

The Application of Decision Theory in Picking Delivery Courier Services in the Philippines

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Abstract

One of the renowned industries which provides services to the community is the delivery courier services – these are businesses which facilitate the transport and delivery of documents and packages. Along with the expansion of E-commerce, the demand for delivery courier services has also increased. Primarily, during the pandemic where community restrictions are imposed, these services are observed to have surge in demands because of the emergence of online purchasing. Delivery services have been convenient and necessary for businesses and individuals hence the said industry has been important for countries like the Philippines. The present study aims to make use and capitalize the tool Decision theory/analysis in choosing which courier in the Philippines is the much preferred by the customers. Through a preliminary survey the researchers were able to gather the most widely used courier by the customers namely: J&T Express, Lalamove and Grab Express. The results obtained from the study shows that in the Maximax Criterion the best decision was Grab Express, in the Maximin Criterion J&T Express was the best decision, in the Minimax Criterion J&T Express was the best decision, in the Hurwicz Criterion J&T Express was the best decision, and in the Equal Likelihood Criterion J&T Express was the best decision. Resulting that J&T Express was the optimal delivery courier service from the data gathered by the researchers.

Keywords

customer, delivery courier services, Decision Theory

1. Introduction

During the past years, growth and development has been boosted due to the emergence of different industries. Besides the agricultural and industrial industries, another driving force has emerged and this is the service industry (Liu et al., 2005). Because of the rapid growth and emergence of the service economy, the shift from the industrial economy has now been made possible. During times that we are in the role of the service industry has made a big impact in modern times (Cheng, 2013; Kon, 1997).

The scope that the service industry covers could be considered a broad one, as it covers a wide spread of what it can do or perform. The service industry could be considered a complete package for every human's daily needs. The world that humans live in is almost surrounded by different types of services. According to Ranasinghe (2021), the possibility of surviving in modern times in the absence of the service sector is impossible.

Since the pandemic started a lot of areas in the service sector have greatly been affected whether in a positive way or a negative way. One thing for sure is that for the delivery courier services, it had a positive impact due to the high demands since the pandemic started. The emergence of delivery couriers during this pandemic indeed has drastically increased due to safety reasons. Some say that delivery couriers are now part of the new normal, since it is the safest way to give something to someone provided that they would not be required to go out already.

1.1 Current Issues Related to the Topic

The pandemic of Covid-19 highly affects the businesses around the country were going outside, travel, and direct contact with others is limited. The courier service delivery is daily used by businesses and it is the safest and fastest way to deliver their goods to the customer rather than picking up or meeting up where it is an inconvenience and also

risk the owner and customer into infection. The courier service is highly used in a pandemic therefore an analysis can show the optimal courier service.

1.2 Background of the Study

Delivery courier services are one of the renowned industries in our society right now. They are the one who provide services that transport and deliver packages all over the world. This delivery courier services have a variety of specializations which includes nationwide shipping and shipping around the world (Karcz & Slusarczyk, 2016). As E-business and commerce has undergone rapid growth and demand, the demand for the delivery courier services has also increased too. Due to online purchasing, delivery courier services became in demand because of the protocols and restrictions needed to be followed by the people (Libo-on, 2021; Sanchez, 2020). Indeed, delivery courier services became a necessity during the pandemic and made the life of people easier and more convenient (Dones & Young, 2020).

1.3 Gap of the Research

Some reviews and related literature have already applied the model in the delivery courier services. Previous studies used the SERVQUAL dimensions to identify and gather the customers' satisfaction. There were only a few studies whose result was mainly about picking the delivery couriers based on the dimensions. Also, there were limited studies that used Decision theory as an analysis tool.

1.4 Objectives

The present study aims to make use and capitalize the tool Decision theory/analysis in choosing which courier in the Philippines is the much preferred by the customers. The study implores two aspects for its objectives, it tackles both general and specific aims in the result of the study. While its general aspects seek towards which criteria impacts on satisfaction among customers towards the delivery services brought by the selected delivery companies, it also specifies and obtains results as it compares the factors for satisfaction with the performance made by delivery services. Furthermore, this shall serve as a future reference and criteria for future company improvements or studies.

1.5 Scope and Limitation

The study gives importance to the uncovering of additional knowledge about certain areas of this study. It will help show the areas in those couriers where they are lacking and would be needing improvement. Not only improvements and knowledge would be shown in the study, but also the details that past studies had overlooked.

1.6 Significance of the study

The study that aims to identify which delivery courier here in the Philippines is most used, made use of a survey to gather the data the group would be needing. The respondents that the group had were made sure that they have used the type of service that is in this study. Given this, the research group had gathered over 102 respondents which are all based here in Metro Manila.

2. Literature Review

2.1 Same Day Delivery Courier Services

The study that is supported by an article written by Dones & Young (2020), since this pandemic started panic buying and hoarding has been evident. The scarcity in supply has really been made evident during this pandemic. The supply followed by the demand especially in the service industry has been made visible to the eyes of the people, that is why service companies such as delivery services devised strategies to have an edge. One of the companies that made sure that they would have a cutting edge over the others is J&T offering a tremendous service time and a nonstop working operation. Another edge they had is the marketing methods, but despite these edges this type of service provider still has its downs. Comparing it to the Lalamove and Grab Express, providers for parcel deliveries, this company can deliver and pick up parcels anywhere and outside of Metro Manila. This is one edge that has made it ahead of competing service providers. This type of method where every delivery service provider is equipped with its own cutting edge is a good thing as it keeps the flow of goods going, but then satisfaction in this instance is not guaranteed and it varies from every client.

2.2 Quality of Service

According to a written work of Garvin (1968), based on recent studies, companies who level or adapt to their customers are more likely to achieve the satisfaction of their customers rather than companies who approach their clients in a general manner. The reason behind this is that the user interface varies from one customer to another. Every customer who avails something looks for something in a service or product. The company who caters to their clients specifically is considered more likely to achieve the satisfaction from customers. Those companies who do not adapt to their customer and approach them generally have the smallest chance in satisfaction.

2.3 Fees and Charges

As supported by the written work of Khan (1999), the interest of a customer is a very crucial part in achieving a successful transaction. If a customer would avail something he/she does not just buy or avail that service, they first look at the features or cutting edges of why they would choose the specific service provider. In the case of delivery couriers, the fees and charges are not enough to build interest, key details of what they would be paying is an important factor since they would be knowledgeable of what they are availing.

2.4 Limitations

As supported by an article made by Mark Sison (2020), since this pandemic started a lot of businesses have gone full blown especially in the service sector. One of which in the service sector that went into full force in operation is the delivery couriers. Delivery couriers since the approval of protocols has been part of the new normal. A lot of people use this type of service primarily to transact and connect to their loved ones. The top delivery couriers that had no question dominated the game were the Lalamove, Grab Express of Grab, and J&T Express. Yet, as consumer satisfaction varies, no further study regarding the guarantee of customer satisfaction has been made so far.

2.5 Responsiveness

In the service sector in the industry, the before and after process is a crucial part. The previous process such as entertaining queries, answering messages, or any form of communication helps build interest between customer and provider. The after process wherein providers are willing to answer and resolve issues is also important as this is where the building of chance that the customer could avail the service again could occur. Communication is the key in this area as it is the best way to give the satisfaction customers want.

2.6 Delivery Accuracy

As stated by RJ Cabaluna (2020) of Philstar, delivery couriers had contributed a lot to the new normal. The following companies such as Grab, Lalamove, and J&T Express indeed had worked their way on top and earned the trust of many partner enterprises that entrust in them the delivery and safety of their product. As the pandemic duration lengthens, the demand on these companies has grown over the past months. The result of this according to Cabaluna's interview is that companies now set their focus on developing and improving technology for accurate and better experience for their clients.

3. Methods

3.1 Conceptual Framework

The main goal of this paper was to compare the services offered and preferred by the customers on the Philippine delivery couriers based on the reliability and cost dimensions. The researchers also ranked the delivery couriers by using a preliminary survey about what is the most widely used courier by the respondents. This paper determined the two dimensions which could help the delivery couriers to improve the quality of their service and to the customers to help them pick the right, reliable and affordable courier for their packages. Throughout the study, the researchers were guided by the following conceptual framework in figure 1:

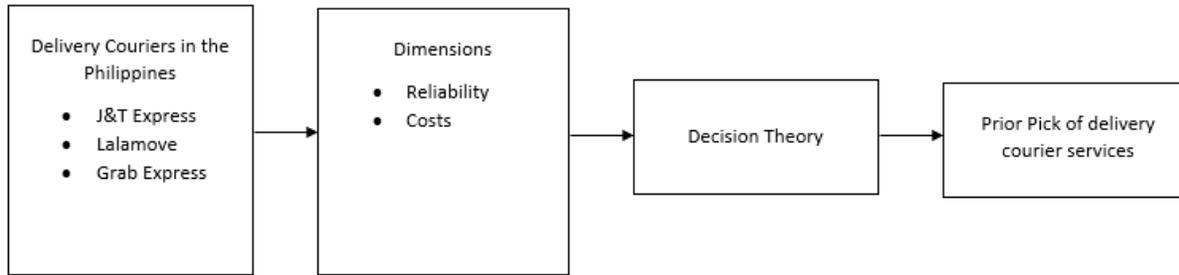


Figure 1. Conceptual Framework

3.2 Participants

There are a total of 101 participants in the National Capital Region that were chosen to be the respondents of this study. Out of the 101 respondents, 48% were students, 22.5% were employed for wages, 22.5% were self-employed and 6.9% were unemployed. These individuals were the target of the researcher for the reason that they were the persons who had an access to the services offered by the three delivery couriers of this paper.

3.3 Analysis/Evaluation Procedure

The researchers utilized the Decision theory in determining which delivery courier in the Philippines is much preferred by the masses. Which utilized the analysis tools of survey type of questionnaires using Google Forms in determining and measuring the customers' satisfaction towards their delivery services. The survey made use of scale ratings from 1-5 with 1 having the least satisfaction and 5 having the highest satisfaction in reliability and costs. Specifically, the variables were divided into sections of four including the demographic profile of each respondent. Lastly, the collected data were then treated using decision analysis.

4. Data Collection

The said study in figure 2 administered a survey in gathering data pertaining to the customer satisfaction for services provided by various delivery couriers. At first, the researchers conducted a preliminary survey to determine the most widely used delivery courier in the Philippines.

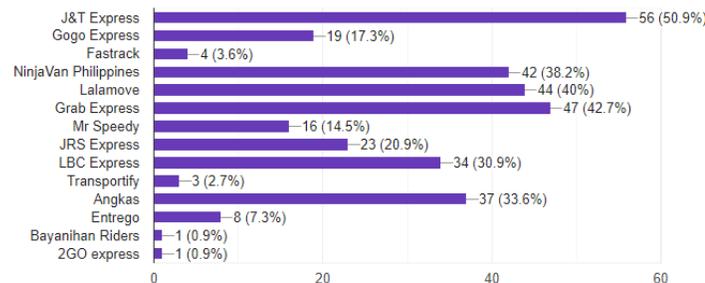


Figure 2. Results of the preliminary survey

After conducting the preliminary survey, it resulted that the top three most widely used delivery couriers in the Philippines were J&T Express, Lalamove and Grab Express. After the researchers determined the most commonly used couriers, the researchers then conducted another survey and concentrated on determining the customer ratings for the performance of each delivery courier companies which were J&T Express, Grab Express, and Lalamove and distributed them online.

Subsequently, the first part of the survey in figure 3 initially asked for the demographics of the respondents which is the name, address and the employment status of the respondents.

City/Municipality
 102 responses

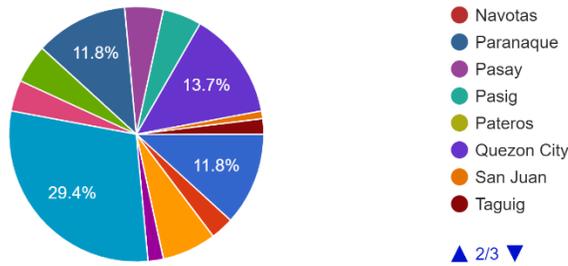


Figure 3. Address of the respondents

Employment Status
 102 responses

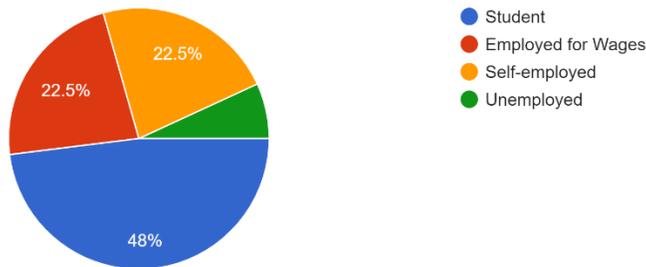


Figure 4. Employment Status of the respondents

For the second part in figure 4, the researchers asked the participants to rate their satisfaction for the services offered by J&T Express delivery courier based on reliability and cost.

Rate your overall experience based on the speed and quality of service provided by the courier.
 102 responses



Figure 5. Rate of J&T Express in speed and quality dimension

Rate your overall experience based on the shipping fee provided by the courier.
 101 responses

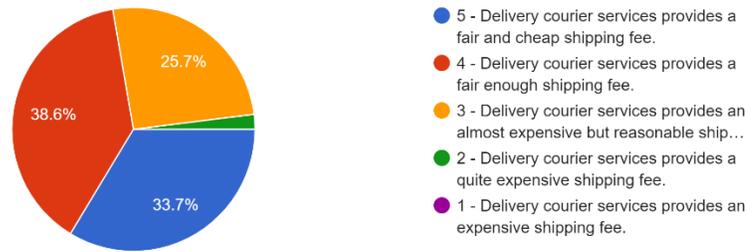


Figure 6. Rate of J&T Express in shipping fee cost dimension

For the third part, the researchers asked the participants to rate their satisfaction for the services offered by Lalamove delivery courier on the basis of reliability and cost.

Rate your overall experience based on the speed and quality of service provided by the courier.
 102 responses



Figure 7. Rate of Lalamove in speed and quality dimension

Rate your overall experience based on the shipping fee provided by the courier.
 101 responses

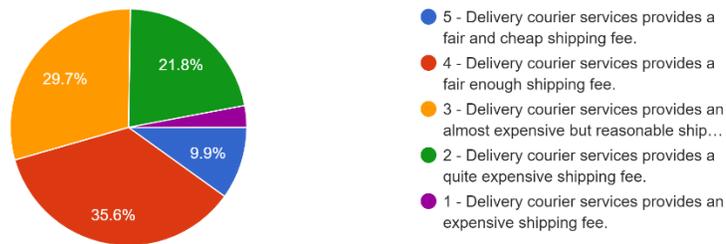


Figure 8. Rate of Lalamove in shipping fee cost dimension

For the last part, the researchers asked the participants to rate their satisfaction for the services offered by Grab Express delivery courier on the basis of reliability and cost.

Rate your overall experience based on the speed and quality of service provided by the courier.
 101 responses



Figure 9. Rate of Grab Express in speed and quality dimension

Rate your overall experience based on the shipping fee provided by the courier.
 101 responses

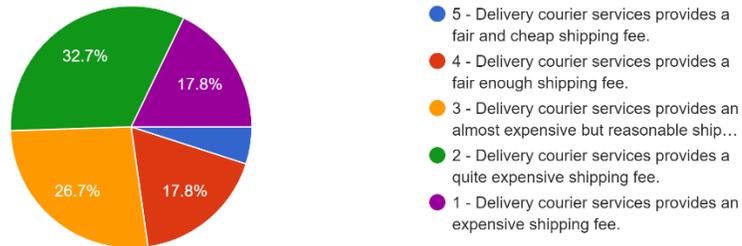


Figure 10. Rate of Grab Express in shipping fee cost dimension

Table 1. Survey scores for speed and quality dimension

Rating	SPEED AND QUALITY					
	No. of Ratings Per courier			Total Rating Score		
	J&T	Lalamove	Grab	J&T	Lalamove	Grab
5	47	66	76	235	330	380
4	31	31	23	124	124	92
3	19	4	1	57	12	3
2	4	0	1	8	0	2

1	0	0	0	0	0	0
		TOTAL		424	466	477

Table 1 shows the overall survey scores for speed and quality dimensions with Grab Express being the highest with a total rating score of 477 and J&T Express being the lowest with a total rating score of 424.

Table 2. Survey scores for shipping fee cost dimension

SHIPPING FEE						
	No. of Ratings Per courier			Total Rating Score		
Rating	J&T	Lalamove	Grab	J&T	Lalamove	Grab
5	34	10	5	170	50	25
4	39	36	18	156	144	72
3	26	30	27	78	90	81
2	2	22	33	4	44	66
1	0	3	18	0	3	18
		TOTAL		408	331	262

Table 2 shows the overall survey scores for shipping fee cost dimension with J&T Express being the highest with a total rating score of 408 and Grab Express being the lowest with a total rating score of 262.

5. Results and Discussion

5.1 Graphical Results

The data gathered by the researchers were treated using the Decision Theory:

Table 3. Results of the main survey

Decision	States of Nature	
	Speed & Quality	Shipping Fee
J&T Express	424	₱ 408.00
Lalamove	466	₱ 331.00
Grab Express	477	₱ 262.00

Table 4. Using the Maximax Criterion

Maximax Criterion			
Decision	States of Nature		Maximum
	Speed & Quality	Shipping Fee	
J&T Express	424	₱ 408.00	424
Lalamove	466	₱ 331.00	466
Grab Express	477	₱ 262.00	477
Maximum Payoff	477		
Decision	Grab Express		

Table 4 shows that using the Maximax Criterion, the best decision was the GrabExpress with the maximum payoff of 477.

Table 5. Using Maximin Criterion

Maximin Criterion			
Decision	States of Nature		Minimum
	Speed & Quality	Shipping Fee	
J&T Express	424	₱ 408.00	408
Lalamove	466	₱ 331.00	331
Grab Express	477	₱ 262.00	262
Maximum Payoff	408		
Decision	J&T Express		

Table 5 shows that using the Maximin Criterion, the best decision was the J&T Express with the maximum payoff of 408.

Table 6. Using Minimax Criterion

Minimax Criterion			
Decision	States of Nature		Maximum
	Speed & Quality	Shipping Fee	
J&T Express	424	408	
Lalamove	466	331	
Grab Express	477	262	
Maximum Payoff	477	408	
(Reduced by Max Payoff)	States of Nature		Maximum
Decision	Speed & Quality	Shipping Fee	
J&T Express	53	0	53
Lalamove	11	77	77
Grab Express	0	146	146
Minimum Payoff	53		
Decision	J&T Express		

Table 6 shows that using the Minimax Criterion, the best decision was the J&T Express with the minimum payoff of 53.

Table 7. Using Hurwicz Criterion

Hurwicz Criterion				
Decision	States of Nature			
	Speed & Quality	Shipping Fee		
J&T Express	424	408		
Lalamove	466	331		
Grab Express	477	262		
Total	1367	1001		
Coefficient of Optimism	α		$1-\alpha$	
	0.4		0.6	
				Values
J&T Express	424α	+	$408(1-\alpha)$	414.4
Lalamove	466α	+	$331(1-\alpha)$	385
Grab Express	477α	+	$262(1-\alpha)$	348
Max	414.4			
Decision	J&T Express			

Table 7 shows that using the Hurwicz Criterion, the best decision was the J&T Express with the maximum payoff of 414.4

Table 8. Using Equal Likelihood Criterion

Equal Likelihood Criterion				
Decision	States of Nature			
	Speed & Quality	Shipping Fee		
J&T Express	424	408		
Lalamove	466	331		
Grab Express	477	262		
Equal Weights	0.5		0.5	
				Values
J&T Express	$424(0.5)$	+	$408(0.5)$	416
Lalamove	$466(0.5)$	+	$331(0.5)$	398.5
Grab Express	$477(0.5)$	+	$262(0.5)$	369.5
Max	416			
Decision	J&T Express			

Table 8 shows that using the Equal Likelihood Criterion, the best decision was the J&T Express with the maximum payoff of 416.

Table 9. Summary of the results

Summary:	Criterion	Decision	Result:
	Maximax	Grab Express	J&T Express is the optimal courier service from the data gathered.
	Maximin	J&T Express	
	Minimax	J&T Express	
	Hurwicz	J&T Express	
	Equal Likelihood	J&T Express	

Table 9 shows that in the Maximax Criterion the best decision was Grab Express, in the Maximin Criterion J&T Express was the best decision, in the Minimax Criterion J&T Express was the best decision, in the Hurwicz Criterion J&T Express was the best decision, and in the Equal Likelihood Criterion J&T Express was the best decision. Resulting that J&T Express was the optimal delivery courier service from the data gathered by the researchers.

5.3 Proposed Improvements

The researchers recommended having survey data that procures a probability within the given factors that shows a possible importance that the customers would highly consider choosing. A data with a given probability would suffice to have an analysis of decision making with probabilities that would strengthen the analysis of the picking courier service delivery with the application of decision theory.

The courier services that didn't appear to be optimal within the different choices of courier service since the balance or ratio of their factors of speed and quality, and shipping fee that shows that it's too one sided or focused on one primary factor. It is recommended to balance out the service of speed and quality into the rate of shipping fee to attain an optimal result and improve the views of customers to the courier service.

6. Conclusion

The present study aims to make use and capitalize the tool Decision theory/analysis in choosing which courier in the Philippines is the much preferred by the customers. The study implores two aspects for its objectives, it tackles both general and specific aims in the result of the study. While its general aspects seek towards correlating satisfaction among customers towards the delivery services brought by the selected delivery companies, it also specifies and obtains results as it compares the factors for satisfaction with the performance made by delivery services. Furthermore, this shall serve as a future reference and criteria for future company improvements or studies. Gathering the needed data for this paper, the said objectives were fulfilled by the researchers.

In summary, the results obtained in the Decision Theory show that in the Maximax Criterion the best decision was Grab Express, in the Maximin Criterion J&T Express was the best decision, in the Minimax Criterion J&T Express was the best decision, in the Hurwicz Criterion J&T Express was the best decision, and in the Equal Likelihood Criterion J&T Express was the best decision. Resulting that J&T Express was the optimal delivery courier service from the data gathered by the researchers.

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