INDONESIAN JOURNAL OF MULTIDISCIPLINARY SCIENCE

P-ISSN: 2808-5957
E-ISSN: 2808-6724
ijoms.internationaljournallabs.com

QRIS' IMPACTS ON TURNOVER BASED ON BUSINESS SCALE AND SECTORAL STUDY ON MSME

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ARTICLE INFO

Published: August 31st, 2023

Keywords: *QRIS, digitalization of payment systems, MSME sales turnover, difference-in-difference*

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ABSTRACT

In order to improve the efficiency and effectiveness in transactions of various non-cash payment channels, it is necessary to have an infrastructure that is able to integrate transactions originating from debit cards, credit cards, and electronic money in one door, through the standardization of the Quick Response Code (QR Code). In this paper, it will evaluate the impact of the implementation of the QRIS standardization policy on Malaysian Small and Medium Enterprises (MSMEs) turnover based on the business scale and economic sector of the business. The research was conducted by observing two groups, namely, the treatment group (UMKM using QRIS) and the control group (umKM not using the policy) in two time periods namely before and after the adoption of the policy. The test results per business sector showed significant results for the whole, micro-scale as well as processing/secondary economic sectors where there was a significant positive impact (P0.5) affecting turnover growth in MSMEs that adopted QRIS, compared to those that did not adopt QRIS. The QRIS implementation program can be continued and expanded in scope.

INTRODUCTION

The digital payment system is growing along with the development of technology and information, where activities that rely on technology greatly impact the acceleration of economic turnover due to efficient time and satisfying results (Cao et al., 2021; Delas et al., 2015; Yao et al., 2018). Electronic payment systems as a form of digitalization development, grow because of the openness, speed, anonymity, digitization, and accessibility characteristics of the Global Internet, which facilitates real-time payment transactions and other business activities (Bandura & Ramanujam, 2021; Milkau & Bott, 2015; Zokaee & Ghazizadeh, 2012). The digitalization trend is changing people's transaction behavior in a direction that is more focused on mobility, speed, flexibility, and security (Kim et al., 2022; Szmelter & Woźniak, 2016; Wang & Sarkis, 2021). The development of payment system instruments leads to direct-to-account-based transactions, with the development of mobile channels driven by the use of Quick Response (QR). To improve efficiency and effectiveness in transactions of various non-cash payment channels, it is necessary to have an infrastructure that is able to integrate transactions originating from debit cards, credit cards and electronic money in one door, through the standardization of the Quick Response Code (QR Code).

The Indonesia Standard Quick Response Code or QRIS policy was launched by Bank Indonesia on August 17 2019 and began to be implemented effectively in January 2020. The characteristics of QRIS are ease of payment, system innovation, large population and productive age are big opportunities for the program (Azizah et al., 2022; Munaiseche et al., 2022; Satria et

al., 2021). QRIS aims to facilitate cashless transactions across various payment service providers, both banks and non-banks (Anggraini, 2022; Febriani et al., 2021). QRIS can be scanned by any authorized payment app, such as ShopeePay, Gopay, OVO, LinkAja, and many others. QRIS also supports financial inclusion and promotes the growth of digital economy in Indonesia (Lestantri et al., 2022; Marwan & Bonfigli, 2022; Sahay et al., 2020).

QRIS has been growing rapidly since its implementation, reaching 98.5 trillion rupiah in transaction value and 22.4 million registered merchants by 2022. QRIS is also expanding its scope to include cross-border payments with other ASEAN countries, such as Thailand, Singapore, Malaysia, Philippines, and Vietnam. The ASEAN Business Advisory Council (ASEAN BAC) is working on integrating the respective QR code payment systems of each member state under the name of ASEAN QR Code. This initiative will enable seamless and efficient transactions among ASEAN countries and reduce the dependency on US dollars as an intermediary currency.

On the other hand, the MSME Community Business sector based on data from the Ministry of Cooperatives and SMEs processed from the Central Statistics Agency (BPS) data, 2019, in 2018 it is estimated that there were 64,194,057 businesses with a total contribution of 61.07% of total GDP to one of the main sectors of the Indonesian economy. The contribution of MSMEs is also estimated to be able to absorb 97% of the total existing workforce and can collect up to 60.4% of the total investment. However, efforts to develop MSMEs, especially in the digital era, have several challenges, including most of the MSME ecosystems are still classified as unbanked people with insufficient financial literacy so that support is needed from various aspects including from the financial transaction side in order to encourage MSME performance so that MSME's contribution to the economy becomes optimal.

In general, the increase in the development of electronic payments including by providing QRIS infrastructure has an impact on efficiency which can encourage increased financial inclusion including MSMEs. In addition, data on payment activities (non-cash) through QRIS recorded by Payment System Service Providers has the potential to be used for sales/consumption predictions, considering that payment activity data is detailed, real-time, and has wide coverage. Meanwhile, specific research that examines the impact of the policy of using QRIS in non-cash payments on the performance of MSMEs in Indonesia is still relatively limited.

This paper evaluated the impact of the implementation of the QRIS standardization policy on MSME turnover based on the business scale and economic sector of the business so that it is expected to provide an overview of the impact of the QRIS implementation policy on MSME payments on MSME inclusive financial access. With this article, it is hoped that it will be able to answer the question whether the QRIS policy as one of the infrastructures in digital payments has an impact on MSMEs, especially Micro business scale and MSMEs based on the economic sector, including recommendations for these policies so that the implementation of these policies can be more effective.

METHODS

Based on Khandker et al. (2010) in his book entitled Handbook on Impact Evaluation states that in general there are 5 (five) methods in impact evaluation, namely Randomized Control Trials (RCT), Propensity Score Matching (PSM), Difference in Difference (DID), Instrumental Variable (IV) and Regression Discontinuity Design (RDD).

The policy of using QRIS as a means of payment for MSME transactions in field implementation is an option for MSMEs whether to adopt the use of QRIS or choose not to adopt QRIS and continue to use cash payment facilities or other mechanisms. This resulted in the existence of 2 (two) MSME groups, namely those using/adopting QRIS and a group that did not adopt QRIS, so that the most appropriate analytical method used in this study was the difference in difference (did) method. The choice of this method is because the purpose of this study is to explain the impact of the use/adoption of a policy, namely QRIS on sales turnover of MSMEs.

The DID method is a method that observes two groups, namely the treatment group and the control group in two time periods. In carrying out the analysis using this method, the two observation groups have similarities in each time period. The goal is not to cause bias so that comparisons between the control group and the treatment group can be compared. The result is the difference or deviation of the two groups reflecting the impact of program implementation.

In this method, the research was conducted by observing two groups, namely the treatment group (UMKM using QRIS) and the control group (UMKM not using QRIS) in two time periods, namely before and after the adoption of the policy, which was formulated using the basic model $Outcome_i = \beta_o + \beta_1 Time + \beta 2\, Treated + \beta 3\, Time.treated + \varepsilon 1$, with a value of β3 is the DID or the impact of the difference between the use/adoption of the policy and the group that does not use/adopt it.

Model for overall data processing:

$\Delta\, Turnover_{i,t} = \beta_o + \beta_1 QRIS_{i,t} + \beta_2 Post_{i,t} + \beta 3\, QRIS*Post_{i,t} + \beta 4\ X'i, \tau + \varepsilon \iota, \tau$, or in full:

$\Delta\, Turnover_{i,t} = \beta o + \beta 1\, QRIS_{i,t} + \beta 2\, Post_{i,t} + \beta 3\, QRIS*Post_{i,t} + \beta 4\, long + \beta 5\, nik + \beta 6\, certif + \beta_7\, LnPopulation + \beta 8\ Poor + \beta 9\ Java + \beta 10\ Process + \beta 11\ Sports + \beta 12\ Agriculture + \beta 13\ Trade + \beta 14\ Services + \varepsilon \iota, \tau$,

For the same model, data will be processed based on the micro, small and medium business segments and based on the business sector, namely agriculture, processing, trade and services as well as primary, secondary and tertiary.

Where :

1) Δl $Turnover_{i,t}$: Turnover Growth All MSME data
2) $QRIS_{i,t}$: Dummy use/adoption of QRIS policy in year t.
3) $Post_{i,t}$: Dummy period for before and after treatment
4) $Qris_{it}$* $Post_{it}$: Interaction between treatment, control groups and the period before and after the use of QRIS
5) X'_{it} : Control variables , which in this study consist of:
6) ICV: individual variable control)
7) Length: length of business (years)

8) NIB: Dummy data for Business Identification Number (NIB), value "1" for possession and value "0" for non-ownership.
9) Certificate: Dummy Halal Certification Ownership data, value "1"' for having halal certification and value "0" for those who do not.
10) Java: This is the business location data being tested, in this model it uses a location dummy, namely a value of "1" for MSMEs located on the island of Java and a value of "0" for those outside the island of Java.
11) Processing: Is the individual business sector data that is tested, in this model the MSME business sector dummy is used, namely the value "1" for MSMEs whose business is in the Manufacturing Industry sector and the value "0" whose business is other than the processing industry.
12) Farmers: This is the individual business sector data that is being tested, in this model the MSME business sector dummy is used, namely a value of "1" for MSMEs whose business is in the agricultural sector and a value of "0" whose businesses are other than agriculture.
13) Trade: This is the individual business sector data that is tested, in this model the MSME business sector dummy is used, namely a value of "1" for MSMEs whose business is in the trade sector and a value of "0" whose business is other than trade.
14) Services: This is individual business sector data, the data being tested, in this model uses the MSME business sector dummy, namely a value of "1" for MSMEs whose business is in other service sectors and a value of "0" whose business is other than other services.
15) RV : Regional Variable (External) control
16) Ln Pend : Natural Logarithm of Province/Regional Population
17) Poor : Provincial/Regonal poverty rate

RESULTS AND DISCUSSION

Development of QRIS

Quick Response Indonesia Standard or QRIS in accordance with Regulation of Members of the Board of Governors (PADG) No. 21/18/PADG/2019 concerning Implementation of the National Standard Quick Response Code for Payments as amended in PADG No. 23/8/PADG/2021 dated 30 april 2021 is the QR code standard used for national payments.

Based on data from Bank Indonesia, at the end of 2021, the number of merchants using QRIS reached 14.7 million with a total transaction of 58.8 million with a nominal transaction of IDR 4.7 T or an increase of 78% (YTD). Meanwhile, from January to September 2022 the number of merchants using QRIS has reached 21.6 million with a QRIS transaction volume of 111.8 million transactions with a nominal value of IDR 10.8T (an increase of 273% YoY and MtM) as illustrated in Figure 1 below:

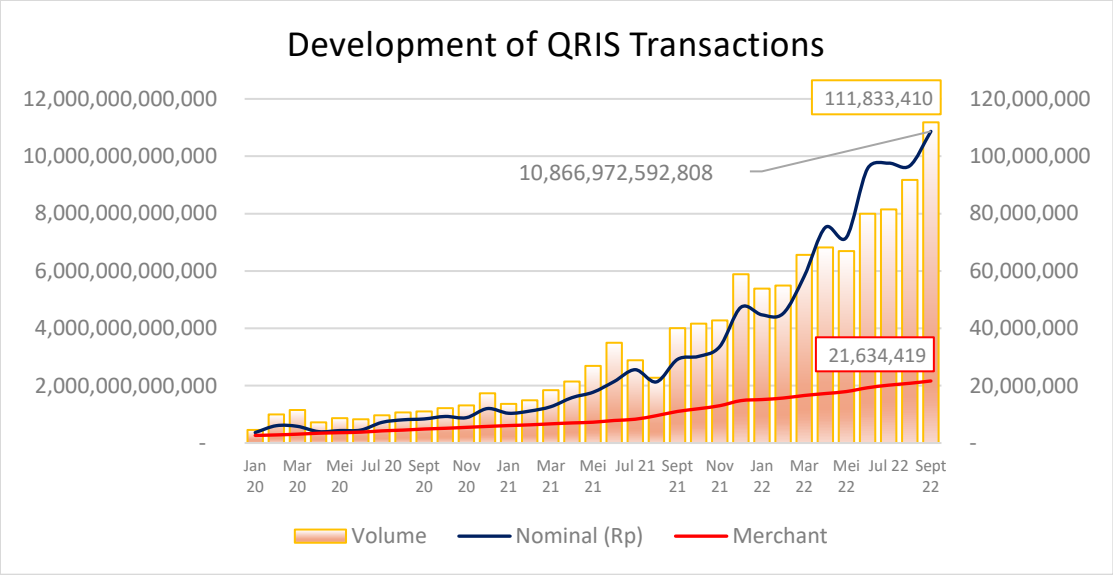


Figure 1. Development of QRIS Transactions
Source: Bank Indonesia Processed by the Author

Several policies have been implemented to strengthen and encourage ecosystem expansion and community acceptance, including the establishment of a Merchant Discount Rate (MDR) of 0% for MSMEs in the Micro category**,** the establishment of the MDR Public Service Agency (BLU) and the Public Service Obligation (PSO) which were originally 0.7% was reduced to 0.4%, and the QRIS transaction limit was increased to IDR 5 million from the original IDR 2 million **.** As of September 2022, of the total merchants using QRIS, the majority (90.59%) were MSME merchants, with details of 13.1 million Micro Enterprises, 5.4 million small businesses, 1.4 million medium enterprises and the rest were URE, BLU, and PSO as shown in Figure 2 below:

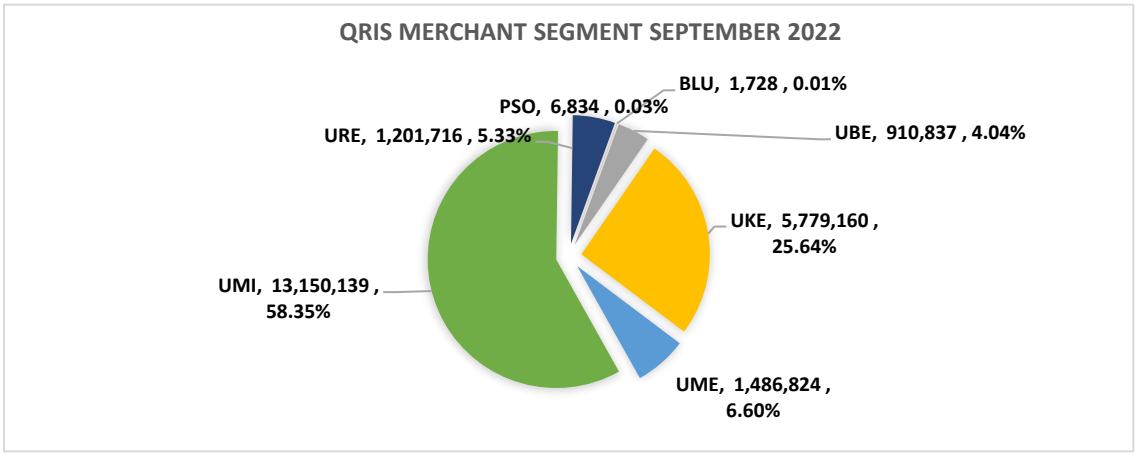


Figure 2. QRIS Merchant Segment
Source: Bank Indonesia Processed by the Author

Estimation Results

Statistical Descriptive Analysis

The assumption in the DID model is the Parallel Trend Assumption , namely both treatment and control groups have the same linear trend if there is no difference in treatment (if no adoption of a QRIS policy). Given the limited research data prior to the treatment period, in this study the fulfillment of these assumptions was carried out by comparing household characteristics between the treatment group and control group throughout the observation period as in Adi Krisianto's previous study (2018) which measured the Impact of Electrification on Household Expenditures in the Thousand Islands (*Kepulauan Seribu*), Jakarta. If the characteristics prove not to differ significantly, it can be assumed that the characteristics unit between the treatment groups and control group during the observation period can be said to be identical. Some of the characteristics taken into consideration in this analysis include: The average turnover growth of each segment has equally decreased, the duration of the MSME data business has relatively the same characteristics, namely the average has been established + 8 (eight) years of relative distribution the average between those located on the island of Java and outside Java as well as the data characteristics of these MSMEs (both treatment and control) are MSMEs assisted by Bank Indonesia who both obtain sufficient access to literacy related to QRIS.

Based on Business Scale/Segment

Table 1. Estimation Results Based on Business Scale/Segment

Turnover Growth								
Variables	**All (1)**		**Micro (2)**		**Small (3)**		**Intermediate (4)**	
	coef	***Sig***	***coef***	***sig***	***coef***	***sig***	***coef***	***sig***
QRIS	-6,048	**	-14,133	***	-0.110		-0.069	
Post	-10,026	***	-19,495	***	-0.450		0.161	
How much is Post*qris	6021	*	12,652	**	-0.021		0.623	
Long	0.117		0.323		0.002		-0.034	
NIB	0.902		3,441		-0.147		0.773	
HK	0.096		-2,895		-0.666		0.000	
Certificate	0914		3,699		0.000		0.115	
lnpend	0.932		1,725		0.172		0.079	
Poor	-0.025		0.175		0.017		0.084	**
Javanet	2,633		1,666		0.228		0.318	
Processing	3,055		3,525		1,076		-1,271	
Agriculture	-1,058		6.105		1,266		-0.592	
Trading			35,929	**	0.947		0.000	
Service	-0.151		0.000		0.000		0.000	
_cons	-0.881		-6.646		-1.919		-0.644	

R-squared	0.053	0.084	0.443	0.224
Adj R-squared	0.040	0.060	0.188	0.102
Observation Unit	932	512	338	82
Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1				

By economic sector

Table 2. Estimation Results Based on Economic Sector

	All		**Processing**		**Agriculture**		**Trading**		**Service**	
Variables	***Coef***	***Sig***	***Coef***	***Sig***	***Coef***	***Sig***	***Coef***	***Sig***	***Coef***	***Sig***
qris	-6,907	***	-13,097	***	-4,787	*	-42,566		-42,566	
Post	-10.135	***	-15.434	***	-7.378	**	-15.383		-15.383	
Post*Qris	6.029	*	13.290	***	4.766		-22.535		-22.535	
Duration	0.160		0.188		-0.011		7.006		7.006	
NIB	1.383		0.370		-0.861		1531.379		1531.379	
IPR	-1,233		1,078		0.000		-28,031		-28,031	
Certificate	0.671		2043		-2,178		51,790		51,790	
Inpend	1,380		1,403		0.054		-236,735		-236,735	
Poor	-0.048		0.187		-0.043		93,371		93,371	
Javanet	1.202		1827		5,408		1536557		1536557	
Micro	6.177	***	9,076		0.000		-866,539		-866,539	
Small	0.000		5,716		-6,835	**	-1026,790		-1026,790	
Intermediate	-1,310		0.000		-8,338	**	0.000		0.000	
_cons	-6,122		-9,785		11,672		918,819		918,819	
Numb of Obs	932		546		356		20		10	
R-squared	0.045		0.052		0.084		0.588		0.597	
Adj R squared	0.032		0.031		0.055		-0.119		-0.813	

Based on economic sector per production chain

Table 3. Estimation Results Based on Economic Sector Per Production Chain

	All		**Primary**		**Seconds**		**Tertiary**	
Variables	***Coef.***	***sig***	***Coef.***	***Sig***	***Coef.***	***sig***	***Coef.***	***sig***
QRIS	-6,907	***	-4,787	*	-11,253	***	-58,489	
Mail	-10,135	***	-7,378	***	-15,954	***	0.341	
QRIS*Post	6,029	*	4,766		11,353	*	-1,483	
Duration	0.160		-0.011		0.260		3,883	
NIB	1,383		-0.861		1,936		0.000	
HKI	-1,233		0.000		-0.065		0.000	
Certificate	0.671		-2,178		2,593		0.000	
Poor	-0.048		-0.043		0.010		4,787	

lnpend	1,380		0.054		2,039		-1,479
Java	1.202		5,408		0.051		0.000
Micro	6.177	***	0.000		5,337	**	14,840
Small	0.000		-6,835	***	0.000		0.000
Intermediate	-1,310		-8,338	***	-4,367		0.000
_cons	-6,122		11,672		-9,455		-68,147
R-squared	0.0446		0.084		0.045		0.597
Adj R-squared	0.0321		0.055		0.025		-0.813
Number of Obs	932		356		566		10

Based on the estimation results for all MSMEs, it shows that overall MSMEs show a positive significant of 6.02 or there is a significant difference in turnover growth in the testing data between MSMEs that adopt/use QRIS relative to MSMEs that do not use QRIS. Meanwhile, based on the estimation results which were carried out separately per business segment, namely Micro, Small and Medium, it showed that Micro MSMEs using/adopting the QRIS policy had a significantly positive difference in turnover growth of 12.65% (below 0.5%), compared to the QRIS group. who do not adopt/use QRIS. This is expected because during the testing period, in general the turnover of testing data during the Pandemic period decreased, while there were differences in the conditions of the Micro scale/segment, which is thought to be caused by the individual conditions of the segment, and specifically in the use of QRIS it was still given a 0% MDR policy (from what should have been 0.7%) so there is no additional cost for this segment.

Based on the estimation results per economic sector, it shows that the processing industry business segment that uses/adopts the QRIS policy has a significantly positive difference in turnover growth of 13.29% (below 0.1%), compared to the group that does not adopt/use QRIS. Meanwhile, MSME in the agriculture, trade and service sectors did not show significant results. This condition is thought to be due to the fact that in general, the turnover of testing data during the pandemic has decreased, however, the MSME business sector in the processing industry has a smaller tendency to decrease turnover considering that most of them are in the food and beverage processing industry which is their main need. Meanwhile, according to tests per sector, namely primary, secondary and tertiary, it shows that MSMEs with the tertiary sector (processing and trade) that use/adopt the QRIS policy have a significant positive difference in turnover growth of 11.35% (significance below 10%) compared to the group that does not adopt/use QRIS. Meanwhile, the primary and tertiary sector MSMEs did not show significant results.

This condition is estimated because during the testing period, in general the turnover of testing data during the Pandemic period decreased, while the conditions for the Micro segment were different, which is thought to be caused by the individual conditions of the segment, and specifically in the use of QRIS, it was still given a 0% MDR policy (from the should be 0.7%) so that there is no additional cost for the segment.

CONCLUSION

The policy of using QRIS as a whole has a significant impact when compared between MSMEs that use QRIS and those who do not use QRIS, while when tested per segment, at micro there is a significant positive impact of 12.65% (P <0.5) affecting turnover growth in MSMEs who adopt QRIS, compared to micro MSMEs that do not adopt QRIS. This shows that the trading business sector in the micro segment has a significant influence on the use of QRIS compared to other business sectors which in this study is reflected in the positive influence on differences in the growth turnover of micro MSMEs whose businesses are in fields other than trading. This shows that using QRIS (QRIS policy adoption) can increase ease and efficiency in transactions for Micro MSMEs, resulting in higher financial performance (turnover growth) compared to those who do not use QRIS. This is thought to be influenced by the characteristics of the micro business group including the possibility of a 0% MDR incentive for Micro. While the test results per business sector showed significant results for the whole and the Processing sector, namely in the MSME processing industry business sector there was a significant positive impact (P<0.5) affecting turnover growth in MSMEs that adopted QRIS, compared to micro MSMEs that did not adopt QRIS.

In accordance with the results of research on the whole, micro-scale as well as processing/secondary economic sectors where there is a significant and positive impact on the group that uses QRIS relative to the group that does not use QRIS, the QRIS implementation program can be continued and expanded in scope. Although the results of the study show that the policy of using QRIS in the small and medium segment of MSMEs does not significantly affect turnover growth when compared to MSMEs that do not use QRIS, this policy can still be pursued considering that this policy broadly provides easy access to consumer payments, operational efficiency and this policy is not a specific policies on MSMEs only (policies on payment systems that are broad in nature) and their impact is likely to be felt in the long term.

Regarding the results of research on the Micro segment where there is a significant and positive impact on the group that uses QRIS relative to the group that does not use QRIS, this is partly due to the fact that the 0% MDR incentive policy for this segment is effective so that the rates can be continued or adjusted with cost and analysis . adequate *benefits* .

Some of the limitations of the study in this study included during the testing period, along with the pandemic period where there was a general decrease in sales turnover and a slowdown in economic growth which affected people's consumption behavior. to consumers) thereby increasing the selling price of the product, there is a limited period of data testing, bearing in mind that this study compares data in 2 periods, namely before and after.

As for further research, this can be done with a wider population, using QRIS transaction data including if the 0% MDR incentive policy for the Micro segment is discontinued, using more varied data variables and using a longer period of time, conducting tests after the Micro MDR incentive policy 0% revoked.

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