple Linear Regression is as follows:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e$$

4. Results and Discussions

4.1. Statistic descriptive

Table 3: Descriptive Statistics

	N	Range	Minimum	Maximum	Sum	Mean	Std. Deviation	Variance
X1_Moral	95	13	10	23	1694	17,83	2,704	7,312
X2_Sanction	95	15	10	25	1785	18,79	2,993	8,955
X3_Relaxation	95	15	10	25	1704	17,94	3,202	10,251
Y_Tax Compliance	95	15	10	25	1931	20,33	2,711	7,350
Valid N (listwise)	95							

(Source: Data processed by authors)

These descriptive statistics provided an overview of the data for each variable. Table 3 shows that the maximum value for moral was 23, sanction was 25, tax relaxation was 25, tax compliance was 25, and each minimum value for moral, sanction, tax relaxation and tax compliance was 10. This means that there are gaps or deviations in the respondent's response score on moral, sanction, tax relaxation, and tax compliance. However, the mean value of respondents' responses to morals is 17,83, which means that the moral level based on respondents' responses is good. The mean value of sanctions is 18,79, which means that respondents assume that tax sanctions are dominant in influencing their compliance. Each of relaxation and tax compliance has a good level. Then to conduct further tests, the authors ensure data had been standardized and fulfilled classical assumption test.

4.2. Classical Assumption Test

The authors conducted a classical assumption test which included normality, multicollinearity, autocorrelation, and heteroscedasticity tests. When testing autocorrelation, the authors obtained the result that there is autocorrelation in the research model. This is a table of autocorrelation test results:

Table 4: Autocorrelation Test

Du	Dw	4-Du	Description
1,7316	1,087	2,2684	there is autocorrelation

(Source: Data processed by authors)

The research model is free from autocorrelation problems if the DW (Durbin Watson) value is between Du and 4-Du values. The autocorrelation test results show the value of Dw below the value of Du. The conclusion is that there is autocorrelation. The authors conducted data transformation and Cochrane Orrcut to overcome autocorrelation. After the transformation, the amount of data used was reduced to 94 samples. The following are the results of the classical assumption test after the transformation and Cochrane Orrcut.

Table 5: One Sample Kolmogorov - Smirnov Test

N	Asymp. Sig. (2-tailed)	Description
94	0,715	normally distributed

(Source: Data processed by authors)

Table 5 indicates the findings of normality by One Sample Kolmogorov - Smirnov Test. The normality issue appears when the value of sig. less than 0,05 (Priyatno, 2011: 282). The findings show the value of Asymp. Sig (2-tailed) is more than 0,05 which is 0,715. This indicates that the residual data in the regression model is normally distributed.

Table 6: Autocorrelation Test (after transformation)

Du	Dw	4-Du	Description
1,7306	2,219	2,2694	there isn't autocorrelation

(Source: Data processed by authors)

Table 6 presents the finding of the Durbin Watson (DW) value of the Autocorrelation Test. These finding also proves that in the research model there is no autocorrelation because the DW value is between Du and 4-Du value (Priyatno, 2011: 292).

Table 7: Multicollinearity Test

Variables	Tolerance	VIF	Description
Lag_X1	0,982	1,018	there isn't multicollinearity
Lag_X2	0,938	1,066	there isn't multicollinearity
Lag_X3	0,944	1,059	there isn't multicollinearity

(Source: Data processed by authors)

Table 7 presents the findings of the tolerance and the VIF values for the research variables of the regression model. The finding also proves that the research model is a fit regression model because it does not have multicollinearity problems, in which the tolerance value is more than 0,10 and the VIF value is less than 10 (Priyatno, 2011: 288).

Tabel 8. Heteroscedasticity Test

			Unstandardized Residual	Lag_X1	Lag_X2	Lag_X3
Spearman's rho	Unstandardized Residual	Sig. (2-tailed)	.	0,896	0,280	0,686
	Lag_X1	Sig. (2-tailed)	0,896	.	0,391	0,452
	Lag_X2	Sig. (2-tailed)	0,280	0,391	.	0,067
	Lag_X3	Sig. (2-tailed)	0,686	0,452	0,067	.

(Source: Data processed by authors)

Table 8 shows the testing of heteroscedasticity by the Spearman test. The heteroscedasticity issue appears when the significance value of correlation between research variables and Unstandardized residuals is less than 0,05 (Priyatno, 2011: 297). All the findings of significance value of correlation between research variables and Unstandardized residuals more than 0,05. The conclusion is that there is no heteroscedasticity in the regression model.

Multiple Linear Regression Analysis

From the result of processing data, the equation of multiple linear regression is as follows:

$$Y = 6,913 + 0,009X_1 + 0,215X_2 + 0,189X_3$$

The multiple linear regression equation shows that tax sanctions are the most dominant variable affecting the increase in MSME taxpayer compliance. This reflects that MSME taxpayer compliance is formed because of the fear of sanctions. Compliance formed is compliance due to coercion (enforced tax compliance).

4.3. Hypothesis Test Result

Table 9: Summary Model Table

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0,424 ^a	0,180	0,153	2,27855

(Source: Data processed by authors)

The contribution of the independent variables (moral, sanctions, tax relaxation) affects the dependent variable (MSMEs Taxpayer Compliance) by 15,3%.

Table 10: F Test Result

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	102,551	3	34,184	6,584	0,000 ^a
Residual	467,263	90	5,192		
Total	569,814	93			

(Source: Data processed by authors)

The F test showed the goodness of fit statistic value is 0,000. That value is less than 0,05. It means the model is able to predict its observation value. The research model is right.

Table 11: t Test Result

Model	T	Sig.
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1	(Constant)	5,820	0,000
	Lag_X1	0,103	0,918
	Lag_X2	2,896	0,005
	Lag_X3	2,579	0,012

(Source: Data processed by authors)

The results of t-test reflect that moral has no effect on tax compliance of MSMEs owners. The significance value of the moral variable is 0,918 (more than 0,05). Sanction affects the tax compliance of MSMEs owners. The value of t. count of sanction > t. table (2,896 > 1,98667), with the significance value is 0,005 (< 0,05). Tax relaxation affects the tax compliance of MSMEs owners. The value of t. count of the tax relaxation > t. table (2,579 > 1,98667). The significance value is 0,005 (< 0,05). In conclusion, H1 is rejected, H2 and H3 are accepted.

5. Discussion

5.1. The effect of moral on tax compliance of MSMEs owners.

The hypothesis which states tax moral has a positive effect on tax compliance of MSMEs owners is not significant. Hypothesis 1 (H1) was rejected. Tax moral variable has no effect on the tax compliance of MSMEs owners. The Covid-19 pandemic has had a bad effect on the cash flow of the majority of MSMEs. This condition raises the fact that tax moral cannot underlie the behavior of taxpayers complying with their tax obligations. There are other considerations, especially in cash flow efforts becoming more important and harder than behaving obediently. This study's result supports the studies of Salman and Farid (2008). This study is not in line with the studies of (Lisie, 2015; Alasfour et al., 2016; Horodnic, 2018; Ubaidillah & Amah, 2020), which stated that the improvement of tax moral would be followed by the improvement of taxpayer compliance in paying taxes.

5.2. The effect of sanction on tax compliance of MSMEs owners.

The hypothesis which states tax sanction has a positive effect on tax compliance of MSMEs owners is significant. Hypothesis 2 (H2) was accepted. According to the theory of compliance, one tends to obey the laws which they consider appropriate and consistent with their internal norms. Tax sanction is included in normative commitment through legitimacy. One obeys the regulations since the legislator has the authority to dictate or bind behavior.

In attribution theory, tax sanction is an external cause for taxpayer compliance. Increasingly stringent sanctions mean that the external influence on taxpayer compliance to complete their tax obligations is also high. This study is in line with the studies conducted by Setiyoningrum (2015), which showed that there is an effect of tax sanction on tax compliance. It is supported by the studies of (Alfasadun 2016; Arisandy, 2017; Rapoport, Mendez, & Scartascini, 2020; Castro & Scartascini, 2014; Lopez & Scartascini, 2019; Dewi et al., 2020), but it is contrary to the studies' result of (Ermawati & Afifi, 2018; Andrew & Sari, 2021).

5.3. The effect of tax relaxation on tax compliance of MSMEs owners.

The hypothesis which states tax relaxation has a positive effect on tax compliance of MSMEs owners is significant. Hypothesis 3 (H3) was accepted. The Covid-19 pandemic has had a huge impact on MSMEs. The pandemic causes the emergence of several issues for MSMEs, such as the decreased demand, the difficulties of product marketing, the access limitation of production materials. This condition further causes the level of sales/business turnover to decline. The decline of the business turnover will be disturbing the company's cash flow. Tax relaxation is a policy to stimulate the sustainability of MSMEs (Indaryani et al.,

2020). The government helps to ease the burden of MSMEs by tax relaxation. It will support the taxpayer compliance of MSMEs. This study is in line with the studies of (Smith and Stalans, 1991; Munandar & Hamdalah, 2020; Tung & Cho, 2001; Ullah, 2016; Ayuba et al., 2016; Andrew & Sari, 2021; and Leong et al., 2020) but it is contrary to the study of Dewi et al. (2020). Tax relaxation is another option besides tax sanction as an effort to increase taxpayer compliance on MSMEs owners. Tax relaxation in the form of MSMEs' final tax income borne by the government gives the impact and benefits of easing the burden of MSMEs. Tax relaxation also includes the ease of submitting incentive proposals, the speed of the incentive utilization process, the ease of tax reporting, and the extension of the tax incentive period, which support the implementation of a self-assessment system on MSMEs taxpayers. The extension of the tax incentive period is an opportunity for MSMEs owners who are in the previous period, had not taken advantage of this tax incentive. This is in accordance with data from MSMEs owners of Magetan Regency, who took advantage of tax incentives in 2021 to increase compared to 2020.

6. Conclusion

The result of this study showed that the tax sanction variable is the dominant variable that affected the tax compliance of MSMEs owners in Magetan, Indonesia. It indicated tax compliance of MSMEs owners is enforced tax compliance. As another option, a solution to keep maintaining MSMEs owners' tax compliance in the Covid-19 pandemic is tax relaxation. Tax relaxation is expected to foster voluntary tax compliance. Tax moral variable has no effect on the tax compliance of MSMEs owners. During the pandemic, the cash flow business condition has become an important and burdening consideration for MSMEs owners compared to being obedient. The extension of the incentive period through the issuance of the Ministry of Finance Regulation, which has been amended/ evoked and replaced several times, is effectively overcoming tax compliance.

This study has several limitations. The first limitation, the sample of this study only consisted of MSMEs taxpayers in one regency. Therefore, the results of the study cannot be generalized to MSMEs taxpayers in other regions. The second limitation is that collecting data was conducted by distributing Google form questionnaire on WhatsApp group may seem biased. It is because the collected information is personally related to tax compliance and the moral of each person. Out of those limitations, the next study's suggestion is to conduct the study by combining the method of collecting data, so the data obtained is more representative. The beneficial potential for further studies is to expand MSMEs taxpayers in several other regions and compare MSMEs tax compliance of each region. The suggested data collection method is a combination between questionnaires and face-to-face interviews.

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Financial Inclusion and Crowdfunding - A study of European Countries

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Abstract. *Financial Inclusion appears to be a means of achieving the millennium development goals (MDGs) which can exterminate poverty and help populaces to come out of the trap known as “poverty trap”. Crowdfunding, on the other hand, helps people find investors or contributors for their business or cause. They are usually people who do not have access to the formal financial market or do not want to borrow money at high interest rates. The study was aimed to review the position of European countries in terms of financial inclusion and Fintech from the Findex data 2017 from the World Bank. The crowdfunding data was gathered from the website of the European Crowdfunding Network which helps to propagate the idea of crowdfunding in European countries. The study found that most countries in Europe have a high number of populations inclusive in the formal financial system and thus can access various financial services offered by these institutions. Also, crowdfunding has seen a sharp increase in the amount of money raised and projects funded in the last few years which was possible through the penetration of Fintech services in these countries. The study will be helpful for the companies which want to launch their crowdfunding platforms and also for the people who like to project their business on these platforms.*

Keywords: Crowdfunding, Financial Inclusion, Fintech, Europe, Poverty

JEL Codes: O33, P36

1. Introduction

Financial inclusion implies that an individual has an account at a formal financial institution, this helps them to save and borrow money. Financial inclusion can be determined by the main indicators: owning a bank account, saving and borrowing money (Zins and Weill, 2016). Financial inclusion can be simply put as the consumption of formal financial services by the poor and financially excluded population (Beck et al., 2007). Bruhn and Lovo (2014) stated that financial inclusion bears the economic fruits and helps marginalized people to increase their income by either/both saving or/and borrowing money. With higher financial inclusion, people who were hitherto financially excluded may be able to spend on education, save and launch enterprises, and this will eventually contribute to poverty decline and economic development (Ozili, 2018). Financial inclusion aims at surging the number of people who are financially excluded from the formal financial system to have access to formal financial services mainly through having a bank account, which will help to achieve inclusive economic growth (Beck et al., 2007). Expanding access of the underprivileged population to the formal financial system has numerous benefits including greater efficiency in the distribution of resources, social and political strength, more innovation, and economic growth (Ahamed and Mallick, 2019). People often come across unexpected emergencies of funds for disease, death, major investment, and loss of employment. Financial inclusion will help people to save money for such emergencies or borrow money from financial institutions (Collins et al., 2009).

Technology has reshaped every aspect of our lives for the last few decades. Financial services are no exception. An amalgamation of technology and finance has paved the way to financial inclusion. Digitization

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of financial services can help to achieve greater financial inclusion, as nearly 50% of individuals in developing countries own mobile phones (Demircuc-Kunt et al., 2018). Digital finance is more accessible and affordable than conventional finance services, which makes it easy for poor people in developing countries to save and borrow within the formal financial system, something they were hesitant to do before (Haider, 2018). Fintech considers that the delivery of financial services through technology and Crowdfunding is an application of the financing aspect of it (Baber, 2019a). A Fintech service company can be referred to as a service provider that uses an existing or innovative technology, which can range from blockchain to simple SMS, to deliver new financial services or to improve the delivery of existing financial services. Fintechs offer indeed similar services as banks, perhaps more efficiently because of technological characteristics, but in a diverse and customized way (Navaretti et al., 2018). One of the forms of fintech is crowdfunding. Crowdfunding is a process of raising capital, usually in small amounts, directly from a large group of contributors/backers, sidestepping conventional financing sources, typically through a web-based platform (Allon & Babich, 2020; Baber, 2020). Crowdfunding appeared and saw a surge in growth over the last decade and recognized itself as a significant alternative financing route for entrepreneurs, artists and social projects (Regner, 2020; Fanea-Ivanovici and Baber, 2021). Most authors have agreed on the four categories of crowdfunding: equity-based, lending-based, donation-based and reward-based (Kirby and Worner, 2014; Dorfleitner et al., 2017; Kim and Moor, 2017).

Technological innovations, such as web-based crowdfunding platforms, have “simplified interaction between those who want to invest money and those who need it” (Vismara, 2016). The growing curb on lending after the financial crisis of 2008 by banks made debtors look for options and falling interest rates made financiers pursue other ways to finance proposing better profit (Delivorias, 2017). Fisk et al. (2011) in their research found the motivation of individuals to participate in crowdfunding campaigns and also reasons for service providers to offer such services. Crowdfunding is really helpful for financially isolated firms and persons to raise funds successfully and affordably without much effort and bureaucracy (Baber & Fanea-Ivanovici, 2021). This study is aimed to investigate the financial inclusion state of European countries and digital finance from the Findex report. Different indicators will assess the percentage of the population who are financially included and use technology to access financial services. The study will then highlight the market volume of crowdfunding platforms and the potential of crowdfunding in European countries. The study will be helpful to understand the delivery of financial services through technology and how crowdfunding can be an alternative to full fill the gap between the financially inclusive and exclusive population, in addition, will provide the benefits of crowdfunding.

2. Literature Review

Financial inclusion has been the topic of various studies and some studies found that richer, more educated and older people are likely to be financially inclusive (Fungáčová and Weill, 2015; Allen et al., 2016). People with high financial literacy are also likely to be financially inclusive (Kostov et al., 2015). Ozili (2018) suggested that digital finance can help to achieve financial inclusion as there are many people without a financial account who own a mobile phone. Malady (2016) argued that people who are excluded from the financial system may have access to technology, but there is a lack of trust and credibility on the technological channels. Manyika et al. (2016) credited digital finance for helping banks to save costs by decreasing the waiting time for customers; reduce paperwork and even reduce the number of outlets. ADB (2016) suggested that there is a need for financial literacy to increase awareness and trust in the digital financial channels. Poverty only cannot be held responsible for financial exclusion, there are many other reasons for intentional exclusion, from the formal financial system which includes religion, culture, and lifestyle. The intended financial exclusion problem can be solved by providing tailored financial services to the communities, for example, Islamic finance and microfinance. Baber (2019b) studied financial inclusion and Fintech in Islamic finance and traditional finance and concluded that both systems are almost equally inclusive. The study also found that Fintech does help in the financial inclusion of already excluded

populations in both systems. Klapper and Singer (2014) in their study specified that access to the financial system can aid removing poverty, creating employment, encouraging high consumer demand, assuring savings and investments and helping to captivate emergency financial shocks. Some studies stressed the benefits of financial inclusion, like a person who was earlier financially excluded will now be able to invest in education, save money for future expenditures and be empowered to start a business, which will apparently lead to poverty reduction and economic growth (Ellis et al., 2010; Han and Melecky, 2013).

Ozili (2018) stated that there is a negative side to digital finance and financial inclusion. Digital finance companies target the people who are able to take part in the online environment rather than intending to target the marginalized people who are not able to open an account in formal financial institutions. Schuetz and Venkatesh (2019) suggested that blockchain technology holds the potential to connect rural Indians to local and global supply chains and thus can include the population in the financial system through technology. Durai and Stella (2019) concluded that digital finance including Internet banking, mobile banking, mobile wallets (apps), credit card and debit card have a significant influence on financial inclusion. Factors like affordability, security, and adaptability have a negative impact on its acceptance, but the future seems to be positive and promising. De Koker and Jentzsch (2013) suggested that even those people who are formally included continue to use informal finance and surprisingly owning a formal account would be positively associated with the use of informal financial instruments. Therefore, there is a need for a financial method that is formal and fulfil all needs which informal instruments were doing so far.

Boitan (2016) suggested that crowdfunding can be treated as a substitute for banking and countries with many crowdfunding platforms have shown significant financial inclusion. Crowdfunding has the potential to increase the financial inclusion of the population by adding access to the funds and can replace the informal harsh lenders in the rural population (Jenik et al., 2017). To guarantee that digital finance will help individuals, it is essential to have a trusted payment system, reliable physical infrastructure, clear protocols, and a dynamic consumer protection mechanism (Demirgüç-Kunt et al., 2018). Kim and De Moor (2017) stated that crowdfunding is a system of speedy and cost-effective raising the funds and it has the ability to reach financially marginalized and excluded populations through the diffusion of technology and the internet.

Salampasis and Mention (2018) deliberate World banks' report on Global Findex and analyzed the populace having a bank account in 2011 and 2014. The study established a substantial upsurge in the fraction of the population in the inclusive financial system. The study proposed that the propagation of affordable technology developments particularly mobile phone technology and innovation for the reason of such inclusive change. Biggs (2016) enlightened the prospects of crowdfunding and digital currency to provide access to financial services to the unbanked population. Fintech has the potential to open the doors of financial services for unbanked segments of the population and developing countries (Vives, 2017).

Financial inclusion has been effective for poverty reduction and generated higher income and savings among households mostly the poor (Churchill & Marisetty, 2020). Omar and Inaba, (2020) also suggested that their study provided strong evidence that financial inclusion significantly reduces poverty rates and income disparity in developing countries. Mohammed et al. (2017) examined the effect of financial inclusion on reducing poverty among the low-income household level for 35 countries in sub-Saharan Africa. Taking cross-sectional data of 2011, they suggested that financial inclusion pointedly reduced the level of poverty in sub-Saharan Africa through providing net wealth and larger welfare reimbursements to the poor. However, there are some studies that suggest no effect of financial inclusion on poverty but support the argument of financial stability through financial inclusion (Neaime & Gaysset, 2018).

3. Research methodology

Data of 28 countries in Europe are taken from World Bank's 2017 Global Findex report to analyze the financial inclusion and Fintech dimensions. The report was designed through the agents in every 144 countries of Gallup, Inc., which is a partner agency for doing the survey. The data were collected from a sample of more than 150,000 adults above 15 years of age. The Findex report embraces the various indicators which describe the percentage of the population using financial services delivered by the bank or financial institute. Around 1.2 billion people above 15 years of age have owned an account in the bank or financial institute since 2011. The report also revealed that the percentage of the population ageing above 15 years who got an account in the financial institution or through mobile money service between 2014 and 2017 has risen from 62% to 69%. In developing countries, the raise is higher than the overall which is from 54% to 63%.

For this study, financial inclusion is evaluated on three factors - 'the percentage of the population having account holders', 'savings account at a financial institution' and 'borrowing account at a financial institution. Holding an account means that a person or parties have a financial account at a financial institution like a bank or through a mobile money service provider. The savings account benefits people to save money for future expenditures like heavy buying, capital for entrepreneurship, retirement or emergencies. It is always better to save money for any immediate expense rather than borrowing money on interest at that time. A borrowing account is a loan account where people can borrow money to fulfil their immediate need or heavy investment purpose while paying back the money in easy instalments at a pre-determined interest rate. Fintech is measured on four parameters which are - 'Received wages: through a mobile phone', 'Used the internet to buy something online in the past year', 'Used the internet to pay bills in the past year' and 'Made digital payments in the past year'.

Crowdfunding data was gathered from the website of the European Crowdfunding Network (<https://eurocrowd.org/>) which helps to encourage crowdfunding as a feasible alternative in proposing job creation, social innovation and boost to entrepreneurship among the European public, policymakers, and stakeholders. The data of only a few countries were available, but essential information of almost all European countries was present on the website.

4. Results

Almost all European countries have a good percentage of the population inclusive in the financial system. Countries like Denmark, Finland, and the Netherlands have 100 per cent of the population owning an account at a financial institute. Romania is the only country in Europe with only 50 per cent of the population in the ambit of the population owning an account in the financial institute. On average 44% of the population has a saving account in Europe which is higher than the rest of the world. Borrowing is not so common in Europe and people do not prefer to borrow from financial institutes. There are many reasons that there is already saving for a planned investment or expenditure. Around 74% of the population has debit or credit cards which can help in emergency expenditure. Countries usually have sophisticated healthcare and education subsidies which make borrowing unnecessary for the citizens. Only 15% of the population has a borrowing account in the financial institute as shown in table (1). and equal per cent has borrowed money from family and friends in the last year. This population can be potential customers for banks but can be easily targeted by the crowdfunding platforms in the donation-based segment. Moreover, 24% population on average has borrowed money from a financial institute to start/ expand their business (commercial or farming), which was only 2% in 2014. This implies that entrepreneurship populations have seen a sharp rise of 22% in the European population. This significant rise in the demand for financing the business can be very well satisfied by the crowdfunding platforms.

Table 1: Financial Inclusion data of European Countries

Country	Financial institution account (% age 15+)	Saved at a financial institution (% age 15+)	Borrowed from a financial institution (% age 15+)
Austria	98%	56%	14%
Belgium	99%	56%	16%
Bulgaria	72%	28%	12%
Croatia	86%	36%	13%
Cyprus	89%	26%	9%
Czech Republic	81%	45%	15%
Denmark	100%	63%	21%
Estonia	98%	47%	14%
Finland	100%	55%	20%
France	94%	48%	18%
Germany	99%	55%	20%
Greece	85%	13%	2%
Hungary	75%	24%	7%
Ireland	95%	48%	17%
Italy	94%	45%	16%
Latvia	93%	28%	10%
Lithuania	83%	34%	13%
Luxembourg	99%	62%	21%
Malta	97%	47%	9%
Netherlands	100%	59%	12%
Poland	87%	33%	23%
Portugal	92%	32%	9%
Romania	58%	14%	15%
Slovak Republic	84%	50%	20%
Slovenia	98%	31%	16%
Spain	94%	51%	18%
Sweden	100%	75%	21%
United Kingdom	96%	64%	18%

(Source: World Bank's 2017 Global Findex database)

Using technology for delivering financial services is regarded as Fintech. Only 2% of the population on average has received wages through mobile phones. People often pay through an online gateway for the shopping they do online. This is merely an assumption for this study and around 78% of the population has purchased online in the past year. Around 51 per cent of the population has paid the bills online which leaves enough scope for the introduction of payment apps in European countries. Especially in Bulgaria, Greece, and Romania only less than 20% population has paid bills online as shown in table (2). Interestingly, around 82% of the population has made digital payments last year which was 75% in 2014 which signifies the penetration of digital finance in European countries. Again, countries like Bulgaria, Greece, and Romania

have less than 40% of the population using digital finance to make payments last year. A regression analysis was conducted between the financial inclusion (dependent variable) and Fintech (Independent variable) using SPSS. The results of the analysis are shown in table 3. A strong relationship can be seen between Fintech and financial inclusion among the European Countries.

Table 2: Fintech data of European Countries

Country	Received wages: through a mobile phone (% age 15+)	Used the internet to buy something online in the past year (% age 15+)	Used the internet to pay bills in the past year (% age 15+)	Made digital payments in the past year (% age 15+)
Austria	4%	44%	52%	94%
Belgium	6%	57%	67%	96%
Bulgaria	0%	22%	13%	41%
Croatia	4%	30%	45%	75%
Cyprus	1%	32%	29%	66%
Czech Republic	2%	54%	57%	76%
Denmark	2%	78%	82%	98%
Estonia	2%	47%	72%	94%
Finland	2%	61%	86%	98%
France	2%	56%	43%	90%
Germany	3%	67%	58%	97%
Greece	1%	22%	17%	57%
Hungary	0%	29%	30%	62%
Ireland	1%	59%	52%	91%
Italy	2%	55%	40%	86%
Latvia	5%	35%	58%	83%
Lithuania	4%	41%	50%	67%
Luxembourg	3%	51%	65%	97%
Malta	2%	47%	41%	79%
Netherlands	8%	76%	81%	97%
Poland	2%	48%	51%	79%
Portugal	1%	25%	30%	81%
Romania	0%	16%	12%	33%
Slovak Republic	2%	42%	53%	76%
Slovenia	0%	46%	45%	90%
Spain	2%	54%	48%	88%
Sweden	3%	72%	80%	98%
United Kingdom	2%	75%	62%	94%

(Source: World Bank's 2017 Global Findex database)

Table 3: Regression Analysis

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.938 ^a	.880	.875	.03203
a. Predictors: (Constant), FINTECH				

Crowdfunding has seen steady growth in some countries like the Czech Republic, Austria, Finland, Denmark, and Estonia. Some countries have shown a sharp increase in crowdfunding projects and platforms which include the Netherlands, Germany, Italy and the United Kingdom as shown in table 4. Some countries were late in adopting this alternative finance like Latvia and Romania. Data of some countries was not available because Crowdfunding has made its mark yet or has not been accepted by the public or regulators. Some of the facts and figures about the European countries are stated below.

Table 4: Crowdfunding (Millions raised) of European Countries (Only countries with data)

Country	2014	2015	2016	2017	Mean	Std Dev
Austria	1	4.5	35	10	12.63	13.31
Belgium	0.4	0.67	7.4	6.7	3.79	3.27
Czech Republic	NA	NA	1.8	1.1	1.45	0.35
Denmark	0.1	2.2	3.7	1.8	1.95	1.28
Estonia	19.3	20.4	28.7	15.4	20.95	4.84
Finland	1.5	8	10.2	1.5	5.30	3.88
France	22.6	49	146	43.3	65.23	47.66
Germany	31.4	72.4	79.3	64.9	62.00	18.39
Ireland	1.2	13.9	2.7	NA	5.93	5.67
Italy	4.3	7.6	109.1	156.7	69.43	65.68
Latvia	NA	236	NA	NA	236.00	0.00
Netherlands	12.2	83.6	133.2	53.2	70.55	44.16
Poland	1.8	2	2.2	1.1	1.78	0.41
Romania	NA	NA	0.8	NA	0.80	0.00
Spain	4.7	14.4	35.9	13.5	17.13	11.48
Sweden	3.2	11.6	26.6	7.9	12.33	8.76
United Kingdom	1500	3000	3600	1900	2500.00	839.64

(Source: European Crowdfunding Network, 2018 (<https://eurocrowd.org/>) *NA: Data Not Available)

European countries have been at the forefront to invest in projects through crowdfunding. In Austria, Micro funds are raised for SMEs and around 70 projects have risen €11.14M since 2013. In 2015, Belgium is the seventh major crowdfunding market in Europe with €37M funds collected through crowdfunding. Bulgaria has seen a growth of 179% in the alternate finance industry from 2013-2015 and has reached €89M in 2015. However, Croatia has seen slow growth in crowdfunding and only 63 projects were raised on various platforms. Cyprian market is still emerging many platforms like “We Hug a Cause” supports cause projects but there is less success rate so far. The Czech Republic has mostly reward-based crowdfunding

platforms and has raised €9M in 2015. Overall, the figures raised through crowdfunding in the Czech Republic touched 24M CZK (approx. €0.89M), although the support and interest of backers remain positive. In 2015, €24M was raised through crowdfunding in Denmark. The total transaction value in the crowdfunding segment amounts to USD 25M in 2017.

Estonia, which is moving towards a digital economy, is classified in the top 10 European countries by alternative finance market volume, mostly in the lending segment, with a total volume, equal to €31.5M. Finland has the size of the Crowdfunding market was approximately EUR 84.4m in 2015. This was 48% higher than the previous year, according to market estimates. France has seen constant growth in online alternative finance from 76M in 2013 to 318M in 2015. France is the leading force in European online alternative finance. Germany, on the other hand, has the potential to be the largest alternative finance market in Europe as its online alternative finance grew by 115%, from EUR 140m in 2014 to EUR 249m in 2015. Crowdfunding is still in its infancy stage in Greece; the total transaction volume was in the range of EUR 0.2M to EUR 1M till 2014. Projects are usually related to social and artistic and often do not reach their target.

Crowdfunding has started to spread in Hungary. People are trying to know how it works. Only a few platforms are active and mostly donation or reward-based. Although Ireland has raised 3M with alternate finance in 2015, the records of crowdfunding are limited. Italy has seen a sharp increase of 287% in the crowdfunding market from 2014 to 2015. Around 30 platforms are active in Italy with Eur 31.61M total volume. In Lithuania, the transaction value in the peer to peer lending segment amounted to USD 10.5M in 2016. In Malta, one operating platform, ZAAR, start in December 2015. It is raised EUR 55,000 ranging from EUR 200 projects up to EUR 15,000 for the most successful project. The Netherlands has a promising market for crowdfunding and has performed well in Debt-Based and Peer-to-Peer Lending forms, whilst also performing relatively strongly in Rewards-based Crowdfunding and Equity-based Crowdfunding. The total volume raised in 2015 was EUR 111M, up from EUR 78M in 2014 and EUR 46M in 2013. Poland is facing strict regulations concerning gather money from the general public which acts as a barrier in the growth of crowdfunding else the market seems favourable. In 2015, Poland raised EUR 10M. Three platforms are working in Portugal in each category of reward-based, donation-based and lending based starting very early in 2011. There are no reliable numbers accessible about Crowdfunding volume in Romania. However, recently 1.2 M Euros were invested by Catalyst Romania Fund II in local technology startups investment platform SeedBlink. There are presently no statistics accessible for Crowdfunding volumes in Slovakia. The total number of Crowdfunding Platforms in Slovakia is limited, there are approximately 2 platforms.

The Crowdfunding volume in 2015 for Slovenia was EUR 0.8M. The first Crowdfunding Platforms started operating in Slovenia at the end of 2015. The Spanish alternative finance volume amounts to EUR 50M in 2015. According to "Crowdfunding in Spain. Annual Report 2016", in the last two years, the total amount of money raised through Crowdfunding increased from EUR 52,268,920 in 2015 to EUR 113,592,388 in 2016, which represents a growth of 116.09%. Despite the good data, Spain has very serious challenges to face in terms of growth as more customized crowdfunding platforms are emerging which are focused on niche segments of projects. Sweden raised EUR 13M through alternative financing in 2015. Between 2014 and 2015, a prominent platform based in Sweden went bankrupt. This slowed down the growth of this industry in the last few years. The UK has been at the top of all countries in Europe. Around 1.09M people invested, donated or lent via online alternative finance platforms in the UK. Donation-based Crowdfunding platforms are more popular and have grown by 507% from GBP 2M in 2014 to GBP 12m in 2015 followed by Equity-based Crowdfunding up by 295% from GBP 84M raised in 2014 to GBP 332M (including real estate Crowdfunding) in 2015

People usually choose to crowdfund as they do not have access to a bank or financial institute. People who approach a bank for a loan may be turned down as they fail to show collateral as the mortgage.

Banks also feel reluctant to provide the loan after the financial crisis of 2008 which led to the rise of Fintech. Entrepreneurship is a necessity for the growth of the economy. People with entrepreneurial intentions look for financiers or investors to finance their idea. Most of the time ideas are shelved after no investor shows interest in the project. Crowdfunding provides a safe playground for such entrepreneurs. Crowdfunding platforms act as an intermediary between contributors and project owners. Contributors have different intentions to contribute to an idea. In equity-based crowdfunding, contributors believe in an idea and want to be a shareholder in the business from the beginning. In lending crowdfunding, contributors want constant returns on the contribution. In reward-based crowdfunding, backers like the idea and want to get the product of the project in return for the contribution. In donation-based crowdfunding, people do benevolent contributions towards a project or a social cause. No matter what are the intentions, a backer has, there is always a financial transaction. A contribution is nothing but saving and borrowing. Thus, crowdfunding has to ability to include the people into the financial system from either side of the market-backer or project owner.

Thus, the results suggest that Fintech plays its role in financial inclusion. Similar results were found in the study of Loukoianova et al., (2018) and Arner et al., (2020) that advocated the role of fintech in improving financial inclusion. Fintech will be effective directly or indirectly for bridging the gap of financial equality and hence perpetuating the idea of financial inclusion. The results of Demir et al. (2020) also provided evidence that financial inclusion is a key channel through which Fintech reduces income inequality. China as an emerging economy has also witnessed economic growth and financial development through fintech in order to reduce poverty. Hence can be a roadmap and blueprint for developing economies and lessons from the European countries can be a motivation.

Information, communication and technology (ICT) has helped to endorse inclusive economic growth as well by advancing financial inclusion which stimulates financial sector development. The usage of the internet and financial services delivered through it will lower down poverty. Mushtaq & Bruneau, (2019) suggested the same results even in the presence of controlled variables such as level of economic development, inflation, government consumption and trade openness. Therefore, we conclude that technology and particularly financial technology will significantly reduce the poverty & inequality.

However, Fintech is not the ultimate solution to financial inclusion and cannot be treated as a silver bullet. Although the digital revolution in Europe has been a godsend for its overall financial inclusion, the policies should bring an equitable development and reduce the gap between the lower-income and higher-income groups. There should be a meaningful shift from 'excluded' to Fintech-enabled 'included' as suggested by Jones (2018). Crowdfunding a segment of Fintech can be utilized in the best possible way to include the poor people in the ambit of the financial system.

5. Conclusions

Financial inclusion seems to be a key means to help people come out of poverty. As mobile phone technology and the internet have reached far-flung areas of the world, it is possible to take the help of technology to get those people in the financial system who were left excluded. Opening financial institute or banks in rural areas may not be so easy and does not guarantee including people in the system. Fintech has revolutionized the way of delivering financial services with all convenience and security. Crowdfunding being the segment of Fintech has helped people to raise money which they could not have done following the traditional means of raising capital. Financial inclusion can be achieved by penetrating the Fintech services in the population which is excluded and crowdfunding can play a significant role in helping people to borrow money for a cause or start their business. Crowdlending may not be possible for such a population as it may lead to a further poverty trap. Donation-based and reward-based crowdfunding can be suitable for this

population. Donation-based Crowdfunding platforms can target the niche market segment of the population who are in abject poor condition but have a small existing business or want to start a business. The study concludes that crowdfunding has the potential to be a tool for inclusive growth and can help the marginalized population to get their financier for their small business.

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Power of Advertising Claims for Credence Goods: Can It shape the Placebo Effect and Repurchase Decisions?

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Abstract. *This study aims to find out if Advertising claims of credence goods can shape Placebo effect and lead to repurchase decisions or not. The concept of extrinsic factors of a brand being an important ingredient in consumer satisfaction is the antecedent for the study. Studies have been made to show how Advertisement helps products and services to sell more. But very few have tried to connect it with credence goods and know how consumers perceive satisfaction for those products. Further the phenomenon of repurchase decisions of credence goods is still unrevealed. On the basis of focus group technique, data has been collected for five brands which are considered as credence goods and an analysis has been provided to see whether advertising claims can create Placebo effect or not. The analysis of the factors involved in taking repurchase decision of credence goods has also been studied by selecting variables taken as basis. The results indicate that Advertising claims of credence goods can lead to Placebo effect for those where consumers have strong urge for a positive result after using the brand. The rationality of a consumer influences the repurchase decision inversely. There is a strong connection between Placebo effect, Rationality and Repurchase decision of credence goods. Marketers thus have to be cautious while publishing claims of such goods.*

Keywords: advertising claims, credence goods, placebo effect, repurchase

JEL Codes: M3, M31, M37

1. Introduction

Marketing Research has now moved deeper into understanding the consumers and knowing how they behave—observing and finding new insights into consumer behaviour has gained importance. The study is influenced by Shiv, Carmon and Ariely (2005), and Fell and Eisend (2013), who have observed and described how behavioural changes could occur in a consumer after using a product through various marketing actions. Marketers do market their brands with claims showing their superiority over others. These advertising claims are nothing but extrinsic factors of a product that otherwise have no impact on the core value. But they form a part of the brand and often become the memory of the brand. Previous studies have observed that extrinsic factors of a product like Brand name, Price, Set Size, Scarcity can create positive behavioural changes towards the product (Rao and Monroe, 1989; Shiv, Carmon and Ariely, 2005). They have termed it the “Placebo effect of marketing actions”. Placebo effects show that marketing actions do not only add some benefit to a product’s core benefit—which is the commonly held belief about the beneficial effects of marketing actions—but they can also alter the core benefit of a product as given by Fell and Eisend (2013). Advertising claims are an important factor contributing to the marketing of a product. Advertising effectiveness can be assessed by examining whether the advertising information compels the recipients to engender more positive or favourable advertising attitudes towards the product or service (Fullerton and Punj, 2004). Though it cannot have any effect on the core value of a

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product, it acts as an external attribute that may influence the consumer. Andrews et al. (1996) argue that the consumer responses towards a brand can involve learning and remembering the advertising claims made in the advertisement. The consumers can react differently to positive and negative traits as shown in the advertisement. These are known as brand related beliefs which show that the more a brand is associated with positive advertising claims, the more favourable a consumer will be towards purchase. This is an assumption that these claims can be termed as a Placebo. Sometimes, the consumers are so confused to understand whether they have experienced any positive change which the brand promises to deliver. Consumers are limited with no choice but to look for ways to console themselves with a positive difference. The brands do create expectations upon which the consumers have to rely on their perception of the brand as having any utility or not. The marketers target this grey area through credence goods and the claims made for such products are known as credence claims. Such goods are not easily evaluable, and so the users are dependent on extrinsic factors to determine their satisfaction.

So, the question arises if the consumers cannot easily evaluate the effectiveness of a brand, then why do they repurchase it. Now repurchase is significantly connected with the expectation and satisfaction of the buyer. Habel et al. (2016) in their study have prescribed the two sides of creating expectations and their effect on satisfaction. While a product or service leads to creation of expectation, a higher expectation will lead to refusal and lead to dissatisfaction if not met. On the other hand, the positive effect of the expectation is the recognition of a quality and thus, it leads to satisfaction. Consumers may have equal satisfaction towards a product, but still may vary in loyalty and thus differentiating repurchase behaviour. The age, gender, family background matter in motivating a repurchase intention. The study advocates the association between human psychology and behaviourism in marketing. The study is a novel step to determine if an extrinsic factor like advertisement claims can also create behavioural change in the consumers. The study is designed by selecting brands related to consumer's Health and Hygiene with strong claims in their advertisements. It tries to find out if the extrinsic attributes of advertising are able to generate a Placebo effect. Another objective is to study the repurchase behaviour of consumers towards brands having credence quality. This will lead to a better understanding of the purchase behaviour of consumers towards credence goods.

2. Literature Review

A statement made in an advertisement about the features, uniqueness, benefits and/or performance of a product or service designed to motivate the customers to make a purchase is an advertising claim. It can be found anywhere, from street vendors to business giants in their marketing. A street vendor selling a particular oil may claim it to be therapeutic or magical in removing pain. An advertisement contains such claims of creating a particular change after using and/or consuming a product or brand. A study conducted by Professor Jones tried to calculate a measure of (STAS) short-term advertising strength on 2000 US households got some fascinating data. He tried to measure the impact of an advertisement on the propensity of a consumer to choose a particular brand. The major finding was that the consumers who were exposed to the advertisements were seen to have spent more on that particular brand. Another finding was that there was even a long-term effect for all the advertised brands and led to an increase in the market share (du Plessis, 2005). Darby and Karni (1973) have described the qualities of credence goods as those that cannot be evaluated in the normal process of use. The characteristics of the product, the shape or the utility derived by the consumer of the quality of the product cannot be easily ascertained. These credence products can still make certain claims to the consumers but which are not evaluable even after purchase. If a consumer cannot derive the viability of the claims made, then those claims are called "credence claims".

A placebo is anything that looks to be the 'real' medical treatment but is not. It may be a pill, an injection or any other type of 'fake' treatment (Williams & Podd, 2004). A common feature that all placebos have is that they do not contain any active substance which affect the health. This has continued for years with the idea that the brain can stimulate the body to feel a 'fake' treatment as a 'real' thing. The working of placebo is still a mystery, but researchers have found that it increases feel-good neurotransmitters in the brain like endorphins and dopamine which are linked to moods and emotional reactions. Kaptchuk et al. (2014) explored Placebos to see if they reacted to migraine pain. One group took a drug labelled with the drug's name, another group were given a placebo labelled "Placebo" and a third group was given nothing. The results showed that the Placebo was 50% effective as the actual drug to reduce migraine pain. The driving force was the feeling of the individual for a positive healing effect.

The previous literature has already established facts and findings related to the Placebo Effect. Various researches have described that extrinsic factor such as Price, Brand name, set size, packaging, scarcity of the product, advertisements etc., have the power of creating of the Placebo Effect (Shiv, Carmon and Ariely, 2005; Fell and Eisend, 2013). Previous studies have described that customers' intention for purchase comes from various factors of problem recognition, Information search, Experience of the customers, Price, Durability, Perceived value and also post-purchase behavior experience (Engel, Blackwell & Kollat, 1968).

Ahmad et. al (2016) did a study on finding the factors behind repurchase decision of cosmetic products in Pakistan and found that Brand and Product Reliability have positive significant relationship with the Repurchase decision. There were other variables such as Price, Product durability which were found as insignificant factors in Repurchase decisions in the category of Cosmetic products. J.J. Cronin et. al (2000) also supported that perceived value of a product or service is a better variable to measure the intention of the customers. In their study, they tried to observe the relation between service quality, satisfaction and purchase intentions. They further found that consumer satisfaction has greater significance on the purchase intentions than service quality. Further, service quality of product categories may differ from one another. High-involvement and low-involvement of consumers is another factor that impacts the satisfaction and service quality which is reflected on the purchase intentions. But despite these characteristics of customers, it also affects the repurchase behaviour. Mittal and Kamakura (2001) in their study to find the effect of customer characteristics on Repurchase behaviour found that the characteristics of consumers have different repurchase probabilities. Consumers may have equal satisfaction towards a product but still may vary loyalty and thus differentiating repurchase behaviour.

Yet there are very few studies which define the factors involved in the repurchase of a brand. Customer expectation is a very crucial factor while purchasing a product or service. It may be conscious or not, but it does affect the purchase decision. Getting to know customer expectations is a difficult task and mostly subjective. Expectations may vary from person to person and from product to product. Keeping in mind the increasing suitability of advertisements in marketing, the researchers have tried to observe if advertising claims along with Rationality of Consumers and Perceived Value can impact the repurchase decision of credence goods.

3. Methodology of the Study

There exist a good amount of literature describing how extrinsic factors of a product have the power of creating a Placebo Effect. According to a report from statista.com, in 2019, India's digital advertising

spending has increased by 30 percent (statista.com). This shows the importance companies are giving to advertisements. This notion led to the question whether advertisement claims are an extrinsic factor of a brand that might affect the efficacy of a brand and create Placebo Effect. Thus, the study evaluates the advertisements and the claims made in the advertisements to observe whether they have the ability to create the Placebo effect. The claims made for credence goods are not easily evaluate by consumers, even after multiple purchases and consumption. This leads to the formation of our first objective:

Objective 1. To study whether Advertising claims can create Placebo Effect.

Alongside, this objective leads to the formation of one Research question:

RQ1. Can Advertising claims create Placebo Effect?

The market is filled with credence goods and the amount of contact a consumer gets with such goods is increasing. With this, it is also evident that there are certain factors which motivate the consumers to purchase and repurchase those products/brands/services, with or without observing any positive change. There are very few studies define the factors involved in the repurchase of a credence good. There are novel studies which have described that Price of a product, Perceived value of the product, Durability and reliability of a product can affect a Repurchase decision (Ahmad et. al, 2016). But keeping in mind the increasing suitability of advertisements in marketing, the researchers have tried to observe if advertising claims along with Rationality of Consumers and Perceived Value can impact the repurchase decision of credence goods. This led to the formation of the second objective of the study:

Objective 2. To observe the variables involved in Repurchase Decisions of Credence goods.

The formation of this objective leads to formation of three Research questions:

RQ2. Does perceived quality has influence on the Repurchase decisions of credence goods?

RQ3. Can Advertising claims influence the Repurchase decision of credence goods?

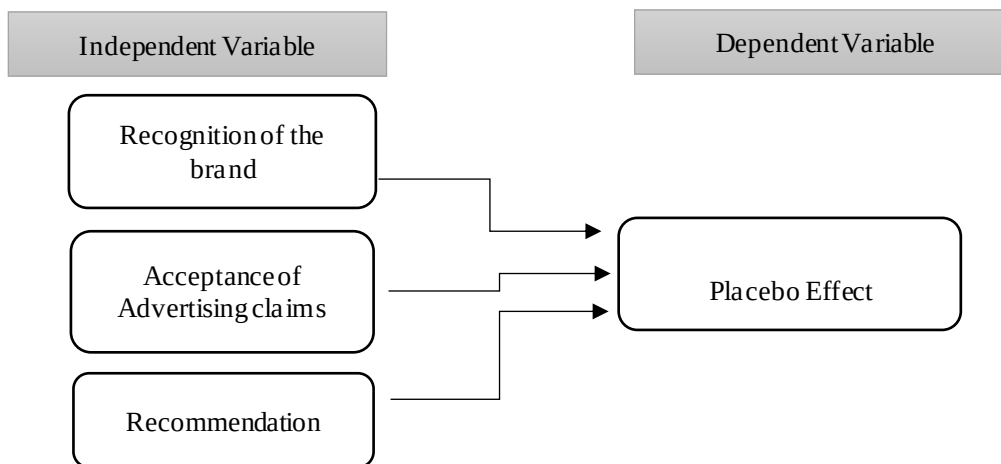
RQ4. Can Rationality of consumers impact the Repurchase decisions of credence goods?

3.1 Scope of the Study

The study is limited to advertisements of Personal care products which the researchers hypothesize to have credence qualities. Personal care or toiletries are consumer products used in personal hygiene and for beautification. The study assumes that the consumers cannot easily verify the viability of a personal care product after use. We have taken into consideration only Advertising claims as an extrinsic factor to evaluate Placebo effect. To measure the effect of advertising claims on Placebo Effect, a few variables have been selected. These variables are Recognition of the advertisement and claims, Acceptance of the claims and Recommendation of the brand to others. Plesis (2005) has suggested that Recognition is appropriate in advertising as it leads to memory formation which is important for emotive advertisements. As the study mainly focuses on credence goods the advertisements are basically based on emotional principles. This is an important variable to measure Placebo effect. Acceptance of the claims by the consumers signifies whether they tend to believe in the statements and information provided by the marketers. To measure acceptance of the claims the researchers have tried to find if the claims made in the

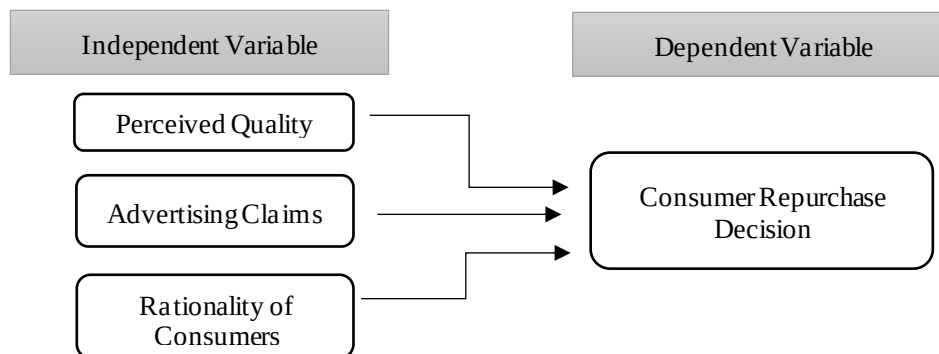
advertisement are experienced in the same way by the respondents as they are presented. Recommendation is taken as a variable because it leads to creation of satisfaction and value in the minds of consumer. Shen (2014) has supported this by stating that the users seem to be more interested to recommend a product that he or she is satisfied and also on the other hand they value products which have been recommended by others.

Figure 1: Suggested Variables for Objective 1



For the second objective, the statements for each brand have been divided into 4 variables.

Figure 2: Suggested Variables for Objective 2



The researchers have hypothesized that apart from Advertising claims, there are two more factors that can have an influence on the repurchase decision of credence goods. The variables chosen are divided into 3 Independent variables and 1 dependent variable. We are hypothesizing that the Repurchase perception towards brands of credence quality is affected by the Perceived value, Advertising claims and Rationality of consumers. Each variable consists of set of questions and the value for the variable has been calculated by using the median. The study tries to find the effect of the different variables which have an impact on Repurchase Decision, that is why Consumer Repurchase decision is considered as an independent variable. The other variables selected are considered as dependent variable. Customer Perceived value has been taken as the customers' overall perception on the product and its utility based on the perception on the stimuli received as given by Zeithaml (1988). It was also empirically stated by Cronin (2000) that Customer Perceived value as the best predictor of the customers' Repurchase decision because that is the overall assessment of the benefits received from the product or service. Advertising claims are chosen as

they can increase or decrease the impact of the brand on the perception or repurchase intentions as described by Jiménez and San-Martín (2017) and Irmak et al. (2005) in their studies. Economists have assumed that Rational behaviour of consumers does not relate to the process of decision making but to the outcome the consumers perceive. To what extent they determine the utility of a particular product or service according to their preference is rational behaviour as stated by Goodwin, et al. (2014). Rational behaviour in the study is determined by how much the consumers are interested in assessing the information given in the advertisement through consumer reports or comparison with other brands.

The statements in the question are divided under certain variables according to their relevance. For different brands, different statements have been selected to fit according with the variables. Afterwards, the median is calculated of the ordinal data and further analysed through Pearson Correlation. Hypotheses have been set by the researchers to measure the data.

H₀1: Customer Perceived value do not have any positive influence on the customer repurchase intentions

H₀2: Advertising claims does not have a positive influence over the repurchase decision of the customer

H₀3: Rational thinking does not have a positive role in the repurchase decision of the customers.

The responses collected through Google Forms and the focus group technique is used to select respondents who have accepted to use the brand.

3.2 Data Set

Focus Group Research method is used as the data is collected from the consumers who have experienced the brand or have consumed it. The questionnaires were served to 210 respondents out of which 150 responses were found viable for the study. The respondents who have not used or consumed the brand were excluded from the study. The chosen responses were selected to represent the larger population. Five focus groups consisting of 30 respondents each were selected for 5 brands. Separate questionnaires were framed for 5 different brands, namely Colgate Strong Toothpaste; Horlicks Classic Malt; Fogg Deodorant; Navratna Hair Oil; Dove Bathing Bar.

These five brands have been considered as cases for analysis. These brands are selected on the basis of the nature of their advertisement and the characteristics they have (Benz and Franck, 2007). For instance, some of the advertising claims of the selected brands are:

- a. "Strong teeth with Amino Shakti which increases strength of teeth"
- b. "Bio-nutrients which goes into the body faster and the kids gets vitamins faster"
- c. "Have glowing skin, within 7 days"
- d. "Includes 9 ayurvedic ingredients"
- e. "800 sprays guaranteed"

These are advertising claims assumed to be hypothetical and having credence qualities of not being easily evaluable and determined by the consumer even after use.

3.3 Method

The respondents were sent a structured questionnaire with the series of statements manipulated by the author. The respondents were first shown a picture of the brand and then asked some basic questions regarding purchase and recognition of the respective brand. Afterwards, they were shown two advertisements of the brand in order to make them recognise the brand further. This led to asking another set of questions related to the advertisement of the brand. The motive was to first trigger the expectancies of the respondent after seeing the image of the brand and then further to allow him/her to watch and recognise the advertisement of the brand. It led to measuring the respondent's expectation of both after watching the image of the brand and also after watching the advertisement. The data have been analysed using Pearson correlation. Median is also used to analyse the statements for the variables selected. The median is calculated for the ordinal data of the statements and then Pearson Correlation is calculated through the use of SPSS.

4. Data Analysis

4.1. Study I: Advertising claims and Placebo Effect

For the study Colgate Strong Teeth Toothpaste has been selected and the advertisements have been analysed. The claims made so far have been recorded and cross checked with the responses of the consumers. Analysing Consumer Responses:

Table 1: Responses for Colgate Strong Teeth Toothpaste

Basis for Analysing Responses	Consumer Responses in Percentages (1 as Most likely, 3 as average and 5 as Not at all likely)				
	1	2	3	4	5
Watching the advertisement and remembering claims	10.3	13.8	24.1	22.4	29.3
Seen changes after using Colgate	6.6	19.7	39.3	16.4	18
Help in keeping teeth of the family healthy	23.2	25	21.4	16.1	14.3
Colgate is the best toothpaste to fight cavities	13.1	23	29.5	19.7	14.8
Best certified toothpaste available	16.4	21.3	27.9	19.7	14.8
Recommending Colgate to others	10.3	15.5	34.5	19	20.7

Source: Primary Data

Table 1 shows the responses about Colgate Strong Teeth Toothpaste and few questions based on the advertisement and their perception regarding the product. After analysing the responses, it can be seen that though the consumers are not able to remember or recall the advertisement, still most of them believe that Colgate is one of the best toothpastes for teeth and fighting teeth problems. This shows that advertising claims do not have a strong impact on the consumer's perception regarding the brand. There have to be other factors associated with it that shapes the belief of the consumer that leads them to accept it as a good toothpaste. The respondents have further accepted not seeing any changes after using Colgate but still

believe that it helps in fighting teeth problems such as cavities. The advertising claims thus is not resulting in any placebo effect as it is unable to create a belief of positive change after using the brand from its claims made. Yet, they still have some inclination towards the brand as a good brand.

Table 2: Responses for Horlicks Classic malt.

Basis for Analysing Responses	Consumer Responses in Percentages (1 as Most likely, 3 as average and 5 as Not at all likely)				
	1	2	3	4	5
Watching the advertisement and remembering claims	14.3	25	25	10.7	25
Seen changes after consuming Horlicks	13.8	27.6	24.5	17.2	6.9
Buy Horlicks only during summer, winter vacations and during exams	0	7.1	14.3	28.6	50
Kids are healthy after consuming Horlicks	11.1	27.8	33.3	5.6	22.2
Horlicks helps in keeping focus during exams	11.1	11.1	38.9	11.1	27.8
Recommending Horlicks to others	21.4	32.1	17.9	2.4	7.1

Source: Primary Data

Table 2 shows the perception of consumers of the ‘Horlicks Classic Malt’ brand. The responses are based on a set of questions. After analysing the responses, it can be understood that the advertisements and the claims made by the brand have surely caught attention as the respondents mostly have accepted to remember the advertisement and claims. This shows that the advertisement has led to the retention of the advertisement which is an important factor of advertising positioning strategy.

Furthermore, the respondents have also admitted having experienced change after consuming Horlicks which again is leading to positive behaviour towards the brand. However, when the respondents were asked specifically about any particular time frame or situation of buying the brand such as summer or winter time or exam-time, they mostly rejected the statement. Again, the respondents have accepted that the brand is a nutritional and healthy drink for children, but they have not supported the brand as a drink that helps increasing the focus of the children during exam time. However, most of the respondents have accepted that they will recommend the brand to others. Thus, the responses show that the brand has been able to attract and retain the attention of the consumers through their advertisements, making the consumers’ experience change after consuming the drink. But the consumers are reluctant to accept certain changes in specific situations as shown in the advertisements. There is a minimal placebo effect that we can notice because of the acceptance of the consumers of some of the claims. There are signs of consumer satisfaction among the respondents as they also have accepted to recommend the product to others as well.

Table 3: Responses for Dove Bathing Bar

Basis for Analysing Responses	Consumer Responses in Percentages (1 as Most likely, 3 as average and 5 as Not at all likely)				
	1	2	3	4	5
Advertisement influences purchase decision	13.3	40	6.7	13.3	26.7
Watching the advertisement and remembering claims	13.8	41.4	10.3	24.1	10.3
Dove helps in getting focus among others	3.6	21.4	17.9	28.6	28.6
Buy Dove only when preparing for some important event	3.4	6.9	10.3	41.4	37.9
Seen changes after using Dove	10.7	42.9	21.4	3.6	21.4
Skin is softer after using Dove	17.9	21.4	21.4	10.7	28.6
Dove gives result within few weeks	10.7	21.4	28.6	17.9	21.4
Recommending to others	21.4	25	21.4	10.7	21.4

Source: Primary Data

Table 3 shows the perception and responses towards the Dove Bathing Bar. The analysis of responses shows that most of the respondents have admitted having been influenced by the advertisement of Dove Bathing Bar when they purchase thus, we can account that their perception towards the brand will also be affected by the advertisement and the claims. Further, most of them have agreed to remember the claims shown in the advertisement. While some responses were on the positive side of seeing changes after using Dove, most of them have rejected that Dove has helped them to gain focus or using it before any important event. Few respondents were also not ready to accept that Dove makes their skin any softer. This shows that some of the claims as shown in the advertisements can attract attention and are accepted by them. But still, some of the claims were not able to create any impact on the experience of the respondents. Thus, the consumers were satisfied to an extent as they are ready to share the brand with others but they are not willing to accept certain claims. It follows that the power of advertisement claims as a placebo was not at all-powerful to make the consumers accept all the claims as shown in their advertisements.

Table 4: Responses for Navratna Cool Hair Oil

Basis for Analysing Responses	Consumer Responses in Percentages (1 as Most likely, 3 as average and 5 as Not at all likely)				
	1	2	3	4	5
Advertisement influences purchase decision	16.7	46.7	10	10	16.7
Watching the advertisement and remembering claims	27.6	31	10.3	6.9	24.1
Seen changes after using Navratna Cool Oil	24.1	41.4	17.2	6.9	10.3

Feel relaxed and stress free after applying Navratna Cool Oil	51.7	20.7	6.9	10.3	10.3
Natural Ingredients present	37.9	31	13.8	10.3	6.9
Recommending to others	31	31	17.2	10.3	10.3

Source: Primary Data

Table 4 shows the responses to the Navratna Cool Oil Brand. From the analysis, we can infer that the product has positively influenced the respondents in accepting its claims. As the respondents mostly have accepted to have seen the advertisement and remember the claims, we can perceive that their purchase decisions will be influenced by them. The claims as shown in the advertisement have influenced the respondent's perception towards the brand as they have accepted that there are natural ingredients present in the oil; that it helps relieving stress, tension and seeing changes. This we can assume is the effect of the advertisement on the respondents. Thus, in the case of this brand, a placebo effect can be seen over the respondents.

Table 5: Responses for Fogg Deodorant

Basis for Analysing Responses	Consumer Responses in Percentages (1 as Most likely, 3 as average and 5 as Not at all likely)				
	1	2	3	4	5
Advertisement influences purchase decision	29.3	31.3	14.6	14.6	9.8
Watching the advertisement and remembering claims	37.5	30	10	5	7.5
Longest lasting deodorant in the market	9.8	41.5	24.4	17.1	7.3
Compared with other deodorants	12.2	29.3	14.6	31.7	12.2
Long lasting feature is important	25	32.5	22.5	15	5
Most popular deodorant in the market	12.2	4.9	36.6	39	7.3
Recommending to others	10	35	32.5	10	12.5

Source: Primary Data

Table 5 shows the responses to Fogg Deodorant. The responses from the analysis show that the respondents do accept the influence of advertisements of the brand on their purchase decisions. The claims already established by the brand through its advertisement have positioned well into the minds of the customers. Most respondents have accepted some of the claims, even without comparing them with other deodorants. The concept of long-lasting perfume as positioned by Fogg Deodorant since its launch has created an impact that customers now consider an important feature of a deodorant. Yet, the respondents were still reluctant to perceive Fogg deodorant as India's No.1 deodorant. It can be seen that some claims as positioned by the brand have changed the perception of the respondents towards the segment. Thus, the claims here act as a placebo in influencing the belief and attitude of the customers towards the brand.

4.2. Study II: Repurchase decision for Credence Goods

The connection of expectancies with customer satisfaction is very crucial. Habel et al. (2016) in their study claim that customer expectations should be set in such a way that they should be altered keeping in mind the customers. They have suggested that the service providers should try to increase expectations if the customer's motivation is low, just like their ability to assess the service. On the other hand, they should try to minimise the expectations if the customers already have high motivation and possess the ability to assess the service. Three hypotheses have been set accordingly.

Analysis of the Cases:

In statistics, it is generally accepted that the following scale can be used to estimate the effect size.

Effect size: If $r = \pm 0.5$ It is large; $r = \pm 0.3$ It is medium; $r = \pm 0.1$ It is small.

Case 1: Colgate Strong Teeth Toothpaste:

Pearson Correlation Coefficient is used to determine the relationship between various variables.

Table 6: Pearson Correlation Analysis of Colgate Strong Teeth Toothpaste

Correlations					
		Repurchase	Advertising claims	Perceived Value	Rationality
Repurchase	Pearson Correlation	1	.342	.856	-.498
	Sig. (2-tailed)		.064	.000	.005
	N	30	30	30	30
Advertising claims	Pearson Correlation	.342	1	.381	-.080
	Sig. (2-tailed)	.064		.038	.676
	N	30	30	30	30
Perceived Value	Pearson Correlation	.856	.381	1	-.401
	Sig. (2-tailed)	.000	.038		.028
	N	30	30	30	30
Rationality	Pearson Correlation	-.498	-.080	-.401	1
	Sig. (2-tailed)	.005	.676	.028	
	N	30	30	30	30
**. Correlation is significant at the 0.01 level (2-tailed).					
*. Correlation is significant at the 0.05 level (2-tailed).					

Source: Primary Data

Table 6 describes the correlation between the variables studied. From the analysis, the author can observe that the correlation between Advertising claims and repurchase is 0.34, which is positive, meaning

there is a significant relationship between these two variables. The correlation between Perceived value and Repurchase decisions is highly positive i.e., 0.856. It also shows that the Rationality in purchase decision has a negative correlation with Repurchase decision which implies that rationality has inverse relationship with repurchase. There is a negative relationship between rationality in purchase with other variables of advertising claims and perceived value also. This shows the inverse relationship between these variables.

Case 2: Horlicks Classic Malt

<i>Table 7: Pearson Correlation Analysis of Horlicks Classic Malt</i>					
Correlations					
		Repurchase	Advertising claims	Rationality	Perceived value
Repurchase	Pearson Correlation	1	.671**	-.217	.654**
	Sig. (2-tailed)		.000	.249	.000
	N	30	30	30	30
Advertising claims	Pearson Correlation	.671**	1	-.114	.752**
	Sig. (2-tailed)	.000		.550	.000
	N	30	30	30	30
Rationality	Pearson Correlation	-.217	-.114	1	-.157
	Sig. (2-tailed)	.249	.550		.408
	N	30	30	30	30
Perceived value	Pearson Correlation	.654**	.752**	-.157	1
	Sig. (2-tailed)	.000	.000	.408	
	N	30	30	30	30
**. Correlation is significant at the 0.01 level (2-tailed).					
*. Correlation is significant at the 0.05 level (2-tailed).					

Source: Primary Data

Table 7 describes the correlation between the variables studied. From the analysis, one can observe that the correlation between Advertising claims and repurchase is 0.671, which is positive, and means there is a significant relationship between these two variables. The correlation between Perceived value and Repurchase decisions is also positive i.e., 0.654. On the other hand, it also shows that there is a negative relationship between Rationality and Repurchase i.e., -.217, which means that the increase or decrease in Rationality has an inverse effect on the repurchase decision of the consumer. Rationality also has a negative relation with advertising claims.

Case 3: Dove Bathing Bar

Table 8: Pearson Correlation Analysis of Dove Bathing Bar

Correlations					
		Repurchase	Advertising claims	Rationality	Perceived value
Repurchase	Pearson Correlation	1	.792**	-.138	.499**
	Sig. (2-tailed)		.000	.468	.005
	N	30	30	30	30
Advertising claims	Pearson Correlation	.792**	1	-.232	.655**
	Sig. (2-tailed)	.000		.218	.000
	N	30	30	30	30
Rationality	Pearson Correlation	-.138	-.232	1	.135
	Sig. (2-tailed)	.468	.218		.476
	N	30	30	30	30
Perceived value	Pearson Correlation	.499**	.655**	.135	1
	Sig. (2-tailed)	.005	.000	.476	
	N	30	30	30	30
**. Correlation is significant at the 0.01 level (2-tailed).					
*. Correlation is significant at the 0.05 level (2-tailed).					

Source: Primary Data

Table 8 describes the correlation between the variables studied. From the analysis, one can observe that the correlation between Advertising claims and repurchase is positively high, 0.792, which means there is a significant relationship between these two variables. The correlation between Perceived value and Repurchase decisions is also positive i.e., 0.499. It also shows that the Rationality of consumers has a negative correlation with Repurchase decision which implies the inverse relationship. There is a negative relationship between Rationality of consumers with Advertising claims also. This shows the inverse relationship between these variables.

Case 4: Fogg Deodorant

Table 9: Pearson Correlation Analysis of Fogg Deodorant

Correlations					
		Repurchase	Advertising claims	Rationality	Perceived value
Repurchase	Pearson Correlation	1	.282	.128	.394*
	Sig. (2-tailed)		.131	.500	.031
	N	30	30	30	30
Advertising claims	Pearson Correlation	.282	1	-.055	.278
	Sig. (2-tailed)	.131		.775	.137
	N	30	30	30	30

Rationality	Pearson Correlation	.128	-.055	1	.120
	Sig. (2-tailed)	.500	.775		.526
	N	30	30	30	30
Perceived value	Pearson Correlation	.394*	.278	.120	1
	Sig. (2-tailed)	.031	.137	.526	
	N	30	30	30	30
**. Correlation is significant at the 0.01 level (2-tailed).					
*. Correlation is significant at the 0.05 level (2-tailed).					

Source: Primary Data

Table 9 describes the correlation between the variables. From the analysis, one can observe that the correlation between Advertising claims and repurchase is 0.282, which is small, meaning that there is a poor relationship between these two variables. The correlation between Perceived value and Repurchase decisions is also positive but medium i.e., 0.394. It also shows that the Rationality of consumers has a very poor correlation with Repurchase decision i.e., 0.128. Rationality of consumer also has a negative correlation with advertising claims which shows the inverse relationship between these two variables.

Case 5: Navratna Cool Hair Oil

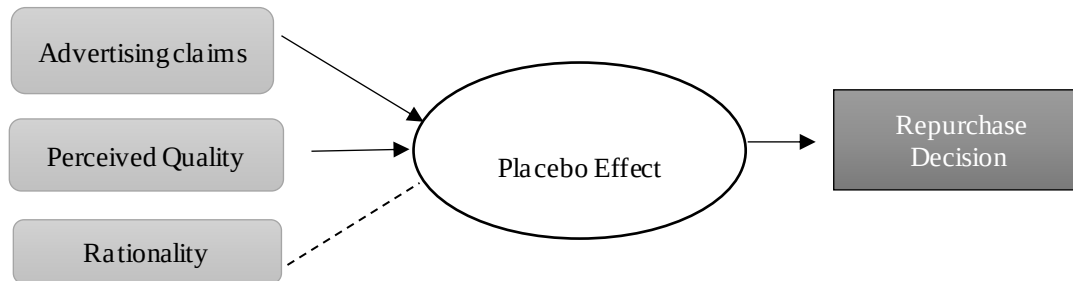
Table 10: Pearson Correlation Analysis of Navratna Cool Hair Oil Correlations					
		Repurchase	Advertising claims	Rationality	Perceived value
Repurchase	Pearson Correlation	1	.766**	.343	.692**
	Sig. (2-tailed)		.000	.063	.000
	N	30	30	30	30
Advertising claims	Pearson Correlation	.766**	1	.410*	.698**
	Sig. (2-tailed)	.000		.024	.000
	N	30	30	30	30
Rationality	Pearson Correlation	.343	.410*	1	.292
	Sig. (2-tailed)	.063	.024		.117
	N	30	30	30	30
Perceived value	Pearson Correlation	.692**	.698**	.292	1
	Sig. (2-tailed)	.000	.000	.117	
	N	30	30	30	30
**. Correlation is significant at the 0.01 level (2-tailed).					
*. Correlation is significant at the 0.05 level (2-tailed).					

Source: Primary Data

Table 10 describes the correlation between the variables studied. From the analysis, the author can observe that the correlation between Advertising claims and repurchase is positively high—0.766—which means there is a significant relationship between these two variables. The correlation between Perceived value and Repurchase decisions is also positive i.e., 0.692. It also shows that the Rationality of consumers

has a positive but less significant correlation with Repurchase decision i.e., 0.343 and with advertising claims. Overall, for this brand, consumers are positive.

Figure 3: Outcome of the Correlation Analysis



Note: Advertising claims and Perceived Quality have a positive relation with Repurchase Decision. However, Rationality has an indirect or inverse relationship with Repurchase Decision.

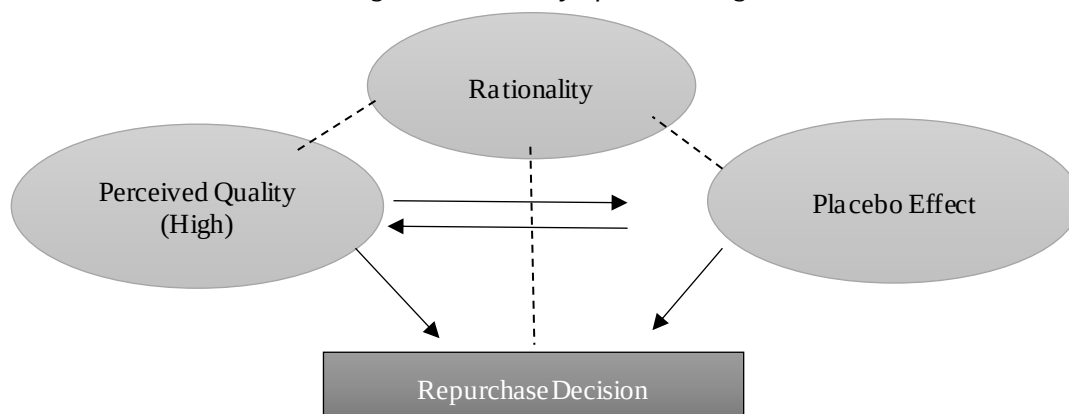
As stated earlier for the second objective, the researchers have set three hypotheses.

- From the analysis, it is observed that customer perceived value and advertising claims as having a positive correlation with repurchase decisions of credence goods and Hypothesis 1 and Hypothesis 2 are rejected.
- From the analysis above, it is clear that Rationality of consumers does not have a positive role but a negative or inverse correlation with the Repurchase decision of credence goods and Hypothesis 3 is accepted.

5. Results and Findings

Based on the literature and interpretation of the results, some major findings have been derived.

Figure 4: Summary of the Findings



Note: From the Figure 4, it can be inferred that Rationality has an indirect relation with Placebo Effect and thus cannot be determined if it will lead to Repurchase decision. Perceived quality, on the other hand, has a direct relation with Placebo effect and can be established that it will have an impact on the Repurchase Decision.

a. The power of advertising claims as a placebo is different for the selected brands which describe that it is based on the consumer's memory of the advertisement and attitude towards it. For instance, the certification of Colgate as the best-certified toothpaste is a credence attribute that often helps a consumer to choose whether the product is safe or has quality. Caswell and Mojduszka (1996) in their study said that a certification by a government agency or an expert authority has a lot to do with product trustworthiness. Also, Kihlstrom and Schacter (1990) stated that an anaesthetised patient when given verbal suggestions about recovering quickly spend less time in the hospital than other patients. Thus, an advertising claim will lead to a stronger placebo effect if a consumer accepts to recognise the advertisements, believes the claims as true and also if they are ready to recommend them to others. Here, it can be noted that advertising claims cannot shape the experiences alone and alter the efficacy of the brand. If a consumer is satisfied with the product but still does not completely accept the claims there might be the influence of other extrinsic factors involved.

b. The brand where the advertising claims led to a significant Placebo effect was a product that was connected to pain or discomfort or a product such as a therapeutic oil. This means that the advertising claims work strongly for products whose USP (Unique Selling Proposition) is targeted for pain removal or relief from mental and physical discomfort. This is similar to the study conducted by Irmak et. al (2005) where they observed that high desire for an increased boost of the respondents led to the same amount of physical and psychological change after a Placebo drink that occurred in case of a real energy drink. Further, Plassmann and Weber (2015) in their study found that anticipation of expectancy affects the pain-responsive regions of the brain. This means that anticipation of a positive change during pain induced phenomenon is high and at that time the release of dopamine is also significant which leads to a sense of reward-seeking or learning behaviour. Consumers are more open to these claims of the brands and create stronger positive expectancies for these brands.

c. The brands for which advertising claims were less effective in creating placebo effect were brands which though were considered for repurchase by the respondents. Here, there was a mixed observation that the consumers accepted one variable but negated the others. This means that acceptance or rejection of one variable might not hamper the creation of the placebo effect. For instance, the respondents of Colgate were not ready to recommend the brand to others, but were accepting the advertising claims which means that the creation of the Placebo effect is varied. It changes from person to person and it depends on the level of receptivity of the claims.

d. Advertising claims, Perceived quality and Rationality of consumers correlate with repurchase decisions. It means they do form an important consideration behind repurchase decisions of credence goods. This means for such goods where consumers cannot evaluate the quality, they mostly rely upon the claims provided by the marketers, the utility that they believe to have received. As it was said by Du Plessis (2005) in his book 'The Advertised mind', advertisements lead to brand memories that are stored in our subconscious mind and forms brand associations. This supports the statement that the more a consumer responds positively to an advertisement claims and accept it, the more chances there are of Repurchase. Here, rationality is to be noted as an important variable for a consumer being more rational towards the brand and its information, lesser are the chances of repurchase.

e. One observation was made for the brand Navratna Hair Oil that the product having a strong Placebo effect, the rationality of consumers towards this brand was positive. This was a significant observation that for brands having a high placebo effect, the repurchase decision will also have some rational behaviour

involved. For the repurchase of credence goods having a strong Placebo effect, there is a presence of rational thinking of the consumers. This shows that for a brand to have repurchase there should be positive Placebo effect with a less significant positive rational behaviour.

- If Placebo effect is low + Rationality is highly positive = lesser are the chances of Repurchase Decision
- If Placebo effect is low + Rationality is highly negative = lesser are the chances of Repurchase Decision
- If Placebo effect is high + Rationality is significantly positive = More are the chances of Repurchase Decision

f. There is a strong connection between the Placebo effect and the Repurchase decision of credence goods. The placebo effect is generated when the consumers create a positive belief in quality and that belief leads to a repeated purchase. And this phenomenon is inherent in credence goods where the consumer mostly has to rely on the perception he or she forms towards a product. When there is a High Placebo effect, it may lead to Positive Repurchase behaviour. This supports the study of Mirabi et. al. (2015) where they observed the impact of the quality of a product on a customer's purchase intention. They find out that the product quality does have a significant and positive impact on customer's purchase intention. The consumers value the quality that they have received from the brand and the higher the perceived quality higher will be the chances of Repurchase.

6. Conclusion and Recommendations

The study is an attempt to append available literature in the field of advertising and put focus on the Placebo effect which itself is a novel area of study in marketing. As in the marketing world, we know emotions are critical and what a consumer likes is what s/he will buy and recommend. From the study, it was evident that the Placebo effect can be generated through Advertising claims as an external cue. It depends on the consumer's receptivity of claims, and it is not easy to measure at all. But an important finding was that a stronger desire for positive change before using a brand mostly in pain or discomfort may lead to a stronger Placebo effect. This is in line with the various researches done where it was proved that before solving a puzzle if respondents are given Placebos as a strong stimulator, it will lead to the same amount of positive change as an actual one.

The brands selected were of a credence nature which makes them difficult to be assessed in terms of quality. Thus, the repurchase behaviour of such brands becomes difficult to analyse. However, this study was an attempt to see if certain variables can create any impact on the repurchase behaviour of such goods. And it was observed that the advertising claims and the quality perceived by a consumer have a very significant impact on the repurchase decision of such goods. Another important finding states that the rationality of consumers mostly has an inverse relationship with such goods. Though for brands having a stronger desire for a change it is positive to a limited extent. These findings call for future studies from a different angle to facilitate more into the literature and bring out novel areas of research in marketing. There is further scope for future researchers to create a framework for defining the High-medium-low Placebo effect. It was observed in the study that the researcher was unable to determine how strong or how weak the Placebo effect was. This may open the doors for designing such a framework that fills this gap.

The study can be extended in the future to see if advertising claims can lead to any negative stereotypical beliefs or not.

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Regulated Market in Tripura: For Sustainable Local Governance

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Abstract. *The farmers are getting poorer despite the increase in the agricultural GDP. The profitability of agriculture has declined while the risk involved has increased. The changes in the policy environment and the market situation have not benefited the small and marginal farmers uniformly. The study attempts to project the regulated market of Tripura with different amenities available in the market vicinity. Altogether 21 markets have been deliberately studied with twenty numbers of respondents from each market, and a total 420 numbers of responses are recorded; and a z-test has been applied to ascertain the relative importance of the specific variables. The market information, storing, weighing, sorting facilities are significantly affected on the marketing of agricultural produce in regulated markets of Tripura. In contrast, grading and transportation facilities have been found less affected by the regulated market system in Tripura. The first controlled market was created (1964). Following that, three markets were controlled in 1981, and seventeen markets were regulated in 1986. In Tripura, the government has taken several measures to establish a controlled market. Despite these measures, there has been no discernible improvement in the state of Tripura's regulated markets.*

Keywords: Regulated market, Agricultural produce market committee, agricultural market

JEL Codes: A10, A11, D40, G40, L10, M38, Q13

Abbreviation:

APMC: Agricultural produce market committee.

GDP: Gross Domestic Product.

DMI: Directorate of Marketing and Inspection.

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1. Introduction

Good governance is mandatory for a democratic environment and sustainable development. For effective implementation of the pre-programmed developmental activities in the community, delegation of powers, authorizing responsibilities to the local heads can ensure better governance. It is evident in the agricultural sector also where Govt. intervention with a good governance practice influences the agricultural activities of a state. Governance in agriculture refers to the administrative, institutional, and organizational structures and processes within which agricultural services are embedded (Bitzer, 2016 & Khodary, 2016). The agriculture sector plays an important role in the survival of the rural people. The importance of agriculture in the socio-economic fabric of India can be realized from the fact that the livelihood of the majority of the country's population depends on agriculture (Ravi & Uthaisuryan, 2012).

Regulated Markets have a vital role to play in restructuring the economy of the country. Against this background, any study relating to the working of Regulated Markets would be of much use to the policymakers for effecting improvements in the working of regulated markets and their utilization. Regulated markets are regarded as accountable entities for carrying out all functions related to the selling of outputs, with the general benefit of the forming society and all final customers in mind (Uthayasuriyan & Kesavan, 2012).

Hence Regulated markets are a measure to assure and remunerative marketing opportunities that hold the key to continued progress in enhancing farm productivity and profitability and help to provide the reasonable price of the farm produce by providing the information of the market. Markets in which business is done under the rules and regulations framed by the statutory market organization representing different sections involved in markets called Regulated Markets (Saikia, 2013).

The aim of establishing a regulated market is not to provide an alternate marketing method but also the primary goal has been to facilitate free and voluntary competition in the private sector to improve its functions where the farmer can trade his produce too many buyers in a controlled market by free and fair bidding. The regulated markets are regarded as responsible entities for carrying out all duties associated with the selling of agricultural produce while having the general interests of the farming community and the final customers in mind (Rehman et al., 2012).

2. Statement of the problem

The Indian rural economy presents a picture of exploitation of the rural masses, especially the poorer ones, by the intermediaries or middlemen and proper marketing facilities. These agents take a large portion of the price charged by the final buyer, depriving the farmers to fend for themselves. Many studies revealed that the farmers received far less than their legitimate share in consumers' rupees (Singh & Pandey, 2005). All these issues contribute to complexity economic viability in terms of availing marketing facilities by the market functionaries for their marketing practice and efficient utilization. The variables which are found to be important in regulated market operation do not perform consistently as well as adequately in all markets. In Tripura, there are a large number of regulated markets where marketing facilities are not at par in comparison to the standard regulated market norms. Hence this study attempted to show the performances of marketing facilities in the regulated markets of Tripura.

3. Objective & Hypotheses of the Study

This paper attempts to study the governance as well as the performance of the marketing facilities of the regulated market in Tripura.

This study embarks with six numbers of hypotheses on the basis of six valuables which are mentioned below:

H₁₁: Regulated market and its operation significantly affected by market information facility.

H₁₂: Regulated market mechanism significantly affected by storing facility.

H₁₃: Regulated market mechanism significantly affected by weighing facility.

H₁₄: Regulated market mechanism significantly affected by the sorting facility.

H₁₅: Regulated market mechanism significantly affected by Grading facility.

H₁₆: Regulated market mechanism significantly affected by Transportation facility.

4. Methodology

To study the governance of the regulated market in Tripura, all twenty-one numbers of the regulated market have been considered. The study is based on primary and secondary data from the selected area. Secondary data was collected from different published research papers and unpublished Government reports. Furthermore, the primary data was collected for 2019–20 from the different marketing functionaries by personal interview through a structured interview schedule. The variables which have been deemed to be considered concerning the well-functioning of the regulated market are spotted viz. market information facility, storing, weighing, sorting, grading, transportation facility, etc. Questions like how a regulated market should run with all required amenities, what are the required physical facilities with which a regulated market should have etc., have been attempted to address. Twenty numbers of respondents from each market and a total 420 numbers of responses are recorded and a z-test has been applied to ascertain the relative importance of the specific variables. To compare an observed proportion to a theoretical one, a one-proportion z-test is used.

$$Z = \frac{|\bar{x}_1 - \bar{x}_2|}{\sigma \sqrt{(\frac{1}{n_1} + \frac{1}{n_2})}} \sim N(0,1)$$

Where $\bar{x}_1, \bar{x}_2$ is the mean of positive response (n_1) & negative response (n_2) respectively, and σ is the common standard deviation. H₁ is acceptable if the estimated value of Z > the table value of Z is at a 5% level of significance.

Table No 1: List of Regulated Markets in Tripura

Sl. No	Name of the District	Name of the Regulated Markets
1.	West Tripura	Mohanpur Agri. Produce Reg. Market
2.		Champaknagar Agri. Produce Reg. Market
3.	Sipahijala	Bishalgarh Agri. Produce Reg. Market
4.		Melaghar Agri. Produce Reg. Market
5.		Jampuijala Agri. Produce Reg. Market
6.		Sonamura Agri. Produce Reg. Market
7.	Gomati Tripura	Garjee Agri. Produce Reg. Market
8.		Natunbazaar Agri. Produce Reg. Market
9.	South Tripura	Santirbazar Agri. Produce Reg. Market
10.		Barpathari Agri. Produce Reg. Market
11.		Kalashi Agri. Produce Reg. Market
12.		Silacharri Agri. Produce Reg. Market

13.	Khowai	Teliamura Agri. Produce Reg. Market
14.		Kalyanpur Agri. Produce Reg. Market
15.		Bachaibari Agri. Produce Reg. Market
16.	Dhalai	Chawmanu Agri. Produce Reg. Market
17.		Gandachharra Agri. Produce Reg. Market
18.		Kulai Agri. Produce Reg. Market
19.	Unakoti	Pabiachharra Agri. Produce Reg. Market
20.	NorthTripura	Panisagar Agri. Produce Reg. Market
21.		Dasda Agri. Produce Reg. Market

Source: Economic Review of Tripura 2018-19

5. Results and discussions

Agricultural Marketing in North-East Region:

In most of the rural markets, facilities are either not available at all or not adequate. The primary markets in Assam, Meghalaya, and Tripura do not even have basic infrastructural facilities and are mere meeting places for buyers and sellers. By and large, these markets are owned and managed by local bodies which rarely pay any attention to their development. Communication/transport and storage facilities, which are critical components of infrastructure for the expansion of agricultural commerce, are woefully lacking. In rural locations and in primary marketplaces, storage facilities are either non-existent or inadequate. Such amenities are essentially non-existent in Mizoram and Arunachal Pradesh. Storage facilities are large "katcha" in Assam, Manipur, and Tripura. In a considerable number of main marketplaces in Meghalaya, only "pucca" storage facilities are provided. Sorting, grading, and standardizing, packing, and post-harvest treatments, among other functions, are not typically used in post-harvest handling. All of these characteristics have an influence on storage shelf life and long-distance transit (DMI, 2020).

Table no 2: Distribution of Wholesale Assembling Primary and Regulated Markets in NER

Sl. No.	State	No. of Wholesale Markets	No. of Rural Periodic Markets	Total	No. of Principal Regulated Markets	No. of Sub-yard	Total
1	Assam	172	650	822 (43.24)	16	19	35 (60.34)
2	Arunachal Pradesh	-	50	50 (2.63)	-	-	-
3	Manipur	20	49	69 (3.63)	APMC Act Not passed		
4	Meghalaya	101	82	183 (9.63)	2	-	2 (3.45)
5	Mizoram	8	35	43 (2.26)	-	-	-
6	Nagaland	16	80	96 (5.05)	-	-	-
7	Tripura	84	554	638 (33.56)	21	-	21 (36.21)
Total		401	1500	1901 (100)	39	19	58 (100)

Source: Directorate of Marketing and Inspection, Ministry of Agriculture, Govt. of India, 2020

Table 2 indicates the distribution of Wholesale Assembling Primary and Regulated Markets in the North-East Region, where it was observed that Assam holds 43.24 percent of wholesale and rural periodic markets whereas Tripura enjoys the second position with 33.26 percent, followed by other North-Eastern states. In the case of regulated markets, Assam holds the first position with 60.34 percent, followed by Tripura (36.21 percent) and Meghalaya (3.45). In both cases, Tripura holds a satisfactory position in the wholesale assembling primary and regulated Markets. It indicates the market mechanism involved in the regulatory framework has been performing well.

Status of Regulated Market in Tripura:

Market Regulation in Tripura-Progress in India, market regulation was implemented under the Agriculture Produce Markets Act to regulate the selling and purchase of agricultural products and creates equal competition conditions. The Directorate of Marketing and Inspection provides states with the appropriate advice and assistance in developing and enforcing legislation. Almost all Indian states, including Tripura, have passed market regulation legislation. In Tripura, the State Government enacts the following acts and rules in connection with the establishment of regulated markets (Chakraborty, 2009 & Mallik, 2019). The acts and rules for regulated markets of Tripura are as follows:

- 1) The Tripura Agriculture produces Markets Act, 1980
- 2) The Tripura Agricultural Produce markets (Amendment) Act, 1983
- 3) The Tripura Agriculture Produce Markets (Administration) Rules, 1985
- 4) The Tripura Agricultural Produce markets (Second Amendment) Act, 2007

The Agriculture Produce Markets Act of 1980 in Tripura includes provisions for the establishment of controlled markets and the formation of a Market Committee to better regulate goods, sales, storage, and other aspects of listed agricultural produce. Following that, the Tripura Agriculture Produce Markets (Administration) Rules 1985 were enacted to improve market regulations and production. The Tripura Agriculture Produce Markets Act was amended for the first time in 1983 in the state. The amendment was made with the express purpose of creating a Market Board at the state level to coordinate and supervise the market committee's functions. In 2007, the Tripura Agriculture Produce Markets Act was amended for the second time. The Tripura Agricultural Produce Markets (Second Amendment) Act, 2007, made suitable provisions in connection with special markets and special commodities markets, contract farming, the establishment of consumer/farmer markets, and so on, but no amendment has been made for Tripura's regulated markets since 2007.

In Bishalgarh, the first controlled market was created (1964). Following that, three markets were controlled in 1981, and seventeen markets were regulated in 1986. There hasn't been a controlled market in Tripura since 1986. There are currently 21 regulated markets serving farmers across Tripura. Because of a lack of adequate funding from the federal and state governments, regulated markets have not progressed significantly, and a large portion of agricultural markets continue to operate outside of the framework of regulated markets. Aside from that, the accreditation of controlled markets in Tripura varies greatly depending on the five-year plan. The first regulated market in Tripura comes under the act during the third five-year plan, three numbers of a regulated market in Tripura comes under act at sixth five-year plan and maximum i.e., seventeen numbers of a regulated market in Tripura comes under act at the seventh five-year plan.

The efficiency of Regulated Markets in uplifting the economic standard of farmers, therefore it is reflected in their proper utilization by farmers for deriving economic benefits. A higher degree of utilization would lead the farming community to a higher standard of living. Agriculture is one of the most critical aspects of Tripura's economy. However, the gains are not reaching the agricultural population, and one of agriculture's major issues is the promotion of its products. As a result, marketing control has become an important part of state policy for developing the agricultural marketing system. However, market regulation in the state of Tripura is moving at a glacial pace (Report of Director of Marketing, 2007-08).

Table No 3: Progress of Regulation of Markets in Tripura

Sl. No.	Year of regulations	Regulated Markets	No of markets	Five-year plan
1	1964	Bishalgarh Agri. Produce Reg. Market	1	Third five-year plan
2	1981	Melaghar Agri. Produce Reg. Market	3	Sixth five-year plan
3		Santirbazar Agri. Produce Reg. Market		
4		Teliamura Agri. Produce Reg. Market		
5	1986	Mohanpur Agri. Produce Reg. Market	17	Seventh five-year plan
6		Champaknagar Agri. Produce Reg. Market		
7		Jampuijala Agri. Produce Reg. Market		
8		Sonamura Agri. Produce Reg. Market		
9		Garjee Agri. Produce Reg. Market		
10		Natunbazaar Agri. Produce Reg. Market		
11		Barpathari Agri. Produce Reg. Market		
12		Kalashi Agri. Produce Reg. Market		
13		Silacharri Agri. Produce Reg. Market		
14		Kalyanpur Agri. Produce Reg. Market		
15		Bachaibari Agri. Produce Reg. Market		
16		Chawmanu Agri. Produce Reg. Market		
17		Gandachharra Agri. Produce Reg. Market		
18		Kulai Agri. Produce Reg. Market		
19		Pabiachharra Agri. Produce Reg. Market		
20		Panisagar Agri. Produce Reg. Market		
21		Dasda Agri. Produce Reg. Market		

Source: Author compilation

According to table 4, marketing information, inadequate storing, weighing, sorting, grading, and transportation facility respectively impact on 63.33 percent, 72.83 percent, 63.10 percent, 56.90 percent, 46.90 percent, and 44.29 percent market functionaries over all the selected regulated market of Tripura.

Table No 4: Distribution of the market functionary's opinion in respect to the different marketing facilities. (n=420)

Sl. No.	Regulated Markets	Market information facility affected	Storing facility affected	Weighing facility affected	Sorting facility affected	Grading facility affected	Transportation facility affected
1.	Mohanpur Agri. Produce Reg. Market	16	15	8	11	8	11
2.	Champaknagar Agri. Produce Reg.	12	19	11	9	9	9

	Market						
3.	Bishalgarh Agri. Produce Reg. Market	11	14	12	10	14	7
4.	Melaghar Agri. Produce Reg. Market	13	16	18	11	7	7
5.	Jampuijala Agri. Produce Reg. Market	15	18	12	12	15	9
6.	Sonamura Agri. Produce Reg. Market	12	12	10	8	12	5
7.	Garjee Agri. Produce Reg. Market	14	15	11	9	11	8
8.	Natunbazaar Agri. Produce Reg. Market	13	14	12	7	8	8
9.	Santirbazar Agri. Produce Reg. Market	15	15	12	11	7	7
10.	Barpathari Agri. Produce Reg. Market	17	15	17	16	9	9
11.	Kalashi Agri. Produce Reg. Market	12	9	13	18	10	10
12.	Silacharri Agri. Produce Reg. Market	11	10	15	11	6	8
13.	Teliamura Agri. Produce Reg. Market	9	15	16	10	8	9
14.	Kalyanpur Agri. Produce Reg. Market	13	17	11	8	7	11
15.	Bachaibari Agri. Produce Reg. Market	14	19	13	13	12	6
16.	Chawmanu Agri. Produce Reg. Market	14	18	14	14	11	12
17.	Gandachharra Agri. Produce Reg. Market	12	14	11	12	12	9
18.	Kulai Agri. Produce Reg.	13	15	14	13	5	11

	Market						
19.	Pabiachharra Agri. Produce Reg. Market	12	12	11	15	9	9
20.	Panisagar Agri. Produce Reg. Market	9	11	14	10	8	12
21.	Dasda Agri. Produce Reg. Market	9	13	10	11	9	9
Total affected opinion		266 (63.33)	306 (72.86)	265 (63.10)	239 (56.90)	197 (46.90)	186 (44.29)

Note: Figures in parentheses indicate the per cent (%.)

Source: Author compilation

Hypothesis Testing

Data have been collected from different market and market functionaries through questionnaires and the following test of hypothesis has been shown with the collected data.

Table No 5: Marketing Facilities in Different Regulated Market (Z-Test table of Significance)

Sl no.	Marketing Facilities	Sample Mean		Sample Size		Standard Deviation	Test Score	Level of Significance	Results
		$\bar{x}_1$	$\bar{x}_2$	n_1	n_2	σ	Z	5%	
1	Market information facility	12.66	7.33	266	154	2.17	24.20	1.96	H ₁₁ accepted
2	Storing facility	14.57	5.42	306	114	2.76	30.11		H ₁₂ accepted
3	Weighing facility	12.61	7.38	265	155	2.45	21.06		H ₁₃ accepted
4	Sorting facility	11.38	8.61	239	181	2.74	10.20		H ₁₄ accepted
5	Grading facility	9.38	10.61	197	223	2.59	-04.87		H ₁₅ rejected
6	Transportation facility	8.85	11.14	186	234	1.87	-12.39		H ₁₆ rejected

Inferences:

After the z test analysis, the following inferences could be drawn:

- It has been observed that the regulated market and its operation significantly affect market information facilities.
- There is a profound effect of regulated market mechanism on storing facility of the agri-produce.
- Regulated market mechanism immensely affects weighing facility.
- The sorting facility is affected by a regulated market mechanism.
- The regulated market mechanism has been found less influential on grading facilities available in the market, and it is found not significant.
- Even it has been observed that transportation facilities also does not significantly affect by the regulated market mechanism.

The results of Z test table of significance, explain that the variables like market information, storing, weighing, sorting facilities are found to be significantly affected on the marketing of agricultural produce in

regulated markets of Tripura. In contrast, grading and transportation facilities have been found less affected by the regulated market system of Tripura. This reflects that the transportation system well connects all the regulated markets; even also grading facility is not at all a popularized technique in the regulated market as the market functionaries are not exporting perishable products like fruits and vegetables.

6. Conclusions

The Government of Tripura enacted the Agricultural Market Produce Act to provide better regulations for the buying and sale of agricultural produce, as well as the establishment of regulated markets in the state, which could contribute to the establishment of good governance. In North-East India, Assam enjoys the first position, and Tripura holds second in wholesale and rural periodic markets. In terms of regulated markets, Assam stands first, followed by Tripura and Meghalaya. In Tripura, the first regulated market was created (1964) during the third five-year plan. Following that, three markets were controlled in 1981 at the sixth five-year plan, and seventeen markets were regulated in 1986. There hasn't been a controlled market in Tripura since 1986 at the seventh five-year plan. This stipulates that the performance of regulated market governance is gradually increasing towards sustainable development. The hypothesis was accepted for the variables like market information, storing, weighing, sorting facilities and found significantly affected the marketing of agricultural produce in regulated markets of Tripura. In contrast, grading and transportation facilities are not affected by the regulated market system of Tripura. In Tripura, the government has taken several measures to establish a regulated market. The study's goal was to examine the regulatory market of Tripura and its market functionaries. It was observed that the governance and performance of the regulated market's marketing facilities are satisfactory and operating well. Government should emphasize this sector to guarantee a smooth governance and better performance of the regulated market and marketing facilities in due course of time.

7. Recommendations for Policy formation

Variables like information, storing, weighing, sorting facilities are found to be significantly affected in the market operations. Hence, it is suggested to develop and upgrade these cited facilities in the market area so that market functionaries can indulge more benefits out of them. However, it is observed that the market functionaries are not adopting the grading practice; as a result, the impact of a regulated market mechanism on the grading facility available in the market has been assessed to be insignificant. Therefore, it is strongly suggested that grading facilities should be widely adopted to facilitate product assortment in all regulated marketplaces. Electronic portals on market information systems may be a new feature that can accelerate the marketing information to market functionaries in the regulated markets. The study also recommends regular supervision and surveillance by the market committee so as to facilitate the smooth functioning of the marketing practices.

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Fine Moving Value in Behavioral Anomalies to Minimize Poverty in Disadvantaged Areas

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Abstract. *Indonesia is a wealthy country with resources, be they human resources or natural resources. However, even if Indonesia is a resource-rich country, it continues to work to solve the problem of poverty. Unfortunately, there is no strategic solution that can alleviate poverty. Deprivation triggers a behavioral anomaly in society, especially in disadvantaged areas. This research aims to determine the effect of community behavior on poverty alleviation in underprivileged areas. The study is based on a subtle value-moving approach to behavioral irregularities of people in disadvantaged areas. This study is included in a quantitative research with regional populations in Indonesia designated as lagging regions in 2020-2021. The sample of respondents included 110 people from areas/provinces designated as lagging areas. Research instruments use data collection in the form of observations and in-depth interviews. Four hypotheses were developed to explain the influence between causal relationships through hypothesis testing and analyzed using Structural Equation Modeling with the help of LISREL 8.8 software. The analysis results of this study showed that through a smooth-moving value approach, there was a significant favorable influence of behavioral anomalies on the poverty rate. The study concluded that this movement of subtle values could be an attempt to raise awareness and change in the emergence of behavioral anomalies of people in disadvantaged areas. This study contributes to the understanding that the value of smooth-moving behavior can be an attempt to improve the emergence of societal behavioral anomalies. This ingenious solution can strengthen values, attitudes, mental and moral systems to reduce poverty in disadvantaged areas.*

Keywords: fine moving value, behavioral anomalies, poverty, disadvantaged areas

JEL Codes: I31, I32

1. Introduction

Indonesia is a wealthy country with resources, be they human resources or natural resources. Therefore, all activities are planned and carried out taking into account the needs of future generations, conserving biodiversity, taking a sustainable approach to the use of natural resources, the restoration and consolidation of spatial order, as well as the protection requirements of naturally valuable areas (Sobczak et al., 2021). However, all the natural wealth contained therein is regulated by the state. Therefore, the divestment of significant natural resources can be used to maintain the boundaries of external influence (Peri Herzovich & Govrin, 2021).

The source of wealth is used for the welfare and prosperity of the people. The influence of global resources and environmental challenges can drive significant behavioral change (Malik et al., 2020). Explanations of behaviors that encourage more considerable differences are likely to represent a lower risk (Rangel et al., 2020). While reducing competitive positions, one can take advantage of the innovation

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processes, productivity, shared measurable success, new mental, environmental conditions, and long-term prosperity. It provides a unique approach to solving inherent problems (Clauss et al., 2020). Prosperity can be felt by people and will have the impact so that poverty can be overcome. Therefore, poverty reduction is an important goal to capture affluent living standards (N. Lee & Rodríguez-Pose, 2021).

Although Indonesia is a resource-rich country, it continues to work to solve poverty for its citizens. However, poverty negatively impacts health, including malnutrition, lack of healthcare access, limited resource management, increased conflict and violence, and cognitive behavior (Batelaan, 2021). This impact is due to the lack of universal solutions that can alleviate poverty.

Poverty triggers a behavioral anomaly in society. Several recent studies have empirically proven that it contradicts its principles, leading to so-called behavioral irregularities (González Fernández & Cruz Rambaud, 2018). Many conditions, such as those in low-income households, lower their thermal expectations due to fuel poverty, creating strange comfort behaviors (Malik et al., 2020). The presence of behavioral anomalies indicates that individual learning is not just to avoid a deviation of behavior. They recognize their own mistakes and the negative consequences of wrong behavior (Kirchgässner, 2017). One way to approach problems with such behavior is to study the neural and brain correlation variations of empathy and theory of mind in an experimental paradigm, using behavioral control approaches or self-reports (Melloni et al., 2020). In addition, in terms of financial economics, a macro dimension describes the anomaly of the market hypothesis that the behavioral model can explain. In contrast, the micro extent of economic behavior analysis deviations in individual behavior (Neshenko et al., 2021).

Deviations in the value of behavior and morals of the community occur in disadvantaged areas. When people with low moral standards settle in a room, their reputation deteriorates. It will result in less attractiveness, and self-worth will gradually decrease (Kisiala & Rącka, 2021). It should be supported in order to build sustainability and stability by integrating the principles of good governance and providing definite values with the moral principles of society (Kurniawan & Galushasti, 2021). Such communities that live in disadvantaged areas tend to be poorer in various dimensions, such as unequal access to quality education, decent-paying jobs, affordable housing, safe neighbors, quality food, and health services (Duque, 2021). Gaussian Process Subset Scanning (GPSS) detects community behavioral anomalies that correspond to significant public health events (Neill & Herlands, 2018). In addition, maintaining low levels of investment in infrastructure in the poorest areas can perpetuate regional inequality and poverty levels in the country (Medeiros et al., 2021).

Therefore, research requires a good approach. The expanded system is reflected in the behavioral equation step (De Caigny et al., 2020). It is a concern to move towards practices in society. The information leaves no one behind, builds resilience, and has deep-rooted sustainable development goals in community development (Ullah et al., 2021). There is a behavioral activity in a standardized test that fails to detect differences between community activities. Perhaps that activity suggests that it is likely that this approach is unrelated or that this behavioral approach is not a sensitive enough technique in a specific context (Di Giminiani et al., 2017). The formation of behavioral values of independence, courage, creativity, responsibility, honesty, patience, and making an example with a subtle approach or movement. The effectiveness of relevant matters and behaviors must be studied through the right behavioral strategies expected to influence effective societal behavior (Kurniawan & Galushasti, 2021).

Value is a concept that resides in the human mind that is hidden, not in an empirical world. A value is a standard of behavior, a measure that determines a criterion so that that standard will color a person's behavior. Values for a person are not static, but they are constantly changing. Everyone would think something was good according to his or her view at the time. Therefore, the value system that a person has can be built and directed. Thus, a person's attitude is highly dependent on the value system that is considered the most correct,

and then that attitude will control the person's behavior. The cultivation of values starts from teaching the proper knowledge of the value, then providing a good example and getting used to doing the right and appropriate things, and allows analyzing problem situations to add insight in order to be able to weigh certain attitudes and encourage them to formulate their actions that suit their choices.

A person's commitment to a particular value occurs through the formation of attitude or mental, which is a person's tendency towards an object. If a person is confronted with an object, he will show symptoms of displeasure or dislike. A person's statement of pleasure and displeasure with the object he or she is facing will be significantly influenced by his level of understanding of the object. Therefore, the level of reasoning towards an object and the ability to act on it will determine a person's attitude towards the object in question. The formation of attitudes can be done through the example of giving advice, the process of assimilation, or exemplifying and ordering.

Fine moving value is an approach to slowly and profoundly influencing individuals or organizations' values and attitudes in a particular living environment. Three indicators can affect fine-moving value: wild thinking strategies, behavioral value systems, and transparency (Kurniawan & Galushasti, 2021).

There is a solid need to resolve poverty to avoid people's values and behavior (Sikandar et al., 2021). This approach with the movement of subtle values can be an effort to improve the anomaly of community behavior and be a real solution in minimizing poverty levels in disadvantaged areas.

2. Research Elaborations

This study is included in quantitative research with regional populations in Indonesia designated as lagging regions in 2020-2021. Disadvantaged areas are districts whose regions and communities are less developed compared to other regions on a national scale. An area is defined as based on criteria such as community economy, human resources, facilities and infrastructure, regional financial capabilities, accessibility, and characteristics of the area. In Indonesia, the president can establish new disadvantaged areas based on the establishment, expansion, and incorporation of district areas; or attempts to resolve extraordinary circumstances, circumstances of conflict, or natural disasters.

The sampling method uses a non-probability sampling method with purposive sampling type, namely in sampling by determining representative criteria, taking and recording a small portion of the actual or other examples, only using approximate characteristic values. The sample of respondents was chosen by 110 people divided by 11 people each from each region in 10 provinces designated as lagging areas. The primary data collection was conducted through observations and in-depth interviews with the Head of the Community and Village Empowerment Office. Secondary data was obtained with supporting documentation, manuscripts, and literature studies. Four hypotheses have been developed to explain the influence of causal relationships through hypothesis testing. A data analysis used in this study is Structural Equation Modeling (SEM) with the help of LISREL 8.8 software.

3. Results and Discussion

The validity and reliability test in the SEM model in the LISREL program can be done using the CFA confirmatory factor analysis measurement model, which will provide results in path diagrams. Analysis of the validity of the measurement model is done by examining whether the t-value of the variable observed in the model qualifies well, i.e., more significant than the critical value >1.96 ; and standardized loading factors of the observed variables in the model have qualified well, namely >0.70 .

Reliability analysis of measurement models is done by calculating construct reliability (CR) and variance extracted (VE) values from standardized loading factors and error variance. The requirement of a good Construct Reliability (CR) value is >0.70 , but if the CR value is in the range of 0.60 and 0.70, then reliability still falls into the excellent category. Thus, Nilai VE >0.50 is a good measure of reliability. However, this measure is usually an option in research, which can be used or not used in the study, but it would be better if included.

Table 1: Test Validity and Reliability - 2nd CFA

Variable	Validity			Reliability		Information
	SLF	t-value	Error	CR	VE	
				0.87	0.69	Good
X ₁	0.89	**	0.15			Good
X ₂	0.80	7.22	0.22			Good
X ₃	0.58	5.64	0.52			Good
				0.88	0.63	Good
Z ₁	0.83	**	0.25			Good
Z ₂	0.66	6.56	0.43			Good
Z ₃	0.83	8.38	0.25			Good
Z ₄	0.51	4.93	0.43			Good
				0.91	0.66	Good
Y ₁	0.37	**	0.39			Good
Y ₂	0.67	3.30	0.29			Good
Y ₃	0.90	3.46	0.14			Good
Y ₄	0.67	3.27	0.32			Good
Y ₅	0.75	3.37	0.25			Good
Y ₆	0.86	3.54	0.37			Good

** = Default, t-value value not estimated

(Source: Author based on data from LISREL 8.8)

Test results of validity and reliability measurement model Confirmatory Factor Analysis (2nd CFA) shows that the entire variable is valid and reliable and meets all test requirements well.

Table 2: Goodness of Fit - 2nd CFA

GOF Size	Target-Match Rate	Estimated Results	Level
Chi-Square P	Small value ($p > 0.05$)	$\chi^2 = 57.79$ ($p = 0.147$)	Good
NCP - Interval	Small value-Narrow intervals	10,79 (0.0; 34.34)	Good
RMSEA - P (close fit)	RMSEA ≤ 0.05 ($p \geq 0.05$)	0.046 ($p = 0.66$)	Close
ECVI	A small value close to ECVI S*	M*=1.22; S*=1.55; I*=9.34	Good
AIC	A small value close to AIC S*	M*=119.81; S*=156.12; I*=1005.39	Good
CAIC	A small value close to CAIC S*	M*=234.62; S*=444.76; I*=1049.80	Good
NFI	NFI ≥ 0.90	0.95	Good
NNFI	NNFI ≥ 0.90	0.98	Good
CFI	CFI ≥ 0.90	0.97	Good
IFI	IFI ≥ 0.90	0.98	Good
RFI	RFI ≥ 0.90	0.93	Good
CN	CN ≥ 200	130.26	Bad

RMR	Standardized RMR ≤ 0.05	0.030	Good
GFI	GFI ≥ 0.90	0.94	Good
AGFI	AGFI ≥ 0.90	0.92	Marginal

* M= Model; S= Saturated; I= Independent

(Source: Author based on data from LISREL 8.8)

The Goodness of Fit - 2nd CFA test shows that a size GOF offers a lousy fit and other sizes show an excellent fit match, so it can be concluded that the model's overall fit is a good fit.

Table 3: Hypothesis Testing Criteria - Evaluation of Structural Model Coefficients

Hypothesis	Estimation	t-value	Conclusion
Behavioral anomalies positively affect fine moving values	0,41	3,49	Supported
Subtle values positively affect poverty rates	0,63	3,07	Supported
Subtle moving values can mediate the real influence of behavioral anomalies on poverty levels.			Supported
The whole mediation effect has been appropriate: the weight of behavioral anomalies regression to poverty levels becomes insignificant when mediation performance is inserted.			
P1: BA $\rightarrow$ P	0,50	2,55	Supported
P2: BA $\rightarrow$ FMV	0,42	3,51	Supported
P3: FMV $\rightarrow$ P	0,73	3,11	Supported
P4: BA $\rightarrow$ P	0,22	1,89	Unsupported

(Source: Author based on data from LISREL 8.8)

GOF model testing resulted in a good reception model, with a significance level of chi-square = 0.147; RMSEA (0.046), GFI (0.94), NFI (0.95), CFI (0.97), RMR (0.030). All testing criteria are above the limit value that indicates acceptance of the research model to an ideal level. Mediation effect testing showed the t-value critical value for all hypotheses to be above 1.96, which indicates a full mediation effect. Therefore, all hypotheses proposed in this study are well received.

Based on the research results, a good approach is needed to improve behavioral and moral values. This approach happens because the matter is a concept or standard of behavior that reflects the hidden human mind. As a means of measuring in determining a criterion, the idea will color behavior in society. These studies show that the cultivation of behavioral values starts from teaching the proper knowledge of the matter. They are then providing good examples, getting used to doing the right and appropriate things, and providing an opportunity to analyze problem situations. Finally, to add insight and ability to weigh certain behaviors with their values, and encourage them to formulate actions that must be done according to their choice. This motivation influences complex behaviors in the logic used for decision-making (de la Cruz et al., 2018).

Some studies state that behavioral impulses have previously been shown to be effectively applied, and self-monitoring is an essential component of changing behavior for the better (Borg et al., 2020). His transformation of the so-called soul is how people behave and judge the soul based on the behavior shown (Farrall et al., 2021).

The formation of behavioral values of independence, courage, creativity, responsibility, honesty, patience, make an example with a subtle approach or movement. That subtle moving approach can be seen in our daily lives, namely the mother's behavior or actions in educating her child. Therefore, applying a model

of example in children in the family looks very effective to improve the ability, support the child's talent and creativity to be higher and more developed, and create anticipation in the deviation of values and behaviors that are feared to occur.

Several studies also support that behaviors with some purpose for uniqueness in meeting needs will be a behavioral representation of their state of mind (Jiang et al., 2021). High authoritative levels will impact more elevated levels of emotion regulation and lower levels of behavioral problems. (Haslam et al., 2020). Personal values affect the level of satisfaction and outcomes of student behavior (Kumar, 2018). The value of behavioral beliefs, when attitudes toward perceived values increase through friendly environmental behavior, the value of behavioral ideas leads to increased behavioral intentions (M. T. Lee et al., 2020).

Determinants of intention, attitude toward behavior, social norms or social pressures, and perceived behavioral control all increase when aware of environmental issues, increasing their intention to take actions that support the environment. (M. T. Lee et al., 2020). Thus, this approach with the movement of subtle values can be an effort to improve the anomaly of community behavior and become a real solution in minimizing poverty in disadvantaged areas.

4. Conclusions

Based on the results and discussions above, the movement of subtle values proved to be an influential variable to trigger the emergence of behavioral anomalies in society. The logic of this path is the first step and means of demonstrating the effectiveness of behaving rationally. Fine moving value capabilities can answer research gaps by showing that the movement of values is smooth as a strategic input. Approaches with subtle values can strengthen value systems, attitudes, mental and moral efforts to reduce poverty in disadvantaged areas.

The findings of this study make a real contribution to understanding the value of fine moving behavior which can be an ingenious way to strengthen the study of the formation of values, attitudes, mental and moral systems as capital in the recovery of poverty in areas scattered in Indonesia, and can be separated from criteria in areas designated as disadvantaged areas. The evidence is in the significant reduction of areas that were previously designated as disadvantaged areas.

Based on the conclusions of the above research, it can be shown that the successful application of this concept of finely moving value is focused on one of the countries that belong to developing countries, namely Indonesia. Therefore, the application of this concept needs to be studied further in future research, in a follow-up study related to compatibility or successful application of the concept of fine moving value in countries where there is still an unresolved phenomenon of poverty.

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Economic Security in Post-Soviet Countries: Level of Ensuring and Development Trends

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Abstract. *At the national level of economic security studies, a special place has always belonged to the estimating side of the issue. Estimations of state economic security serve as input data for the determination of directions and ways of further security provision. At the same time, such estimations should be considered not only as a result of a certain methodology application in a certain country but also in the context of comparing the economic security estimations across a set of countries. The aim of the article is to determine the level of ensuring economic security in post-Soviet countries and recognize patterns, risks, and threats that affect the future development of state economic security. For comparative analysis of economic security, Ukraine, Azerbaijan, Kazakhstan, Moldova, Georgia, and period 2016-2020 have been selected. The methodological basis of the study included the following methods: comparative economic studies, methods of summation, arithmetic mean, weighted arithmetic, geometric mean, rating; international index systems were used as a basis for comparative analysis. Using the suggested methodology of estimation allowed obtaining results that characterize level real economic security, is lower than average. None of the analyzed countries has managed to maintain an acceptable level of economic security. The determined levels allow us to state that the economic systems of the analyzed post-Soviet countries demonstrate high perceptiveness to the actualization of various threats. And this perceptiveness, in its turn, leads to various negative changes in the economic systems of these countries. The high perceptiveness of the economic systems in the analyzed post-Soviet countries to the actualization of various threats can be explained by the changing quality of their economic potential, low levels of their innovativeness, and also the lack of proper conditions to apply the innovations.*

Keywords: comparative studies, economic security, economic security dynamics, international index systems, level of economic security

JEL Codes: E61, T65, F52

1. Introduction

Nowadays, under the conditions of ongoing globalization and further complications of international relations (trade wars, military actions), deepening of the problems related to economic development at the national level and its stabilization despite the influence of global factors (world crises, COVID-19 pandemic, etc.), the economic security of a state has become the top priority in policies of all countries without exception. This is because state economic security serves as a fundamental of national sovereignty and the basis of national security; it also makes it real to maintain other types of security at the state level. That's why

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the economic security of a state, with its facilitation in the provision of a trustworthy and well-equipped economic system, is always in the center of attention at the governments' level and is also one underlying the formation of state economic policy and its legal provision.

At the national level of economic security studies, a special place has always belonged to the estimating side of the problem: it covers the methodology (regularities, principles, the very logic, and various approaches) of economic security estimation (at the levels of a state, region, and enterprise) as well as the algorithms required to make its fundamentals fully operational, that is, the algorithms which allow for the practical application of this methodology. And these estimations of state economic security later serve as input data for the determination of directions and ways of further security provision. That's why the quality of state economic security estimations is a prerequisite of vital importance. At the same time, such estimations should be considered not only as a result of a certain methodology application in a certain country but also in the context of comparing the economic security estimates across a range of countries.

The subject matter of state economic security (its state, threats, estimations and analysis, determination of approaches to its strengthening, development of the corresponding mechanisms, etc.) has attracted some scientific attention in all developed countries around the world. These issues are also relevant for the post-Soviet researchers, as is confirmed by the annual numbers of new studies in this direction (see, for example, (Ianioglo & Polajeva, 2017; Munteanu, 2018; Ene, 2018; Shamsutdinova, Tereshina & Mansurov, 2019; Zhylynska & Salayev, 2019; Gryshova, Kyzym, Hubarieva, et al., 2020; Dzhafarova, Shevchuk, Kalinovskaya, et al., 2019; Usenko et al., 2019; Kozlovskiy, Grynyuk, Baidala, et al., 2019; Kasradze & Zarnadze, 2019). Post-Soviet research in this field covers the issues of economic security on its national level primarily. Comparing economic security estimates across the post-Soviet countries is a challenging task due to the fact that the countries in question are using very different methodologies for such estimations. Besides, applied studies comparing economic security status across different countries are very limited in number (again, primarily due to differences in estimation methodologies).

In this regard, the aim of the article is to determine the level of ensuring economic security in post-Soviet countries, as well as to recognize patterns, risks, and threats that affect the future development of state economic security.

The object of the research is the estimetological aspect of macro-level economic security studies. There is a methodology of estimating the economic security of the state and algorithms that operationalize its main concepts suggested in such estimetological aspects of macro-level economic security studies. The subject of research is indicators of the economic security of the state for several post-Soviet countries.

2. Research Elaboration

To compare the state of economic security in several post-Soviet countries, we have used the method of comparative analysis. In this particular case, it has been used to compare the same phenomenon as applied to different objects (countries). Contemporary comparative studies in Economics allow us to compare not only alternative economic systems but also the results of various economic processes, to which belong, inter alia, the economic security provision at the state level.

For this comparative analysis of economic security, the following post-Soviet countries have been selected: Ukraine, Azerbaijan, Kazakhstan, Moldova, and Georgia. At the time of getting their national sovereignty status, all five countries had a solid economic potential and all necessary resources. Moreover, they were relatively well integrated into the world economic system, and the population of these countries had an overall very high level of education. All of the above assumed the availability of the initially similar preconditions for further achieving a certain level of economic security.

For the purpose to conduct a comparative analysis of economic security in the selected post-Soviet countries, we have used the data from the international index systems that emerged internationally back in the 1970s as the systems for collection and presentation of qualitative indicators on national economies (the major international index systems are well known) (Dallago, 2004).

Our selection of the international index systems as the information basis for further comparative analysis

of economic security in the post-Soviet countries has been preconditioned by the following: indices and subindices of the international index systems cover very different aspects of various processes taking place inside states and the results of these processes either strengthen or weaken economic security of these states; indices of the international index systems are covering long-terms periods of time; the selected countries are actually covered by the international index systems; indices of the international index systems are ratable (since they are calculated in scores).

While using the international index systems for the purposes of our comparative analysis of economic security in the post-Soviet countries, we have been taking into account the following limitations of these systems: no unity in the methodological approaches to indices' calculations within separate international index systems; specificity of each rating methodology and their differences (different number of countries and different choice of countries for comparison; very different number of indices and subindices); changes in the calculation methodologies. Sometimes these changes were profound, with both positive and negative consequences. In the first place, these changes concerned the contents of the indicators on which the index was based (introduction of new indicators, removal of older ones, indicators' migration between their groups, merging or splitting of indicators).

However, in the end, overall adequacy of indices and subindices of the international index system for the purpose of our comparative analysis of economic security in the selected post-Soviet countries can be treated as a sufficient one, since this adequacy has been achieved mathematically, using the criteria of the ranking models' validity.

3. Results and Discussions

3.1. International index systems selected for the comparative analysis of economic security in the post-Soviet countries

After analyzing the available international index systems, for the purpose of our comparative analysis of economic security in the post-Soviet countries, we have selected those that could comply with our evaluation methodology, namely: Corruption Perception Index (CPI), available since 1996; the Index of Economic Freedom (IEF), available since 1995; subindices of the Global Innovation Index (GII), available since 2007; the International Property Rights Index (IPRI), available since 2010; Fragile States Index (FSI), available since 2005 (before 2014 known as the Failed States Index).

The popular Doing Business index system was not selected for further analysis primarily due to the World Bank announcement that it suspends the Doing Business publications because of a number of irregularities in Doing Business 2018 and Doing Business 2020 reports. Statistical data in these reports did not match the ranking methodology.

It is considered that indices and subindices of the selected international index systems: reveal the role of business in the contemporary economy (as it not only predetermines a country's competitiveness at the international markets but also forms countries' economic potential overall); provide a clear picture on the overall state of the national economy, describing the economic potential of a country along with various aspects of ongoing economic processes within its economic system, the results of which are either strengthening or weakening the economic security of the state.

The national business sector would be able to perform its vitally important role within the country's economic system in case of well-developed, high-quality institutions that are primarily oriented on property rights protection and corruption prevention, as well as economic freedom in a country.

The indicators well describe the availability of these preconditions under the Index of Economic Freedom. The so-called "pillars of economic freedom" (Rule of Law, Government Size, Regulatory Efficiency, and Open Markets) are important indicators for describing the degree of freedom for business and entrepreneurship within a national economy. In our comparative analysis of economic security in the post-Soviet countries, we have used the overall IEF scores of the countries in question.

Freedom of entrepreneurship and competition in a country should be accompanied by the proper

protection of entrepreneurial rights (first and foremost, the right for physical property and the one for intellectual property), supported by systemic legal provision and a well-functioning court system. Proper protection of entrepreneurial rights is also one of the sources of economic security provision in a state. That's why in our comparative analysis of economic security in the post-Soviet countries, we have used the data from the International Property Right Index, which provides a comprehensive assessment of countries' efficiency in the protection of property rights.

One of the most damaging factors of negative influence on the economic security of a state which, inter alia, hinders the strengthening of its economic potential, its innovative development, and business creativity in a country is corruption. Herein, we understand corruption as the substitution of state interests by the private interests of persons representing the state officially. Corruption is probably the most notorious and the most widely spread problem of the contemporary states as it constantly follows the development of authorities and that of the goods-money exchange development, being also one of the major threats to national economies. For this reason, in our comparative analysis of economic security in the post-Soviet states, we have also used the data of the Corruption Perception Index (CPI).

Innovative activities of a state (synthesis of scientific and technical knowledge, state support to innovative activities and further commercialization of their results, intellectualization of the production processes, availability of information & communication technologies, various intangible assets, production clusters, business efficiency) nowadays become not only one of the most decisive factors for economic growth of a state but also the basis of economic sustainability and the capacity to overcome negative changes taking places due to actualization of various threats. The results of all these processes are well revealed in the subindices of the Global Innovation Index, namely: the Innovation Input subindex of the GII describe the availability of various preconditions within a national economy (institutional and infrastructural environment, the intellectual capital of a country, topicality of research on the most relevant subjects, market's and business capacity to absorb innovations); the Innovation Output subindex of the GII is essentially the estimate of innovative activeness and of the state innovation policy. That is, it assesses how well are the available innovative preconditions used in the course of innovative processes.

Formation and strengthening of the economic potential of a state is never a goal in itself. Economic potential serves as the basis for a country's capacity overall. It reduces its fragility, and this, in turn, decreases the level of the national economy's perceptiveness to negative consequences of various threats actualization. Finally, it helps the economy to restore itself. That's why in our comparative analysis of the economic security in the post-Soviet countries, we have also used the data of the Fragile States Index. This ranking system describes countries' capacity to control the intactness of their territories along with the political, demographic, economic, and social situation on these territories (The Fund for Peace, 2016).

The key specific feature of countries' ranking by fragility is its reverse order: the most successful countries get the lowest scores in it and thus are ranked the lowest ones, while the least performing countries get the highest scores and thus are ranked at the very top of this ranking. We have taken this peculiarity into account while calculating the quantitative indicators of economic security in the selected countries.

Scores of the countries in question, extracted from the selected international index systems, are presented in Table 1 and have been used in our comparative analysis accordingly.

Table 1: Scores as per indices and subindices of the international index systems, extracted for comparative analysis of economic security in the selected post-Soviet countries

the Index of Economic Freedom					
Countries	2016 (0 ÷ 100)	2017 (0 ÷ 100)	2018 (0 ÷ 100)	2019 (0 ÷ 100)	2020 (0 ÷ 100)
Ukraine	46,8	48,1	51,9	52,3	54,9
Kazakhstan	63,6	69	69,1	65,4	69,6
Moldova	57,4	58	58,4	59,1	62
Georgia	72,6	76	76,2	75,9	77,1

Azerbaijan	60,2	63,6	64,3	65,4	69,3
Global Innovation Index					
Innovation Input Subindex					
Country	2016 (0 ÷ 100)	2017 (0 ÷ 100)	2018 (0 ÷ 100)	2019 (0 ÷ 100)	2020 (0 ÷ 100)
Ukraine	38,9	41,05	40,45	40,73	40,14
Kazakhstan	41,7	43,15	43,56	43,73	42,78
Moldova	39,6	41,35	39,85	40,77	39,18
Georgia	41	42,16	44,44	48,19	43,89
Azerbaijan	38,4	40,7	40,39	41,59	39,17
Innovation Output Subindex					
Ukraine	32,5	34,19	36,59	34,07	32,49
Kazakhstan	21,3	19,85	19,28	18,32	14,34
Moldova	37,2	32,33	35,41	30,26	26,79
Georgia	26,7	26,61	25,65	25,76	19,66
Azerbaijan	20,9	20,46	20,0	18,83	15,29
The International Property Rights Index					

Country	2016 (0 ÷ 10)	2017 (0 ÷ 10)	2018 (0 ÷ 10)	2019 (0 ÷ 10)	2020 (0 ÷ 10)
Ukraine	3,93/39,3	3,42/34,2	4,28/42,8	4,43/44,3	4,47/44,7
Kazakhstan	4,76/47,6	4,43/44,3	4,84/48,4	4,85/48,5	5,01/50,1
Moldova	3,72/37,2	3,18/31,8	4,00/40,0	4,22/42,2	4,33/43,3
Georgia	4,6/46	4,71/47,1	5,15/51,5	5,25/52,5	5,24/52,4
Azerbaijan	4,08/40,8	3,95/39,5	5,04/50,4	5,12/51,2	5,35/53,5
Corruption Perception Index					
Country	2016 (0 ÷ 100)	2017 (0 ÷ 100)	2018 (0 ÷ 100)	2019 (0 ÷ 100)	2020 (0 ÷ 100)
Ukraine	29	30	32	30	33
Kazakhstan	29	31	31	34	38
Moldova	30	31	33	32	34
Georgia	57	56	58	56	56
Azerbaijan	30	31	25	30	30
Fragile States Index					
Country	2016	2017	2018	2019	2020
Ukraine	75,5/40,44	74/41,91	72,6/42,72	71/44,0	69/44,38
Kazakhstan	66,5/49,89	65,9/50,42	63,4/52,36	61,6/53,73	59,8/53,78
Moldova	73,2/42,86	72/44,01	69,5/45,97	67,1/48,03	66/47,44
Georgia	78,9/36,87	76,5/39,29	74/41,26	72/42,96	71,2/42,13
Azerbaijan	76,3/39,60	76,3/39,5	74,6/40,63	73,2/41,72	71,3/42,02

(Source: Data for Table 1 was obtained from the following sources: Miller, T., et al. (2016-2021); Dutta, S. et al. (2016-2020), Levy-Carciente, Sary (2016-2020); Transparency International (2016-2020); Messner, J.J. (2016-2020)

3.2. Methodology for evaluation of economic security in the selected countries

Our methodology of economic security evaluation in the selected countries assumes that there are certain scores assigned as per each index and subindex, the maximal and the minimal values of which are interpreted in the most clearcut way: scores increase in the interval (0 ÷ 100) means improvement in the

phenomenon/process/result in question. Most of the indices selected for our analysis follow this logic. However, scores under the International Property Right Index and the Fragile States Index required some adjustment, from their scoring system into 100-score scale. The adjusted scores of these two indices are presented in Table 1 with an / sign.

Adjustment of the countries' scores as per the International Property Right Index was easy; we simply had to move from the 10-point scale to the 100-point one. Adjustment of the Fragile States Index scores was more complicated since the scale of this index is not 0 to 100. Instead, the scores under this index, in various years, fluctuated from 17-18 to 113-114. For example:

back in 2016, the minimum value under this index (178 countries included) was 18.8, and the maximal value was 114;

in 2020 the minimal value (again, among 178 countries) was 14.6 already, and the maximal value was 112.4.

Therefore, for the purposes of our comparative analysis, we had to "narrow down" the scale of the Fragile States index so that it fits into the 0-100 framework. Besides, unlike other indices, the original Fragile States Index has essentially stimulating values; that is, growth of this index values means higher fragility of a state that leads to worsening of the overall situation in a country. Thus, in order to use the scores under the Fragile States Index along with other indices and subindices under consideration, first, we would need to not only adjust its scores to the 0-100 scale but also to maintain the linear character of such an adjustment (and the scale density), turning stimulating values into the stimulating ones. This adjustment has been carried out according to the following formula (1):

$$I_t = 100 - \left(\frac{I_o - I_{min}}{I_{max} - I_{min}} * 100 \right), \quad (1)$$

where I_t – the adjusted value of the Fragile States index for a state (stimulating value already, on the 0-100 scale);

I_{max} – the maximal value of the Fragile State Index among all Fragile State Indices for all the countries in a certain year;

I_{min} – the minimal value of the Fragile State Index among all Fragile State Indices for all countries in a certain year;

I_o – the original (initial) value of the Fragile State Index among all Fragile State Indices for all countries in a certain year, calculated according to the original FSI methodology.

For example, the adjusted value of the Fragile State Index of some of the selected from Table 1 countries will be:

for Ukraine as of 2016 — 40,44 ($100 - ((75,5 - 18,8) / (114 - 18,8) * 100)$);

for Kazakhstan as of 2020 — 53,78 ($100 - ((59,8 - 14,6) / (112,4 - 14,6) * 100)$).

Calculations of the adjusted values of the Fragile State Index for the selected countries in the period from 2016 to 2020 have been carried out in MS Excel.

The methodology of economic security evaluation in the selected countries assumes summing up the scores of all used index systems. For this matter, we have applied the generalization method. Traditionally, for generalization within a certain combination of indicators, the following methods can be applied: sum-of-the-estimates method, the average arithmetic method, the weighted arithmetic, the geometric average. To generalize the scores under indices and subindices of the selected for our analysis countries, we have used the sum-of-the-estimates method. This method has been chosen due to the following motivations: this method is simple, intuitive in the application, and easy when it comes to results interpreting; it ranks all indices and subindices equally (as per the implicit assumption on which this method rests); it uses the same scale: scores of all the indices and subindices of the selected countries range from 0 to 100 (either from the beginning or after the adjustments have been made); all indices and subindices used are comparable in their dimensions.

The results of countries' scores summing up as per all used index systems are presented in Table 2.

Table 2: Total sum of all scores of the selected countries under the used index systems

Countries	Scores				
	Years				
	2016	2017	2018	2019	2020
Ukraine	226,9	229,5	246,5	245,4	249,6
Kazakhstan	253,1	257,7	263,7	263,7	268,6
Moldova	244,3	238,5	252,6	252,4	252,9
Georgia	280,2	287,2	297,0	301,3	291,2
Azerbaijan	229,9	234,8	240,7	248,7	249,3

3.3. Results of the comparative analysis of economic security in the selected post-Soviet countries

As data in Table 2 shows, there have been no significant changes in the total scores of the selected countries throughout the analyzed period of time. The scores have been demonstrating some overall improvement; however, not a significant one. The largest improvements in the total sum of scores (as compared to the first year under analysis – 2016) are observed in the cases of Georgia, Ukraine, and Azerbaijan.

There are the dynamics of economic security of the selected post-Soviet countries shown in figure 1.

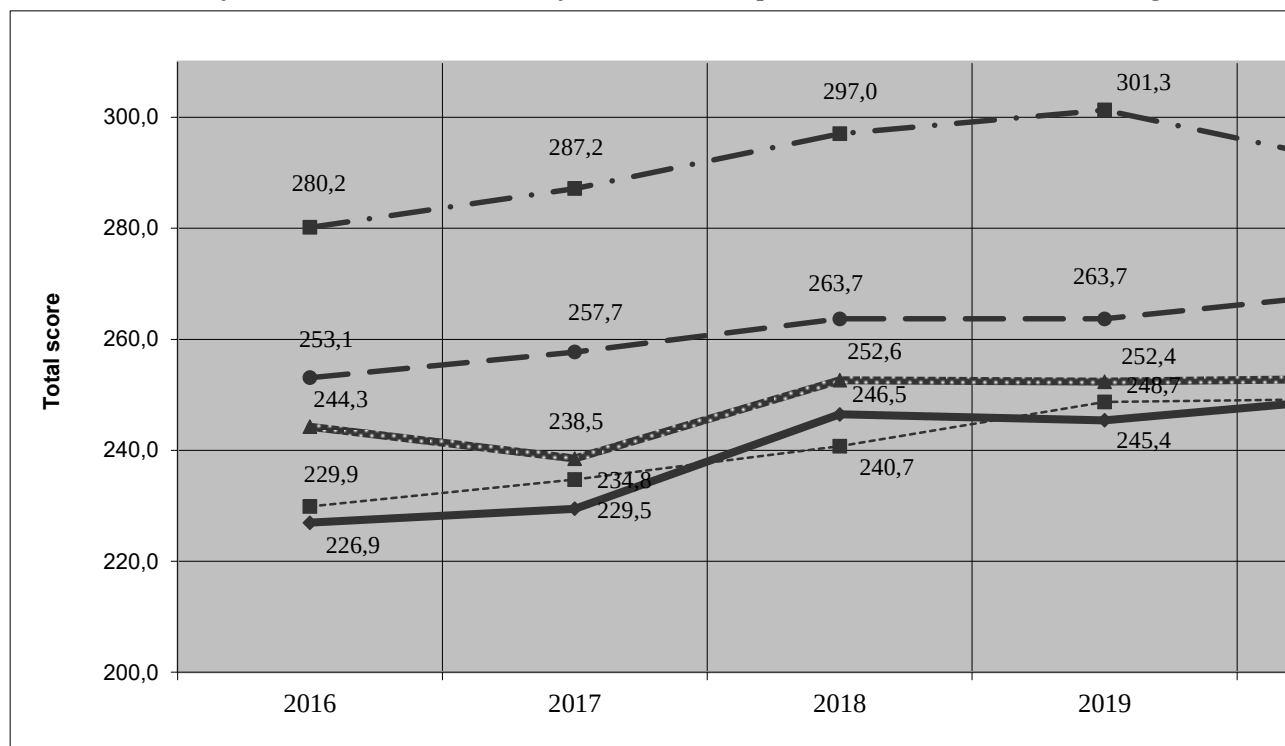


Fig. 1: Dynamics of economic security of the selected post-Soviet countries

The carried out calculations confirm there is a stable variation in the total sum of index scores between the countries: the ratio between the maximal and the minimal sums of scores, and also between the minimal sum of scores in each year. Throughout the whole analyzed period, this variation was in the range of 0.23-0.25, and it did not experience a lot of changes (the differences were only in the third decimal). Such an insignificant change in variation confirms, first of all, the unidirectionality of trends described by the selected indices in the selected countries. Secondly, it also confirms that there is a great deal of similarity in the dynamics of changes that have an impact on economic security in the analyzed countries.

The total sums of scores (see Table 2) singled out from the selected index systems for the countries under analysis are essentially only a set of absolute values. Taken alone, they would not allow carrying out the comparative evaluation of economic security in the selected countries. For this, we would also need to select an approach to the description of the total sum of scores of the selected countries on a 0-100 scale. This approach must cover the determination of the intervals and their threshold values, between which the scores of the selected countries will be assigned. To determine the medians that divide the total sum of scores of the selected countries into smaller shares, we have applied one of the most frequently used methods - the method of quintiles, as it divides the total of 100 scores into five parts.

In theory, the maximal possible total sum of scores for all the indices used here would be 600 (since in our comparative analysis, we have used the data on six indices and subindices), and the absolute minimum score is 0. Obviously, none of the countries in question could get such scores. The assumption regarding these scores has been accepted in order to simplify the division of scale for further evaluation of economic security in the analyzed countries.

Following the same assumption, the division of the total scores by quintiles is presented in Table 3.

Table 3: Distribution of total scores by quintiles

Quintile	Total score	Economic security status in a country	
		Qualitative	In decimals
1	0-120	low	0-0,2
2	121-240	lower than average	0,21-0,40
3	241-360	average	0-41-0,6
4	361-480	above average	0,61-0,08
5	481-600	high	0,81-1

Then, following the logic of such a distribution of scores by quintiles, we have assigned the analyzed countries to specific quintiles by year (see Table 4).

Table 4: Analyzed countries distribution by quintiles

Countries	Quintiles				
	years				
	2016	2017	2018	2019	2020
Ukraine	2	2	3	3	3
Kazakhstan	3	3	3	3	3
Moldova	3	2	3	3	3
Georgia	3	3	3	3	3
Azerbaijan	2	2	2	3	3

As data presented in Table 4 demonstrate, by their total sum of scores in the selected index systems, the studied countries, throughout the analyzed period, have been partially in the 2nd and primarily in the 3rd quintiles. Some of the countries in question (Ukraine, Azerbaijan) have shifted from the 2nd quintile to the 3rd one; others have never left the third quintile during the whole period in question. However, even within the 3rd quintile, the countries were mostly at their bottom, that is, they hardly passed the median of 240 scores. Only Georgia has managed to move further from the score of 241.

Generally speaking, in qualitative terms, the situation in the analyzed countries did not change significantly over time: their evaluation status of economic security has moved from "below average" to "average". That is, in quantitative terms, it has been within the interval of 0.41-0.45 (more precise quantitative evaluation would require additional calculations; however, their results would not significantly impact the overall evaluation of economic security in the analyzed countries).

Data presented in Table 4 allows us to formulate the following conclusions.

The analyzed post-Soviet countries, due to a range of reasons, failed to maintain an acceptable level of economic security throughout the analyzed period of time. Their perceptiveness to the actualization of various threats remains to be rather high. Also, we need to mention here that the direction of institutional changes in the analyzed countries, to some extent, has strengthened their economic security, even though this strengthening has been not that significant and rather slow.

Moreover, from the obtained data, we do not see any reason to confirm there is a correlation between the level of economic security in the selected countries and the dynamics of their macroeconomic indicators (see Table 5).

Table 5: Macroeconomic indicators of the studied post-Soviet countries

Country	GDP growth during 1991-2019, in %	Dynamics of GDP per capita during 1990-2016, in %	Gross external debt, in % of GDP	The annual inflation rate, in % as of (date in brackets)
Ukraine (united territories)	- 28,17	25,66	76 (31.03.2020)	3,8 (November 2020)
Kazakhstan	152,89	314,98	83 (31.03.2020)	5,5 (October 2020)
Moldova	1,87	106,18	66,1 (30.06.2020)	0,93 (November 2020)
Georgia	33,84	149,0	55 (30.06.2020)	3,8 (November 2020)
Azerbaijan	158,7	328,14	22,4 (30.06.2020)	2,8 (November 2020)

(Source: Macroeconomic Research. (n.d.); Interfax-Ukraine. (June 23, 2020); Kazakhstan Today. (September 9, 2020); InfoMarketMedia. (October 2, 2020); Trend News Agency. (September 22, 2020); Azizov, A. (July 31, 2020); Ukrinform.ua. (December 10, 2020); National Bank of Moldova. (February 2021); Infopolis. (November 17, 2020); Take-profit.org. (February, 2021); Take-profit.org. (January, 2021).

Data in Table 5 confirms there are differences in socioeconomic development rates of the analyzed countries. Some of them managed to not only restore the volume of their gross domestic product but also to guarantee its significant growth per capita (Kazakhstan, Azerbaijan). The economic results of Moldova and Georgia are much more modest yet still positive. At the same time, just like Moldova, with its lowest dynamics of macroeconomic indicators, Azerbaijan and Kazakhstan, with their high dynamics of macroeconomic indicators, still remain to be in the same third quintile when it comes to the level of economic security (see Table 4).

We can assume that for a proper interpretation of the comparable estimates of economic security in the analyzed countries, one also needs to take into account the complexity of the economy, which is often described using the ECI — the Economic Complexity Index, also known as the Harvard Index (see Table 6).

Economic complexity is a qualitative property of the economy, which describes the diversity of the commodity structure of the national industry (Hidalgo, 2009; Hausmann, 2011).

Table 6: The Economic Complexity Index (ECI) of the analyzed post-Soviet countries

Country	2016	2017	2018
Ukraine	0,25	0,36	0,37
Kazakhstan	- 0,41	- 0,44	- 0,59
Moldova	- 0,2	- 0,1	- 0,18
Georgia	- 0,23	- 0,28	- 0,04
Azerbaijan	- 1,1	- 1,61	- 1,37
Max	2,49	2,44	2,43

(Source: Country & Product Complexity Rankings: <https://atlas.cid.harvard.edu/rankings>)

In recent years, a low level of economic complexity (as compared to its maximal value) has been

observed only in Ukraine. This indicates there is some diversity in the commodity exports and that there are some complex products in its structure. In other analyzed countries, the ECI has negative values. However, it would be difficult to determine a correlation here: Ukraine, with its positive value of economic complexity, still has the lowest values when it comes to economic security.

This lack of an obvious correlation between the level of a country's economic security, its dynamics of macroeconomic indicators, and the level of its economic complexity allows us to put forward the following assumptions: high positive rates of macroeconomic indicators are not always determined by economic complexity, and they are still possible when economic security in a country is at low levels; dynamics of macroeconomic indicators are not always predetermined by the high level of economic security in a country. Other factors can also be meaningful (for example, stability, permanency of political authorities in a country, rational actions taken by a government, situation at the international markets where national products are widely present, etc.).

Searching for the causes behind the low levels of economic security in the analyzed countries, it would be feasible to consider the dynamics of scores as per separate indices and subindices.

The Fragile State scores of almost all analyzed post-Soviet countries are below average (the median on the 100-point scale). Only Kazakhstan has its Fragile State index somewhat above the median value. Generally speaking, the Fragile State rankings of Ukraine, Moldova, and Georgia come as no surprise. All three countries, in different years after gaining independence, have experienced infringements upon their territorial integrity. Till now, some areas of these countries have been occupied. At the same time, we need to note here that throughout the period in question, all analyzed countries have also demonstrated a stable (even though insignificant) growth in their Fragile State indices. This confirms there are positive, even though slow, institutional and public reforms in these countries.

All analyzed countries have rather high scores under the Index of Economic Freedom, all above the median on the scale. Moreover, the IEF scores of all the analyzed countries are stably growing from year to year. Georgia has even moved to the third quartile with its IEF values. All efforts taken by the countries in question to maintain their economic freedoms in the last five years have produced some results. However, we need to mention that Ukraine's economic freedom indicators remain to be the lowest in the studied group of countries, and there are some serious reasons for that. Firstly, we need to consider the low capacity of institutions, the largest share of which has been either borrowed as foreign experience or formed with direct participation of the experts representing international organizations or governments of the developed nations. Actual conditions of these institutions' implementation in real practice turned out to be very different from those forecasted initially. Another reason is the widespread of various gray schemes used for tax evasion (including, inter alia, "manual" administration of tax payments), non-disclosure of overseas incomes, which resulted in over 700 mln euro of tax underpayments annually. Other serious reasons include the massive size of the shadow economy and the high level of corruption.

Another common problem of all the analyzed post-Soviet countries is their relatively low level of economic innovativeness: in all these countries, the innovativeness scores are below the median, and in some of these countries, they are even lower than the scores of the first quartile. In terms of spending on innovations, Ukraine goes slightly behind Kazakhstan and Georgia, but it has more scores than Moldova and Azerbaijan. In terms of innovative results, Ukraine has the highest score in the analyzed group of countries. On first reading, this can be due to not as much institutional basis of Ukraine's economic functioning (since Ukraine is lagging behind other analyzed countries by this parameter) but rather due to the safety margin of Ukraine's economic potential, formed in the previous decades.

In terms of the International Property Rights Index, the analyzed countries demonstrate stable, even though insignificant positive dynamics of change: all the countries in question have improved their protection of property rights. Back in 2016, Ukraine and Moldova were lagging behind other analyzed countries in the IPR ranking. Despite some positive shifts in the years after, the situation remained unchanged: in 2020, Ukraine is still behind Kazakhstan, Georgia, and Azerbaijan in its IPR rank. Till now, Ukraine did not fully solve the problem of legitimate property status. Moreover, in the public consciousness, property as such is still not yet fully legit and morally explained. Protection of both private and corporate

property rights is still not adequate. All of the above often serves to justify raiding. Legislation regulating property relations in the country urgently requires significant revisions and improvement.

The situation with the Corruption Perception Index in all the analyzed countries raise many concerns: the overall rankings of the analyzed countries are rather low (the only exception is Georgia since this country had significant anti-corruption reforms carried out during the times when M. Saakashvili was the president); the very dynamics of the analyzed countries' indices is extremely low, only Kazakhstan has managed to somewhat improved its standing.

In Ukraine, the ongoing development of economic corruption is confirmed by the strongly manifested signs that the country has moved to a qualitatively new state: corruption has not only grown in volume but has also penetrated into all economic fields more deeply. Moreover, a range of additional threatening trends has emerged. Among these trends, first of all, we need to mention the institutionalization of economic corruption: substitution of previously spontaneous/periodical deviant (corrupted) behavior demonstrated by separate public officers by regular corrupted actions carried out by groups of public officers accompanied with the use of certain informal but already mandatory ways of actions (standards and samples of behavior). Another trend is the collective nature of economic corruption: there emerge hierarchical or heterarchical groups of public officers that are performing organized and well-coordinated actions, forming connections and mutual dependencies between public officers in various institutions and organizations. This process takes place both vertically and horizontally, involving different levels of the existing socio-economic system. One more threatening trend is the constructive motivation of economic corruption: integrating corruption schemes and networks into the very system of the national economy, making shadow corrupted unions valuable for the stability of the national economy. It may sound surprising, but the destruction of such corrupted elements within the system of the national economy might actually have serious economic consequences.

Nowadays, Ukraine has already accumulated significant volumes of empirical materials on the issues around corruption. Now, this accumulated empirical evidence requires structuring and further determination/explanation of the ongoing processes and key trends. This would require the availability of certain theoretical constructs. This leads us to the necessity to study the corruption in Ukraine, applying general scientific and specialized research principles in the most systematic manner and within the framework of the latest system of knowledge about economic corruption in economic relations — also known as corruption studies. Since today economic corruption is one of the most serious threats to national economies, corruption studies need to be treated as one of the research directions within economic security studies.

4. Conclusions

The level of economic security in the analyzed post-Soviet countries, measured as per the authors' methodology, is lower than average. In most cases, this level has barely passed the scoreline between "low" and "lower than average." None of the analyzed countries has managed to maintain an acceptable level of economic security, despite the fact that it was moving up, however extremely slowly. Throughout the analyzed period of time, the economic systems of the countries in question have been experiencing some positive institutional changes, among which we need to mention the lower fragility of the states, as well as maintenance of economic freedom and property rights protection.

We also need to note here that Georgia somewhat differs from other analyzed countries in terms of its economic security dynamics. This country seems to be more developed institutionally, and this fact, we assume, is the immediate consequence of the anti-corruption reforms carried out. These reforms have obviously influenced Georgia's economic security in the most obvious way.

The determined levels of economic security allow us to state that the economic systems of the analyzed post-Soviet countries demonstrate high perceptiveness to the actualization of various threats. And this perceptiveness, in its turn, leads to various negative changes in the economic systems of these countries.

Restoring a country's economic system at its previous level is not always possible since, under such conditions, its development is often very slow and not systemic.

The high perceptiveness of the economic systems in the analyzed post-Soviet countries to the actualization of various threats can be explained by the changing quality of their economic potential, low levels of their innovativeness, and also by the lack of proper conditions to apply the innovations. Moreover, the fight against corruption in these countries has had very poor results (scores under the Corruption Perception Index in all the countries in question remain to be almost unchanged). From the institutional standpoint, Ukraine demonstrates other weaknesses, too, since this country is lagging behind others by both separate indices and also by the sum of all scores. This situation has been preconditioned not by some standalone phenomena but rather by the state of affairs overall: throughout the analyzed period of time, Ukraine has always scored the lowest and has hardly improved its rankings.

The use of the methodology suggested here for evaluation of economic security in the analyzed post-Soviet countries has allowed obtaining the results that reveal the actual level of economic security in these countries. The most peculiar feature of the methodology suggested here is that it does not rest on the use of macroeconomic indicators as such, as opposed to the methodology of economic security evaluation officially approved for use in Ukraine back in 2013. Focusing on macroeconomic indicators (some of which are presented in Table 5) would have presented economic security in the analyzed countries as being (at least) stably average, and this does not reflect the reality.

Comparing the total scores of the analyzed countries as per the selected index systems during 2016-2020 with the dynamics of their macroeconomic indicators during 1990-2019 allows us to put forward the assumption that would be considered in our future research: the capacity of institutions and the changeability of political powers together influence the results of a country's socioeconomic development. In countries with strong institutions, frequent changes of political powers have a positive influence on socioeconomic development and on population welfare. This assumption, to some extent, has been proved empirically on our sample of countries since the level of their institutionalization is, sadly, rather low. However, in two of the countries in question (Kazakhstan and Azerbaijan), the changeability of political powers is low, and these very countries, throughout the whole period from 1991 to 2019, demonstrated significantly higher economic results (measured through GDP and GDP per capita rates) as compared to other countries, where political powers changeability was high (Moldova, Georgia, Ukraine). Obviously, for now, this dependence should be treated as just an assumption, not as a proven correlation, even though it has been partially grounded empirically. Also noteworthy, the changeability of political power is only one of those factors that are influencing economic growth and countries' welfare.

Using the suggested methodology of evaluating countries' economic security may be helpful not only for comparative analysis but also for evaluating the economic security of a state. Obtained estimations of the state economic security are the basis for identifying directions and ways of providing such economic security; making the policy of support of the state security; identifying the threats to a national economy; forming the national system of stability to provide the high level of readiness of society and state to react on a wide range of threats and making the Strategy of economic security that is declared by the Strategy of national security of Ukraine "Security of a person – security of the State".

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Regions of the zone of influence of the Great Silk Road and the Tea Road: strategic directions for the development of economic potential

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Abstract. *In the current conditions of economic crises, emerging threats, and risks, there is a need to consider the risks of changes in the economic potential of regions when determining priorities for the development of economic potential. The author has developed an algorithm for substantiating the strategic directions of the development of the economic potential of the regions based on dynamic risk assessment and monitoring of the state of the potential. The proposed methodology was tested in 28 regions of Russia, China, Mongolia, and Kazakhstan of the zone of influence of the Great Silk Road and the Tea Road. The developed methodological approaches to determining the priorities for the development of the economic potential of the regions allow us to justify the strategic directions of growth, considering the risks.*

Keywords: economic potential, regions, the Great Silk Road, the Tea Road, strategic directions

JEL Codes: O18, O53, C13, R11

1. Introduction

The current geopolitical and economic situation dramatically changes the entire system of traditional relations in the Europe – USA – East triangle. In the context of globalization, all states that seek to become world leaders actively use the benefits of their geographical location, create new economic and political blocs. As the world experience shows, economic corridors are important for the successful development of the regional economy and increasing competitiveness (Gálves-Nogales, 2014; Dzumbira, 2017). The creation of corridors does not so much create economic strength but rather directs, focuses, and strengthens the potential for economic growth (Srivastava, 2011).

Globalization processes entail the effect of unpredictability in changing the economic potential of regions due to the increasing influence of economic crises, sudden threats, and risks (Bryan, 2015). In these conditions, there is a need to consider the definition of strategic directions for the development of the economic potential of the regions based on dynamic risk assessment and monitoring of the state of the potential (Zio, 2018).

The concept of regional potential was first formulated by J. Stewart in 1947 by analogy with the physical concept of electric potential as applied to population distribution (Stewart, 1947). Subsequently, it was used in the analysis of the industrial market by K. Harris in 1954 (Harris, 1954), K. Clark in 1966 (Clark, 1966), and D. Rich in 1980 (Rich, 1980). Later, this concept was applied to assessing the attractiveness of European regions for manufacturers and the likely impact of the expansion of the Customs Union on it by C. Clark, F. Wilson, J. Bradley in 1969 (Clark, 1969).

In Soviet economical science, the category "potential" was defined as "the maximum possibility of the economic system, which predetermines the maximum possible volume of production of material goods and

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services that can be achieved under ideal production conditions and optimal use of resources" (Bolshaya sovetskaya enciklopediya, p. 13).

Currently, in the scientific literature, two main approaches to the definition of this concept can be distinguished:

1. as a set of available capabilities, in particular, means of production, stocks, productive forces, etc., which can be used to solve a problem, achieve a certain goal (Pechatkin, 2013; Rastvortseva, 2008);
2. as a measure of the use of resources (labor, natural, industrial, financial, etc.) based on determining the prospective and achieved potential (Belomestnov, 2005; Klotsvog, 1998).

In our opinion, the most accurately reflecting the essence of the concept of "potential" is the first approach, according to which, by potential, we mean the aggregate ability to carry out production and economic activities, to meet the needs of the population.

It should be noted that the variety of approaches to defining the category of "potential" determines the presence of many methodological approaches to its assessment. The most universal and recognized approach is based on the construction of an integral indicator, which includes estimates for several basic estimated indicators. On this basis, many techniques have been developed and applied, both in domestic and foreign practice. These include the methodology developed by the World Bank Group, which was used to study regional development in India and the countries of the European Union based on the index of economic potential; the methodology of the Analytical Center under the Government of the Russian Federation with the addition of productivity indicators, the sectoral composition of the economy and the influence of central planning; the methodology of the Ministry of Economic Development for a comprehensive assessment of the level of economic development of regions (New geography of regional development: assessment of the economic potential of Russian regions and the possibilities of its effective use, 2018; Roberts, 2017).

2. Research Elaboration

To substantiate the strategic directions for the development of the economic potential of the regions of the zone of influence of the Great Silk and Tea Routes, an algorithm was developed that includes three stages: an assessment of the level of economic potential, an assessment of the risks of development of economic potential, and determination of strategic directions for the development of the economic potential of the regions (Figure 1).

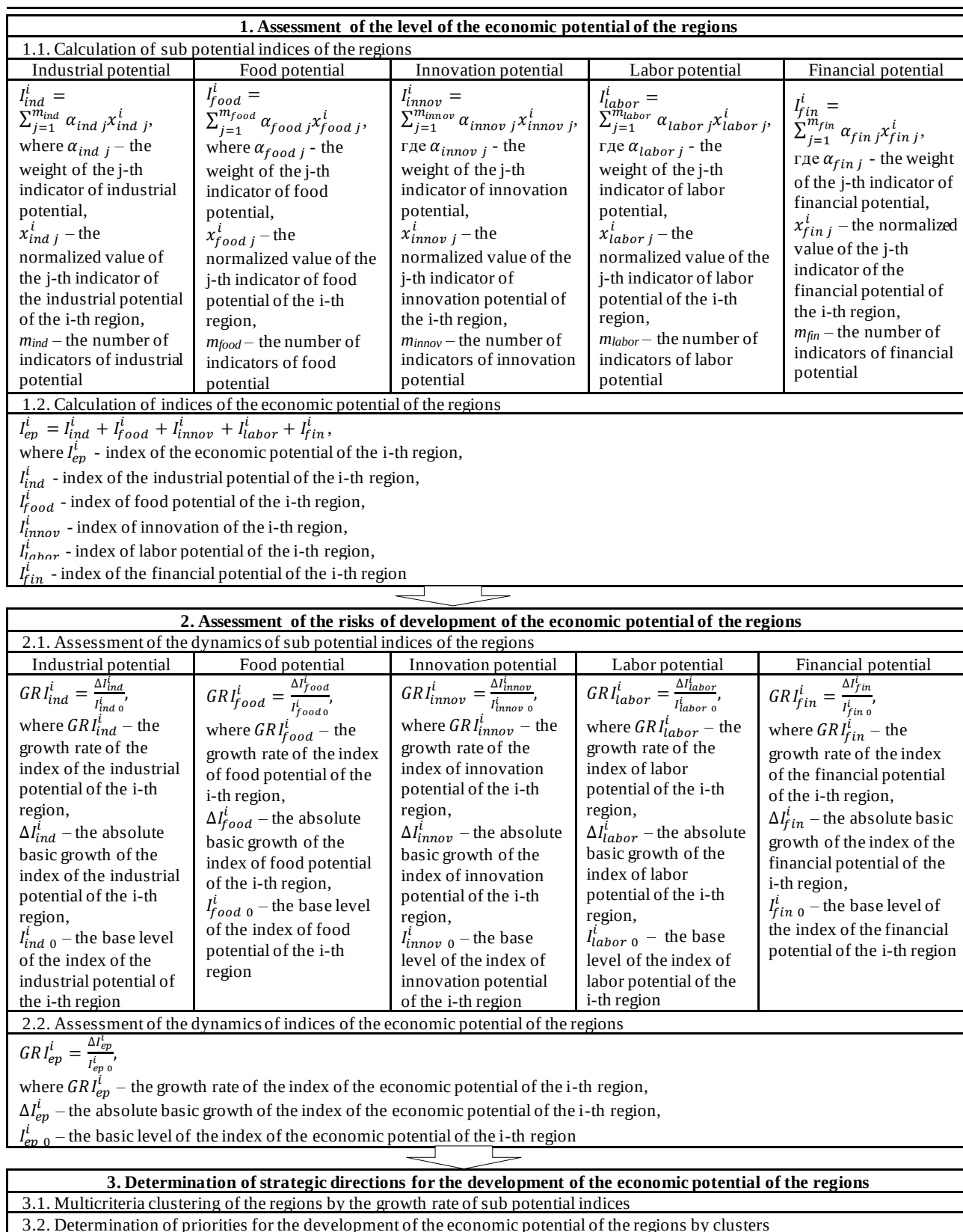


Fig 1. Algorithm for substantiating the strategic directions of development of the economic potential of the regions

The assessment of the economic potential of the regions is carried out based on an integral indicator, which includes five indices of sub potential: industrial, labor, food, innovation, and financial. The indicators are normalized according to the magnitude of the discrepancy between the best and worst values. Determination of the weights of particular indicators in formulas 1-5 is performed on the basis of a probabilistic approach and a matrix of pairwise preferences (Gupta, 1987). To assess the risks of development of the economic potential of regions, it is carried out based on an analysis of changes in the components of the index of economic potential. The rates of growth of indices of economic potential and its sub potential are determined. The negative values obtained as a result of calculations indicate the presence of negative trends and the need to concentrate government support measures in this area.

Determination of strategic directions for the development of the economic potential of the regions is carried out based on clustering regions according to the values of the growth rates of sub potential indices using the k-means method. In accordance with the characteristics of each of the clusters, the priorities for the development of economic potential are determined.

3. Results and Discussions

As the object of the study, 28 regions of Russia, China, Mongolia, and Kazakhstan were identified as affected by the China-Mongolia-Russia economic corridor, as well as alternative options for transport corridors: the Western Europe - Western China corridor, the Dostyk-Alashankou - Mikhailovka-Uba corridor. The regions were identified and grouped according to the three most frequently identified routes of the China-Mongolia-Russia economic corridor: eastern, central and western, and alternative transport corridors (Soni, 2018; Dorj, 2017; Namzhilova, 2018; Rygzynov, 2018; Tulokhonov, 2018) (Table 1).

Table 1: Grouping of the regions of Russia, China, Mongolia, and Kazakhstan in the zone of influence of the Great Silk and Tea Road

Option	Region
Eastern route of the China-Mongolia-Russia economic corridor	Inner Mongolia
	Heilongjiang
	Dornod
	Sukhbaatar
	Zabaykalsky Krai
Western route of the China-Mongolia-Russia economic corridor	Xinjiang
	Uvs
	Zavkhan
	Govi-Altai
	Republic Tuva
The central route of the China-Mongolia-Russia economic corridor	Inner Mongolia
	Hebei
	Selenge
	Darkhan-Uul
	Ulaanbaatar
	Tuv
	Dundgovi
	Dornogovi

Option	Region
Corridor "Western Europe - Western China"	Govisumber
	Republic Buryatia
	Orenburg Oblast
	Aktobe region
	Kyzylorda Region
	Turkistan Region (formerly South Kazakhstan)
	Jambyl Region
	Almaty Region
	Almaty
	Xinjiang
Corridor "Dostyk-Alashankou - Mikhailovka-Uba"	Altai Krai
	East Kazakhstan region
	Almaty Region
	Xinjiang

Source: Compiled by the author

The choice of particular indicators of sub potential was carried out on the basis of theoretical and practical criteria: the presence of economic feasibility, timeliness, and frequency of publication, availability, stability, comparability, and duration of series. Based on the selection, eight indicators were identified: "The volume of gross regional product per capita, thousand US dollars (PPP)", "The volume of gross value added in the section "Manufacturing industries" per capita, thousand US dollars (PPP)", "Population density, people per 1 km²", "The number of economically active population per 1000 people", "Average monthly wages, US dollars (PPP) per person", "The volume of gross value added in the section "Agriculture" per capita, thousand dollars USA (PPP)", "The number of personnel engaged in research and development per 1000 people", "The volume of gross value added in the section "Financial activity" per capita, thousand US dollars (PPP)". The indicators were normalized according to the magnitude of the discrepancy between the best and worst values. As a result of the analysis of the values of indicators for 2010-2017, the weights of private indicators of economic potential were obtained.

Based on the developed methodology, the indices of the economic potential of the regions of Russia, China, Mongolia, and Kazakhstan in the zone of influence of the Great Silk and Tea Routes were calculated for the period from 2010 to 2017. The data obtained as a result of the calculations indicate a decrease in the index of the economic potential of the regions for all five options in 2017. The most significant drop in the index was observed in the regions included in the zone of influence of the central route of the China-Mongolia-Russia economic corridor (Table 2).

Table 2: Growth rates of the index of the economic potential of the regions of Russia, China, Mongolia, and Kazakhstan in the zone of influence of the Great Silk and Tea Routes, % to the previous year

Option	2011	2012	2013	2014	2015	2016	2017
Eastern route of the China-Mongolia-Russia economic corridor	6.57	1.93	-8.83	9.35	-5.26	7.25	-16.10
Western route of the China-Mongolia-Russia economic corridor	9.72	11.81	-7.24	-2.42	1.10	5.49	-12.86

Option	2011	2012	2013	2014	2015	2016	2017
The central route of the China-Mongolia-Russia economic corridor	2.39	8.07	-5.67	0.31	1.50	6.41	-17.22
Corridor "Western Europe - Western China"	5.11	2.22	-15.69	10.73	3.14	0.59	-3.91
Corridor "Dostyk-Alashankou - Mikhailovka-Uba"	0.92	3.57	-15.57	6.12	-1.30	8.02	-11.95

Source: Calculated by the author

Analysis of changes in the components of the economic potential index for the period 2010-2017. by region is presented in Table 3. Based on the analysis results, the greatest development risks were identified in the formation of food and production potentials: a decrease in indices was observed in 22 and 20 regions out of 28 analyzed.

Table 3: Change in the index of economic potential and its sub potential for the period 2010-2017 across the regions of Russia, China, Mongolia, and Kazakhstan in the zone of influence of the Great Silk and Tea

Routes

Option	Region	Industrial potential	Food potential	Innovation potential	Labor potential	Financial potential	Economic potential
Eastern route of the China-Mongolia-Russia economic corridor	Inner Mongolia	-0.65	-0.13	0.06	0.31	0.01	-0.40
	Heilongjiang	-0.37	0.08	-0.04	0.20	0.01	-0.12
	Dornod	0.94	-0.07	-0.33	0.16	-0.05	0.66
	Sukhbaatar	-0.01	-0.09	-0.40	-0.16	-0.06	-0.71
	Zabaykalsky Krai	-0.14	-0.11	-0.01	-0.10	-0.02	-0.37
Western route of the China-Mongolia-Russia economic corridor	Xinjiang	-0.10	-0.18	0.04	0.43	-0.03	0.15
	Uvs	0.05	-0.12	0.44	-0.16	-0.03	0.19
	Zavkhan	0.06	0.00	0.43	-0.19	-0.03	0.27
	Govi-Altai	0.19	0.20	-0.02	-0.09	-0.03	0.25
	Republic Tuva	-0.12	-0.08	-0.10	-0.29	-0.01	-0.60
The central route of the China-Mongolia-Russia economic corridor	Inner Mongolia	-0.65	-0.13	0.06	0.31	0.01	-0.40
	Hebei	-0.15	-0.16	0.06	0.24	0.01	0.00
	Selenge	-0.62	-0.44	-0.04	-0.05	-0.07	-1.23
	Darkhan-Uul	-0.03	-0.11	0.22	0.02	-0.07	0.02
	Ulaanbaatar	0.26	-0.01	0.05	0.62	-0.33	0.59
	Tuv	0.19	-0.43	-0.14	0.13	-0.06	-0.32
	Dundgovi	0.08	0.15	0.15	-0.15	-0.05	0.19
	Dornogovi	-0.03	-0.19	-0.08	0.32	-0.05	-0.03

Option	Region	Industrial potential	Food potential	Innovation potential	Labor potential	Financial potential	Economic potential
Corridor "Western Europe - Western China"	Govisumber	-0.21	-0.03	-0.06	-0.10	-0.13	-0.53
	Republic Buryatia	-0.10	-0.18	0.04	0.43	-0.03	0.15
	Orenburg Oblast	-0.16	-0.08	0.00	-0.25	-0.02	-0.50
	Aktobe region	-0.19	-0.14	-0.01	-0.20	0.00	-0.54
	Kyzylorda Region	-0.09	-0.15	-0.01	-0.24	0.07	-0.41
	Turkistan Region (formerly South Kazakhstan)	0.09	0.13	0.05	0.52	0.08	0.87
	Jambyl Region	-0.01	-0.01	-0.03	-0.34	0.06	-0.33
	Almaty Region	-0.02	-0.13	-0.02	-0.10	0.03	-0.23
	Almaty	-0.12	0.00	-0.08	0.02	1.09	0.91
	Xinjiang	-0.10	-0.18	0.04	0.43	-0.03	0.15
Corridor "Dostyk-Alashankou - Mikhailovka-Uba"	Altai Krai	-0.21	-0.34	0.01	-0.32	-0.02	-0.88
	East Kazakhstan region	0.02	-0.03	0.02	-0.10	0.09	0.00
	Almaty Region	-0.02	-0.13	-0.02	-0.10	0.03	-0.23
	Xinjiang	-0.10	-0.18	0.04	0.43	-0.03	0.15

Source: Calculated by the author

To determine the optimal number of clusters, hierarchical clustering was carried out, the results of which made it possible to assume that the regions under consideration can be divided into six clusters. The clustering of regions was carried out using the k-means method. The results of determining the significance of the difference between the obtained clusters using the F-test indicate a significant difference.

Based on the average values for the clusters, the characteristics of the clusters were determined (Table 4). The largest part of the regions (13) was assigned to cluster 6, characterized by medium and high risks of all sub potential. The next largest cluster, cluster 4, includes ten regions with positive innovation and labor potentials dynamics.

Table 4: Assessment of the risks of developing the economic potential of the regions of Russia, China, Mongolia, and Kazakhstan in the zone of influence of the Great Silk and Tea Routes by clusters

Cluster	Number of regions	The average values				
		Industrial potential	Food potential	Innovation potential	Labor potential	Financial potential
1	2	0.175	0.060	0.050	0.570	-0.125
2	5	0.070	0.024	0.244	-0.114	-0.042
3	1	-0.120	0.000	-0.080	0.020	1.090
4	1	0.940	-0.070	-0.330	0.160	-0.050
5	10	-0.287	-0.169	0.018	0.305	-0.020
6	13	-0.075	-0.135	-0.059	-0.167	-0.003

Minimal risk
 Average risk
 High risk

Source: Calculated by the author

Based on the analysis of the distribution of the regions by clusters and options for transport corridors (Table 5), problem areas (cluster 6) were identified within each of the options.

Table 5: Distribution of the regions of Russia, China, Mongolia, and Kazakhstan in the zone of influence of the Great Silk and Tea Routes by clusters and options of transport corridors

Option	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5	Cluster 6
Eastern route of the China-Mongolia-Russia economic corridor				Dornod	Inner Mongolia, Heilongjiang	Sukhbaatar, Zabaykalsky Krai
Western route of the China-Mongolia-Russia economic corridor		Uvs, Zavkhan, Govi-Altai			Xinjiang	Republic Tuva
Central route of the China-Mongolia-Russia economic corridor	Ulaanbaatar	Darkhan-Uul, Dundgovi			Inner Mongolia, Hebei, Selenge, Dornogovi, Republic Buryatia	Tuv, Govisumber
Corridor "Western"	Turkistan Region		Almaty		Xinjiang	Orenburg Oblast,

Option	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5	Cluster 6
Europe - Western China"	(formerly South Kazakhstan)					Aktobe region, Kyzylorda Region, Jambyl Region, Almaty Region
Corridor "Dostyk-Alashankou - Mikhailovka-Uba"					Xinjiang	Altai Krai, East Kazakhstan region, Almaty Region

In accordance with the characteristics of the clusters, strategic directions for the development of the economic potential of the regions were determined (Table 6).

Table 6: Strategic directions for the development of the economic potential of the regions of the zone of influence of the Great Silk Road and the Tea Road by clusters

Cluster	Strategic directions for the development of the economic potential of the regions				
	Industrial potential	Food potential	Innovation potential	Labor potential	Financial potential
1					++
2				+	+
3	+		+		
4		+	++		+
5	++	++			+
6	+	++	+	++	+

++ - high priority

+ - medium priority

So, for the regions included in cluster 6, the development of food and labor potentials has a high priority; the middle priority is industrial, innovation, and financial potentials. The development of financial potential is a priority for cluster 1.

4. Conclusions

As a result of the assessment, it can be concluded that the development of the central variant of the spatial orientation of the China-Mongolia-Russia economic corridor has the highest economic potential. For all components of the economic potential, the excess of the indices of this option over the others was determined. It was revealed that the most significant lag in the indices of innovation and financial potentials, which indicates the underdevelopment of the innovation and financial infrastructures in these regions.

The author has developed an algorithm for substantiating the strategic directions of development of the economic potential of regions, which includes three stages: a level assessment based on an integral indicator, assessment of development risks based on a dynamic assessment, and determination of strategic development directions based on cluster analysis using the k-means method. The proposed methodology has been tested in 28 regions of Russia, China, Mongolia, Kazakhstan, which are included in the zone of influence of the Great Silk and Tea Routes. Based on the calculations, 6 regional clusters were identified, strategic directions for the development of economic potential for each cluster were determined in accordance with its characteristics.

The proposed methodology for clustering regions based on changes in the indices of sub potential of economic potential makes it possible to identify problem areas within each of the options and form the directions of growth of economic potential.

The developed methodological approaches to determining the priorities for the development of the economic potential of the regions on the basis of a dynamic risk assessment and monitoring the state of potential make it possible to substantiate the strategic directions of growth, taking into account the risks. The research results can be used by federal and regional authorities in the development of spatial and territorial strategies and programs for economic development.

5. Acknowledgments

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Identifying Stakeholders' Roles in Implementation of Payment for Forest Environmental Services in Hoa Binh Province, Vietnam

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Abstract. *The policy of payment for forest environmental services (PFES) has been implemented in Vietnam since 2011 and in Hoa Binh province since 2013. Governmental agencies have conventionally implemented PFES at central, provincial, and district levels. However, there are shared responsibilities of the governmental organizations and other stakeholders at different levels in reality. Using social network analysis (SNA) indicators shows that the provincial Forest Forest Protection and Development Fund plays the most important role among involving stakeholders. Both density and centrality measurements have shown that the stakeholders in the PFES implementation network in Hoa Binh province have good coherence. Additionally, district-level governmental organizations and Viettel Telecom Company have shown their powerlessness in the policy implementation network.*

Keywords: Implementation, Policy of payment for forest environmental services (PFES), Social network analysis, Stakeholder

JEL Codes: Q00, Q18, Q19.

1. Introduction

The policy of payment for forest environmental services (PFES) has been implemented in Vietnam since 2011, followed by the Decree 99/2010/ND-CP in 2010 and amended and supplemented by Decree 147/2016/ND-CP in 2016 and Decree 156/2018/ND-CP in 2018. PFES is one of the major forestry policies in Vietnam as it has contributed 25% of the total annual investment in the forestry sector since 2008 (Pham et al., 2018). PFES aims to enhance forest cover and forest quality, improve local livelihoods, and reduce state investment in the forestry sector (Pham et al., 2018). Apart from the achievements, shortcomings still exist such as unsustainable PFES funding sources, unequal distribution of PFES among forest owners, inadequate PFES income sources (lack of aquaculture services, carbon sequestration and use of industrial water, pilots have been developed across the country), and overlapping tasks and functions of stakeholders involving PFES implementation.

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Regarding involving stakeholders, the Vietnam government has assigned to main organizations to implement PFES, including Provincial-level People's Committees (PPC), Provincial-level Forest Protection and Development Funds (FPDF), Provincial-level Departments of Agriculture and Rural Developments (DARD), Vietnam Forest Protection and Development Fund (VNFF), users of forest environment services, and providers of forest environment services. However, many stakeholders (individual actors and organizations) participate in PFES policy in practice. The inter-relationships among these stakeholders may be consensus or contradictory, though they are working in a network.

Stakeholders and their relationships play an important role in the success of policy implementation. Stakeholders can be defined as an individual or a group of individuals who are influenced by or able to influence a project or a program (Freeman, 1984; Freeman & Mc Vea, 2001; Xiao et al., 2021). Stakeholder theory speculates that an organization is a social construction made of interaction of various stakeholders. The organization is visualized as the center of a stakeholders' network (Chepkoech & Waiganjo, 2015).

The problem of identifying key players in a network has been discussed for a long time. One stream of relevant research is node centrality (Freeman, 1979; Bolland, 1988; Borgatti, 2005; Gneiser et al., 2010) which attempts to quantify the structural importance of stakeholders in a network. Additionally, work on identifying cores and peripheries (Rombat et al., 2013) is relevant. Other approaches have also been applied to identify key players in a network, for example, social capital by Burt (1999).

For roles of key players in public policy, most studies focused on the design or policymaking phase (Mulyaningrum et al., 2013; Helbig et al., 2015; Hutahaeen, 2017). These researches tried to explain how different stakeholders participate in policymaking and how to encourage effective stakeholders to involve in the policymaking stage. In fact, policy implementation is an important stage that makes policy possible to achieve its objectives and delineate the targeted groups' perimeter (Varone et al., 2019). In other words, the implementation phase puts public administrations in direct contact with representatives of civil society, especially the groups targeted by the policy.

Policy implementation arrangement is characterized by a high level of coordination, both horizontal (between units or organizations) and vertical (between the district, province, region, and central levels). Further, it can also be characterized by considerable fragmentation (Varone et al., 2019). Thus, policy implementation requires working with a set of stakeholders (individual actors and organizations) to communicate policy objectives, ensure the availability of resources, and achieve ownership of the policy by implementers (Oliver, 2006).

The stakeholders who involve in policy implementation have different statuses and roles. They develop a variety of interactions and form a sophisticated stakeholders network (Xiao et al., 2021). The stakeholder's relationships in the network strongly impact on effectiveness and efficiency of a public policy in general and PFES policy in particular. The question is, which stakeholder plays an important role in the network of PFES implementers? Who has more connections with others? Who is able to control others in the network?

Based on data and information collected from Hoa Binh province, Northern Vietnam, this paper aims to identify and analyze stakeholders involving PFES implementation, particularly: (1) stakeholders at local

levels (provincial, district, and commune levels) and (2) the vertical and horizontal interplay between stakeholders at different levels.

2. Methods

As mentioned in the previous section, the important research question is "which stakeholder influences PFES policy implementation the most?". Based on this question, the detailed methods of data collection and analysis have been selected and developed. Social Network Analysis (SNA) approach has been applied for all research process because it was conducted by recording data on "who is connected to whom" (Valente et al., 2015). Moreover, SNA is one of the principal methods to analyze stakeholder relationships. The SNA relationship contains the presence or absence of the tie and the strength of relational ties to uncover the structure of the stakeholders' network based on the centralization of the individuals (Reed et al., 2009). SNA also plays an important role in the determination of the connections within and between parts of a network which is known as cohesion (Wasserman & Faust, 1994; Scott, 2000), and it is considered as an important characteristic of networks. This characteristic is measured by SNA indicators, including density, degree, closeness, and betweenness centrality (Carrington et al., 2005; Valente et al., 2015). These indicators are explained in section 2.2.

2.1 Data collection

Similar to Pelyukh et al. (2021), this research has been structured in three stages, including (i) identification of stakeholders who involving in PFES implementation, (ii) semi-structural interview, and (iii) classification of the involved stakeholders. According to the assignment of the Vietnam government, PFES implementation at the provincial level involves five specialized working organizations which are: (1) Provincial People's Committee, (2) Forest protection departments, (3) Provincial forest protection and development fund, (4) users of forest environmental services and (5) providers of forest environmental services as described in Figure 1. For the first stage of collecting data, the discussion with five representatives of these working groups has been carried out, then 19 actors involving in PFES implementation in Hoa Binh province have been investigated as presented in Table 1.

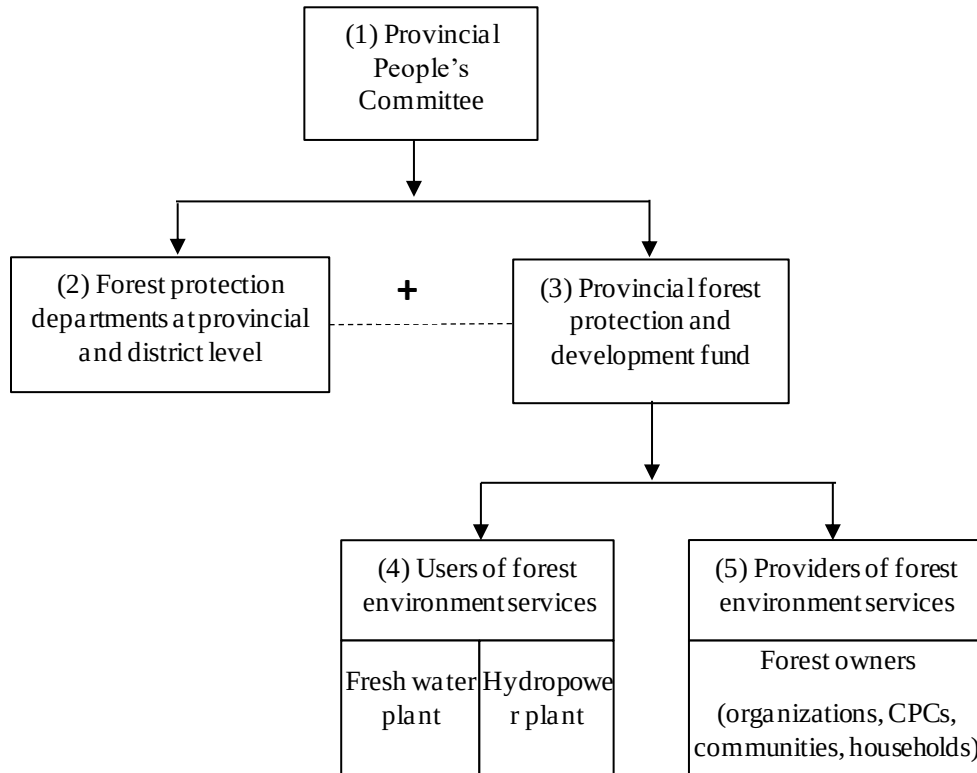


Fig. 1: Involving stakeholders in PFES policy implementation assigned by the Vietnam government

In the next step, a matrix of actors was created using the Excel software, and a semi-structural questionnaire was developed in order to interview 19 representatives selected from 19 stakeholders. The interviewees were asked to indicate the links between actors, and they had to complete a semi-structural questionnaire in a face-to-face interview. Binary data were used in this study (absent, i.e., 0.0 and present, i.e., 1.0). The value is present if there be a selection within the team members. If each pair of team members does not select each other, the value of 0.0 will be allocated. The tie is directed from one member to another in a pair, i.e., it has an origin and a destination (Wasserman & Faust, 1994).

2.2 Data analysis

The analysis and visualization of the survey have been performed using UNICET (version 6.0). The stakeholders who played the role of nodes in the networks and their relations were mapped out. The links were weighted by the scores of each link in 19 response questionnaires. The cohesion indicators of SNA such as density, degree centrality, and betweenness were used to describe the structure of the network.

Density has been used to measure the total connectedness of a network in various researches (Valente et al., 2015; Tabassum et al., 2018; Yousefi Khoshsabegheh et al., 2021). It is the number of ties in a network as a ratio of all possible ties in a network and describes the general level of cohesion. A network with n nodes can maximally have $n(n - 1)$ directed links or $n(n - 1)/2$ undirected links. Density 1 represents a

fully connected network, and density 0 represents a fully sparse network with no link (Wasserman & Faust, 1994; Scott, 2000). In this study, density is used to measure the number of ties in the stakeholders' network involved in PFES implementation in Hoa Binh province.

Table 1: Real stakeholders participated in PFES policy implementation in Hoa Binh province

Node of network	Stakeholders	Node of network	Stakeholders
1	Provincial People's Committee	11	Headman of village
2	Provincial Department of Forest Protection	12	Bank for Agriculture and Rural development
3	Provincial Department of Tax	13	Vietel Telecom Company
4	Provincial Forest Protection and Development Fund	14	Households as forest owners
5	District People's Committee	15	Communities as forest owners
6	District Department of Finance	16	Commune People's Committees as forest owners
7	District Department of Forest Protection		
8	District Treasury	17	Organizations as forest owners
9	Commune People's Committee	18	Fresh water plant
10	Forest protection staff	19	Hydropower plant

Source: Focused group discussion, 2020

Degree centrality is one of the first centrality measures which count the number of links by each node in the network (Valente et al., 2015; Zedan & Miller, 2017; Yousefi Khoshsabegheh et al., 2021). The higher the degree of a node means the greater its authority (Butts, 2008). In a directed network, in-degree and out-degree can be different for each node. In-degree counts the number of the interaction of other nodes with a node, and out-degree counts the number of the interaction of a node with other nodes. In PFES stakeholder's network, in-degree shows the frequency that other organizations refer to an organization for coordinating and their actions. In contrast, out-degree shows the frequency that an organization contributes to other organizations in the network.

Closeness centrality measures how many steps are required for a particular actor to access every other actor in the network (Yousefi Khoshsabegheh et al., 2021). This is measured as 1 divided by the sum of geodesic distances from an actor to all alters in the network. The measure will reach its maximum for a given network size when an actor is directly connected to all others in the network and its minimum when an actor is not connected to any others. This captures the intuition that short path lengths between actors signal that they are closer to each other (Zachary, 1977).

Betweenness centrality is roughly defined as the number of shortest paths between alters that go through a particular actor (Zedan & Miller, 2017; Yousefi Khoshsabegheh et al., 2021). More precisely, it is the sum of the shortest path lengths between every set of alters where the path goes through the actor we are calculating the measure for divided by the shortest path lengths (not necessarily through the target actor) between those actors. This intuitively measures the degree to which information or

relationships have to flow through a particular actor and their relative importance as an intermediary in the network (Zachary, 1977).

3. Results and Discussion

3.1 Involving stakeholders and state-regulated functions in PFES implementation

The institutional setting for PFES policy implementation in Vietnam relied heavily on the VNFF and FPDFs that was established at central and provincial levels, respectively (Figure 1). In the arrangements, stakeholders' roles and responsibilities were clearly defined. According to Circular No. 85/2012/TT-BTC (issued by the Ministry of Finance), the FPDF is not operated for profit. The VNFF signs contracts with buyers that set out the amounts they must pay for environmental services; the VNFF also collects, coordinates, and monitors payment to provincial FPDFs in areas where environmental services are supplied from two or more provinces and supports the operations of the provincial FPDFs. The VNFF extracts 0.5% of the total revenue from PFES payments, including any interest accrued, to cover its operations. All provincial government staff interviewed stated that the VNFF is active in mobilizing funds but that it has not been able to meet technical needs in a timely manner because of limited staff and capacity.

The provincial FPDF signs contract with service buyers and collects payments for services supplied within the province. It also prepares payment plans, monitors and releases payments to service suppliers, and submits periodic reports to the VNFF. The provincial FPDF is allowed to use 10% of the total revenue from PFES to cover its operations and can extract a further 5% of the total revenue from payments collected and other sources for a contingency fund, which is used to support service suppliers in the case of natural disasters (Circular 85/2012/TT-BTC – issued by the Ministry of Finance). Circular 85/2012/ TT-BTC sets out details on the financial management of the FPDF, but provincial authorities interviewed said that more detailed guidelines were needed on penalties for late payments and contract violations and on how to use the 10% management fee, specific procedures for payments and monitoring protocols.

Service suppliers are individuals, households, communities, commune people's committees, or organizations that the provincial FPDF deems to be qualified to supply a service based on their land-use right certificate. They must sign a commitment to forest protection. Service suppliers that are organizations, such as management boards for protection and special-use forests, can take 10% of payments collected to cover their costs of management and running activities related to forest protection.

Procedures for making payments from central to local levels and between buyers and suppliers are set out in Circular No. 62/2012/TTLT-BNNPTNT-BTC (issued by the Ministry of Agriculture and Rural Development and the Ministry of Finance) and Circular No. 20/2012/TT-BNNPTNT (issued in 2012 by the Ministry of Agriculture and Rural Development) (Figure 2). The roles and responsibilities of central and provincial authorities in collecting and delivering funds are clearly defined, and the process includes several internal checks.

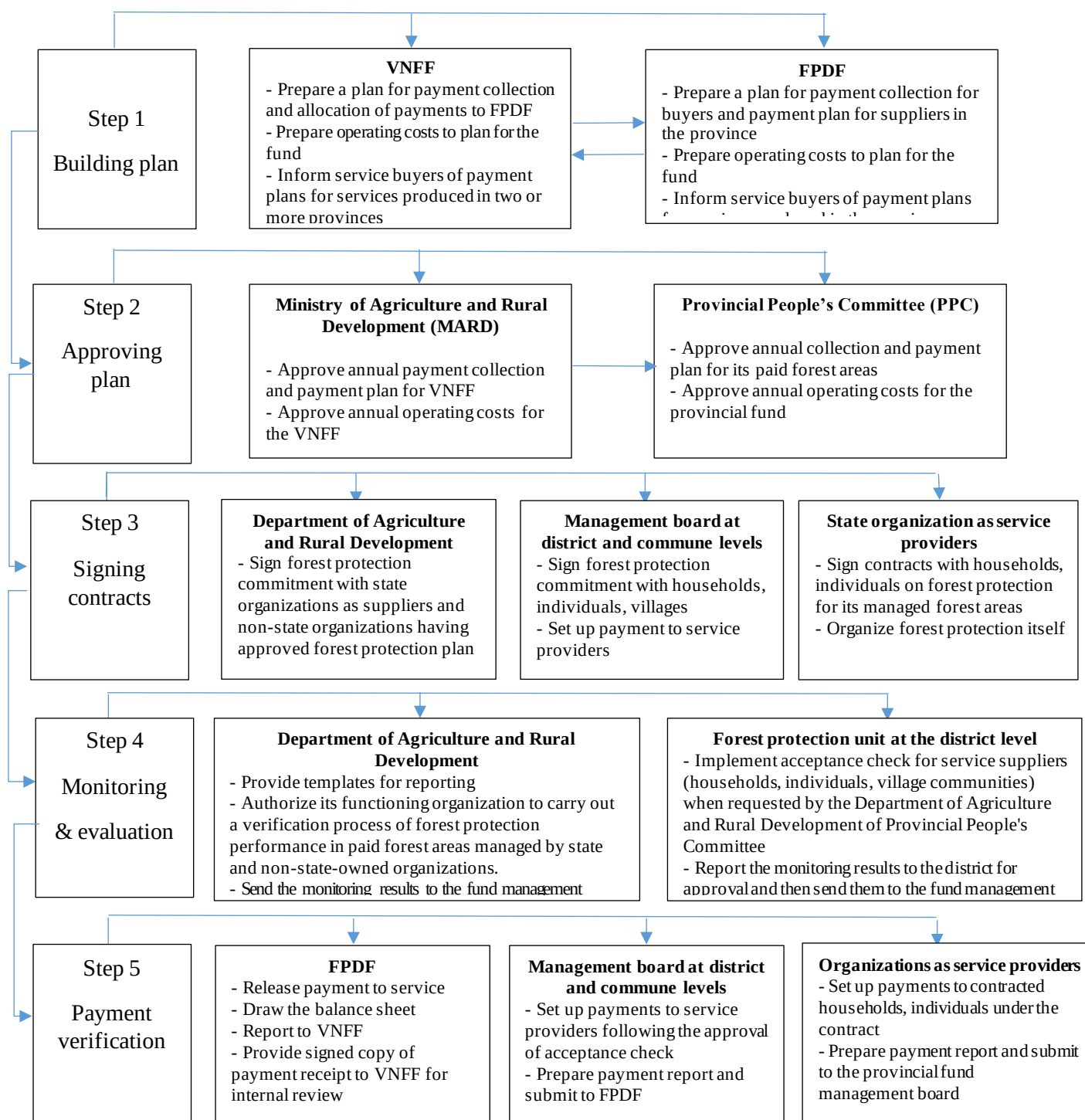


Fig. 2: Responsibilities of state stakeholders in PFES implementation (modified from Pham Thu Thuy et al., 2013)

When a forest area is assessed, its owner is required to join the verification team. The provincial Department of Agriculture and Rural Development (DARD) forms the verification team to carry out checks on forest protection by service suppliers that are organizations, and the district Forest Protection Unit forms the team to conduct checks on service suppliers that are households individuals or village communities. A written assessment of the quantity and quality of the forest in the contracted area is produced and signed by a representative of the verification team and the forest owner. Before the check, service suppliers submit a self-assessment to the village, which is then sent to the commune and finally to the Forest Protection Unit. Verification checks are only required when servicing suppliers, the village, or the commune lodge a complaint about the forest protection performance assessment. The Forest Protection Unit finalizes reports on service suppliers' performance, which it then submits to the District People's Committee for approval. Once approved, the report is sent to the provincial FPDF, which then releases payments to service suppliers.

The provincial FPDF is responsible for sending water companies and hydropower plants that made payments directly into the FPDF information on the following: the total amount received in the year; the amounts distributed to the FPDF and forest owners; use of revenue by forest owners; use of revenue by the FPDF; enterprises' comments on payments; and any other relevant information. In addition, the FPDF is responsible for monitoring contracting procedures, making quarterly payments to forest owners, reporting on forest management and protection in the pilot area, reviewing financial documents, and delivering a quarterly progress report on PFES implementation.

3.2 Social network analysis of Stakeholders' influence on PFES implementation

The analysis and visualization of the surveyed data have been carried out by UCINET (Version 6.0) SNA program (Analytic Technologies, Lexington, KY, USA) (Borgatti et al., 2002). The relationship among all stakeholders in PFES implementation in Hoa Binh province is outlined in Diagram 1. The names of all stakeholders are so long that the numbers (presented in Table 1) are used as replacements. It can be seen that the nodes number 1 and number 4 in the center have more connections with others while the nodes number 3 and 13 have very few. However, relations among the stakeholders and their influences on policy implementation are studied in detail using network analysis tools.

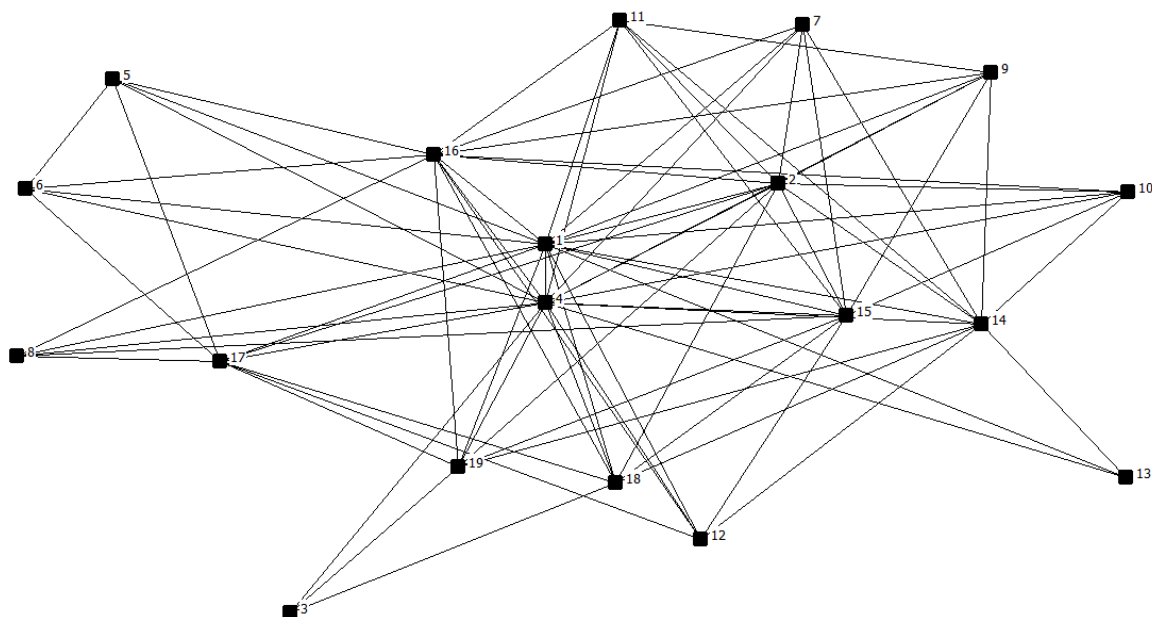


Diagram 1: Relationship among stakeholders in PFES implementation in Hoa Binh province

Source: SNA illustration

The density of the whole network is 0.468. This means that 46.8% of all possible connections among involving stakeholders are present. This also indicates that the actual ties among stakeholders are limited compared to the probable ties that may occur if coordination is conducted optimally. Overall, the density level of the whole network was moderate.

Table 2: Indicators showing stakeholders' influence on PFES implementation in Hoa Binh province using SNA tools

Node of network	Stakeholder	Number of Connected stakeholders	Degree centrality	Closeness centrality	Betweenness centrality
1	Provincial People's Committee	17(2)	0.944 (2)	0.972 (2)	13.575 (2)
2	Provincial Department of Forest Protection	12 (4)	0.667 (4)	0.833 (4)	2.834 (6)
3	Provincial Department of Tax	3 (18)	0.167 (18)	0.583 (18)	0.082 (16)
4	Provincial Forest Protection and Development Fund	18 (1)	1.000 (1)	1.000 (1)	20.765 (1)
5	District People's Committee	5 (15)	0.278 (15)	0.639 (15)	0.073 (17)
6	District Department of Finance	5 (15)	0.278 (15)	0.639 (15)	0.073 (17)

7	District Department of Forest Protection	6 (12)	0.333 (12)	0.667 (12)	0.190 (12)
8	District Treasury	5 (15)	0.278 (15)	0.639 (15)	0.225 (11)
9	Commune People's Committee	7 (10)	0.389 (10)	0.694 (10)	0.190 (12)
10	Forest protection staff	6 (12)	0.333 (12)	0.667 (12)	0.190 (12)
11	Headman of village	7 (10)	0.389 (10)	0.694 (10)	0.190 (12)
12	Bank of Agriculture and Rural development	6 (12)	0.333 (12)	0.667 (12)	0.465 (10)
13	Viettel Telecom Company	3 (18)	0.167 (18)	0.583 (18)	0.000 (18)
14	Households as forest owners	11 (5)	0.611 (5)	0.806 (5)	4.909 (4)
15	Communities as forest owners	11 (5)	0.611 (5)	0.806 (5)	3.524 (5)
16	Commune People's Committees as forest owners	13 (3)	0.722 (3)	0.861 (3)	6.901 (3)
17	Organizations as forest owners	9 (7)	0.500 (7)	0.750 (7)	2.565 (7)
18	Fresh water plant	8 (8)	0.444 (8)	0.722 (8)	1.772 (8)
19	Hydropower plant	8 (8)	0.444 (8)	0.722 (8)	1.772 (8)

Note: The numbers in the parentheses reflect the ranks of stakeholders' influence in the network of PFES implementation

Source: Surveyed data processed by SNA, 2020

The ranks of stakeholders in the network of PFES implementation in Hoa Binh province are totally similar by the number of connections, degree centrality, and closeness centrality, whereas ranking by betweenness centrality brings a little different result. The provincial FPDF was rated the most important stakeholder and had the highest analytical indicators (number of connections, degree, closeness, and betweenness). This is relevant to the provincial FPDF's functions which were regulated by MARD and VNFF (Figure 2). The Provincial People's Committee was mentioned by almost all interviewees and was rated the second most important stakeholder. The reason is the fact that the Provincial People's Committee is the most powerful agency in promulgating regulations and approving PFES implementation plans at the local level. The third most crucial stakeholder is the Commune People's Committee as a forest owner. Commune People's Committees (CPCs) are not holders who are allocated forest by Forest Law (instead, they are temporarily assigned by the State to manage and protect forest). They receive the highest value and proportion of PFES in Hoa Binh province. Following the government agencies, forest owners are the influential groups among stakeholders involving PFES implementation.

Although district-level organizations were assigned particular responsibilities in PFES implementation, the indicators of centrality and their ranks in Table 2 show that they are not important stakeholders in the network. District organizations are ranked from 11th to 17th on the ranking of stakeholders' influence. This situation causes by the structure of the provincial FPDF and payment system in Hoa Binh province. The provincial FPDF directly signed contracts, collected forest environmental services, then paid to forest owners. There's no management board at the district level, as described in Figure 2. At the district level, only the Department of Forest Protection cooperates with provincial FPDF in determining the forest areas where should be applied PFES.

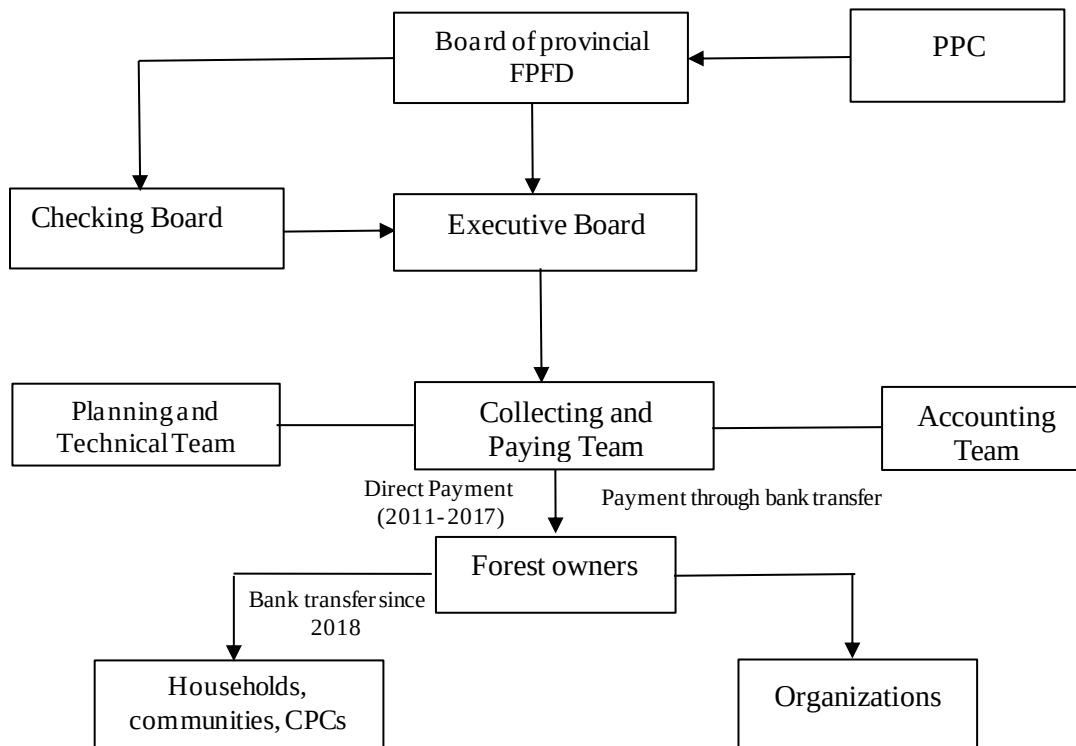


Fig.3: Structure of FPF in Hoa Binh province

Viettel Telecom Company was invited to PFES program in order to implement electronic payments, particularly ViettelPay. VNFF hopes that e-payments will help provincial FPFs to save money, time, and human resources and to create more transparency in PFES payments. To receive PFES payments via ViettelPay, the forest owners have to create an account via a phone number (any network operator for smartphones and Viettel network for ordinary phones). For forest owners who are households, when creating a personal account, they must bring their phone, identity card, and the forest owner's decision on land and forest allocation. For community forest owners, when creating a community account, there must be 3 - 6 people (named in the report of election of the Community Forest Management Board) to open an account; when opening, they need to bring their phone, identity card of each person along with the community's decision on land and forest allocation. When the provincial FPF transfers money to the forest owner's account via ViettelPay, the forest owner will receive at least three notification messages on the forest owner's phone about the amount received and the agent's address authorized by Viettel nearest place to get money. In many provinces, Viettel plays an important role in payment implementation. However, interviews and SNA results showed that this stakeholder is not a crucial actor in the case of Hoa Binh province. Almost all payments have been transferred through the Bank of Agriculture and Rural development since 2018. Viettel is ranked at the bottom according to a degree, closeness, and betweenness.

Especially the betweenness indicator of Viettel equal to zero. This means that the stakeholder cannot promote coordination among other members of the network.

In summary, Vietnam has a good system of legal regulations on PFES in comparison with other countries (Mai & Ngoc, 2018). Among government agencies and non-government organizations, VNFF at the central level and FPPD at the local level take very important parts and are the most powerful organizations in the PFES implementation network. However, only VNFF or FPPD cannot successfully implement PFES, but they need to cooperate with other stakeholders, especially PPC and different types of forest owners, including Commune People Committees, communities, organizations, and households.

4. Conclusions

PFES has been conventionally implemented by governmental agencies at central, provincial, and district levels as regulated in Figure 2. However, in reality, there is a shared responsibility of the governmental organizations and relevant stakeholders at different levels. By using centrality measurements of SNA (degree, closeness, and betweenness centralities) to find influential and powerful organizations in the PFES implementation network, it is witnessed that the provincial FPPD plays the most important role among involving stakeholders. Both density and centrality measurements have shown that the stakeholders in the PFES implementation network in Hoa Binh province have good coherence. Interestingly, governmental organizations at the district level have not effectively participated in PFES implementation in Hoa Binh because the provincial has directly signed contracts with forest owners. This can be suggested that the province can reduce the workforce who participate in policy implementation and save the state budget for wage payment. SNA results also indicated that Viettel Telecom Company is not as important as the government's expectation.

SNA is a method that can provide a visual and tangible picture of the status and interrelationships among the stakeholders and identified groups with better interaction in policy implementation in general and PFES in particular (Diagram 1). SNA can also determine the role and significance of different organizations in the network of PFES implementation. It can be said that SNA was not only able to identify key stakeholders but also to get an understanding of interrelationships among involving stakeholders in PFES implementation. This knowledge helped local authorities and policymakers further engage stakeholders in their preferred ways, assisted policy implementers in finding the right way to assign the different stakeholder groups to appropriate tasks, and facilitated the co-production of relevant stakeholders, particularly in connecting them with each other in PFES implementation.

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Resource-Deficient Regions: The Specificity of State Support

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Abstract. *The success of Russia's socio-economic development heavily depends on resource availability, resource sufficiency, and resource diversity. Because economic resources (natural, human, capital, information, and material) represent a key barrier to regional social and economic development, the regional federal systems should take into account the effects of regional development drivers. This study aims to assess the level of economic development across economic regions in Russia regarding resource availability and develop state regulation measures to improve regional economic performance. For this, all regions were divided into groups by their gross regional product estimates. Factors reflecting economic performance were identified through factor analysis, and the cyclical nature of resources availability was discussed. The paper offers a resources availability model that allows determining the minimum amount of resources required for a region having a specific level of economic development to achieve the maximum economic performance possible in less time. In addition, the paper presents a state regulatory framework for a regional economy that integrates financial support measures, state projects and programs, and measures to modify the regulatory framework and the regulation of human resources. The proposed state regulation framework takes into account the full range of regional resources and makes it possible to choose the most effective tools with the view to meeting regional development goals.*

Keywords: Effectiveness, regional growth resource availability, regulation, state support.

JEL Codes: R10, R11, R15

1. Introduction

Ensuring resource security in the regions is a public relations effort and a process by which developed countries prevent excessive disparities in levels of the social and economic wellbeing of the regions. To ensure resource security, federal and regional authorities need to build favorable conditions, in particular through integration and cooperation between and within regions.

Modern Russia is characterized by scarcity of specific resources, on the one hand, and growing independence of economic regions, on the other hand. The natural resources deficit received a great deal of attention. Xinchun et al. (2017), for example, focused on water scarcity and measured the ratio of the total agricultural water footprint to water resources availability. The results showed a need for reducing the water load. Kolioussis et al. (2018) drew their attention to industrial clusters, the key drivers of regional development. Similar studies were done by Odhiambo (2017), da Silva et al. (2018), Murshed and Kaluarachchi (2018), and Soula et al. (2021).

At the same time, there is no comprehensive study of the regional resource potential and its effect on economic growth. Given the socio-economic differences between economic regions, the Russian government needs a special strategy for allocating resources to innovation and development projects. The majority of scholars focused on exploring separate instruments of state regulation of the regional economy (Skokov,

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2020). Analyzing market instruments, Tiutiunyk (2018) concentrated on financial tools, and Tamov et al. (2020) investigated the features of strategic development. It is worth noting that the state regulation strategy and tactics cannot appear out of thin air and require regular adjustments to meet social, economic, and organizational issues, most of which rely on state assistance (Abrosimova et al., 2021; Shohin et al., 2020). In this context, the key challenge is to develop methods and approaches for determining potentially favorable conditions for innovative resources generation and their application in regional economic development priority areas.

This study aims to assess the level of economic development across economic regions in Russia with regard to resources' availability and develop measures of state regulation to boost regions. The objectives of the study are to:

- determine the level of economic development across regions in Russia by looking at their GRPs (gross regional product);
- categorize economic regions by their levels of economic development;
- explore the supply of primary and secondary resources in the regions;
- substantiate the cyclical nature of resources generated in the region and the need for resource security measures;
- conduct a factor analysis with the view of exploring the relationship between economic growth and resources availability;
- develop instruments for state regulation to overcome natural resource scarcity across regions.

2. Methods

The level of regional economic development was evaluated through structuring, systematizing, and sorting statistical data on economic growth, i.e., via the gross regional product (GRP). The examined regions were divided into four groups according to their position in the GRP ranking.

Factors that affect the level of regional economic development were assessed by using socio-economic data from the Federal State Statistics Service (2019). In general, the present study distinguishes *seven factors* that shape the gross domestic product of a region (GRP). The influence of factors (independent variables) on the level of regional economic development (dependent variable) was identified through regression analysis.

The study hypothesizes that natural resources availability in a region undergoes fluctuations throughout different stages of regional development. This hypothesis was tested by modeling the law of regional development with the lifecycle method. There are eight region life cycle stages, each with its natural resources requirement. The present study proposes a number of state support measures to undertake in the event of resources scarcity at either of these stages.

The present study offers a mechanism of state influence to prevent resources scarcity in regions. The proposed model consists of three blocks: (1) factors that influence the development of state support measures; (2) a mechanism whereby external and internal factors influence the level of regional economic development; and (3) instruments and directions of state support to choose from depending on their availability and promises.

3. Results

The economic substance of the region is largely understood from the economic theory perspective. The underlying assumptions about the examined economic regions and the principles of economic activity in these regions in the context of division of labor align with the economic theory.

In this study, a territory is regarded as an integral part of regional assets, a relatively independent economic entity that has specific resource potential and unique regional interests. These characteristics of regional/local economy add to the geographical and legal interpretations that describe the territory as a market and a community, among other things. Therefore, the understanding of the notion of region can be expanded in terms of its adaptation to social, legal, and economic needs.

As an underlying element of the national economy, a region is a territorial unit of a country's economic space in which the economic reproduction process is carried out. Although different regions have distinguishing features, they all share the objective laws of economic reproduction. This is due to the fact that marketplaces represent the major portion of regional assets and act as holders of special regional interests. They serve to implement the principle of regional self-sufficiency in economic reproduction. At the same time, different regions have different levels of social and economic development, which means that they deal with different issues of economic reproduction.

The intensity of resource use also varies. The world's population has doubled since 1970, entailing a threefold increase in material resources and a twofold increase in GDP. During the same period, there was no long-term stability or decline in global resources consumption. The relationship between economic growth and the environment was not detected either. The extraction and processing of natural resources have intensified since 2000, accounting for approximately 90% of water footprint and biodiversity loss and for almost half of the climate impacts.

The scientific ground for reflecting the process of economic reproduction in the region involves various aspects of regional economic development. In this case, the focus can be on these resource categories: natural resources, territorial resources, political resources, economic resources, production resources, tangible resources, transport and infrastructure, social ethnicity, and nationality. Factors that affect economic potential in regions are:

- the quantity of resources: working-age population, skilled manpower, financial resources, and natural resources;
- the economic quality of resources: the size and sectoral composition of the regional economy, the cost of production assets, commodity market maturity, and level of income;
- infrastructure: communication and information networks, institutions and marketing organizations, including banks, stock exchanges, and insurance companies;
- innovation: R&D efforts, technology adoption, and operation of intellectual companies, R&D institutes, and corporate sponsorship funds;
- external influences: macroeconomic indicators and national development programs adapted with respect to regional economic and tax policies.

Among these factors, resources are the most important one. They represent an attribute and potential of the territory. Resources include non-temporal elements, such as labor, land, and capital, and resource potential is a basis for regional differentiation. The quantity and quality of resources, as well as resource efficiency, have a decisive impact on the pace of social and economic development in the region. Resources may come from within the region (internal resources) or from other regions (external resources). At the same

time, the character of any economic process and market crisis (cyclical fluctuations in stock prices and exchange rates) is cyclical.

Other factors can also be considered as external and internal changes in a business environment, where external changes are federal restrictions, and internal changes are infrastructure and innovation enterprises operating in the region, as well as local tax legislation and guarantees.

An important element in reproduction management is regional typology. There are many kinds of factors that can be used to generate a typology, each of which somewhat reflects a variety of issues that surround the regional reproduction process and the role it plays in overall production. Sharafutdinov et al. (2019) proposed to use an inclusive growth index to categorize economic regions. Trukhachev and Gromov (2016) differentiated rural areas depending on their levels of development. Mayorova et al. (2018) focused on trade activity. It appears that a choice of research methodology for regional differentiation of Russia depends on the researcher's objectives. The present study builds a typology of Russia's economic regions based on a criterion of GRP (Table 1). The aim is to identify the promising directions of the federal investment policy. The main idea of the economic zones theory in this context is that a proper regional division will enable effective governance and comprehensive development of regions.

Table 1: Regions of Russia by GDP, adapted from (Federal State Statistics Service, 2019)

Region	2015	2016	2017	2018	Mean deviation	Raking (by deviation)	Category (by the level of development)
Gross regional product (GRP)/Russian average					472876,4		
Ingushetia Republic	106955.7	109523.4	108843.3	112553.4	-360323	-76.1981	Depressed Regions
Chechen Republic	111705.4	120596.8	125493.1	133435.8	-339441	-71.7821	
Karachay-Cherkess Republic	144061.8	152814.8	162201.6	165358.9	-307518	-65.0313	
Kabardino-Balkarian Republic	139908.7	156849.6	159911.1	168192.1	-304684	-64.4321	
North Ossetia-Alania Republic	178921.1	177961.4	182432.4	185641.3	-287235	-60.7421	
Ivanovo region	174687.5	174276.9	181377.5	195994.9	-276882	-58.5526	
Dagestan Republic	189575.2	192454.1	193865.3	203272.3	-269604	-57.0137	
Crimea Republic	139873.3	171623.8	180925	204571.4	-268305	-56.7389	
Tyva Republic	150265.5	166415.7	185690.7	212874.5	-260002	-54.9831	
Buryatia Republic	206880.3	201615.4	204825.7	229836.9	-243040	-51.396	
Altai Republic	196639.2	204849.5	206394	231464.2	-241412	-51.0519	
Altai Krai	204933.1	211658.1	217765.1	234885.9	-237991	-50.3283	
Adygea Republic	187211.1	199777.9	219457.2	238773.8	-234103	-49.5061	
Chuvash Republic	203100.9	210771.7	223165.3	242634	-230242	-48.6898	
Kurgan region	207236	221200.3	232701.2	253573.7	-219303	-46.3763	
Stavropol Krai	221814.1	229360.5	236647.4	255726.3	-217150	-45.9211	
Pskov region	208464.5	225921.3	236986.4	259404.1	-213472	-45.1434	
Kirov region	216918	226392.1	238499.4	260282.7	-212594	-44.9576	
Mari El Republic	250039.3	231610.2	243096.4	260845.2	-212031	-44.8386	
Kalmykia Republic	185798.9	220662.8	257976.7	268920.1	-203956	-43.131	
Bryansk region	221080	229844.6	251085.7	272742.5	-200134	-42.3227	

Ulyanovsk region	241633.8	259138.2	266860	279959.2	-192917	-40.7965	
Kostroma region	245940.9	243346.4	258533	281568.6	-191308	-40.4562	
Republic of Mordovia	223161.1	249649	266917.6	284010.1	-188866	-39.9399	
Saratov region	251047.1	258970.2	270564.3	290611.6	-182265	-38.5439	
Penza region	253911	259365.9	274369.4	302304.4	-170572	-36.0712	
Trans-Baikal Krai	228215	256337.7	279814.3	305683.1	-167193	-35.3567	
Oryol region	273107.5	284385.8	286468	310357.1	-162519	-34.3682	
Vladimir region	262945.5	282603.6	298375.9	321078.9	-151798	-32.1009	
Tambov region	300289.9	284834.1	288147.3	323618.7	-149258	-31.5638	
Smolensk region	266927.2	275444.3	306413.8	330766	-142110	-30.0523	
Volgograd region	290186	293947.7	305597.8	338860.7	-134016	-28.3405	
Ryazan region	285257.8	296253.9	321083.3	342734.4	-130142	-27.5214	
Rostov region	280522	303222.9	320007.8	343408.7	-129468	-27.3788	
Tver region	251633.2	277929.2	300328.7	345919.1	-126957	-26.8479	
Jewish Autonomous Region	266405.8	278590.6	323376.9	346715.8	-126161	-26.6794	
Omsk region	312450.2	314593.5	33071.3	349165.7	-123711	-26.1613	
Amur region	343385.7	337302.1	338055.7	378318.7	-94557.7	-19.9963	
Kursk region	301242.5	323145.8	346101.2	385587.5	-87288.9	-18.4591	
Voronezh region	345566.8	350097.6	371924.5	404838.5	-68037.9	-14.3881	
Bashkortostan Republic	323367.4	328820.8	346902.2	412530	-60346.4	-12.7616	
Krasnodar Krai	352601.2	374677.7	398693.9	416760.2	-56116.2	-11.867	
Udmurt Republic	341391.7	350598.3	364572.4	417899.1	-54977.3	-11.6261	
Chelyabinsk region	345597.1	363023.3	386862.1	422950.8	-49925.6	-10.5579	
Nizhny Novgorod region	338304.4	356725.8	389339.4	424085.8	-48790.6	-10.3178	
Tula region	316248.5	345117.1	372264.9	428275.7	-44600.7	-9.43179	
Novgorod region	379255.5	396336.2	414521.2	434229.5	-38646.9	-8.17273	
Primorsky Krai	371595.6	383811.3	404747.6	437147.4	-35729	-7.55567	
Khakassia Republic	317763.6	365436.6	386039.4	438326	-34550.4	-7.30643	
Yaroslavl region	348375.7	371537	403037.8	443970.1	-28906.3	-6.11287	
Novosibirsk region	370895.7	377812.4	412480	448658.8	-24217.6	-5.12134	
Karelia Republic	335944.5	368250.2	403076.5	451436.4	-21440	-4.53395	
Kaluga region	336353.9	367867.8	410481.4	461023.2	-11853.2	-2.50662	
Kaliningrad region	359639.7	392825.3	421319.1	461596.7	-11279.7	-2.38534	
Kemerovo region	309904.3	318927.5	391741.4	462495.1	-10381.3	-2.19535	
Samara region	394135.9	396379	421777.2	473772.9	896.4975	0.189584	Lagging Regions
Vologda region	402652.1	402455.1	431059	497039.6	24163.2	5.109834	
Permsky Krai	403601.4	416203.6	453431.5	503818.3	30941.9	6.543337	
Lipetsk region	388074.7	418328.4	439070.1	506054.3	33177.9	7.016188	
Orenburg region	387881.4	384169.7	415322.4	507847.3	34970.9	7.395357	
Sverdlovsk region	421100.7	459812.1	492434.2	527158.5	54282.1	11.47913	
Khabarovsk region	445809.5	470346.9	487222.8	536377.5	63501.1	13.42869	
Tomsk region	438316.5	445485.9	473722.4	537512.2	64635.8	13.66865	
Astrakhan region	315996.9	340398.3	413087.7	544793.4	71917	15.20841	
Moscow region	437249.1	496848.6	506478.2	556413.9	83537.5	17.66582	
Belgorod region	447619.7	469921.6	506167.8	559184.2	86307.8	18.25166	
Irkutsk region	414986.5	442342.2	496425.7	580152.8	107276.4	22.68593	

Leningrad region	478065.2	513307.8	534595.6	603239.7	130363.3	27.56815	
Tatarstan Republic	483509.9	498606.1	550112.4	633708.5	160832.1	34.01144	
Murmansk region	525475.7	568975.6	585780.9	642705.6	169829.2	35.91408	
Arkhangelsk region	532533.7	581651.6	625656.4	712652.7	239776.3	50.70591	Catching-up Regions
Kamchatka Krai	553863.9	624774.2	640877	750407.7	277531.3	58.69003	
Krasnoyarsk Krai	582345.8	608083.3	660393.9	792980.5	320104.1	67.69297	
Komi Republic	613975	641525	680670.8	796759.7	323883.3	68.49217	
Sakha (Yakutia) Republic	780139.8	897460.4	951330	1123114	650237.4	137.5068	
Magadan Region	854561.5	1016643	1082848	1196690	723813.7	153.0661	High Development Regions
Chukotka Autonomous Okrug	1226152	1354368	1376275	1578496	1105620	233.8073	
Tyumen region	1626160	1651996	1897390	2370552	1897675	401.3047	
Sakhalin region	1716734	1536360	1573869	2407929	1935053	409.209	

A total of 79 economic regions were divided into these four groups by the level of economic development: *depressed regions* (where GRP exhibits negative deviation from the Russian average); *lagging regions* (where GRP deviates by 50% from the Russian average); *catching-up regions* (where GRP deviates by 50% to 150% from the Russian average); *high development regions* (where GRP deviates by 150% from the Russian average). High development and catching up regions, those with high and above-average levels of economic development, have distinct productive specializations, the highest industrial outputs, and a better quality of life. In contrast, the lagging regions, those with below-average levels of development, exhibit substantial asymmetry, yet they also show promise for growth and possess mechanisms of self-regulation and adaptation to market changes (Sorokina & Pyankova, 2019). Depressed regions, on the other hand, struggle with significant deficits in resources and thus cannot attract additional investments. To improve their economic situation, these regions seek state assistance and develop industries that can generate more profits in less time.

Each economic region is governed by the subsidiarity principle. Such regional type requires the coordination of municipalities using statistical research, economic analysis, forecasting, and monitoring operations. The level of resource security is inextricably linked to the cyclicity of economic development. In high development and catching-up regions, resource allocation is carried out in a manner that allows achieving a higher level of development. At the same time, the attraction of resources to the region cannot last forever because regions obey the laws of socio-economic development. Reviewing studies by Rau et al. (2018) and Kuklina and Lazareva (2017), we analyzed the process of regional development with respect to life cycle stages and the quantity of resources involved. The results are shown in Figure 1.

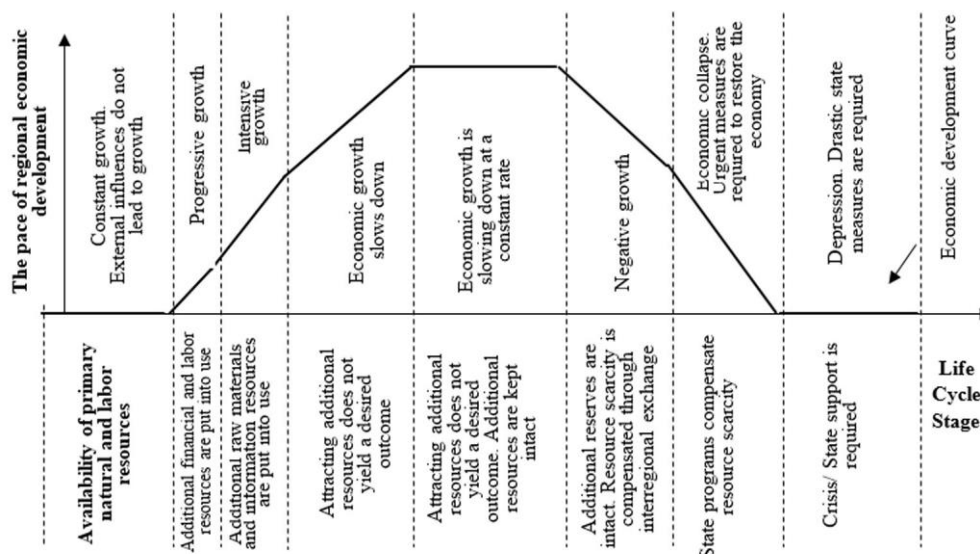


Fig. 1: Factors influencing regional economic development and measures of state regulation, developed by the authors.

Economic growth and economic development require resources, which are neither infinite nor totally interchangeable. This creates barriers to growth, and any intensification of production along with greater consumption may entail resource scarcity. Hence, the faster the region grows, the more likely it will run out of resources, especially if it represents a closed or semi-closed system. At the same time, resources cannot all be depleted at once — they will become limited at some point, and before the shortage can be considered critical, the amount of resources must be reduced to the point that exchangeable resources cannot be stabilized.

There is a minimum quantity of resources required for each region to function and develop effectively. The beginning of the economic cycle is characterized by the sufficient quantity and diversity of resources (Figure 1). The fourth stage of development is characterized by slower economic growth, a situation in which a region may face a challenge of excess resources if it does not rein in its appetite (Pyankova & Sorokina, 2019). Industries have resource requirements that align with their business operations. However, due to the fundamental limitations of the resource base, eventually, at some point in time, markets will be oversaturated with resources, and the region's growth rate will outstrip the growth rate of the resource base.

In general, the resource base fails to keep up with the pace of economic growth due to substantial inertia in technology adoption and greater time demands. The sixth and seventh stages of development provide opportunities to replenish the resources through international exchange, but this source is not always in place, especially when the level of economic development is high. When a region encounters a crisis, it can achieve balance by turning to neighboring regions and international parties, but if the crisis takes place on a global scale, this solution can no longer be an option. The eighth stage of development requires the unconditional state regulation of the regional economy in order to mitigate external threats to the regional resource reserves that may further weaken the economy.

From the discussion above, it appears that regional economic development is cyclical in nature and can be defined through the ratio of resources that fuel economic development. In other words, there is an optimal set of resources required for each region to run their economies without disruptions and achieve effective outcomes. To determine the content of this particular set of resources, the limit for resources in the region

was determined. In this study, the limit for resources refers to the limited range and quantity of resources available for a specific time-bound duration that allow achieving a higher level of development without critical side effects in the long term.

The resulting estimate of the region's resource availability can be considered as an objective outcome forecast for economic development and resource management operations. This approach focuses on the following variables (Table 2): GRP (dependent variable), employment-to-population (E-to-P) ratio, budgetary capacity, natural resource potential, the fixed assets volume, the number of public libraries, newspaper circulation (total papers per 1000 people), and broadcast coverage. These variables (factors) allow building a model to calculate the minimum volume of resources required for a region to be sustainable.

Table 2: Factors affecting resource availability in regions, developed by the authors

Factor	Description	Impact on Dependent Variable	Limitations
Gross Regional Product (GDP)	A dependent variable that measures the total market value of the goods and services produced by a regional economy during a specified period of time	Allows intensifying areas of improvement	The GRP estimate is also influenced by other factors that were not included in the present study.
Employment-to-Population (E-to-P) Ratio	An independent variable that measures the number of people employed against the total working-age population	Allows determining the extent to which the labor force affects the GRP value	More detailed analysis is needed to include the share of the self-employed population and employed volunteers.
Budgetary Capacity	An independent variable that measures the availability of financial resources in a region	Allows establishing whether there is budget depletion and identifying strategic directions for the budget overrun	Due to the increase in the number of resource-deficient regions, additional measures of financial and budgetary regulation are required.
Natural Resource Potential	An independent variable that measures the availability of natural (renewable and non-renewable) resources in a region	Allows identifying available natural resources, determining regional specialization, and detecting growth opportunities	An immediate response to changes in the natural resource potential is hardly possible.
Fixed Assets Volume	An independent variable that measures the availability of raw materials and industrial resources in a region	Allows establishing the relationship between economic growth and industrial waste utilization	The availability of waste utilization services heavily depends on the state regulatory policy. It is not possible to enhance waste utilization immediately.
Number of Public Libraries	Independent variable that measures the availability of information resources in a region	Allows measuring the level of information awareness among citizens, as well as the intensity and speed of information dissemination,	Public libraries demand state funding
Newspaper Circulation			Newspapers have low coverage

Broadcast Coverage		the completeness of the information provided, and information coverage	Media content undergoes filtering
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In real-life economic conditions, the relationship between the examined factors is typically non-linear. The easiest way to present data in this context is to apply a factorial polynomial to the approximated dependent variable. In this case, we assume that there is a linear relationship between the dependent variable and the independent variable. The polynomial model will thus have the following form:

$$Y = f(x) + \varphi \quad (1)$$

where: φ is a random variable that represents an external influence; $f(x)$ is a dependence function; x is the input or the independent variable; and Y is the output or the dependent variable.

Before building a model of state regulation, it is necessary to determine the limit on the quantity of resources required for each region to keep up. Another crucial step in state regulation modeling is the development of mechanisms to boost the effectiveness of entities that run their operations in those regions. For this, selecting a set of regulatory instruments should be based on regional specialization, territorial affiliation, primary resources availability, and their intensity. This technology is based on the analysis of primary and secondary resources that enable to foresee the region's capacity for self-development and identify strategic areas of development. Hence, it can be considered as a tool that helps to achieve more balanced regional development.

The GRP-based analysis revealed regions with varying levels of resource scarcity (Table 1). Of those, the following regions or federal subjects were selected for further analysis (Table 3): the Republic of Ingushetia, the Oryol region, the Kemerovo region, the Samara region, the Moscow region, the Murmansk region, the Arkhangelsk region, the Komi Republic, the Magadan region, the Chukotka Autonomous Okrug, and the Sakhalin region.

Table 3: Input data for regression analysis, adapted from (Federal State Statistics Service, 2019)

Region/Factor	GDP	E-to-P Ratio	Budgetary Capacity	Natural Resource Potential	Working Resource Reserve Volume	Number of Public Libraries	Newspaper Circulation	Broadcast Coverage
	Y	x1	x2	x3	x4	x5	x6	x7
Republic of Ingushetia	112553	53.7	19728.6	90.6	138700	1348	22	6
Oryol region	310357	55	14080.7	93	522013	6337	592	178.3
Kemerovo region	462495	56.1	21772	10.6	2738986	5043	623	488.2
Samara region	473772	61.5	21499.9	83.2	3479558	4313	1179	698.6
Moscow region	556414	65	51905	145.4	8981281	2692	506	1555.3
Murmansk region	642706	63.2	8955.6	200	2043500	7674	540	215.3
Arkhangelsk region	712653	56.2	19492.9	67.6	1392744	6869	2366	261

Komi Republic	796760	59.4	8869	136	3359325	7800	1097	198.4
Magadan region	1196690	69.7	9477.7	82.5	1168547	11838	327	33.4
Chukotka Autonomous Okrug	1578496	75.4	16259.5	59.8	190354	14614	123	5.9
Sakhalin region	2407929	65.8	5409.9	56.2	347962	6157	311	95.5

The results of polynomial regression analysis for each regional category are summarized in Table 4. These values dictate the priority areas of state regulation depending on the region's levels of development. It appears that X_2 (budgetary capacity) and X_4 (fixed assets volume) have the greatest impact on the level of regional economic development or GRP, denoted as Y . The high level of regional development is largely attributed to the generation of fixed assets.

Table 4: The results of regression analysis for each category of economic regions of Russia, developed by the author

Category	Regression
Depressed regions	$Y=576100,1+12,05 \cdot x_1-24,58 \cdot x_2-4402,13 \cdot x_3+0,15 \cdot x_4-127,96 \cdot x_5+225,66 \cdot x_6-233,66 \cdot x_7$
Lagging regions	$Y=515362,3+12,05 \cdot x_1-41,34 \cdot x_2-4402,13 \cdot x_3+0,24 \cdot x_4-127,96 \cdot x_5+225,66 \cdot x_6-233,66 \cdot x_7$
Catching-up regions	$Y=1841023+12,05 \cdot x_1-43,97 \cdot x_2-4402,13 \cdot x_3-0,19 \cdot x_4-127,96 \cdot x_5+225,66 \cdot x_6-233,66 \cdot x_7$
High development regions	$Y=576732,8+12,05 \cdot x_1-35,14 \cdot x_2-4402,13 \cdot x_3+5,26 \cdot x_4-127,96 \cdot x_5+225,66 \cdot x_6-233,66 \cdot x_7$

The framework of state regulation (Figure 2) should include measures aimed at enhancing budgetary and financial regulation, improving material structure, and promoting employment. The reason for undertaking these measures of state regulation may be a situation where a GRP deviates from the Russian average. The present study confirms that organizational changes undertaken to impact economic growth will be effective if they align with both the direction of regional development and regional specialization. The forms of state support for initiatives or projects launched in response to organizational changes, restructuration, expansion, and creation of new industries, can vary.

The financial regulation framework can involve these instruments of state support: sponsorship, interbudgetary transfers, grants, and subsidies, including equity funding, government guarantees, and budgeting loans. The framework for material structure improvement is aimed at balancing functional and spatial development and includes measures to harmonize legislation, stimulate joint territorial development, shape a competitive environment, reduce administrative barriers, and enhance regional self-regulation. Measures to influence employment seek to redistribute resources between sectors with different levels of employment, remove the dominance of rent-oriented behavior, reduce public-sector employment (with the view to promoting the efficient use of labor), enhance labor mobility, and improve immigration attractiveness.

Way to improve resource efficiency revolve around running state research programs, stimulating R&D in the manufacturing industry, consulting on demonstration projects, and instilling innovations. These measures will reduce resource intensity and production costs. However, a reduction of production costs has a proactive effect on increasing consumption, which will outweigh the costs in terms of resource efficiency. Moving from income and consumption taxes to resources taxes may help to counter this effect. Other

solutions may involve changing the technical standards and procurement policies. Measures undertaken to regulate the use of natural resources and land ecosystems are designed to avoid unreasonable impacts on the environment. Carbon taxes can help to prevent deforestation by forcing land users to refrain from releasing carbon emissions. Removing biofuel subsidies will entail the reduction of competition across the country and prevent the rise of food prices.

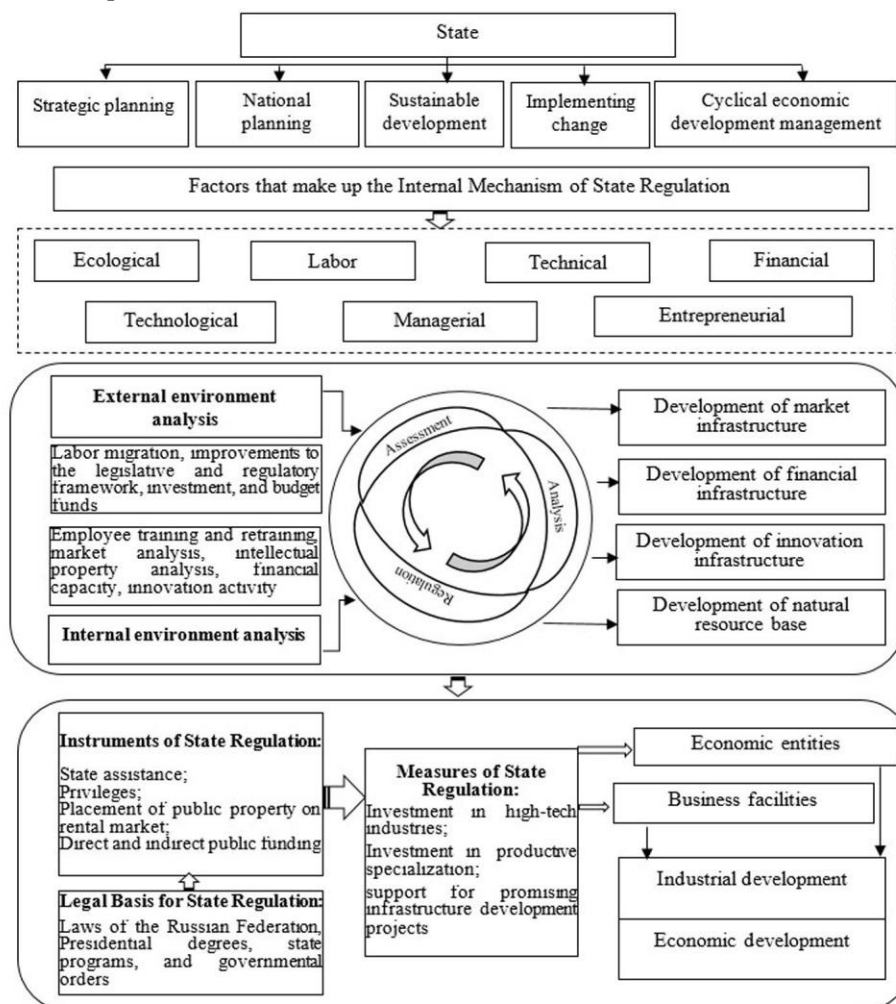


Fig. 2: The state regulation framework to minimize regional resource deficiency, developed by the author.

4. Discussions

Among other things, Russia's development strategy aims at the prevention of structural imbalances and economic harmonization across regions. For this, the concept of resource scarcity was introduced, which determines the process and mechanism of providing the region with resources with the view of achieving the highest efficiency possible.

There are many other indicators besides GRP to analyze regional economic performance. Nasir et al. (2017) measured the potential of local taxes as a source that boosts the original local income, affecting the society and neighboring areas. Zinovyeva et al. (2020) formulated and confirmed a hypothesis that during the

crisis, one should consider economic growth as a tool to manage and reach short-term goals rather than a goal in itself. The volume of innovation financing was regarded as a dependent variable.

The present state regulatory framework for the regional economy (Figure 2) is not limited to the proposed range of instruments and measures. Fabbri et al. (2020) developed a regional resource model in continuous time and identified approaches to counteract the overexploitation of resources through regulating the technological parameters of impact on exploitation. Basu et al. (2020) took microfinance in the household sector as a key instrument of regional development regulation. The analysis was based on statistical data concerning household income, household spending, and capital turnover. Findings revealed a relationship between loan amount and levels of monthly household income, household expenditure, and household savings. Zvyagintseva et al. (2016) devoted their study to the assessment and improvement of the state regulation toolkit using regional development potential and modeled a number of development scenarios with regard to available resources.

To sum up, the existing research into the regional-level resource availability largely concentrates on analyzing or forecasting economic growth and developing instruments of state support. The state regulatory framework proposed in the present study takes into account the full range of regional resources and makes it possible to choose the most effective tools of state support.

5. Conclusions

Regional resource scarcity is a constraining factor in achieving better performance. At the same time, it is closely related to the concept of regional resource availability. The present work substantiates the need for using the concept of regional resource availability to analyze regional performance and develop measures of state support. The need for state support arises when the level of regional development deviates from the established 'ideal' level, and the aim of state support is to prevent further deviation.

The assessment of the regional economic development involves regional differentiation by regional GDP estimates, and the average GRP value across regions was taken as an 'ideal' value. All regions were thus divided into four groups: depressed regions (where GRP exhibits negative deviation), lagging regions (those with a below-average level of development), catching-up regions (those with an above-average level of development), and high development regions. Note that regional resource availability varies between regions depending on territorial affiliation, regional specialization, and the life cycle stage. For this reason, it is necessary to consider individual characteristics of regional development and possibilities for expanding their resource availability. For this, factor analysis was carried out, and the results revealed dependencies of economic development for each category of regions.

The study proposes a set of state support measures with the view to expanding the resource availability of regions with varying levels of economic development. Most attention is given to capital resources, information resources, human resources, and raw materials. However, it appears that state support cannot be established to expand primary natural resources. The region can improve the availability of this type of resource by enhancing environmental protection and pollution control.

Future research will focus on subdividing regions within each category by their territorial affiliation and identifying factors that have a boosting effect on economic growth and development. With this information, the proposed state regulatory framework can be adjusted, and each region will receive a specially designed set of state regulation measures.

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