The Comparison Between The Uses of Branchless Banking in Urban and Rural Areas: Geographical Perspective

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Abstract. Branchless Banking is an ICT-based service provided by banks through the provision of agents. The agents are spread in several locations, both in urban and rural areas. This paper is part of a study on The Perceptions of Space and Locations of Urban and Rural Communities: Implications for the Development of Branchless Banking. However, this paper only focuses on how community makes use of branchless banking by comparing its conditions in urban and rural areas and its relations to the field of geography. The area studied in this research are Kulon Progo Regency and Yogyakarta Municipality that located in Yogyakarta Special Province, Indonesia. The method used in this research is quantitative method. The data are collected by structured interview especially to the agent and customers of branchless banking. The agents and customers of branchless banking coordinate locations used as input for spatial density analysis. The other geographic perspective is accessibility analysis using cost distance, this analysis developed from combining Euclidean distance of road and settlement, and slope. The result shows that the use of branchless banking is based on the factor of location that is closer to where they live and how easy the access is. In addition, there are also convenience factors, such as unlimited time for services and familiarity in accessing. Regarding the reasons for the utilization of Branchless Banking in Rural and Urban is almost the same, but for the city of Yogyakarta, the location factor plays a role, while in Kulon Progo the comfort factor is also a consideration. In both urban and rural areas, branchless banking agents are mostly located in residential area. Agents are highly used in the location that is far away from economic services, especially banks. It also shows the same pattern if evidenced by spatial density and accessibility analysis. The perception of societies related to the distance qualitatively has similarities with the results of spatial analysis of density and accessibility. The presence of ICT in banking services in the form branchless banking through an agent can add the concept of banking service development that is not always in the city center, but it can also be rural areas.

1. Introduction
Since 1990 information and communication technology has been a global trend and affected the world of businesses, like the production management and distribution services as well by utilizing internet [1]. The revolution in technology has changed the dimensions of human life regarding time and place, especially for the computer and telecommunication applications such as e-banking and electronic fund transfer [2]. E-banking was initially introduced by several banks in Singapore in 1997 and 1998 [3].

In Indonesia banking services that are based on the Information and Communication Technology have been implemented since 2007, beginning with the services of ATM then followed by e-banking. The uses of ICT-based banking services have altered the conventional ways in serving the bank customers. They do not need to go to the bank to do their transactions and that this can reduce their mobility, time, and cost [4,5,6,7,8].
About the uses of e-banking, it is questionable whether all layers of society can make use of it or is it only specific groups of people who can make use of it? What is the comparison like between those living in urban and those living in rural areas in using it? This question, therefore, leads to the emergence of running branchless banking, meaning that it is unnecessary to open a new branch, but instead an agent can provide the banking services. Branchless banking is in fact not only found in developed countries but also in developing countries. Developing the branchless banking network will give potential benefits to stakeholders in various forms of services, such as more efficient programs in social benefits, improving services for the payment of utility bills, and also better return for bank loan [9,10,11]. The most critical aspect of branchless banking is that the availability of ICT enables the bank to be connected with its clients with various backgrounds and from various places as well through an agent.

The network for facilitating branchless banking requires the following elements [12]: (1) it is easy for the clients to access retail shops, meaning that the retail shops in many cases are a third side acting as an agent and as a mediator between clients and bank, (2) electronic infrastructure must be available to enable fast transaction, and (3) bank’s account platform is intended to maintain and complete transaction record. Based on ICT, branchless banking can apply two different methods; (1) cellular telephone network, that is very popular in Africa and Asia, or (2) point-of-service or computer terminal that is successfully applied in Latin America [10].

Furthermore, this research is aimed at answering the research questions; How is the implementation of branchless banking in the Special Province of Yogyakarta? How is branchless banking used? What is the comparison like between the uses of branchless banking in urban and rural areas?

2. Methodology
This research is carried out in the Special Province of Yogyakarta by taking samples of locations in urban and rural areas where branchless banking system has been applied. In this case, the urban area is represented by the City of Yogyakarta, and the rural area is represented by the Regency of Kulon Progo. The data collected are of primary ones taken by undergoing a structured interview. It is done to find out kind of services provided by agent. The structured interview done to the customers of branchless banking is intended to obtain data on the uses of branchless banking and their perception over the agent’s location. The agents and customers of branchless banking coordinate locations used as input for spatial density analysis. The density analyses calculated an appropriate search distance for determining neighborhood size and classify the output as equal interval with five classes, and provide the output densities in Square Kilometers [13]. The other geographic perspective is accessibility analysis using cost distance, this analysis developed from combining Euclidean distance of road and settlement (the closer the value is high), and slope (the more flat, the higher values).

3. Result and Discussions
The role of information technology in forming future geography are related to people, place, and region in global economy [14]. Long before signals that geography in the future will experience development regarding place due to the modern mobility revolution [15]. The research on branchless banking strengthens those ideas. The existence of branchless banking services has altered the location for services that should be in an easily accessible place. Branchless banking has also changed the space functions in fulfilling banking services. Branchless banking service is one of the realizations of ICT uses in banking services and that the conception of space and location is changing. The use of ICT in banking services can affect the location of banking services themselves. Banking services should not always be in a city center. Instead, they can be in rural areas.

The result of research shows that branchless banking both in urban and rural areas is shown with the emergence of agents found in both locations for this research, i.e., the City of Yogyakarta and the Regency of Kulon Progo. Meanwhile, the number of agents and customers in both locations is different. 58 agents and 36 customers are found in the City of Yogyakarta consisting of 14 sub-districts.
Meanwhile, in the Regency of Kulon Progo consisting of 12 sub-districts 67 agents and 41 customers are found there. Most agents in both places are found in settlement areas. They are more dominantly found in rural areas than those in urban area since the primary target of branchless banking is those living in rural areas that are relatively far from bank offices. The high number of agents in rural areas is eventually able to spread the bank services without building new offices.

3.1. The Use of Branchless Banking in Urban Area

In the City of Yogyakarta, agents and customers of branchless banking services found spreading in each sub-district. However, they are mostly found in sub-districts that are located far from business center. They are mostly found in the sub-districts of Kotagede and Umbulharjo. In both sub-districts, the agents are located in settlement area since they are relatively far from the city or business center. The perception of users to the location of agents is shown on Figure 1.

![Figure 1](image1.png)

**Figure 1.** The Perception of Users to the Location of Agent in the City of Yogyakarta

Location becomes the primary factor for customers to use services from branchless banking in urban area. Based on the result of interview with users of branchless banking and with agents, as shown in Figure 1, 52% of the customers regard that branchless banking services could be easily accessing because of their being closely located. The close location gives a significant benefit for the customers to receive services from branchless banking. As many as 34% of customers feel the primary benefit of branchless banking services because they live close to the agents and that they can save time. Other benefits that the customers feel are that it does not take them long time to get to the agents, services are not limited to office hours, and even a small amount of transaction is also accepted.

![Figure 2](image2.png)

**Figure 2.** Benefits of Branchless Banking Services Obtained by Customers in the City of Yogyakarta
The use of branchless banking in city’s agents dominated with deposit and withdrawal. Meanwhile, customers in the city make use of bank office services for loan purposes and machine services. Because there are many ATMs in the city, customers prefer to go to ATMs for certain transactions.

3.2. The Use of Branchless Banking in Rural Area

The findings of this research show that there are more branchless banking services in rural areas than those in urban area, i.e. 67 agents and 41 customers. In the Regency of Kulon Progo as the sample of rural area for this research, the agents and customers of branchless banking services mostly found in the sub-districts of Kalibawang and Panjatan. Both are located far from business center. However, the sub-district of Panjatan is located more closely to the business center of the Regency of Kulon Progo than the other sub-district. Branchless banking services in rural areas have two functions, i.e., as the second hand of the branch office and as the branch office in an area that is far from the coverage of the branch office services.

![Figure 3. The Perception of Users the Location of Agents in the regency of Kulon Progo](image)

Just like the uses of branchless banking services in urban area, location is one of the factors for customers to use branchless banking in rural area. Based on the result of interview with users of branchless banking and with agents, as shown in Figure 3, 49% of the customers regard that branchless banking services could be easily accessing because of their being closely located. The existence of agents in the settlement area makes it easy for customers to access banking services. The benefit that the customers in rural area mostly feel is that the location of agent is so close that they can save time and money.

![Figure 4. Benefits of Branchless Banking Services Obtained by Customers in the Regency of Kulon Progo](image)
About the uses of services, branchless banking in rural area is different from that in urban area. In addition to the factor of location, the factor of conveniences is of importance. This factor appears since comfortable atmosphere in doing transaction could be creating. This is so because the agent is located close to the area where the customers reside so that cohesive atmosphere and relationship with the neighboring people could be creating. Therefore, in relation to the location of agents, they, both in urban and rural areas, should be located in places far from the city center.

3.3. Spatial Analysis of The Use of Branchless Banking

The First Law of Geography is “everything is related to everything else, but near things are more related than distant things.” [16] Distance becomes a crucial factor in the utilization of branchless banking as described above from the distance perception of questionnaire results (Figure 1 and Figure 3). The qualitative analysis above closely related to the result of spatial analysis using density analysis and cost distance analysis. More on the results of spatial analysis of branchless banking in urban area (Yogyakarta) and rural area (Kulon Progo Regency) are as follows.

The city of Yogyakarta as an urban area has a distribution of branchless banking agents that is quite evenly distributed in almost every sub-district, but there are two districts (Danurejan and Kotagede) which have agent densities of more than two agents in each km square (Figure 5.a.). Distribution of branchless banking customers from field samples showed unequal distribution in each sub-district, in Wirobrajan sub-district having the highest customer density of more than eight customers per square km while in other sub-districts having densities below five customers per square km (Figure 5.b.). The score of accessibility value from the cost distance result of closeness to the road and the settlement, as well as the slope parameter (the higher the ramp value, the higher), shows the score above 2 (maximum 3) for the urban area (Figure 5.c.). The value of accessibility maps are very similar to density maps; if the agent density or branchless banking customer is high, then the accessibility score is also high.

Distribution of branchless banking agent in rural area of Yogyakarta (Kulon Progo Regency) looks uneven (Figure 6.a.), density patterns of agents follow the presence of main roads and collector roads. The highest density of branchless banking agents is located between Lendah and Galur districts, with density values close to 0.5 agents per square km. The highest density value of branchless banking customers also approached the agent density value, i.e., 0.4 customers per square kilometer spread across Lendah, Galur, Pengasih, Panjatan, and Temon districts (Figure 6.b.). For the record, the customer data of branchless banking in this research is the result of field surveys, not the total branchless banking customers. The density of branchless banking agents and customers entirely influenced by the accessibility parameter or cost distance (Figure 6.c.).
Figure 5. Agents and customer density map, and accessibility map of branchless banking in urban area of Yogyakarta.
a. BRANCHLESS BANKING DENSITY MAP IN RURAL AREA OF YOGYAKARTA, KULONPROGO

Density (ct/km)
- 0.04 - 0.08: Low density
- 0.08 - 0.12: Medium density
- 0.12 - 0.16: High density
- 0.16 - 0.20: Very high density
- 0.20 - 0.24: Extreme density

b. ACCESSIBILITY MAP BRANCHLESS BANKING IN RURAL AREA OF YOGYAKARTA, KULONPROGO

Accessibility score
- 1: Easy
- 2: Moderate
- 3: Difficult

Legend:
- Branchless Banking
- Main roads
- Collector roads
- Local roads

Legend:
- 0 km: Faculty of Geography
- 2 km: University of Yogyakarta
4. Conclusion and Recommendation

The findings show that the uses of branchless banking services are mostly found in areas far from business area, both in urban and rural areas. Rural area has more agents and customers of branchless banking because they are located far from business area and banking services in the form of branch office and unit. Factors affecting the uses of branchless banking services are that it is easy to access them as shown by the location of agents and time and cost efficiency. For branchless banking in rural area, there is another factor in addition to being easy to access due to the close location of agents. The other factor is conveniences, i.e., cohesive atmosphere and being easy to communicate with neighboring people.

When compared to the density of branchless banking agents and customers in urban and rural areas is very different, in urban areas have a much higher density compared with rural areas. Accessibility parameters (cost distance) significantly affect the density of branchless banking agents and customers, for example in urban areas the scores of high accessibility distributed almost evenly in all sub-districts whereas in rural areas it is only high in sub-districts close to the main road and collectors. Therefore, it concluded that the perception of societies related to the distance qualitatively has similarities with the results of spatial analysis of density and accessibility. The presence of ICT in banking services in the form branchless banking through an agent can add the concept of banking service development that is not always in the city center, but it can also be rural areas.
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