DAVAO RESEARCH JOURNAL

P-ISSN 2244-4432
E-ISSN 2984-7125

The Relationship of Transaction Costs and Rent Seeking in Capture Fisheries

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ABSTRACT. The capture fisheries sector in Indonesia is expected to have a major contribution to national income. The contribution of capture fisheries to state revenue was U$ 29.44 million compared to the acquisition value of fish production reached U$ 9.67 billion in 2018. Indonesia as rich country of fish in the world suffers low income of capture fisheries whose value is only 0.25% of total national income of nature resources and economic leakage of an average U$ 552.16 billion over last twelve years. The low state revenue and economic leakage in capture fisheries sector suspected is as result of rents seeking behaviour. For predicting rents seeking behaviour, this research applicated transaction costs economy approach. The study aims to reveal relationship between transaction, transaction costs and rents seeking in capture fisheries. The research used SEM (structural equation model) constructed from measured variables (observed) and latent variables (unobserved). Respondents came from 49 government agents (63%), 5 politicians (6%), and 24 people (31%) collected via electronic mail from September to October 2021. The results of this study show that transaction costs have an impact on rents seeking in capture fisheries sector. Of all the estimated variables, there is a significant relationship at the significance level of 0.05 and 0.000 ($p \leq 0.05$).

OPEN ACCESS

Submitted: 20 May 2023
Revised: 15 June 2023
Accepted:15 July 2023
Published: 04 December 2023

https://davaoresearchjournal.ph

Keywords: *capture fisheries, economic leakage. transaction costs, rent seeking*

How to cite: Nugroho, T., Mulyono, Damanhuri, D. S., Lubis, E. (2023). The Relationship Of Transaction Costs And Rent Seeking In Capture Fisheries. Davao Research Journal (DRJ), 14(2), 30-49. https://doi.org/10.59120/drj.v14i2.110

INTRODUCTION

Capture fisheries have played an important role in Indonesia's history of fisheries development. As a strategic sector, capture fisheries provide employment for 0.96 million fisheries households BPS, 2019) and fulfill food needs, especially animal protein from fish, for the Indonesian people and the world community. Indonesia is also known as the second largest fish-producing country in the world after China, with capture fisheries production of 6.1 million tons or 7.71% of the total world capture fisheries production (FAO, 2018).

The development of capture fisheries has enhanced rapidly in line with changes in the orientation of the national economic development policy placed maritime affairs and fisheries as an economic sector under the Ministry of Maritime Affairs and Fisheries (MMAF). During the early reform period, capture fisheries resources were expected to enhance contribution to the national income from U$ 37.43 million in 1999 to equal the revenue of national catch fish production (Ministry of inance of the Republic of Indonesia, 2001 and Ministry of Finance of Republic of Indonesia, 2021).

To fulfill these expectations, the government, through various policies, has made improvements ¬and effectiveness in utilizing capture fishery resources and public services, including monitoring and overcoming illegal fishing activities in Indonesian waters. The main objective is to maximize the economic benefits of capturing fisheries resources to significantly contribute to state revenues and increase welfare. However, untilnow, state revenue from capture fisheries is still very low, and it is not meet public expectations (Ministry of Finance of the Republic of Indonesia, 2017).

The contribution of the capture fisheries sector to state revenues during more than two decades of reform era has neverexceeded 1.00% of total natural resource revenues. Its contribution had sharply declined from U$ 33.09 million or 0.34% in 2004 to U$ 6.75 million or 0.03% in 2008. Even though state revenue from capture fishery had increased from U$ 25.60 million or 0.53% in 2016 to U$ 29.44 million or 0.24% in 2018, this revenue had seen very small compared to the acquisition value of fish production reaching U$ 9.67 billion with volume 7.2 million tonnes in 2018 (Ministry of Maritime Affairs and Fisheries, 2019).

Such conditions require attention, namely what causes it is and how to overcome it. From a political economy perspective, management and of capture fisheries resources have confronted social realities concerning the attitude of actors regarding their preferences and interests. The rational actions of individual actors and groups have been involved in the management of capture fisheries resources to be a center of attention in political economy. Political economics is an instrument or tool for studying the role of the state and market, which concerns dimensions of politics and power, as well as the reciprocal relationship between aspects of processes, political institutions, and power with activities and economic output to address development issues (Damanhuri, 2010).

The low state revenue from capture fisheries predicted results from rent-seeking activities, namely the behavior or rational actions of communities. In this case, interest groups, who seek to take advantage of government regulations, pursue maximum economic benefits by spending resources or costs for lobbying, political activities, bribing, and other activities. Transaction costs in the form of bribes or rewards given by employers to bureaucrats to obtain preferential treatment or convenience and permits are forms of rents seeking and bureaucratic corruption.

Likewise, government agents' taken advantage of regulatory or policy loopholes for personal gain are rents seeking practices as well. These rents seeking behavior causes harm to society because it distorts the allocation of resources and makes an

inefficient economy. Rents-seeking behavior is a problem in society related to perceptions, values, and culture to win the competition and gets rents from regulations, discretions, and government decisionmaking.

Capture fisheries resources in various economic literature focus on biological resources (Anderson and Seijo, 2010) whose main products are various aquatic biota obtained in nature by being caught in inland waters and sea. Fish are a common pool resource that characterizes open access and non-exclusive, meaning every individual, without exception, can take it freely in nature and compete with others hunting it. The absence of property rights fully implemented, as well as the dynamic level of mobility of fish resources in space and time and the presence of free riders, result in inefficient resource allocation arrangements that cause social losses (Magrath, 1989 and Ostrom, 1994).

The existence of capture fisheries is believed to be able to give prosperity and accelerate economic growth due to the trend of increasing demand for global fishery commodities. However, empirical experience shows that countries with abundant fish resources, such as Indonesia, have a lower degree of prosperity compared to their trading partner countries (Acar, 2017), such as Europe, America, and Japan, as poor countries in fish resources. Indonesia is a country rich in fish resources. Still, its economic development suffers low performance in the fishing sector due to rents seeking behavior, in addition to the global fluctuated market (Torvik, 2009).

Transaction cost study in environmental policy arises due to market failure (Williamson, 1985 and Coggan et al., 2010). Inefficiencies in neo classical economics can occur not only due to imperfect market structures but also due to the emergence of transaction costs (Yeager, 1999 and Yustika, 2013). Exchange or trade does not occur without transaction costs. Transaction costs are the cost of negotiating, measuring, and executing in the process of exchanging or trading (Yeager, 1999). The transaction costs approach is used to study institutional economics that addresses transactions as a unit of analysis and to recognize that transaction costs are a major concern in studying organizations (Williamson, 1981).

Transaction costs in capture fisheries encourage the emergence of rents seeking. Rents-seeking theory derived from the basic concept of public choice and distribution of income help examines the behavior of private actors, politicians, bureaucrats, and interest groups who require policy and expenditure to achieve personal gain and their own interests (Yustika, 2013). Rents referred in this study is an economic benefit derived not from the competitive market or productive economic activity. However, it is economic benefits derived through hunting and creation of public policy (Hillman, 2009).

This study aims to reveal the relationship between transaction characteristics, transaction costs, and rents seeking in capture fisheries and related to low state revenue and economic leakage. The construction of the issue and problem of this study is the existence of rational actions from government agents, including politicians who involve as policy makers, as well as interest groups in the capture fisheries community, especially business actors who seek to take advantage of government regulations getting maximum profit in the capture fisheries se tor. The interaction between government agents and private actors as interest groups build transactions for obtaining information and convenience-induced transaction costs in the forms of lobbying, reward, and even corruption.

Transaction costs observed in research related to public policy involve research, collecting data and information, and analyzing related to the problem of fishing regulation encountered. It follows variables developed by McCann et al. (2005). It encompasses the dynamic of changed regulations, such as modifying, monitoring, and complying with regulations.

DOI: https://doi.org/10.59120/drj.v14i2.110

METHODOLOGY

This study used primary data, namely transaction costs variable obtained through a questionnaire distributed and collected via electronic mail (e-mail) during the period September to October 2021. The sample observed represented government officials, politicians, and citizens whose work related to the capture fisheries sector. The number of samples was determined according to the research needs, namely 77 respondents (n=77) consisting of 49 apparatuses (63%), 5 politicians (6%), and 24 people (31%) from the public. The observed respondents are located in three regions in Indonesia, namely 5% in the western, 17% in the eastern, and 7% in the central. Rents-seeking behavior observed used transaction variables, including transaction costs and characteristics of the transaction.

Transaction costs variable used follows McCann et al. (2005), namely research and information, enactment, making and designing regulation, implementatiwon, supporting program and administration, contracting, monitoring, and detecting, as well as prosecution and law enforcement. In contrast, characteristics of transaction observed are actors who are interestgroups from the element of policy administration, private sector, and community with individual attributes such as trust, risky behavior, uncertainty, frequency, asset specificity, motivation, and network (Satria, 2015).

DATA ANALYSIS

Rents-seeking behavior and actors analyzed used the transaction cost approach. Factors analyzed were transaction cost components, namely research and information (X_1), enactment and making regulation (X_2), design and implementation (X_3), supporting program and administration (X_4), contracting (X_5), monitoring and detection (X_6), and prosecution and law enforcement (X_7). Rents-seeking behavior was analyzed using the transaction costs approach originating from respondents. This study uses variables of characteristics of transaction, transaction costs, and rent seeking. Interaction inters variables investigated used SEM (structural equation model) constructed from measured (observed) and latent (unobserved) variables. Assumptions using the SEM model are observed variables, latent variables are normally distributed, and the sample size is at least 50 (Byrne, 2010).

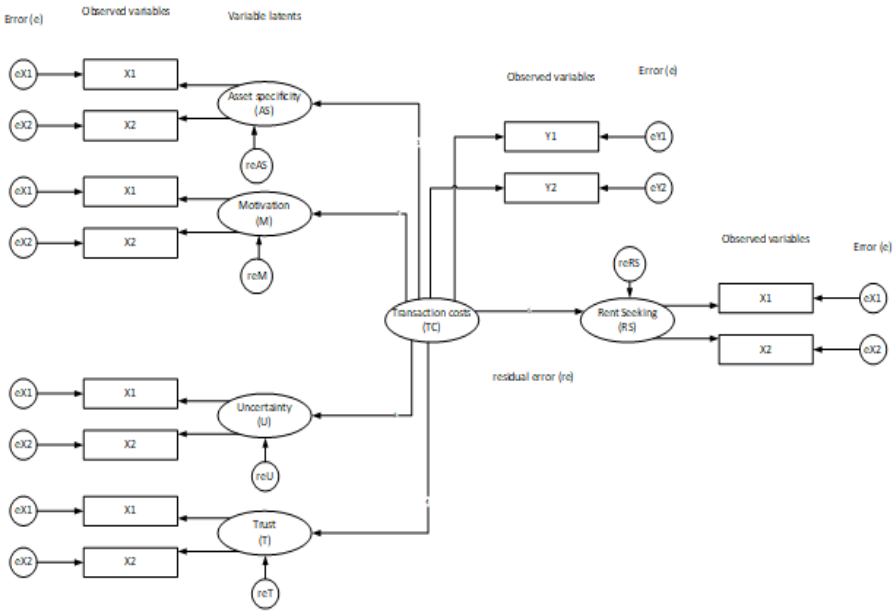

Figure 1. The framework used in the structural equation model.

The construction of SEM model is built on the theory of transaction costs to reveal the relationship between transaction characteristics, transaction costs, and rent seeking. Transaction characteristics encompass asset specificity, motivation, uncertainty, and trust as dependent variables that affect transaction costs. At the same time, transaction costs are an independent variable that affects rents seeking. A framework of the model used is seen in Figure 1.

Refering the Figure 1, the variables used consist of measured (observed) variables and hidden (unobserved/latent) variables. The measured variables are indicators of transaction costs, transaction characteristics, and rent-seeking. In contrast, latent variables are variables that are not measured directly but measured through their variable indicators. The fourth variables located on the left side of Figure 1 are asset specificity, motivation, uncertainty, and trust. All of them are latent variables. Likewise, transaction costs on the center and rents seeking on the right side are also latent variables. The last, the symbol of X1 and X2, illustrates indicators of dependent and latent variables. At the same time, Y1 and Y2 describe indicators of independent and latent variables. The symbol of e is the measurement error of indicators defined as an independent variable as well. Likewise, the measurement error of the latent variable is defined as a residual error (re). Then, numbers written on the line in the Figure show the number of relationships inter latent variables.

RESULTS

This study found the model of the relationship between transaction costs and rents seeking in capture fisheries. The model obtained has 69 variables, including 26 observed variables, 43 latent variables, 35 exogenous variables, and 34 endogenous variables. The variables of the model as presented in Table 1.

Table 1. The variables in the model of the relationship between transaction costs and rents seeking

No	Code of variables	Information	Construct of variable
A	Observed endogenous variables		
1	BT2	transaction costs of enactment regulation	It is a dependent variable means apparatus improves regulation, encompass public consultation, hiring, collecting information, audit, contract, etc.
2	BT3	transaction costs of policy implementation	It is dependent variable meant apparatus and private actors implement regulation.
3	BT5	transaction costs of monitoring	It is dependent variable meant apparatus and private actors monitor regulation covers compliance supervision to regulation.
4	BT6	transaction costs of prosecution	It is dependent variable meant apparatus enforce

DOI: https://doi.org/10.59120/drj.v14i2.110

			rules and private actors comply laws.
5	PR4	rents seeking of assistance for fishermen	It is dependent variable meant apparatus administrate and observe subsidies.
6	PR5	rents seeking of licensing and supervision	It is dependent variable meant apparatus distribute and monitor lisences.
7	KA1	interest of actor gain legally	It is dependent variable meant interest of groups to pursue gains legally.
8	KA2	interest of actor gain illegally	It is dependent variable meant interest of groups to pursue gains illegally.
9	K1	trust to take gain	It is dependent variable meant apparatus trust to take benefits.
10	K2	trust to give special attention to certain business actor	It is dependent variable meant apparatus trust to give special attention to private actors.
11	U1	uncertainty of regulation (regulation may be changed)	It is dependent variable meant uncertainty of regulation covers regulation changed following political orientation.
12	U2	uncertainty of technical instructions (unpublished technical manual)	It is dependent variable meant uncertainty of technical instructions due to unpublished.
13	U3	uncertainty of SOP (standard operational procedure can be changed)	It is dependent variable meant uncertainty of standard operational procedure due to changeable.
14	U4	uncertainty of regulatory application (abandonment)	It is dependent variable meant uncertainty due to abandoment regulation.
15	U6	uncertainty of service time (uncertain service completion time)	It is dependent variable meant uncertainty due to different time of completion services.
16	M2	motivation fulfills its own interest	It is dependent variable meant motivation of interest group to reach own interest
17	M3	motivation to benefit from regulation	It is dependent variable meant motivation of interest groups to benefit from regulation.

18	SA2	specificity asset of issuing document/letter	It is dependent variable meant specificity asset of public services for issuing document/letter.
19	SA3	specificity asset of issuing recommendation	It is dependent variable meant specificity asset of public services to issuing recomendation.
20	SA4	specificity asset of consulting service	It is dependent variable meant specificity asset of public services for consultation.
21	SA5	specificity asset of issuing certificate	It is dependent variable meant specificity asset of public services for issuing certificate.
22	SA8	specificity asset of transmitter and fishing vessel monitoring	It is dependent variable meant specificity asset of public services for transmitter and fishing vessel monitoring.
23	SA10	specificity asset of fisherman protection	It is dependent variable meant specificity asset of public services to protect fishermen
24	SAE3	specificity asset of enforcement prior to arrest	It is dependent variable meant specificity asset of enforcement regulation covers manipulation document.
25	SAE2	specificity asset of enforcement at time of arrest	It is dependent variable meant specificity asset of enforcement regulation encompass fishing offence.
26	SAE1	specificity asset of enforcement to post-arrest	It is dependent variable meant specificity asset of enforcement regulation cover manipulation log-book and transhipment.
B.	Unmeasured endogenous variables		
1	PR	Rents seeking	It is dependent and lattent variable meant has two lattent and relective variables namely TBK and KA. PR is formed from four lattent variables namely BT, K, U, and M.
2	TBK	risky actions of corruption	It is dependent and latent variable meant has two reflective variables namely PR4 and PR5

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3	KA	interest of actor	It is dependent and latent variable meant has two reflective variables namely KA1 and KA2
4	K	trust	It is dependent and lattent variable meant has two relective variables namely K1, and K2. K connects with BT as well.
5	U	uncertainty	It is dependent and lattent variable meant has five relective variables namely U1, U2, U3, U4, and U6. U is formed from two lattent variables namely K, BT.
6	M	motivation	It is dependent and lattent variable meant has two relective variables namely M2, and M3. M is formed from three lattent variables namely BT, K, and U.
7	SA	specificity assets	It is dependent and latent variable meant has six relective variables namely SA2,SA3,SA4,SA5,SA8, and SA10
8	SAE	specificity assets under enforcement	It is dependent and latent variable meant has three reflective variables namely SAE1,SAE2, and SAE3
C.	Unmeasured exogenous variables		
1	BT	transaction costs	It is independent and lattent variable meant has four relective variables namely BT2, BT3, BT5, and BT6. BT also forms from six lattent variablesnamely PR, M, SAE, U, K, and SA.
2	e2	second variable error	It is independent variable described error of measured variable of BT2.
3	e3	third variable error	It is independent variable described error of measured variable of BT3.
4	e5	fifth variable error	It is independent variable described error of measured variable of BT5.
5	e6	sixth variable error	It is independent variable described error of measured variable of BT6.
6	e8	eighth variable error	It is independent variable described error of measured variable of SA2.

7	e9	ninth variable error	It is independent variable described error of measured variable of SA3.
8	e10	10th variable error	It is independent variable described error of measured variable of SA4.
9	e11	11th variable error	It is independent variable described error of measured variable of SA5.
10	e14	14th variable error	It is independent variable described error of measured variable of SA8.
11	e16	16th variable error	It is independent variable described error of measured variable of SA10.
12	e23	23rd variable error	It is independent variable described error of measured variable of U1.
13	e24	24th variable error	It is independent variable described error of measured variable of U2.
14	e25	25th variable error	It is independent variable described error of measured variable of U3.
15	e26	26th variable error	It is independent variable described error of measured variable of U4.
16	e28	28th variable error	It is independent variable described error of measured variable of U6.
17	e29	29th variable error	It is independent variable described error of measured variable of SAE1.
18	e30	30th variable error	It is independent variable described error of measured variable of SAE2.
19	e31	31st variable error	It is independent variable described error of measured variable of SAE3.
20	e32	32nd variable error	It is independent variable described error of measured variable of M2.
21	e33	33rd variable error	It is independent variable described error of measured variable of M3.
22	e35	35th variable error	It is independent variable described error of measured variable of

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			PR4.
23	e36	36th variable error	It is independent variable described error of measured variable of PR5.
24	e39	39th variable error	It is independent variable described error of measured variable of K2.
25	e40	40th variable error	It is independent variable described error of measured variable of K1.
26	e43	43rd variable error	It is independent variable described error of measured variable of KA1.
27	e44	44th variable error	It is independent variable described error of measured variable of KA2.
28	z1	residual error of first variable	It is independent variable described residual error of unmeasured variable of SA.
29	z2	residual error of second variable	It is independent variable described residual error of unmeasured variable of K.
30	z4	residual error of the fourth variable	It is independent variable described residual error of unmeasured variable of U.
31	z5	residual error of the fifth variable	It is independent variable described residual error of unmeasured variable of SAE.
32	z6	residual error of sixth variable	It is independent variable described residual error of unmeasured variable of M.
33	z8	residual error of eighth variable	It is an independent variable described as residual error of theunmeasured variable of TBK.
34	z9	residual error of ninth variable	It is an independent variable described residual error of unmeasured variable of KA.
35	z10	residual error of tenth variable	It is independent variable described residual error of unmeasured variable of PR.

a. Model estimation

The model found that this study has produced 40 estimated values of regression weights and showed the relationship between observed variables. This showed by the z value (tcount) or the critical ratio (CR) of observed variables within limits of the CR value (tcount) > 1.96. Construction of the obtained model that shows the relationship between transaction costs and rent seeking is seen in Figure 2.

The model obtained shows a relationship between transaction costs variables and rents seeking variables at a significance level of 0.05 and 0.000 ($p \leq 0.05$). The constructs of transaction costs and rent-seeking have high validity above recommended value. The validity of the construct of transaction costs seen from the reliability of theconstruct of BT calculated is at 0.89. Likewise, the reliability of the rent-seeking (PR) construct calculated is at 0.79.

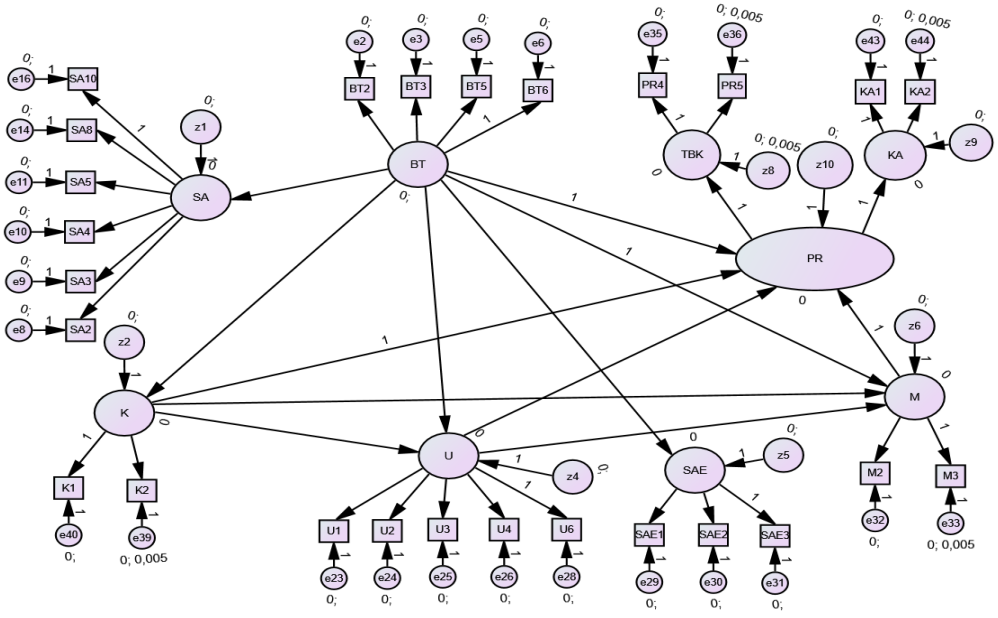

Figure 1. Relationship model of transacton costs and rent seeking.

Both the constructs of either BT or PR are greater than the recommended value of construct validity ≥of 0.70. The BT and PR constructs have high discriminant validity, which is 0.82, above the correlation value of the two constructs, which is 0.35 (Haryono and Wardoyo, 2015; Jr et al., 2019). Construct validity describes the consistency of the value of measured latent variables. Discriminant validity shows that the BT construct is different from the PR construct. The significance level of relationship between observed variables is presented in Table 2.

Table 2. The significance of the regression weights between transaction characteristics, transaction costs, and rents seeking variables.

No.	Observed variables		Estimation	SE	CR	P
1 K	<---	BT	-0.43	0.16	-2.64	0,008
2 U	<---	BT	-0.87	0.39	-2.24	0,025
3 U	<---	K	1.93	0.45	4,31	0.000
4 M	<---	BT	1.00			
5 M	<---	K	1,13	0.37	3,10	0,002

DOI: https://doi.org/10.59120/drj.v14i2.110

6	M	<---	U	0.29	0.11	2.68	0,007
7	PR	<---	BT	1.00			
8	PR	<---	K	1.00			
9	PR	<---	M	1.00			
10	PR	<---	U	-0.61	0.12	-4.93	0.000
11	TBK	<---	PR	1.00			
12	KA	<---	PR	1.00			
13	SA	<---	BT	0.52	0.24	2,16	0,031
14	SAE	<---	BT	0.90	0.43	2.09	0,037
15	SA2	<---	SA	2.97	0.30	10.02	0.000
16	SA3	<---	SA	2.08	0.20	10.34	0.000
17	SA4	<---	SA	1.70	0.17	9,92	0.000
18	SA5	<---	SA	4,34	0.42	10.46	0.000
19	SAE3	<---	SAE	1.00			
20	SAE2	<---	SAE	2,14	0.12	17,66	0.000
21	SAE1	<---	SAE	1.79	0.11	16.78	0.000
22	BT3	<---	BT	4.66	0.84	5.56	0.000
23	BT5	<---	BT	2.50	0.41	6.05	0.000
24	U6	<---	U	1.00			
25	U4	<---	U	0.72	0.07	9,66	0.000
26	U3	<---	U	0.90	0.09	9.98	0.000
27	M3	<---	M	1.00			
28	M2	<---	M	1.03	0.08	13,43	0.000
29	U2	<---	U	1.01	0.11	9.49	0.000
30	U1	<---	U	1.08	0.13	8.33	0.000
31	SA8	<---	SA	2.25	0.24	9.39	0.000
32	SA10	<---	SA	1.00			
33	BT6	<---	BT	1.00			
34	PR4	<---	TBK	1.00			
35	PR5	<---	TBK	1.03	0.06	18.78	0.000
36	K2	<---	K	4,44	0.72	6,21	0.000
37	K1	<---	K	1.00			
38	KA1	<---	KA	1.00			
39	KA2	<---	KA	1,12	0.06	18,15	0.000
40	BT2	<---	BT	3.52	0.61	5.75	0.000

The result of the obtained model shows that transaction and transaction costs affect rent-seeking behavior in capture fisheries. Characteristics of transactions that influence rents seeking are trust, uncertainty, and motivation. Likewise, rent-seeking behavior itself affects actions and interest actors carrying out their duties can gain from their position legally or illegally. The model found produces 40 regression weights with 34 coefficients of determination (squared multiple correlation). The value of the coefficient of determination (r^2) obtainedranges from 0.07-1.00. Value of the Chi-square generated is 502.84 with a degree of freedom of 295 and probability level of 0.000. Reliability of the model result is seen from the significant value of Chi-square (x^2), namely the Chi-square divided by degree of freedom (CMIN/DF) resulted is 1.71 or less than two (<2). Reliability of the model is also indicated by values, namely RMSEA (root mean square error of approximation) 0.096 or close to the recommended value in the range of 0.05-0.08; TLI (Tucker-Lewis index) ≥0.90; and NFI (normed fit index) 0.8 or close to value at ≥0.9. The regression weights resulting from the formed model are presented in Table 3.

Table 3. Standardized regression weights for the relationship between transaction characteristics, transaction costs, and rent-seeking.

No			Estimates		
			Observed variables	**Regression weights**	**r^2**
1	KUBT	<---	BT	-0.36	0.13
2	KUBT	<---	BT	-0.23	0.53
3	KUK	<---	K	0.61	0.53
4	KUMBT	<---	BT	0.33	0.44
5	KUMK	<---	K	0.45	0.44
6	KUMU	<---	U	0.36	0.44
7	KUPRBT	<---	BT	0.21	0.52
8	KUPRK	<---	K	0.26	0.52
9	KUPRM	<---	M	0.65	0.52
10	KUPRU	<---	U	-0.49	0.52
11	KUPRTBPR	<---	PR	1.00	1.00
12	KUKKASPR	<---	PR	0.59	0.35
13	KUASBT	<---	BT	0.27	0.07
14	KUASAESBT	<---	BT	0.26	0.07
15	KUSA2SA	<---	SA	0.95	0.90
16	KUSA3SA	<---	SA	0.97	0.94
17	KUSA4SA	<---	SA	0.94	0.89
18	KUSA5SA	<---	SA	0.98	0.95
19	KUSAE3SAE	<---	SAE	0.93	0.86
20	KUSAE2SAE	<---	SAE	0.97	0.95
21	KUSAE1SAE	<---	SAE	0.96	0.92

DOI: https://doi.org/10.59120/drj.v14i2.110

22	T3	<---	BT	0.84	0.71
23	BT5	<---	BT	0.92	0.85
24	U6	<---	U	0.80	0.65
25	U4	<---	U	0.91	0.82
26	U3	<---	U	0.93	0.87
27	M3	<---	M	1.00	1.00
28	M2	<---	M	0.86	0.75
29	U2	<---	U	0.90	0.80
30	U1	<---	U	0.82	0.68
31	SA8	<---	SA	0.91	0.82
32	SA10	<---	SA	0.78	0.61
33	BT6	<---	BT	0.59	0.35
34	PR4	<---	TBK	0.98	0.96
35	PR5	<---	TBK	1.00	1.00
36	K2	<---	K	1.00	1.00
37	K1	<---	K	0.59	0.35
38	KA1	<---	KA	0.93	0.87
39	KA2	<---	KA	1.00	1.00
40	BT2	<---	BT	0.89	0.79

From a value of Regression Weights obtained formed, 34 regression equations showed a relationship between transaction costs and rent-seeking. The regression equations obtained is:

Table 4. The 34 regression weight values of transactions cost and rent seeking.

PR	=		0.21E	+	0.26K + 0.65M - 0.49U	(1)
TBK	=		PR		.....	(2)
PR4	=	6,14+	0.98TBK		.....	(3)
PR5	=	5.91+	TBK		.....	(4)
KA	=		0.59PR		.....	(5)
KA1	=	16.51+	0.93KA		.....	(6)
KA2	=	10.82+	KA		.....	(7)
BT2	=	22,14+	0.89BT		.....	(8)
BT3	=	34.48+	0.84BT		.....	(9)
BT5	=	13.70+	0.92BT		.....	(10)
BT6	=	9.00+	0.59BT		.....	(11)
K	=		-0.36BT		.....	(12)
K2	=	17.30+	K		.....	(13)
K1	=	10.77+	0.59K		.....	(14)
U	=		0.61K	-	0.23BT	(15)
U1	=	17.40+	0.82U		.....	(16)
U2	=	8.87+	0.90U		.....	(17)
U3	=	9.23+	0.93U		.....	(18)
U4	=	6.09+	0.91U		.....	(19)
U6	=	9.39+	0.80U		.....	(20)
M	=		0.33BT	+	0.45K + 0.36U	(21)
M2	=	10.08+	0.86M		.....	(22)
M3	=	6,23+	M		.....	(23)
SA	=		0.27BT		.....	(24)
SA2	=	18.91+	0.95SA		.....	(25)
SA3	=	12,20+	0.97SA		.....	(26)
SA4	=	9.05+	0.94SA		.....	(27)
SA5	=	24,40+	0.98SA		.....	(28)
SA8	=	11.68+	0.91SA		.....	(29)
SA10	=	5.74+	0.78SA		.....	(30)
SAE	=		0.26BT		.....	(31)
SAE1	=	14.87+	0.96SAE		.....	(32)
SAE2	=	18.52+	0.97SAE		.....	(33)
SAE3	=	9.47+	0.93SAE		.....	(34)

From the structural equations model formed, known transaction costs have an impact on the 34 observed parameters (Table 4). The greatest impact of transaction costs on monitoring the implementation of regulations and policies (BT5) is 0.92 (Table 5). Actions related to the enactment of regulations (BT2) which is a reflective indicator influenced by transaction costs of 0.89. While actions to ensure the regulation runs on policy implementation represent reflective actions resulting from transaction costs of 0.84. Furthermore, prosecution of law violations in capture fisheries (BT6) is affected by transaction costs of 0.59.

Table 5. The total impact of transaction costs on rents seeking in capture fisheries.

Total impact of transaction costs	
Rents seeking (PR)	0.35
Enforcement of regulation (BT2)	0.89
Policy implementation (BT3)	0.84
Monitoring of policy implementation (BT5)	0.92
Prosecution of rule breakers (BT6)	0.59

DOI: https://doi.org/10.59120/drj.v14i2.110

Results of this study also show that the total impact represented a correlation between transaction costs correlates and rent-seeking of 0.35 (Table 5). According to the 34th of equations of regression found in this research, then it used the predicted potential of economic leakage in capture fisheries due to transaction costs and rents seeking. The potential for economic leakage in capture fisheries is estimated to be an average of U$ 552.16 billion over the last twelve years, as seen in Table 6.

Table 6. Growth of GDP and economic leakage in capture fisheries.

Years	Growth of GDP of capture fisheries (%)	Contribution state revenue of capture fisheries to total state revenue of nature resources (%)	Potential of ecnomic leakage in capture fisheries (U$ billion)
2010	6.04	0.05	464.41
2011	7.65	0.08	259.14
2012	6.29	0.09	518.47
2013	7.24	0.10	294.62
2014	7.35	0.09	301.38
2015	7.89	0.07	201.31
2016	5.19	0.53	614.99
2017	5.70	0.42	569.00
2018	5.19	0.24	664.17
2019	5.73	0.32	618.59
2020	0.73	0.59	1,480.23
2021	5.45	0.45	639.55
Average	5.87	0.25	552.16

DISCUSSION

Capture fisheries as a potential economic sector has characteristics of utility colored by transaction costs because people in the world need to consume fish products. There is an important economic scale and space at various levels of demand, and the investment is characterized by a high level of physical specifications and investment risks (Spiller, 2010; Spiller, 2013).

Rents seeking in this research seen is from characteristics of actions of government agents and players of the fishing industry as interested groups, as well as various transactions related to obligations of government agents to carry out their duties, powers, and discretions. Regulators' behavior in the capture fisheries sector observed is regarding their interests in making and evaluating regulations. Acts for making, changing, and improving policy cost money and create rents. In this study, transaction costs observed relate to the enactment and implementation of regulation, monitoring, prosecution, and law enforcement in capture fisheries.

The construction of the model in Figure 2 explains six formative indicators that affect transaction costs, including trust, uncertainty, motivation, the specificity of public service assets, specificity of prosecution and law enforcement, and rent-seeking. Besides that, the individual model of transaction costs depends on four reflective indicators. First, it represents a source of transaction costs involved enactment of regulations related to capturing fisheries-covered authority to make improvements in regulationand policy based on the results of monitoring and auditing of supporting infrastructure. Besides that, it is reviewing and adjusting regulations and policies, collecting information to support legal processes, audits, monitoring the implementation of regulation and policy, and making changes during the legalization and enforcement of regulation. Meanwhile, business actors adapt enforcement of regulation, as well as looking for partners in trade cooperation and reviewing necessary contracts and cooperation triggered by public policy.

The second indicator of transaction

costs related to regulation and policy implementation includes authorities providing directions during legalization, implementation, allocation permits, and verifying contracts and agreements, assessing application submissions, auditing service processes, storing data and reports, and interpreting regulation and policy.

Likewise, business actors study the mechanism of implementation regulation and policy to understand the procedures for submitting requests for public services in different conditions due to changing and policies, carrying out monitoring, following rules and legal processes, lobbying individuals from institutions that support or oppose new regulation and policy by meetings and other actions. In addition, business actors usually wait for the finalization of regulation, including amendments, and clarify actions that are permitted. These include actions of negotiating and completing public contracts and agreements, making requests of public service applications, search and storing necessary information.

The third indicator of transaction costs encompasses monitoring regulation, the covered authority of the agent to plan, implement, and supervise the use of the government budget, to conduct compliance audits, and reports on the effectiveness of implementation of regulation. While business actors usually need to present data and monitor compliance with the implementation of regulations. Furthermore, the fourth indicator of source of transaction costs cover enforcement and prosecution, including the authority of apparatus to carry out legal actions and judicial process, as well as business actors, compliance with laws, and paying penalties and other legal costs.

Although much of the economic literature explains that underdevelopment and slowness of economic development are caused by market failures whose roots come from transaction costs (Todorova, 2015), it is still rare to study the relationship between transaction costs and rents seeking which contributes to explaining market failures in the capture fisheries sector. The results of this study strengthen and convince that transaction costs have a close relationship with rents seeking behavior. The structural equation model found in this study reveals that transaction costs have a significant relationship with rents seeking activities. The model shows transactional opportunist actions of economic actors really existin the capture fisheries sector.

This study's results convinced that the root cause of low state revenue in the capture fisheries sector are high transaction costs and rent-seeking. This situation has induced the performance of management and utilization of capture fisheries resources in Indonesia. Development of the capture fisheries sector has not been properly designed to achieve better conditions and faced formidable challenges in overcoming problems of inefficient resource allocation and governance as a result of transaction costs and rents seeking.

From the structural equations model obtained known that transaction costs (BT), trust (K), uncertainty (U), and motivation (M) affect rent seeking (PR) (Table 3). Transaction costs positively affect rent seeking with a coefficient (standardized) of 0.21. It means that an increase of 100 transaction costs increases 21 rents seeking. Likewise, trust and motivation have a positive effect with a coefficient (standardized) of 0.26 and 0.65, respectively. While uncertainty has a negative effect on rents seeking with a coefficient (standardized) -0.49, meaning that an increase of 100% certainty will increase 49% rents seeking.

The structural equations model found out also explains the comparison of the value of rents-seeking and transaction costs in capture fisheries in Indonesia is one PR compared to 0.35 BT. This means the value of transaction costs in capture fisheries is 2.86 times that of rents seeking. Transaction costs economy triggered actions underlain by dynamics of government regulations in the capture fisheries sector encompass enactment, implementation,

DOI: https://doi.org/10.59120/drj.v14i2.110

monitoring, enforcement, and prosecution.

Enactment of regulations encourages government officials to make improvements through trials, public consultations, training, and developing mechanisms and procedures; it also encompasses reviewing and adjusting regulations, auditing and monitoring the implementation of regulations, make changes and improvements during legalization and enforcement of policy. In comparison, business actors seek cooperation partners and review necessary contracts of cooperation. Transaction costs arisine from actions related to enforcing regulation have an impact on rents seeking is 0.89 (Table 4).

Likewise, policy implementation encourages actions of apparatus involved in providing guidance, allocating permits, arranging and verifying contracts and cooperation; assessing application submissions and services, and interpreting regulation and policy. Besides that, business actors also try to understand the procedures for requesting public services under different conditions due to policy changes, lobbying individuals from institutions that support or oppose policy changes with meetings; clarifying actions allowed; negotiating and completing contract and cooperation agreements; and making requests for services with required data and reports. Transaction costs as consequence of opportunistic actions of actors to secure their interests in policy implementation have an impact on rents seeking of 0.84.

In addition, monitoring the implementation of policy encourages actions of officials to plan, implement and supervise using government budget; and do complianceaudits and reporting on the effectiveness of policy implementation. While business actors also monitor and comply with the monitoring process of policy implementation. Transaction costs arisen from opportunistic actions in the prosecution of law violations in capture fisheries have an impact on rents seeking by 0.59.

Commitments of the government to evaluate and improve policy by changing and replacing regulations do not always solve problems of development (Chiles and McMackin, 1996) in the capture fisheries sector. By contrast, the issuance of new regulation whose purpose, for example, is to provide fishing permits and quotas to fishermen raise the risk of encouraging rent seeking (Bergfjord and Brandt, 2010), which is the source of market failure due to high transaction costs (Todorova, 2015). In another part of the thorough research, authors also found out transaction costs from the model are U$ 1,577.59 billion, with rents seeking which is an equivalent potential of economic leakage in capture fisheries, namely an average U$ 552.16 billion, over the last 12 years (Table 5). In the same period, the value is very high that is equivalent for an average 0.74 of total gross national income.

Results of this study indicate that problems of externalities in the development of the fishing sector, such as declining ecosystem conditions and stocks of fish resources, low state from capture fisheries, and the slow development of fishing ports (Scarpello, 2020), are political, economic problems associated with high transaction costs and rents seeking. State revenue of capture fisheries as represent in Table 5 is very low, an average 0.25%. The condition of capture fisheries in Indonesia has not changed significantly for the better. Even though the government has made improvements, including transfer authorities in line decentralized system towards change with various structuring and law enforcement policies that are out of the box since the first period of the working the cabinet of President Jokowi's government in 2014-2019, unfortunately, this has not continued due to changes in orientation of political fishing policies.

The orientation of fishing sector development has moved towards privatization. The measured fishing (penangkapan ikan terukur) policy open a door for private investment from within and outside the country in industrial

fishing areas. Implementing the measured-fishing policy in Indonesia through Government Regulation Number 11 of 2023 seems to have the lofty goal of increasing fish production, state revenues, and preserving fish resources, but it open doors to monopoly behavior and rents seeking. The actions of rents seekers might determine the emergence of this policy to influence and to take advantage of regulatory decisions, for example, setting quota systems and transshipment. Rents seeking actors can take opportunistic actions to obtain monopoly rights to increase their own quotas and obtain other privileges compared to their competitors (Bergfjord and Brandt, 2010). In addition, the provision of quotas every year, as regulated in the measured fishing policy (President of the Republic of Indonesia, 2023), creates uncertainty because investment in fishing is long-term (Bergfjord and Brandt, 2010). This policy also gives privileges to private port management to certain business actors.

CONCLUSION

This study concludes that transaction costs are an integral part of rents seeking in the capture fisheries sector. Rents seeking in capture fisheries triggered by high transaction costs resulted from opportunistic transactional behavior of government agents and business actors competing for privilege rights to fulfill their interests in maximizing benefits. Transaction costs and rents seeking are to be a cause of the low contribution of the capture fisheries sector to state revenues and leakage of national income. State income from captured fisheries has never exceeded more than 1% of state revenues of total natural resources during more than 20 years in the reform era. The relationship between transaction costs and rents seeking in capture fisheries illustrates the complexity of transactions from multiple government agencies with different levels of authority from central to regional. This includes various patterns of relations with business actors in overcoming inefficiencies in resource allocation, distribution of rents, and property rights regulation of fisheries resources, as well as arrangements for delegation of authority characterized by pursuing interests of maximizing private profits.

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