

Strategy of Food Retailer and Delivery Rider's Accident in South Korea

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Abstract

Purpose: The primary objective of this research is to propose answers of rider's accident of food retailer in South Korea, in view of business sustainability of food retailer and his precious fate of rider who is a father that has a responsibility to the family. **Research design, data, and methodology:** We investigated previous studies such as food retailer, delivery, delivery application of mobile, rider's accident and statistics of delivery business agency, motorcycle accident ratio, annual fatalist, and further we analyzed cases of rider's accidents. **Results:** Rider's accident on the road toward food retailer is serious risky factor to their business reputation, corporate image, because claim amount related to death and physical/mental disability can be heavily damaged to food retailer. The point when rider dies is that rider is a person responsible for supporting his/her family, that is, a life itself issue together with downfall of family. **Conclusions:** In view of growth of South Korean' delivery rider industry, the authors recommended that focus of stability and sustainability of both food retailer and delivery rider should establish to executable and practical ideas such as rider's readiness, abandon of speed guarantee, duty of delivery app business and legal aids.

Keywords : Food retailer, Delivery Rider, Rider's Accident, Delivery Application, Fatalist.

JEL Classification Code : L81, L66, L62, M10, G22

1. Introduction

It is appeared that one of Korean's characteristic is 'the quickness' as a behavioral habit with unconsciousness whatever and wherever peoples do.

Through Korean's quick behavior associated with quick awareness, it is apparent that many kinds of technologies, information and communication, skills of soft and hardware are extremely developed in the world. What is more important is that the young have a excellent abilities to handle and touch mobilephone everywhere and everytime they want to do. In the same vein, many delivery applications for ordering foods are expanded and penetrated

toward their living, therefore volume of ordering food is overwhelmed and is severely increased to all range of ages in South Korea.

A lot of studies are reflected this shock of delivery culture in food industry as follows.

Sun and Park (2019) said that "Despite the recent slowdown in the food service industry, the transaction volume of the delivery food market is continuously increasing due to changes in the consumption platform represented by O2O(Online to Offline)."

Gupta (2019) said that "The recent development of the net has boosted the extension of on-line food services by facultative individuals to go looking, compare costs and handily access these services."

Chung and Nam (2015) said that "Recently, food delivery services through the application in mobile is very popular, thus Baedal App Service is emerging as a type of transaction for electronic commerce." Baedal App Service is a kind of service that users find a caterer's shop, order foods, and pay money for food(Chung & Nam, 2015).

In the booming online-to-offline(O2O) food ordering and delivery market, numerous independent restaurants are competing for orders placed by customers via online food

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ordering platforms. The food quality and location decisions are deemed to be the two principal considerations of restaurants in this emerging market (He, Han, Cheng, Fan, & Dong, 2019).

However, the authors take notice of rider's accident in the middle of emerging market for food industry in South Korea as follows.

Chung, Song, and Yoon (2014) said that "More than 56% of motorcycles in Korea are used for the purpose of delivering parcels and food. Since such delivery requires quick service, most motorcyclists commit traffic violations while delivering, such as crossing the centerline, speeding, running a red light, and driving in the opposite direction down one-way streets."

Zheng, Ma, Guo, Cheng, and Zhang (2019) said that "Delivery riders (usually e-bike riders employed in the delivery industry), an emerging occupation as a result of the booming of online commerce in China, have attracted social controversies for the prevalence of unsafe riding and high rates of crash involvement. Given their ever-increasing number and stressful working conditions, more attention should be paid to safety issues involving delivery riders."

It is evident that quick delivery of fast food makes consumer satisfactory and convenience. In spite of this sense of convenience, consumers tend to more quickly receive the food. As to satisfy this demand, delivery riders endeavor to deliver all kinds of food on road at any time. Also it is obvious that riding on motorcycle under heavy pressure of time limit between seller and buyer is clearly dangerous. For this, we call in this paper those who do deliver foods by means of motorcycle to customer is a delivery rider and delivery boy.

"Many restaurants in Korea maintain quick-delivery service programs to satisfy customers. This service allows delivery workers limited time to deliver, which frequently put them in danger. Most of the workers are young, work part-time, and are rarely organized into trade unions. (Park & Kim, 2016)."

Kulanthayan, See, Kaviyarasu, and Nor (2012) they said in their paper "Almost half of the global traffic crashes involve vulnerable groups such as pedestrian, cyclists and two-wheeler users."

The primary objective of this research is to propose answers of rider's accident of food retailer in South Korea, in view of business sustainability of food retailer and his precious fate of rider who is a father that has a responsibility to the family. To carry out this paper, the authors used case study of domestic and overseas in delivery rider's accident, and we focused on key words of 'food retailer', 'delivery rider', 'rider's accident' and delivery application (hereafter referred to 'app') surrounding culture of Korean's particular food delivery. In this paper, delivery rider's accident is significant, therefore some words of

illness, sickness, legal position and characteristic of rider on industrial accident are clearly excluded in the point of research completeness.

In order to prevent terms and meaning from confusing, the authors defines 'delivery rides' as every driver and rider on bike for a person that work to the restaurant, food retailer, manufacturer, private to private and all kinds of companies in terms of delivery toward clients, customer and consumer.

We gathered previous studies such as food retailer, merchant, delivery, delivery ride, delivery application, rider's accident, and we analyzed these studies, the results of which are widely used to the aims of the this research.

2. Literature Review

We collected and arranged previous studies such as food retailer, merchant, delivery, delivery application, delivery ride, rider's accident, and then we arranged these studies, the contents of which are as follows.

Firstly, previous studies of 'applications on mobile' were observed.

What is more important on food delivery trends nowadays is a 'delivery application' on digital device.

A lot of application research related to food delivery industry were observed as under.

Jeon, Kim, and Jeong (2016) studied that "This study presented the need to research into 'emotional response' and 'willingness to use apps', perceived by consumers using food delivery apps amidst the spread of smartphones and surge in use of food delivery apps."

Song (2019) studied that "They investigate the effect of food delivery App. service convenience on the continuous use intention for rising-generations single households."

Gupta (2019) studied that "on-line ordering has been a growing as a requirement have factor for the eating place business. on-line ordering has taken the food business by a storm."

Lee, Lee, and Jeon (2017) studied that "We examined the relationships between the determinants that affect customers' use of food delivery apps. Using an extended technology acceptance model, we explored consumers' experiences in purchasing delivery food through mobile apps."

Pigatto, Machado, Negreti, and Machado (2017) studied that "The online delivery service is growing rapidly, bringing together innovation and convenience to their customers, coupled with ease of access to mobile phones and internet, that contributed toward the emergence of a large number of platforms that offer this service in Brazil."

Chiehkung and Guan (2017) studied that "Nowadays many platforms emerge to provide delivery services by

having independent shoppers to deliver groceries from independent retailers to consumers.”

Park and Lee (2019) studied that “Safety, reaction and supply of information should be prioritized to reorganize and improve the mobile app services.”

Yoo and Kim (2019a) studied that “a win-win development plan for not only suppliers of delivery applications but also traditional market vendor companies and delivery riders to enhance competitiveness of the traditional market using delivery apps.”

Chang, Kim, and Lee (2014a). studied that “The mobile application service can be considered a new emergence of the paradigm just like the government’s on-line portal websites appeared in the past.”

Kwon, Park, Lee, and Kim (2014) said that “This study offers a method of attracting customers through an O2O(Online to Offline) marketing strategy that overcomes the existing limitations of Web and Offline media.”

“In the booming online-to-offline(O2O) food ordering and delivery market, numerous independent restaurants are competing for orders placed by customers via online food ordering platforms.” “The food quality and location decisions are deemed to be the two principal considerations of restaurants in this emerging market.”(He et al., 2019).

Yang and Kim (2014) studied that “This study intends to verify if the m-VALS developed to help the establishment of the mobile shopping vitalization strategy is classified as the same type as it is in the adult customers.”

Chen and Shang (2018) studied that “This paper aims to identify factors that influence the users’ word-of-mouth intention (WOMI) regarding mobile apps, focusing on the impacts of technology acceptance model (TAM) and social network theory.”

Cho (2019) studied that “the accurate tourist information services are used in the tourist app or in the place required.”

Kim, Youn, and Lee (2018) studied that “The Study on the e-Service Quality Factors in m-Shopping Mall App based on the Kano Model”.

Lee and Jing (2015) studied that “Use Intentions of Mobile Tour Apps through Expansion of the Technology Acceptance Model”.

Long, Park, and Lee (2018) studied that “A Study on the User’ Sustainable Intention of Mobile Tourism : Focused on Chinese Tourists Visiting Korea”.

Wu and Lee (2017) studied that “mobile traveling Apps operators should make efforts to catch elements that influence users’ initial trust.”

Concerning government assistance, Chang et al. (2014). studied that “This study proposes implications to help E-governmental officers and companies make strategies, about E-government G4C smart APP service.” “Super speed mobile communication technology and devices

including phones will be crucial to change the structure of E-government services in 2-3 years.”

Secondly, with reference to the retailer field, the following studies were noticed.

About retail regulations, Cho and Kwak (2017) studied that “In order to protect retailers, policy makers need to develop better sophisticated retail regulations than those of advanced countries.”

Thirdly, Delivery, Rider in view of particularly Accident

In relation to delivery, rider, accident, quite a few studies were seen.

Park and Kim (2016) studied that “Abolition of the 30-Minute Delivery Guarantee Program in Pizza Delivery Service”.

Baldi, Baer, and Cook (2005) studied that “After decreasing to a historic low in 1997, motorcycle crash-related fatalities are increasing. Although causes remain unclear, motorcycle rider education and licensing play key roles in reducing motorcycle crashes and injuries.”

Jung, Xiao, and Yoon (2013). studied that “The growth of motorcycle fatalities in California has been especially prominent, specifically with regard to the 24 and under age group and those aged 45–54. This research quantitatively examined factors associated with motorcyclist fatalities and assessed strategies that could improve motorcyclist safety, specifically focusing on the two age groups mentioned above.”

Yoo and Kim (2019b) studied that “Suppliers, users, franchises, and riders to establish that it could be a strategic alternative to increasing sales and expanding detailed rights for the self-employed in the traditional market.” Symeonidis, Kavadarli, Erich, Graw, and Peldschus (2012) they said that “While fatalities of car occupants in the EU decreased remarkably over the last decade, Powered Two Wheelers (PTWs) fatalities still increase following the increase of PTW ownership. Autonomous braking systems have been implemented in several types of vehicles and are presently addressed by research in the field of PTWs. A major concern in this context is the rider stability. Experiments with volunteers were performed in order to find out whether autonomous braking for PTWs will produce a greater instability of the rider in comparison to manual braking.”

Moskal, Martin, and Laumon (2012) studied that “To study and quantify the effect of factors related to the riders of powered two-wheelers on the risk of injury accident involvement. For both moped and motorcycle riders, being male, not wearing a helmet, exceeding the legal limit for alcohol and travelling for leisure purposes increased the risk of accident involvement. Among motorcycle users, riders without a licence had twice the risk of being involved in an accident than those holding a valid licence.”

Keall and Newstead (2012) studied that “This study sought to identify important factors associated with increased risk for motorcyclists to inform potential policy approaches to reduce motorcyclist injury, such as changes to motorcyclist licensing, training and education. These showed generally elevated risks for motorcyclists compared to cars, but particularly elevated risks for motorcycle owners aged in their 20s or who lived in more urbanised settings.”

Haworth, Smith, and Kowadlo (1999) studied that “Some evaluation studies suggested that riders who scored higher on vehicle control skills in some tests had more crashes later.”

Ibrahim, Rashid, Jawi, and Jamil (2018) studied that “This study aims to determine the types of hazards and crash risks facing courier riders during delivery trips by recording the riding scenarios on their actual delivery route. The final analysis reveals that a courier rider encounters 30 hazardous riding events and 5 near misses on average for each hour of delivery trips.”

Chung et al. (2014). studied that “More than 56% of motorcycles in Korea are used for the purpose of delivering parcels and food. Since such delivery requires quick service, most motorcyclists commit traffic violations while delivering, such as crossing the centerline, speeding, running a red light, and driving in the opposite direction down one-way streets. In addition, the fatality rate for motorcycle crashes is about 12% of the fatality rate for road traffic crashes, which is considered to be high, although motorcycle crashes account for only 5% of road traffic crashes in South Korea.”

Kardamanidis, Martiniuk, Ivers, Stevenson, and Thistlethwaite (2010) studied that “Riding a motorcycle (a two-wheeled vehicle that is powered by a motor and has no pedals) is associated with a high risk of fatal crashes, particularly in new riders. Motorcycle rider training has therefore been suggested as an important means of reducing the number of crashes, and the severity of injuries.”

Scott and Scott (2017) studied that “As the mobile phone allowed developing countries to leapfrog technology in personal communication, the delivery drone has the potential to have the same effect on traditional transportation infrastructure. Inaccessible roads no longer will prevent delivery of blood, medications or other healthcare items.”

From the previous studies, we come to the conclusion that almost previous studies were written on fields of retailer, food retailer, marketing strategy, internet shopping, mobile shopping, application, mobile application, delivery, delivery strategy, delivery application on various academic fields in the world. However delivery rider's accident in food delivery industry in South Korea is not noticed. In contrast, this research was only handled and focused on

rider's accident of food delivery without other concerns during delivery food.

Rider's accident on the road toward food retailer is serious risky factor to their business reputation, corporate image, and because claim amount related to death and physical/mental disability can be heavily damaged to food retailer, the said amount at stake may go bankrupt on food retailer and rider himself as well.

The point we don't have to overlook when rider dies is that rider is a person responsible for supporting his/her family, that is to say it is a life itself issue and personal bankruptcy.

From the above point of view, this paper is plenty of contribution and differentiation from the existed studies, and further has a significant value for risk management of food retailer in terms of death accident of delivery ride, because death of rider can be a cause of closing food retailer and small enterprises. In other word, the differentiation of this paper was set on non-financial risk, loss or damage by rider for food retailer only but financial risk on management.

3. Current Status of Food Retailers and Delivery Culture with Rider by Application

It is obvious that consumer, self-employed and companies are nowadays used delivery app every single day on mobile phone they want something.

Delivery app is immensely popular in South Korea, so a great many consumer whenever and wherever they want to buy use delivery app at room, on the road. This huge demands from the consumer have ever made other related industries such as delivery rider, sharing cook kitchen, delivery-based franchise, and then immensely expanded market share volume in the world along with sharing economy. On the other hand, delivery app makes huge changes of labour market of delivery industry, rider, and also membership retailer has been suspended under ruling delivery app, which is making big trouble against food retailer upto now.

Scope of delivery food is widely expanded to a lot of things that Grilled Pork Belly, Slices of raw tuna and Rice Noodles. In addition to these, market of fried chicken that is a power man in traditional delivery market has ever quickly changed in response to customer satisfaction.

First of all, it is by far desirable that unknown and small size brand and small store of food retailers are fast grown on the basis of delivery application.

Pigatto et al. (2017) said that "The online delivery service is growing rapidly, bringing together innovation and convenience to their customers, coupled with ease of access to mobile phones and internet, that contributed toward the

emergence of a large number of platforms that offer this service in Brazil; despite being a relatively new service, its growth was accompanied by a strong sector consolidation process and by the creation of large groups supported by international capital."

With regard to market share of Korean delivery application in 2019, 'Baedal Minjok' operated by Woowa Brothers Corp, 'Yogiyo' and 'Baedaltong' operated by Delivery Hero Korea are actually occupied 100% to delivery market, namely baedal market of South Korea.(Jeon, 2019).

3.1. Food Industry and Delivery Business

Category of restaurant in South Korea is composed of food retailer, other related food retailer, bakery shop, pizza, hamburg, sandwich and related food store, chicken store, fast food and kimbab store, and other related food and so on.

Food delivery business belongs to 49402 nuelchan portorage in H transportation business on the basis of "A Study on Delivery Rider's Status and Industrial Accident Insurance, Ministry of Employment and Labor, 2016.7." H transportation business are composed of 49 inland transport, pipeline transport, 494 package or parcel portorage, 4940 package or parcel portorage, 49402 nuelchan portorage. Nuelchan portorage means that collecting package or parcel and portorage to customer in urban area such as flower delivery, food delivery, document delivery, but nevertheless excepted inter-city delivery on the basis of Korea Labor Institute.(2016).

3.2. Food Service Turnover on Online Shopping

Gupta (2019) said that "On-line ordering has been a growing as a requirement have factor for the eating place business. on-line ordering has taken the food business by a storm. Technology puts a buried impact on the business industry, technology has changed the entire frame of restaurant industry, and it will continue doing a great job. A technically developed online food ordering system has changed the restaurant's culture drastically and gives a new amazing comfort zone to the people across the globe."

Transaction volume of food service on online shopping in South Korea is a 5,273 billion korean won in 2018. Quick technology advance and quick inflation of single-household allows delivery demands of fast food to extremely increase every year. Table 1 indicated that transaction volume of food service on online shopping reached twice of growth for last three years by means of the same reason

Table 1: Transaction volume of food service on online shopping

unit : million korean won

classification	2017	2018	2019
internet shopping	378,319	493,224	149,628
mobile shopping	2,354,254	4,779,900	1,791,032
total	2,732,568	5,273,121	1,940,660

Source : Park, C. H. (2019),

note : 2019 showed just the first quarter results.

Consumer makes use of delivery app like as Baedalminjok as a ordering service main platform, however either 'ordering service main platform' or 'delivery service platform', they do control directly management of delivery rider.

Table 2: Present situation of delivery business agency

name of company	quantity of rider
Zcall Co Ltd	approximately 10,000
Barogo Co Ltd	approximately 10,000
Logiall Co Ltd : Sangakdaero	approximately 24,000
Foodfly Co Ltd : yogiyo	approximately 250
Mesh Korea Co Ltd : VROONG	approximately 30,000

Source : Ministry of Employment and Labor (2019)

Note: 1) The above companies in list are adopted from notification service of accident black spot of motorcycle provided by Ministry of Employment and Labor.

2) quantity of rider is not precise, and just shows quantity that is operating by both rider directly employed/owned by retailer and delivery service agency.

3.3. Structure of Food ordering and delivery

Under the above circumstances, it is by far difficult for the rider that who has a responsibility of the accident when riding, because food retailer does not hire exclusively delivery rider, and because food retailer does only take advantage of delivery service agency, who does not hire delivery rider. By this reason, rider is just called and regarded as 'workers in special employment 9 types' in South Korea.

Based on delivery app, frame of food delivery is rearranged by delivery app('Baedal Minjok', 'Yogiyo', 'Baedaltong' etc) → food retailer(exclusive delivery rider owned or delivery service agency) → branch of service agency → rider who has solely business registration consumer, in turn.

We understand that there are two providers on platform business, what we call, 'providers of online intermediary services' and 'providers of online search engines'.

Table 3: Type of delivery platform

	ordering service main platform	delivery service platform
service	consumer make use of these platform when ordering	food retailer does not have a staff, delivery rider in case of owner, he hires exclusively delivery rider, and does not hire delivery rider.
name of company	'Baedal Minjok', 'Yogiyo', 'Baedaltong' etc.	Barogo, Logiall, Vroong, TNB

Source : Authors made by relevant data

With respect to the responsibility of rider at the time of accident, Chung and Nam (2015) pointed out that "A damage of consumer has already happened, because of uncertainty of legal state of Baedal App Service Provider and deficiency of information to consumers, and authenticity of advertisement." "Therefore, While Baedal App Service is possible for misuse of trade status to caterer's shop and users as the market share and sales

increase, there is a problem for consumer protection and safety of transaction because of no legal regulation."

3.4. Motorcycles Crashes

Chung et al. (2014) said that "In addition, the fatality rate for motorcycle crashes is about 12% of the fatality rate for road traffic crashes, which is considered to be high, although motorcycle crashes account for only 5% of road traffic crashes in South Korea. Therefore, the goal of on this study is to analyze the injury severity of vehicle-to-motorcycle crashes that have occurred during delivery." With a view to analyzing current status and accident types of delivery rider, we examined data of Ministry of Employment and Labor(MOEL) and quoted 'press release' in Nov, Dec 2019.

Accident result of motorcycle on map showed during 2016~2018 that total 880 was taken place, more specifically, Seoul region was 385, Pusan 111, Daegu 108 and Kyunggi Province 116.(Ministry of Employment and Labor, 2019).

Table 4: Motorcycle accident ratio in comparison with total traffic accident

classification	traffic accident(case)		fatalities(man)		the injured(man)	
	total	motorcycle(%)	total	motorcycle(%)	total	motorcycle(%)
average	218,133	35,306(16.2)	4,086	812(19.9)	325,862	36,871(11.3)
2018	217,148	34,008(15.7)	3,781	739(19.5)	323,037	35,394(11.0)
2017	216,335	35,328(16.3)	4,185	819(19.6)	322,829	36,908(11.4)
2016	220,917	36,581(16.6)	4,292	878(20.5)	331,720	38,311(11.5)

Source : adopted from Ministry of Employment and Labor (2019) revised

Note: Perpetrator by motorcycle results in annually fatalities 31man and the injured 3,360 man.

In table 5, we found statistics of industrial accident compensation by motorcycle generated by Korean government, Ministry of Employment and Labor for the past decade from 2009~2018.

Fatalist on 'quick service' was noted one man in 2012 and hit 7 man in 2018. And fatalist on 'food and accommodation' was hit minimum 20 man in 2017 to

maximum 40 man in 2015, and total 278 with average 27.8 recorded, which meant very high score in view of the injuries excluded.

Accident result of motorcycle on map showed during 2016~2018 that total 880 was taken place, more specifically, Seoul region was 385, Pusan 111, Daegu 108 and Kyunggi Province 116.(Ministry of Employment and Labor, 2019).

Table 5: Annual fatalist(approved benefit basis on duty)

year	total	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
total	335	35	26	41	35	34	34	44	36	24	26
Food and accommodation	278	31	24	34	29	30	29	40	25	20	16
quick service	23	-	-	-	1	1	2	3	7	2	7
others	34	4	2	7	5	3	3	1	4	2	3

Source : adopted from Ministry of Employment and Labor (2019) author revised

Table 6: Types of occupation

types	total	delivery rider	food service man	quick service	normal labour on food field	normal labour	cook and chef	others	unidentified
fatalist(man)	335	232	25	14	8	5	5	30	16

Source : adopted from Ministry of Employment and Labor (2019) author revised

In annual fatalist(approved benefit basis on duty), types of occupation such as delivery rider, food service man and quick service were reached to 80.9%(271man) in Table 6.

4. Accident Cases of Delivery Rider

As highlighted before, Kulanthayan et al. (2012) they said that "Almost half of the global traffic crashes involve vulnerable groups such as pedestrian, cyclists and two-wheeler users." Ibrahim et al. (2018) studied that "The final analysis reveals that a courier rider encounters 30 hazardous riding events and 5 near misses on average for each hour of delivery trips." Symeonidis et al. (2012) they said that "While fatalities of car occupants in the EU decreased remarkably over the last decade, Powered Two Wheelers (PTWs) fatalities still increase following the increase of PTW ownership."

It is evident that the cause of a growth factor is due to rapid inflation of the food delivery market in South Korea based on mobile phone, as mentioned before in chapter 3. Delivery rider that is violent, offensive and overspeeding is by far common and usual theseday. And that they do drive violent riding on the road and pedestrian crossing that boys and the old is walking as usual. Delivery rider is threatening a lot of cars driving. It is needless to say that delivery rider is being a lethal weapon to every single man.

According to Road Traffic Authority, total traffic accident hit 232,000 case in 2015, and hit 217,000 case in 2018, on the other hand, motorcycle accident annually inflated from 16,200 case in 2015 to 15,000 case in 2018, and all fatalist is decreased but fatalist by motorcycle is increased. That is to say, total traffic accident is down but motorcycle accident is rapidly up.

Ordering volume is increased from 23,000,000 case in August 2018 to 36,000,000 case in August 2018. Types of demand and ordering from the consumer varies at the time of ordering. Remarkable point is that the young with teenager try to get a job into delivery rider, because the young have a severe difficulty in getting job. It is noted that fatalist 44% of age on 18 old~24 old as to industrial accident is caused from delivery rider.

Considering fatalist by motorcycle comparing 2015 and 2018, total motorcycle accident arising from motorcycle in 2015 hit 12,654 out of 232,035, and then in 2018 hit 15,032 out of 217,148, in the meanwhile, fatalist during the same

period in 2015 hit 401 out of 4,621, and then in 2018 hit 410 out of 3,781. From this quantity, we understand that total accident, fatalist, ratio of death caused by motorcycle are heavily high comparing to any kinds of vehicle in South Korea.

4.1. Delivery Rider's Accident in South Korea

This accident case of delivery rider is based on press release of department of industrial accident compensation in Ministry of Employment and Labor, which will give contribution to various researcher in this field in terms of retailer, business risk, rider's risk, delivery app, accident and indemnity in South Korea as precedent study in consideration of non-financial risk management in food retailer. Accident case of delivery rider was taken place as follows.

The rider was high school student, he got a loss and damage from the driving bike, by this accident, Korea Workers' Compensation & Welfare Service(KWCWS) did pay insurance money, in the sum of krw50,000,000. After paying this amount, they, Korea Workers' Compensation & Welfare Service(KWCWS) made a recovery of the amount, krw25,000,000 as insurance premium of Industrial Accident Insurance against the owner of delivery service agency. However the owner of delivery service agency refused to pay and then he went to court to demand cancellation of insurance premium imposed against Korea Workers' Compensation & Welfare Service(KWCWS).

In the long run, Supreme Court ruled to go back to Seoul High Court.

Supreme Court pointed out that district court had a wrong decision what the rider is not a 'Workers in special employment types' because court regarded rider as food rider.

In summary, in 2013 delivery rider who was high school student for the carrying food on demanding crashed pedestrian who illegally crossed road, and he got a loss and damage at the thoracic vertebrae fractured.

As for compensation in this case, Ministry of Employment and Labor and Korea Workers' Compensation & Welfare Service decided that the rider in stake is not a labour on Labor Standards Act, but the rider, he is a rider out of 'Workers in special employment 9 types' that have a right of exceptional case as under.

①life planner on Insurance Business Act, ②concrete mixer trucker on Construction Machinery Management Act, ③home-school teacher on standard classification of occupations, ④caddie on Installation And Utilization of Sports Facilities Act, ⑤parcel rider on standard classification of occupations, ⑥dispatch rider on standard classification of occupations, ⑦mortgage outsourcing on Act on Registration of Credit Business, Etc. And Protection of Finance Users, ⑧a recruitment agent of credit card on Specialized Credit Financial Business Act and ⑨a proxy driver.

Ministry of Employment and Labor and Korea Workers' Compensation & Welfare Service concluded that the owner of delivery service agency owned the bike, the rider at stake drove the same bike, therefore the owner is the real owner of the same agency. Korea Workers' Compensation & Welfare Service(KWCWS) did pay insurance money, in the sum of krw50,000,000 because they admitted this accident as industrial accident for carrying (during delivery). After paying this amount, they, Korea Workers' Compensation & Welfare Service(KWCWS) made a recovery of the amount, krw25,000,000 as insurance premium of Industrial Accident Insurance against the owner of delivery service agency.

4.2. Delivery Rider's Accident in Singapore

The following accident took place in Singapore on 20 Dec 2019, and this news was reported by www.channelnewsasia.com, and the authors quoted to deliver the fact of case study with notice of source.

"Food delivery rider killed in accident with lorry in Woodlands : Photos circulating on social media show the scene of an accident near the junction of Woodlands Avenue 8 and Gambas Avenue on Dec 20, 2019. Singapore : A 42-year-old Grab Food delivery rider died in an accident involving a lorry on Friday (Dec 20). Police said they were alerted to the accident along Gambas Avenue towards Woodlands Avenue 8 at 11.50am. Photos circulating on social media show the scene of an accident near the junction of Woodlands Avenue 8 and Gambas Avenue on Dec 20, 2019. The rider was pronounced dead at the scene by paramedics from the Singapore Civil Defence Force (SCDF). Responding to CNA queries, Grab said that it would be providing support and assistance to the family of the victim. "We are deeply saddened to learn about the accident and are reaching out to the family to offer our support and assistance." "As investigations are ongoing, we are unable to provide further comment," said a spokesperson. Videos and photos circulating online show a lorry with the logo of waste management company 800 Super. In response to queries by CNA, 800 Super said that

they were aware of the accident, but would not be making any further comments. Police investigations are ongoing.

"Retrieved 17 Jan, 2020 from

<https://www.channelnewsasia.com/news/singapore/food-delivery-rider-killed-in-accident-with-lorry-in-woodlands-12200664>.

The salutary lesson based on the above two concrete case of rider's accident is that A) rider's accident on the road toward food retailer is serious risky factor to their business reputation, corporate image, because claim amount related to death and physical/mental disability can be heavily damaged to food retailer, and then the said amount at stake may go bankrupt on both food retailer and rider himself as well. The point we don't have to overlook when rider dies is that rider is a person responsible for supporting his/her family, that is to say it is a life itself issue and personal bankruptcy. B) and further has a significant value for risk management of food retailer in terms of death accident of delivery rider, because death of rider can be a cause of closing food retailer and small enterprises.

5. Suggestion and Discussion

In view of good growth and bad growth of South Korean' delivery rider industry, focus of stability and sustainability of both food retailer and delivery rider should establish executable and practical ideas as under.

5.1. Rider's readiness

Rider himself should recognize the dangerous that can be faced from start to end of food delivery. Of course, there is a rider himself to choose as a job that is a freelancer together with free working time and condition. Either way, rider should safely drive the motorcycle to deliver food on demand, which means the ways for the rider himself, pedestrian, consumer, retailer and reputation of rider association.

It is needless to say that every rider must observe laws that requires when riding on the road toward end of door in consumer. Namely, law-observance means that 'wearing helmet, sports glass', 'observance of speed, signal, and reduction of speed in the rain', 'checking obstacle on foot like as rain, snow, black ice, etc', 'watching stairs, volume of food delivering in hand', 'fixation door of consumer on handover food', and 'learning safety education and case study of accident, etc.'.

Chung et al. (2014) studied that "More than 56% of motorcycles in Korea are used for the purpose of delivering parcels and food. Since such delivery requires quick service, most motorcyclists commit traffic violations while delivering, such as crossing the centerline, speeding,

running a red light, and driving in the opposite direction down one-way streets."

Zheng et al. (2019) studied that "The results portrayed a picture of worrisome working conditions for delivery riders. Respondents reported an average of 9.1 daily working hours with insufficient rest. Frequent stair climbing, route planning, and disputes with customers also added to their physical and mental workload. The tested model indicated that a heavy workload, feelings of fatigue, as well as risk-taking behaviors all exerted direct and significant impacts on the involvement in crashes, and time pressure as well as several work-related traits affected crash involvement indirectly, through influencing riders' feeling of fatigue and riding behaviors."

Responsibility related to rider's accident is now set on rider's shoulder, and that rider, they, neither food retailer nor delivery app agency business, do pay insurance premium to cover risk of road accident. Size of insurance premium for rider's insurance in non-marine insurer is quite high, therefore rider's association needs to sell guarantee goods to rider to cover all risk on the road during delivery.

5.1.1. Association Unity

As to secure interest of rider, rider's associations need to unify two parties, because Korea has two association for the rider : National Delivery Riders Association(NDRA) and Korea Electric Vehicle Delivery Association(KEVDA).

5.1.2. Qualification of Rider

As mentioned earlier, "The growth of motorcycle fatalities in California has been especially prominent, specifically with regard to the 24 and under age group.(Jung, et al., 2013)", we suggest that qualification of rider is restricted to the adult, except for the teenager. Driving the bike by the teenager is strictly limited by using of rigorous approval of the government.

5.1.3. Tight control of Motorcycle

Irrespective of cylinder displacement of motorcycle, and whether it has registration number plate or not, every 'vehicle identification number' of motorcycle must enroll to the official registration book to the government. This is why enrollment of vehicle identification number of motorcycle allows rider's accident and any crime to identify the perpetrator, the offender, the victim and food retailer. In addition to the above, government is duly forced to monitor motorcycles twenty-four hours a day lest motorcycle crime should happen.

5.2. Food Retailer

In view of business sustainability of food retailer and his precious fate of rider who is a father that have a

responsibility to the family, if rider got died or severe damaged or severe disability, automatically food retailer may get severe both physical and mental damages, and then sometimes he may undertake legal liability of traffic accident of the owner of business.

To avoid the risk of die or disability of rider on the road, food retailer needs to assure 'commercial general liability insurance' or 'commercial general liability guarantee', besides food retailer do really pay 'industrial accident insurance premium' to cover rider and retailer as well.

Besides, association of food retailer should make all effort to prevent delivery rider's accident on road, and prior to occurring damages, should furnish control of motorcycle and safety education with them regardless of government mandatory education.

Yoo and Kim (2019c) said that "Franchises, they can seek to increase sales and customer service as well as ease labor cost burden due to joint employment of delivery riders." "The delivery rider will be able to seek to improve customer service due to job security, wage stability, risk reduction and overheated competition due to direct employment."

5.2.1. Abandon of speed guarantee

Park and Kim (2016) said that "Many restaurants in Korea maintain quick-delivery service programs to satisfy customers. This service allows delivery workers limited time to deliver, which frequently put them in danger."

Food retailer should not focus on speed guarantee of food delivery to consumer, but should concentrate quality and taste of food. It is obvious that if food has excellent quality and taste of food, consumer may give a call and a touch that make an order they want in spite of physical distance. Speed guarantee should not be an option of the seller side.

Interestingly, it would seem to be operated 'speed guarantee' by anybody that

according to homepage of

<https://www.pizzahut.co.uk/speed-guarantee/>, we quote that "speed-guarantee : we aim to deliver in 30 mins £10 off your next order if we're 10 mins late. Introducing our new Online Delivery Speed Guarantee, giving our customers confidence that we are truly delivery experts. How does it work? As part of our Online Delivery Speed Guarantee, we will do everything we can to ensure that your online delivery order is delivered within 30 minutes. The Speed Guarantee timer starts as soon as your order is received by the Pizza Hut delivery store and ends when your order reaches your door. If the delivery time exceeds 40 minutes, we count your order as late and you are entitled to receive a £10 Pizza Hut delivery voucher code. The ETA on your order confirmation page is an estimate of how long your order is likely to take. An ETA of over 40

minutes does not automatically qualify you to claim a Speed Guarantee voucher code." (source: homepage of <https://www.pizzahut.co.uk/speed-guarantee/>).

5.3. Duty of delivery app business

Delivery app agency business and delivery service platform business is compelled to contribute the issue of coexistence of both delivery rider and food retailer, this is because coexistence of both parties is a survival of mobile app service business like as delivery service platform business as well as ordering service main platform business.

In order to be a safe guide of delivery rider, delivery service platform business must make a fund of protecting and covering damages of rider's accident. 0.01 percentage of grand turnover of delivery service platform business must be funded for the sake of recovering damages of rider's accident. No wonder this is a necessary condition for coexistence.

5.4. Legal Aids

5.4.1. Rigorous Enforcement of Law amended

Safety health measures affected from circumstances of rider's accident to protect delivery rider commence in 2020 through law amended in South Korea. 'Occupation safety and health acts' for the sake of Workers in special employment types do commence in 2020 in consideration with working conditions and dangerous factor as follows. More specifically, the target is parcel rider, delivery rider and substitute driver.

As a safety health measures, parcel rider, delivery rider and substitute driver must wear helmet, check regularly status of headlamp, stop lamp, taillight and brake system, and must offer customer satisfaction manual, and must impose learning duty of safety and health.

Following the above, Police Agency in South Korea should execute a rigorous and clear rules toward all the people, in other word, police must do crackdown rider who is not obeyed 'road traffic act' with other related laws, for the interest of pedestrian, consumer, driver and rider as well as food retailer.

5.4.2. Sustainability of education and training needed

Learning law-observance, training, licensing, maintaining motorcycle and safety education for the delivery rider is the most important strategy to reduce traffic accident. Associations of both rider and food retailer must make high quality education based on the same reason, and further government must give a chance to learn these mandatory subjects, and also observe regularly the result of mandatory education.

Baldi et al. (2005), for the point of impact on traffic safety, they highlighted "As motorcycle-related crashes increase and state and federal support for rider education programs diminishes, it is critical that states identify deficiencies in their program and learn from successful states about efficient, cost-effective strategies for increasing best practices in motorcycle rider education and licensing."

Jung et al. (2013) they said that "The following safety strategies appear to be effective methods of reducing motorcyclist fatalities: public education of alcohol use, promoting helmet use, enforcing heavy vehicle and speed violations, improving roadway facilities, clearer roadway guidance and street lighting systems, and motorcyclist training."

Kardamanidis et al. (2010) they said that, "Motorcycle rider training has therefore been suggested as an important means of reducing the number of crashes, and the severity of injuries. Mandatory pre-licence training may be an impediment to completing a motorcycle licensing process, possibly indirectly reducing crashes through a reduction in exposure. As some type of rider training is likely to be necessary to teach motorcyclists to ride a motorcycle safely, rigorous research is needed."

5.4.3. Insurance issues

As regards budget execution, government is always required to distribute efficiently on the basis of policy priorities. Government try to widely absorb delivery rider to industrial accident insurance and cut down premium of the same insurance, and try to insure temporary period and short period delivery rider want.

6. Conclusions

6.1. Summary

It is evident that quick delivery of fast food makes consumer satisfactory and convenience. In spite of this sense of convenience, consumers tend to more quickly receive the food. As to satisfy this demand, delivery riders endeavor to deliver all kinds of food on road at any time. Also it is obvious that riding on motorcycle under heavy pressure of time limit between seller and buyer is clearly dangerous. For this, we call in this paper those who do deliver foods by means of motorcycle to customer is a delivery rider and delivery boy.

"The primary objective of this research is to propose" answers of rider's accident of food retailer in South Korea, in view of business sustainability of food retailer and his precious fate of rider who is a father that has a responsibility to the family. This research was only handled

and focused on rider's accident of food delivery without other concerns during delivery food.

In view of good growth and bad growth of South Korean' delivery rider industry, the authors strongly recommended that focus of stability and sustainability of both food retailer and delivery rider should establish to executable and practical ideas such as rider's readiness, food retailer(abandon of speed guarantee), duty of delivery app business, legal aid(rigorous enforcement of law amended, sustainability of education and training needed and insurance issues).

6.2. Implication, Limitation and Future Research

From the above point of view, this paper is plenty of contribution and differentiation from the existed studies, and further has a significant value for risk management of food retailer in terms of death accident of delivery ride, because death of rider can be a cause of closing food retailer and small enterprises. In other word, the differentiation of this paper was set on non-financial risk, loss or damage by rider for food retailer only but financial risk on management. For the subjects of delivery business, retailer of food industry, customer satisfaction, app business, rider's accident, industrial accident insurance and 'Workers in special employment types', this research may give a implication and may be basic raw data for further research towards the same subject.

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