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RELATIONSHIP BETWEEN A COMMUNITY CURRENCY ISSUANCE ORGANIZATION'S PHILOSOPHY AND ITS ISSUANCE FORM: A JAPANESE CASE STUDY

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ABSTRACT

What kind of philosophies do analog or digital community currency (CC) issuance organizations focus on? To answer this question, we conducted a questionnaire survey on 117 CC issuance organizations in Japan. In this survey, we categorized the target organizations into four groups based on their issuance philosophy. We found three major factors related to the organizations' self-evaluation regarding the impact of their CC issuance on society. Under such classification, we found a relationship between the organizations' issuance philosophy and their CC evaluation, and a relationship between their issuance philosophy and their issuance form. From these results, we observed that an issuance philosophy does not uniquely decide the issuance form, but an organization issuing digital CC emphasizes economic value as a philosophy. In addition, we considered that organizations emphasizing economic value when issuing digital CCs may provide positive feedback; they will emphasize economic value based on a self-evaluation that results in fair and efficient trade using digital CCs. Our survey provides some explanations for issuance organizations that use CC as a medium for conveying certain philosophies.

KEYWORDS

Currency issuance philosophy, currency issuance form, community currency as a medium, questionnaire survey.

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1. INTRODUCTION

In Japan, 792 community currencies (CCs) had been issued by 2016 (Kobayashi, Miyazaki and Yoshida, 2020). Kobayashi, Miyazaki and Yoshida (2020) point out that the combinations of issuance purposes have changed in line with the Japanese economy and societyⁱ. For example, the number of CC issuances peaked in Japan around 2002. Prior to this time, the CCs that aimed at creating connections between people were the most prevalent, but in 2002, those targeting regional economic revitalization prevailed. However, after 2012, the most predominant CCs were those that aimed at the revitalization of forestry and regional economies. According to them, one of the main reasons behind the change in the combinations of issuance purposes is the propagation mechanism of a CC issuance organization's circulation model to other organizations. It is important that such a propagation mechanism includes not only the issuance form of the CC, but also the values to be emphasized in CC issuance.

In addition, digital CC issuance has been rapidly increasing in Japan. Although such digital currency has initial implementation costs and security issues, it has many advantages too, such as ease of management, reduction of operation costs, and more accurate transaction dataⁱⁱ. Tanabe and Niitsu (2016) point to the potential of digital currency technology to further enhance the economic functions of CCs in Japan. In addition to the advantages for the issuer, the users are also evaluated differently for digital and analog CCs. Using a game simulation, Yoshida and Kobayashi (2019) observe that participants evaluated digital CCs to have economic effects, while analog CCs strengthened community ties. Based on these studies, digital CCs seem to have advantages over analog CCs in economic function. It is necessary to verify not only the convenience, but also the effects of digital CCs that have appeared in recent years, in comparison to analog CCs.

In this study, we position CC issuance as a socio-economic system that builds on its own philosophies. Lietaer (2004) discusses some of the early community currencies in Japan and shows that each has its own specific philosophy, such as mutual aid and promotion of local communities. However, this is not limited to Japanese community currency. For example, as Gelleri (2009) shows, Chiemgauer, a regional currency started in Germany in 2003, is based on Steiner's Philosophy such as freedom, democracy, and solidarity. These cases show that the founder's philosophy is behind the establishment of the community currency. Thus, we also position CCs as a medium for instilling essential philosophies in the systemⁱⁱⁱ and as a medium for building a socio-economic zone based on specific philosophies. Therefore, we first consider the philosophy emphasized by community currency issuance organizations. This philosophy implies the combination of values and ethics that the CC issuance organization emphasizes. We analyze whether the CC issuance purposes and forms are different according to such differences in philosophy, and what kind of self-evaluation is being performed by such organizations. Through these analyses, we explore how the properties of CCs as a medium differ depending on the issuance philosophy.

2. QUESTIONNAIRE SURVEY DESIGN

We investigate the relationship between the variety of philosophies on which CC issuance organizations depend and the issuance form. We examine three research questions.

RQ1 What kind of philosophies do CC issuance organizations emphasize?

RQ2 How do the philosophies affect the CC being issued?

RQ3 What is the relationship between the issuing philosophies and the issuing forms?

To clarify these research questions, this study uses a questionnaire-based survey of CC issuance organizations in Japan; we survey a total of 117 CC issuance organizations. The targets of the survey are the CC issuance organizations currently in operation derived from the survey list by Kobayashi, Miyazaki, and Yoshida (2020), along

with newly-established digital CC issuance organizations; that is, those established in and after 2016^{iv}. In this survey, we clarify how the philosophy (values and ethics) of each CC issuance organization influences its issuance form and evaluation. The questionnaire responses were collected from the representatives of each CC organization.

In order to clarify RQ1, we ask about the philosophy of the CC issuance organization. Regarding the philosophy emphasized by the organization, we ask the following 10 questions (Table 1). We asked each organization to give a five-point rating for each of these questions (5: very important, 1: not important at all).

Table 1. Ten questions about the philosophy of CC issuance organization

1. Revitalization of the regional economy
2. Rebuilding of the relationship between local residents
3. Support for the socially vulnerable
4. Promotion of regional environmental conservation activities
5. Improving the local living environment
6. Activation and continuation of local culture and tradition
7. Robustness of the financial system
8. Efficient financial system
9. Creation of new assets
10. Diversification of payment methods

In order to clarify RQ2, we asked the organizations about their issuance purposes and CC issuance self-evaluations. In order to know the issuance purposes, we prepared ten categories and asked the respondents to select all that applied (Table 2).

Table 2. Ten categories of issuance purpose

1. Supply of local activity funds
2. Enrichment of local communication
3. Promotion of consumption within the region
4. Promotion of welfare and medical care
5. Promotion of resource recycling
6. Conservation and restoration of the natural environment
7. Securing public facilities' management and operating expenses
8. Activation of festivals and events in the region
9. Activation of exchanges outside the region
10. Others

In order to understand how the CC issuance organization evaluates the CC issuance, we asked for responses to the following 15 questions on a five-point rating scale (5: I think so very much, 1: I do not think so at all) (Table 3)^v. By analyzing these responses, we will clarify how CC issuing organizations consider their CC to affect society.

Table 3. Fifteen questions for the CC issuance self-evaluation

1. It is desirable to use the currency issued by your organization as a reward if you want others to do something
2. The currency issued by your organization leads to efficient trading
3. The currency issued by your organization brings about fair trade
4. You can increase social diversity using the currency issued by your organization
5. You can create new products and services using the currency issued by your organization
6. By using the currency issued by your organization, you can support socially vulnerable people as members of society
7. Enrich the culture using the currency issued by your organization
8. Become more compliant with rules and laws using the currency issued by your organization
9. You can control the use of materials and resources by the currency issued by your organization
10. If you have a currency issued by your organization, people's actions and thoughts will be more free
11. As you use the currency issued by your organization in various aspects of society, the norms

for determining good and evil change

12. You can achieve personal success using the currency issued by your organization
13. You can achieve social stability by trading with the currency issued by your organization
14. Trade with the currency issued by your organization respects individual dignity
15. You can bring trust to others using the currency issued by your organization

In order to clarify RQ3, we asked about the issuance form. For the CC issuance form, we prepared eight categories and asked the respondents to select all that apply. We classify these forms into the analog- and digital-types (Table 4). A contact type makes a transaction with a reader like a credit card. A non-contact type makes a transaction by holding the card over the reader, although a reader is similarly used. In code reading type, a Quick Response (QR hereafter) code or bar code is displayed using an application on a smartphone and read by an application on the other side to complete a transaction. An online settlement type makes a payment using a transaction site on the Internet.

Table 4. Issuance form of CC

Category	Question items
Analog-type	1. Banknote, 2. Passbook, 3. Bill
Digital-type	4. Contact type (plastic card), 5. Non-contact type (NFC (Near Field Communication), Felica), 6. Code reading type (QR code, bar code), 7. Online settlement

The following procedure is used to analyze the relationship between these three elements. First, we conduct the factor analysis of the questions related to the issuance philosophy, and cluster the issuance organizations based on the subscale factor scores. Then, we examine the issuance philosophy of each cluster. Second, we conduct the factor analysis on the organizations' self-evaluation of the CC's influence on the society, and the subscale factor score is compared by cluster based on the issuance philosophy. When conducting these analyses, it is possible to examine the characteristics of the CC as a medium connecting the issuance philosophy with its results by focusing on the differences in the issuance purposes and the ratios of the issuance forms for each cluster.

3. RESULTS

3.1 Questionnaire Response

We sent the questionnaire to 117 CC issuance organizations (104 for analog CC, 13 for digital CC) in Japan. We prepared two questionnaire formats: paper and web. The respondents could choose to either mail their responses to the paper questionnaire or enter their responses in the web-questionnaire. Responses were collected from March 22, 2019 to April 5, 2019. We received 39 responses, and of these, 38 responses were valid. The effective response rate was 32.5% for the total, 25% for analog CC, and 76.9% for digital CC (Table 5).

Figure 1 shows the issuance forms from the organizations' questionnaire responses. Some organizations are shown as taking multiple issuance forms. This figure shows that the banknote is the most common type of analog issuance, while the digital type takes various forms, including mailing lists, shards of glass, stickers, and coins.

Table 5. Questionnaire response

	Survey target	Response	Response rate
Analog CC	104	26	25%
Digital CC	13	10	76.9%
Combined Analog and Digital CC	---	2	---
Total	117	38	32.5%

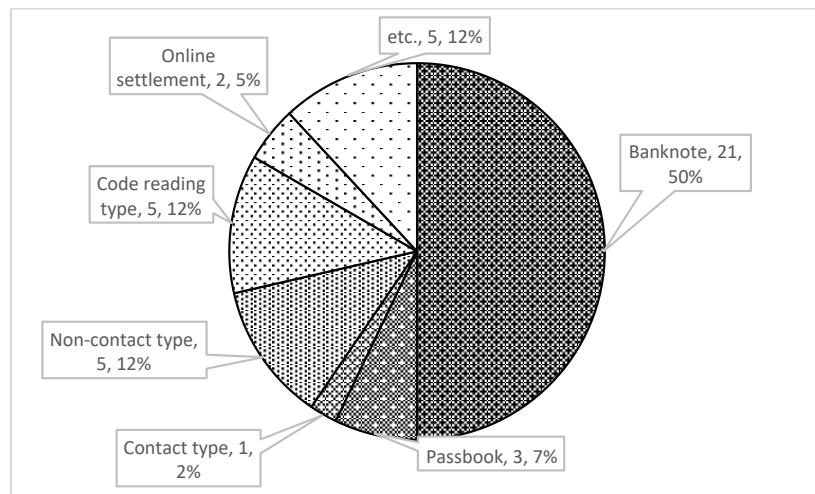


Figure 1. The issuance form of CC organization

3.2 Cluster analysis based on the currency issuance philosophy

First, in order to identify the philosophies that the target organizations focuses on, we conducted factor analysis based on the main factor method for 10 items of the currency issuance philosophy (Table 6).

Table 6. Factor analysis for 10 items of the currency issuance philosophy (n=37)

	I	II
F1: Enrichment of economic environment $\alpha = 0.891$		
Efficient financial system	1.002	-0.074
Robust financial system	0.963	0.007
Diversification of payment methods	0.886	0.017
Creation of new asset	0.594	0.268
Revitalization of local economy	0.489	-0.199
F2: Fulfillment of the social environment $\alpha = 0.706$		
Improvement of local living environment	0.02	0.761
Promotion of global environmental protection activities	-0.148	0.707
Rebuilding of the relationship between local residents	-0.169	0.481
Support for the socially vulnerable	0.101	0.457
Revitalization and continuation of local culture and tradition	0.116	0.419
Factor correlation matrix	I	II
		0.428

Two factors are adopted from the results of the analysis. We performed factor analysis with the maximum likelihood method and Promax rotation for these factors. The factor loadings of all 10 items were 0.4 or more; these values were not observed for the two adopted factors. We named the enrichment of the economic environment as the first factor (F1), and the fulfillment of the social environment as the second factor (F2). The Cronbach's alpha coefficient was 0.891 for F1 and 0.706 for F2.

F1 is composed of elements such as strengthening the financial system and improving its efficiency and robustness, those related to the function of money such as payment methods and creation of new assets, and the revitalization of the local economy. F2 consists of improving the local living environment, protecting the global environmental with activities, reconstructing relationships between local residents, supporting those who are socially vulnerable, and revitalizing and maintaining the local culture and traditions. A high value of F1 means not only emphasizing the revitalization of the local economy, but also emphasizing the strengthening of the financial system and the diversification of the monetary system. And the high F2 value includes not only the improvement of the local community environment, such as the improvement of the local living environment and cultural traditions, and the connection among the residents, but also the emphasis on factors such as global environmental protection and support for the vulnerable.

Then, in order to classify the target organizations from these two factors, we have conducted a hierarchical cluster analysis on 37 CCs based on the subscale scores of the two factors (Figure 2). Ward's method was used for clustering, and the square Euclidean distance was used as the measurement method. In Figure 2, the first number on the label indicates the ID of the CC, and the alphabet after the hyphen indicates the form of currency. A indicates analog currency, D indicates digital currency, and A/D indicates a combination of analog and digital currencies. The horizontal axis shows the F1 score and the vertical axis shows the F2 score. The scores range from 1 to 5 (5: very important, 1: not important at all). The correlation coefficient of F1 and F2 was 0.287.

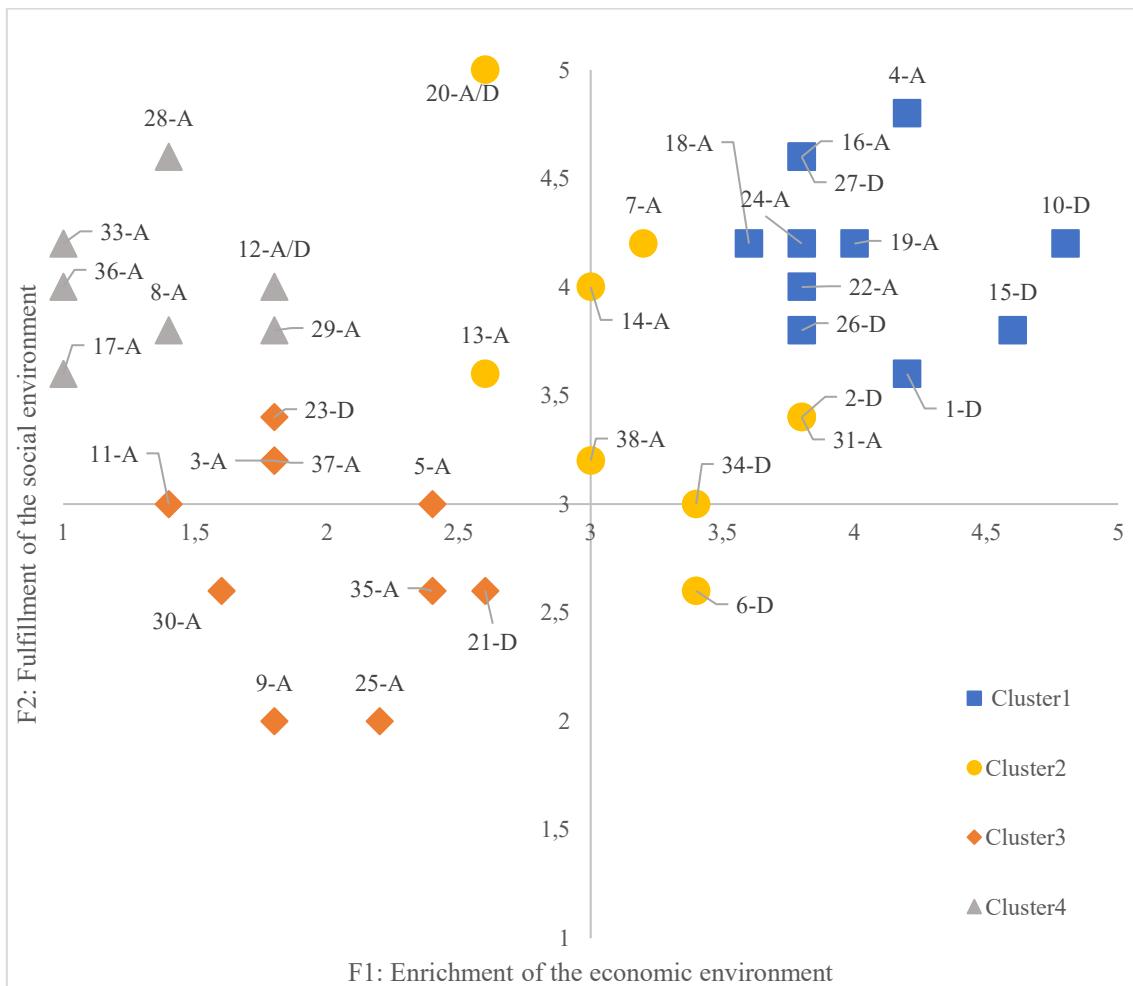


Figure 2. Four clusters of the currency issuance philosophy

The first quadrant is an area that emphasizes both economic and social environments, and the third quadrant is an area that emphasizes neither. The second quadrant is an area that emphasizes only the social environment, while the fourth quadrant is an area that emphasizes only the economic environment. We observe that there were few CC

issuing organizations in the fourth quadrant. Table 7 shows the average subscale scores of F1 and F2 to be 2.77 and 3.62 in total, respectively. This means that these CCs prioritize social environment fulfillment over economic environment enrichment on the whole^{vi}. Kobayashi et al. (2018) show that CC officials emphasize the publicity rules over financial officials; our study has many similarities with this study.

Table 6. Cluster comparison of subscale scores on the currency issuance philosophy

	Cluster	n	Ave.	SD		
Factor1: Enrichment of the economic environment	1	11	4.04	0.38	$F(3,33)=84.22$	$p=.000$
	2	9	3.2	0.45		
	3	10	1.98	0.39		
	4	7	1.34	0.36		
Total		37	2.77	1.12		
Factor2: Fulfillment of the social environment	1	11	4.18	0.37	$F(3,33)=15.82$	$p=.000$
	2	9	3.6	0.71		
	3	10	2.76	0.49		
	4	7	4	0.33		
Total		37	3.62	0.75		

From this analysis, we can divide CC issuing organizations into four clusters. Cluster 1 emphasizes both the economic and the social environment. Cluster 2 emphasizes the fulfillment of the social environment. Cluster 3 places little emphasis on both the economic and the social environment. And Cluster 4 emphasizes the fulfillment of the social environment but does not emphasize enrichment of the economic environment. When compared to the average, the four clusters show the following features (Table 7). Comparing the mean of the subscale scores, we find significant differences among all clusters for F1, while Cluster 3 has a significantly lower score than the other three clusters for F2. Concerning the issuance philosophy, it means that, while clear differences exist among the four clusters on the enrichment of the economic environment (from emphasis to no emphasis), all clusters except Cluster 3 emphasize the fulfillment of the social environment.

Because each factor consists of five items, the issuance organizations of Cluster 1 emphasize all the items while other clusters emphasize some items while not emphasizing others; therefore, the average factor score may be low. Figure 3 shows the subscale scores of issuance philosophy for each item by cluster. The solid line shows the average of each cluster, and the broken line shows the overall average. Focusing on the components of F1, there is a tendency for Clusters 1 to 4 to not emphasize strengthening financially and the diversification of the monetary systems. In addition, it can be seen that all but Cluster 4 emphasized local economic revitalization. Looking at F2, we can see that Clusters 1 and 4 are similar and place an emphasis on each item. It can also be seen that Cluster 2 places less emphasis on support for the socially vulnerable than Clusters 1 and 4, and Cluster 3 places no emphasis other than the rebuilding of the relationships between local residents.

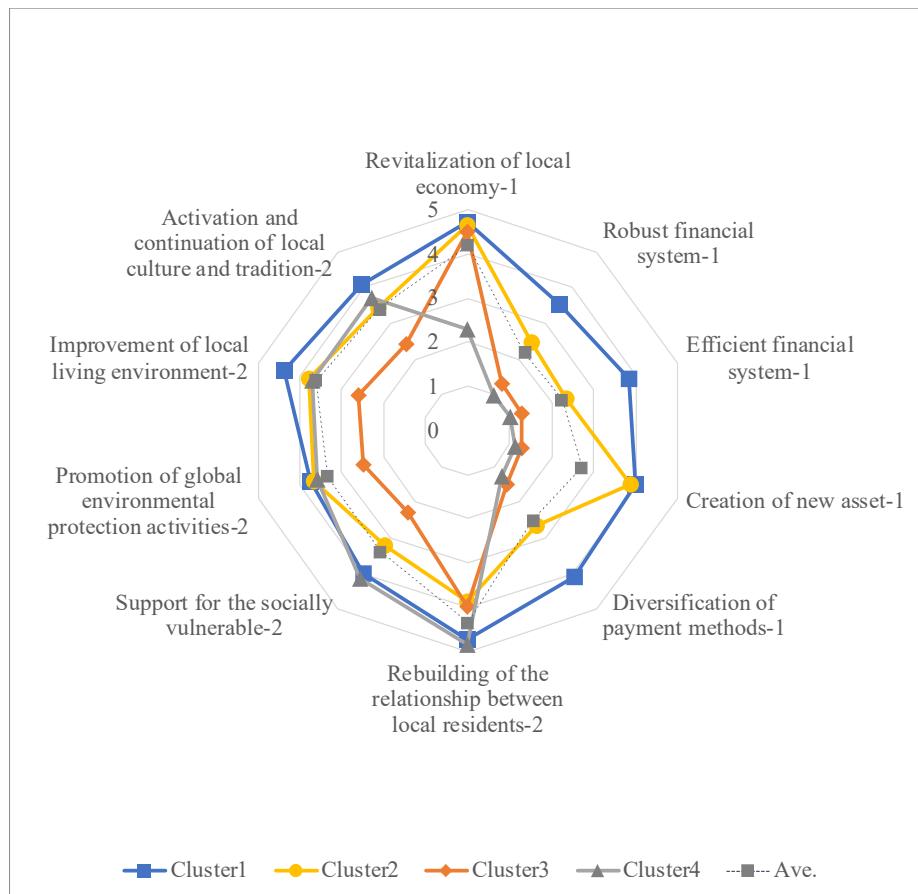


Figure 3. The subscale score of issuance philosophy for each item by cluster

3.3 The organizations' self-evaluation regarding their CCs: impacts on society

What impact do the four categories of CC issuance organizations based on their issuance philosophy think their CCs have on society? To determine this, next, we look at the results of the organizations' self-evaluation regarding the CCs. Factor analysis based on the main factor method was performed on 14 of the 15 questions about the impacts of the issued CCs on society by each organization^{vii} (Table 8).

Table 8. Factor analysis of the impact of issued CC on society (n=38)

F1: Formation of connections to accept various individuals $\alpha=.854$			
Personal dignity	1.016	-0.107	-0.05
Social inclusion	0.813	-0.117	-0.041
Trust in others	0.726	0.162	0.04
Cultural enrichment	0.464	0.242	0.167
Social stability	0.439	0.109	0.407
F2: Realization of a free and diverse society $\alpha=.868$			
Control how to use supplies and resources	-0.285	0.909	0.071
Transformation of norms	0.185	0.787	-0.197
Create new products and services	0.062	0.634	-0.056
Freedom of action and thought	0.394	0.602	-0.086
Personal success	0.089	0.599	0.057
Compliance with laws and regulations	0.048	0.521	0.188
Social diversity	0.344	0.396	0.012
F3: Realization of fair and efficient trade $\alpha=.804$			
Fair trade	0.069	-0.138	1.071
Efficient trade	-0.286	0.475	0.491
Factor correlation matrix			
	1	0.494	0.184
		1	0.567

We adopted three factors from the results of this analysis. We performed factor analysis with the unweighted least squares method and Promax rotation for these factors. We named the formation of connections to accept various individuals as the first factor (F1), the realization of a free and diverse society as the second factor (F2), and the realization of fair and efficient trade as the third factor (F3). The Cronbach's alpha coefficients are 0.854 for F1, 0.868 for F2, and 0.804 for F3.

F1 is composed of elements that enhance the social environment, such as personal dignity, social inclusion, trust in others, cultural enrichment, and social stability. F3 consists of elements that measure the enrichment of the economic environment, such as fair and efficient transactions. F2 consists of two factors: the economic environment such as control over how to use supplies and resources, the creation of new products and services, personal success, and the social environment such as the transformation of norms, freedom of thought of action, compliance with laws and regulations, and social diversity. Table 9 shows the correlation coefficient of the three factors. The table shows there is a positive correlation between F1 and F2, and F2 and F3. It means that CCs are evaluated as realizing a free and diverse society, as being able to form various individual connections, and realizing fair and efficient trade.

Table 9. The correlation coefficient of three factors of the self-evaluation of the issue CC

	F1: Formation of connections to accept various individuals	F2: Realization of a free and diverse society	F3: Realization of fair and efficient trade
F1	1	.634**	.287
F2		1	.536**

** p<.01

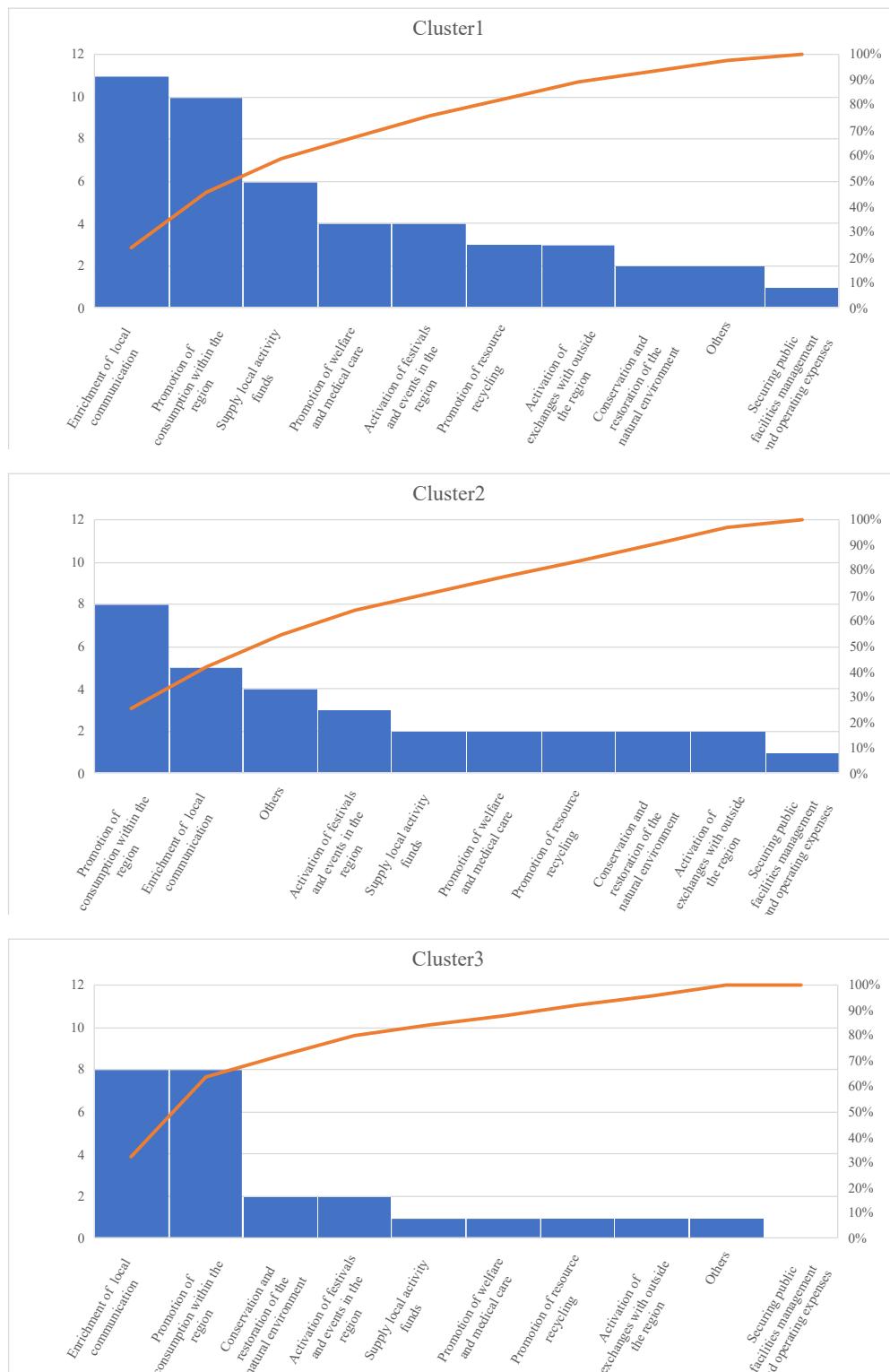
Table 10 compares the average of the subscale scores for the three adopted factors by cluster of the issuance philosophy. Cluster 1 is higher than the average for all three factors and it can be seen that the issuance organizations from this cluster give higher evaluations for their CCs. Although Cluster 2 is lower than Cluster 1, it can be seen that they give higher evaluations for their CCs, too. Conversely, it can be seen that the organizations belonging to Cluster 3 rate their own CCs lower than average across all three factors. Lastly, the organizations belonging to Cluster 4 evaluate F1 higher than the average only, and the other two factors are evaluated lower than the average. The evaluation of CCs in Cluster 3 for F1 and F2 is significantly lower than that in Cluster 1. For F3, the CC evaluation of Cluster 4 is significantly lower than that of Cluster 1. Cluster 3 does not emphasize social fulfillment on its issuance philosophy, and it assigned a low evaluation to the influence that the CC it issued has on society. However, the fact that Cluster 4 does not view its CC as bringing about fair and efficient trade is clearly influenced by an issuance philosophy that emphasizes social value over economic value.

Table 10. Cluster comparison of subscale score on the evaluation of CC

Cluster	n	Ave.	SD		
Factor 1: Formation of connections to accept various individuals	1	11	3.76	0.56	
	2	9	3.6	0.71	F(3,33)=4.01 p=.015
	3	10	2.58	1.04	
	4	7	3.43	1.01	
	Total	37	3.34	0.94	
Factor 2: Realization of a free and diverse society	1	11	3.64	0.61	
	2	9	3.22	0.44	F(3,33)=5.68 p=.003
	3	10	2.4	0.85	
	4	7	2.76	0.94	
	Total	37	3.03	0.85	
Factor3: Realization of fair and efficient trade	1	11	4	0.84	
	2	9	3.56	0.46	F(3,32)=3.63 p=.023
	3	9	3.06	1.10	
	4	7	2.5	1.5	
	Total	36	3.36	1.11	

3.4 Issuance purposes

What are the issuance purposes of each of the four categories of CC issuance organizations based on their issuance philosophy? Figure 4 shows the purpose of issuance for each cluster based on their issuance philosophy. The histogram shows the frequency for each issuance purpose and the line graph shows the cumulative percentage.



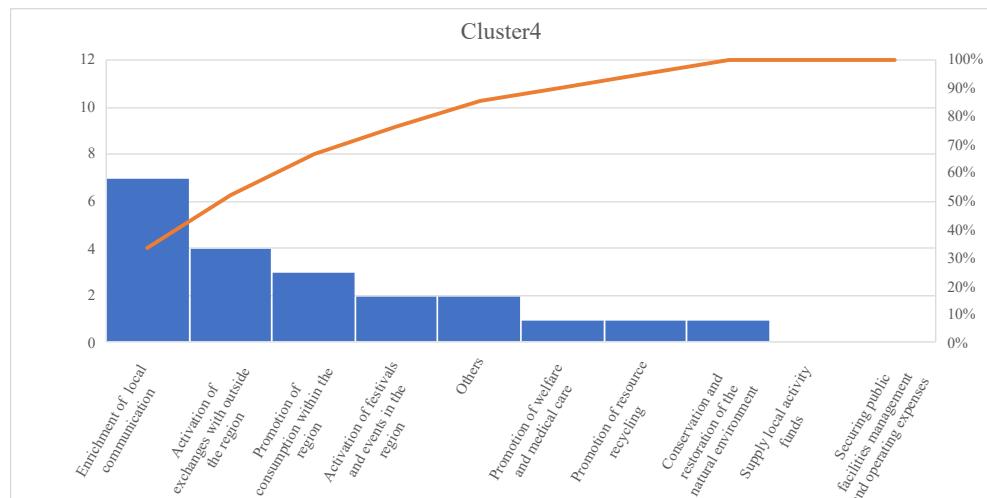


Figure 4. The issuance purposes by each cluster

The purpose of enriching local communication is within the top two for all clusters. In addition, the promotion of local consumption is among the top two purposes, except for Cluster 4. Clusters 1 and 2 are similar in terms of types of issuance purposes, but a feature of Cluster 1 is that funding for local activities is one of the top three purposes. Cluster 3 occupies about 64% of the whole for the purpose of enriching local communication and promoting consumption within the region, and there are few variations in issuance purposes compared with other clusters. Cluster 4 is characterized by the activation of exchanges outside the region at the top. When these results are combined with the issuance purpose of each cluster (Figure 3), it can be seen that the issuance purpose corresponds with the philosophy to be emphasized.

3.5 Issuance form

Table 11 compares the issuance forms for each cluster based on the issuance philosophy. There was no significant difference in the issuance form because of the difference in the issuance philosophy.

Table 11.7 Issuance form of each cluster

Cluster	AC	DC	AC/DC	Total
1	6	5	0	11
2	5	3	1	9
3	8	2	0	10
4	6	0	1	7
Total	25	10	2	37

However, there is room to consider the influence of the issuance form (such as analog and digital) on the issuance philosophy and the self-evaluation of the issued CC. We compare analog and digital currency types, except for the combination of analog and digital currency types, with a small number of samples among these three forms.

First, we compare the CC issuance philosophy (Table 12). The table shows that digital CCs emphasize F1 more than analog CCs. This reflects the fact that digital CCs involve the strengthening of the financial system and the diversification of the monetary system. Although the currency issuance philosophy does not uniquely determine the issuance form, digital CC issuance organizations emphasize economic value more than analog CC issuance organizations.

Table 12. Comparison of issuance form of subscale score on the currency issuance philosophy

	Cluster	n	Ave.	SD	t	DF	p
Factor1: Enrichment of the economic environment	Analog	25	2.47	1.07	-2.997	33	.005
	Digital	10	3.62	0.90			
Factor2: Fulfillment of the social environment	Analog	25	3.6	0.77	0.36	33	.719
	Digital	10	3.5	0.65			

Next, we compare the self-evaluation of CCs. Table 13 compares the average of the subscale scores by issuance form. This table shows that the self-evaluation of digital CCs is more about fair and efficient trade in society than the self-evaluation of analog CCs.

Table 13. Comparison of the subscale score on the evaluation of CC

	Cluster	n	Ave.	SD	t	DF	p
Factor 1: Formation of connections to accept various individuals	Analog	26	3.28	0.99	-0.36	34	.725
	Digital	10	3.4	0.73			
Factor 2: Realization of a free and diverse society	Analog	26	2.90	0.99	-1.01	34	.32
	Digital	10	3.24	0.69			
Factor3: Realization of fair and efficient trade	Analog	25	3.16	1.22	-2.44	32.03	.02
	Digital	10	3.9	0.57			

From these results, it can be seen that the value of digital CCs is more important than that of analog CCs and that the economic function is more important for the CC's social impact. This means that, even though the philosophy that is emphasized does not determine the issuance form, differences in important aspects are related to the issuance form selected.

4. DISCUSSION

In this study, we set forth three research questions.

RQ1 What kind of philosophies do CC issuance organizations emphasize?

RQ2 How do the philosophies affect the CC being issued?

RQ3 What is the relationship between issuing philosophies and issuing forms?

The findings of this analysis are as follows: First, regarding the issuance philosophy (RQ1), we categorized the target organizations into four groups based on the evaluation axes of the enrichment of the economic environment and the fulfillment of the social environment. Regarding the enrichment of the economic environment, there is a tendency for the philosophy to cease to be emphasized from Clusters 1 to 4. Comparing these four clusters, the other three clusters, excluding Cluster 4, place importance on the revitalization of the local economy. In addition, we found that only Cluster 1 places importance on strengthening the financial system and diversifying the money system. Regarding the enhancement of the social environment, we found that Clusters 1 and 4 have similar principles. We also found that Cluster 3 did not focus on this other than the rebuilding of relationships between local residents.

Second, three major factors related to the self-evaluation regarding the impact of the CC issued on society were found (RQ2): the formation of connections to accept various individuals, the realization of a free and diverse society, and the realization of fair and efficient trade. When comparing the subscale scores of these three elements in four clusters classified by issuance philosophy, Cluster 3 is significantly lower than Cluster 1 for formation of connections to accept various individuals and the realization of a free and diverse society, and Cluster 4 is significantly lower than Cluster 1 for the realization of fair and efficient trade. These results point out that the issuance organization's philosophy reflected in the self-evaluation and issuance purposes.

Third, when focusing on the relationship between issuance philosophy and issuance form, no difference in the issuance form was observed among the four clusters. However, digital CCs emphasize the enrichment of the economic environment as an issuance philosophy more than analog CCs and are viewed more as bringing about fair and efficient trade (RQ3).

In this study, we investigate the issuance philosophy of Japanese CC issuance organizations and point out that there is a definite relationship between the purpose of issuance and the self-evaluation of issued CCs, and that there are differences in which philosophies are emphasized, depending on the issuance forms. The results of this survey have a limitation in the number of samples, and although it cannot necessarily be said that they represent the characteristics of all the CCs in Japan, we will refer to these results for further research on this subject.

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Endnotes

ⁱ Kobayashi, Miyazaki and Yoshida (2020) classify CCs in Japan into five clusters in terms of environment and regional activities: revitalization of regional economies based on environmental protection and resource circulation; multipurpose CCs; revitalization of forestry and regional economies; formation of people's connections and regional economic revitalization; and promotion of regional activities and community welfare based on people's connections.

ⁱⁱ The Bank for International Settlements (2015) points out that digital currency has three aspects. The first aspect is the assets featured in many digital currency schemes. The second aspect is the way in which digital currencies are transferred, typically via a built-in distributed ledger. The third aspect is the variety of third-party institutions, almost exclusively non-banks. Digital CCs, which are the subject of this study, are a kind of digital currency with these three features.

ⁱⁱⁱ Nishibe (2012, 2018) points to the feature of CCs as integrative communication media. According to this, people use multiple currencies to maintain the interest, values and ethics, and uniqueness of the region, organization, and group.

^{iv} Digital CCs issued before 2016 are included in the list of Kobayashi, Miyazaki, and Yoshida (2020).

^v We referred to Corrons (2017) to develop these questions.

^{vi} The case 6-D is an electronic version of a gift certificate used by tourists to purchase accommodation, meals, and souvenirs, and is not designed for use by local residents. See Shimatoku Tuka (2019).

^{vii} The question "It is desirable to use the currency issued by your organization as a reward if you want others to do something," was excluded from the analysis as the score for commonality was low.