



Socio-Economic Aspects of Mobile Vegetable Vendor Before and During Covid 19 Pandemic Period in Kupang City, East Nusa Tenggara Province

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Abstract. The impact of Covid 19 pandemic through the implementation of Large-Scale Social Restrictions (LSSR) issued by the government in response to the increasing number of Covid-19 sufferers and the period of easing restrictions due to decreased transmission cases, affects informal sector workers including mobile traders who rely on daily income to meet family needs. Informal sector workers generally have limited capital, skills and education. However, in various economic crises, it turns out that the informal sector is a sector that is quite resilient in dealing with economic turmoil. This study is a comparative study involving 85 respondents who were taken by accident. Data analysis using non parametric statistics, the comparison analysis was performed by using the Marginal Homogeneity test. The results of the study show that there are significant differences in socio-economic aspects in terms of workload, costs, and income for mobile vegetable traders before and during the LSSR implementation period, but there is no significant difference in the afore mentioned sosio-economic aspects between the period before and during the LSSR easing period.

Keywords: Socio Economic Aspects · Mobile Vegetable Vendor · Before and During Covid 19 Pandemic

1 Introduction

1.1 Research Background

The sustainable economic significance of informal workers in the *old norm*, a situation where there are no restrictions related to the Covid 19 pandemic, is relatively stable with small economic variants. This condition is different from the Covid-19 pandemic which has been going on since the beginning of 2020. In the new *norm*, where economic actors including mobile vegetable traders do their business within various restrictions, it causes significant fluctuations with high economic variances.

Economic actors in the informal sector are required to adapt to the new order. Life in a new order began since the outbreak of the covid 19 pandemic. In Indonesia, there are high numbers of confirmed cases according to data released by WHO [1]. The same source noted that Kupang City as the provincial capital area showed the highest confirmed cases as of May 21, 2021, with a cumulative of 6,878 cases, and 177 people died. The increase in cases mentioned above, the issuance of PP [2], as the basis for the implementation of PSBB (Large-scale social restrictions). The purpose of the PSBB is to prevent uncontrolled increases.

The imposition of restrictions affects most economic activities including household consumption and expenditure in NTT [3]. The downward trend in economic activity is also shown in the study [4]. Some of the aspects mentioned include a decrease in imports and exports [5–7] tourism [7, 8] and inflation [3]. In addition, the number of laid-off and laid-off employees is very high [4, 9, 10] including workers in the informal sector [9].

Informal workers refer to the regulation of Law No. 20, 2008 concerning Micro, Small and Medium Enterprises (MSMEs) falling into the category of micro-enterprises with business capital below Rp 50 million. Then the regulation was updated in PP No. 7 of 2021, with different criteria for magnitude. Economic actors who strive in this category generally have not had much access to banks, but some have access to non-bank financial institutions (NBFIs). Although in terms of capital, education, skills and access to banks are limited, MSMEs are businesses that have survived through the economic crisis in 1997–1998 [11]. From this reference, it is also known that the role of MSMEs in the National GDP reaches 57.60% and absorbs workers of 97% of the entire national workforce.

The above phenomenon shows the importance of MSMEs, including traveling traders, in economic sustainability at the micro/household level [12] which has an impact on macro/regional/national economic development [8, 10]. The data in [13] found that of the number of existing workers, there were 74.04 million or 56.50% working in the informal sector, and increased in the next three months to 57.27%.

The impact of Covid-19 through the implementation of the PSBB has had a major effect on informal sector workers, including traveling merchants who rely on daily income to meet family needs. The importance of informal workers and their contribution to the household economy is studied by [14–17]. Meanwhile, its role in national economic development is studied by [18–20]. As a worker who collects his or her daily [4, 14, 21].

The latest data in the article [22] stated that the addition of workers in the informal sector was 59.97% in February 2022, an increase compared to the same month in 2020 of 3.33%.

Meanwhile, based on Sakernas data, [23] the proportion of informal workers in NTT, increased quite significantly from 2019 (72.26%) to 2020 (76.10%) which was 3.84% and slightly decreased from 2020 to 2021 (75.97%) which was 0.13%. Based on the annual proportion from 2019–2021, it shows that the informal workforce of the informal sector workforce takes a significant share of the overall workforce in NTT.

The Earning of informal workers is generally daily income, so it is very vulnerable in the era of new order. Such conditions greatly affect the household economy of informal workers. Quite a lot of factors are determinants of the informal worker economy [24]. Specifically on the economics of itinerant traders found studies in studies [25, 26]. These

determining factors include capital [25–27], working hours [26, 27] the age of traders and family dependents [26] and education [28].

Moving vegetable vendors in Kupang City operating in various residential areas have been studied [29]. The focus of the study was on itinerant vegetable vendors who used strollers in densely populated settlements. Another study conducted in Kupang City related to the impact of COVID-19 has been carried out by [30] namely examining the participation of women street vendors in Kupang City in improving the household economy before and after the covid-19. Meanwhile, the study [31] on the opportunity to use the *mVegetable* application on traders traveling around Kupang city.

The study carried out is different from other studies above, by examining the socio-economic phenomena of traveling vegetable vendors for three periods. In-depth interviews by *means* of probes by identifying socioeconomic data on: 1) the pre-pandemic period, early 2020. 2) Pandemic period, April 2020 to June 2022. 3) The easing or post-pandemic period lasts from May–July 2022. The easing period refers to the statement of the President of the Republic of Indonesia about allowing people not to wear masks outdoors in May 2022 [32] until the appeal to use masks again. This appeal is through [33] and is contained in [34]. The study was conducted to answer the research question of whether or not there are differences in the socioeconomic aspects of traveling vegetable traders in the three periods mentioned above.

2 Research Method

Field study was conducted from June to July 2022 with interviews with 85 traveling vegetable vendors. The sampling technique is carried out by means of *an accidentally method*.

Differences in socioeconomic aspects before the Pandemic, Pandemic Period and Easing Period were analyzed using the *Marginal Homogeneity Test* approach [35] mathematically, the Marginal Homogeneity Test was formulated:

$$X^2 = \sum_i^r \sum_{j(\neq i)}^b \frac{(n_{ij} - n_{ji})^2}{(n_{ij} + n_{ji})} \tag{1}$$

X^2 follows the *Chi-squared* distribution in a 3*3 matrix with a free degree of $3(3-1)/2 = 3$. The socioeconomic matrix of traveling vegetable vendors is presented in Table 1.

Table 1. Contingency table 3*3 before and after pandemic

Before	Pandemic		
	Positive, +	Neutral, 0	Negative -
Positive +	A	B	C
Neutral, 0	D	E	F
Negative, -	G	H	I

Signs (+), (0) and (-) indicate the reaction of the subject. The marginal homogeneity test observes cells undergoing reaction changes (Table 1). Based on Table 1, three pairs of reaction change cells namely: 1) B and D show the change of reaction from (+) to (0) and vice versa; 2) C and G indicate the change of reaction from (+) to (-) and vice versa; 3) F and H indicate a change in reaction from (0) to (-) and vice versa. The test was carried out for socioeconomic aspects, namely the outpouring of work, costs and income of traveling vegetable traders in the period before and during the pandemic; the pandemic period and the easing period; as well as the period before and the easing period.

Operationally, the Marginal Homogeneity Test is formulated:

$$X^2 = \frac{(B - D)^2}{(B + D)} + \frac{(C - G)^2}{(C + G)} + \frac{(F - H)^2}{(F + H)} \quad (2)$$

Chi-squared (X^2) follows the *chi-squared* distribution. There are 3 decisions related to socioeconomic aspects in the period before, the pandemic period and the easing period, 1) Ho said there were no differences in socioeconomic aspects in the pre-pandemic period and during the pandemic. H₁ said there were significant differences in the socioeconomic aspects of the before and pandemic period. 2) Ho said there were no differences in socioeconomic aspects during the pandemic and the easing period. H₁ said there were significant differences in the socioeconomic aspects of the pandemic and the easing period. 3) Ho said there were no differences in the socioeconomic aspects of the before and the easing period. H₁ said there were significant differences in the socioeconomic aspects of the period before and the easing period. Ho reject decision criteria, if the value of $X^2 \text{ counts} > X^2 (\text{table})_{db; 0, 05}$ and vice versa Accept Ho, if $X^2 \text{ counts} < X^2_{db; 0, 05}$.

3 Discussion

3.1 Profile of a Traveling Vegetable Mobile Household

The average lifespan of a traveling merchant is 42.84 years (Table 2) with a range between 28 and 63 years. Overall the age of the trader falls into the category of productive age. Further, the average number of family members is 3–4 inhabitants, the range is between 2–6 inhabitants. Family age and dependents are important to itinerant merchants [26]. The importance of the trader's lifespan, because the older he is, the ability to explore is shorter and gets tired easily, while the family's dependents become the trader's motivation to trade in order to be able to meet the needs of his family.

The description of the age and family members of the trader can be seen from the dependency ratio. The results of the calculation of the age distribution showed that the average dependency ratio was 45.03%. Economically, this dependency ratio/figure is relatively low, because of the 100 residents of productive age, it bears 46 people who have not and are no longer productive.

The education of the largest of vegetable traders at the junior high school education level (40%) with an average trading experience of 8.32 years. Education and trading experience are important for the development of the type and amount of trade.

Table 2. Profile of vegetable merchant household

Characteristic	Number
Age, year	42.84
Education	
Elementary School	24.71
Junior High School	40.00
Senior High School	32.94
University	2.35
Trading experience, year	8.23
Nu. of Household Members, person	3.84
Dependency Ratio, %	45.03
House Condition	
Emergency	8.24
Semi-Permanent	59.41
Permanent	32.35
Income utilization, %	
Daily Needs	51.00
Business Capital	20.00
Education	9.00
Social	8.00
Non-Food Utilization	7.00
Health	5.00

Source: Primary Data Analysis, 2022

Through education and experience, merchants can learn to know how much merchandise consumers need the most, the type of merchandise that consumers are most often looking for, as well as consumer preferences towards other types of vegetables or types of merchandise.

In addition, through experience, vegetable vendors can sort consumers based on their individual needs, as well as efforts to meet these needs. This way the merchant can retain his customers.

The results of interviews with traveling vegetable vendors can also be known the type of house building he lives in. Of the 85 respondents, 17% of respondents live in boarding houses around the market, 20% rent houses in groups and the rest are traders living in their own houses. Traders who live in boarding houses or who rent houses in groups are those who are generally from outside the area (other districts on the Timor mainland, from other islands, but still within the NTT archipelago or from islands outside NTT). Traders who live in their own homes, are those who come from various regions both from mainland Timor and from outside and who have been living in the city of Kupang for quite a long time.

Traders who own houses, there are 8.24% of traders who have houses with emergency status, namely the materials and types of materials used sober, where the walls use plywood, choppy or used zinc, coarse cement floors, while the roof uses used zinc or new zinc.

It was recorded that 59.41% of traders owned semi-permanent houses, namely houses built with a relatively strong foundation and the wall material used was mixed. For example, walls with choppy or plywood, cement floors and roofs made of zinc. Furthermore, about 32.35% of traders own permanent houses, namely houses built with a strong foundation, walled walls, cement or ceramic floors and roofed with zinc.

The results of the study also obtained an overview of the use of trading results. In general, the lion's share of the merchandise proceeds is used to meet daily food needs, stored for subsequent trading capital, for educational, social, non-food and health needs.

An interesting part of utilizing the proceeds of merchandise is for social needs. Although itinerant traders have considerable vulnerability/income risk, their concern is high. Social donations can take the form of donations for various family, neighboring events and donations sent to families, relatives or parents residing away from merchants.

The considerable use of income for social expenditure shows that traders participate in social groups in the midst of society. Existing groups such as traditional groups, Extended Family (Clan) *arisan* groups, fellow traders' *arisan* groups, community gathering groups of one neighbor Group (Rukun tetangga, RT) and religious groups. A considerable share of income is earmarked for social donations, in line with research [37] in which it is said that the proportion of the utilization of income of social donations exceeds the proportion for education and family health.

3.2 Description of Trading in the Pre-Pandemic period and the Easing Period

The merchandise sold by traveling merchants varies greatly. The tabulation results show variations sold by traders between 30 and more than 80 types of merchandise. Trade variations are grouped into 9 categories, namely 1). Side dishes (seven types) such as beef, chicken meat, fish, salted fish/ dried fish, eggs, tofu, and tempeh. 2) Trading carbohydrate sources (four types) such as corn (sweet, pulut); cassava, kettle and taro. 3) Beans (four types) such as peanuts, green beans, arreas beans and rice beans. 4) Vegetable Leaves (14 types) consist of kangkong, chicory, chicory, chicken thigh mustard, green stem mustard, patsay, spinach, red spinach, kates flower, kates leaf, cassava leaf, Moringa leaf, cabbage, cauliflower and broccoli. 5) Fruit vegetables (Nine types) such as tomatoes, cucumbers, eggplant, yellow squash, Siamese pumpkin, carrots, potatoes, long beans, leeks and chickpeas. 6) Vegetable Concoctions (five types) such as soup ingredients, sour vegetable ingredients, grated young papaya, jackfruit vegetables and grated coconut. 7) Wet seasonings (12 types) such as; onion, garlic, onion, red pepper (large), curly chili, green chili (large), cayenne pepper, turmeric, ginger, galangal, lemongrass and sour. 8) Dried seasonings (nine types) such as pepper, coriander, nutmeg, cumin and flavoring (vetsin ajinomoto, Masako and royco). 9). Fruits (16 types) such as banana, jackfruit, mango, anonak (srikaya), soursop, guava klutuk, guava, papaya, tangerine, sweet orange, lime, advocate, breadfruit, watermelon and coconut.

The number of types sold per merchant varies. Certain types of vegetables and fruits are seasonal, so the types of vegetables and fruits are peddled by merchants depending on the season. In detail the number of merchants selling types of side dishes, sources of carbohydrates and types of legumes is presented in Table 3.

Table 3 shows that in the before-pandemic period and the easing period the number of traders selling side dishes did not differ significantly. On the contrary, the number of

Table 3. Merchant distribution per type of side dishes

Type of Dishes	Number of Traders (n = 85)		
	Before	Pandemic	Easing Period
Beef	3	1	2
Chicken Meet	47	27	39
Tofu	61	34	58
Tempe	70	52	65
Egg	36	19	29
Fish	12	15	17
Dry/Salty Fish	35	26	31

Source: Primary Data Analysis, 2022

traders selling side dishes in the period before and the easing period compared to the pandemic period there is a significant difference, except that beef, fish and salted fish do not show a significant difference from the number of traders who sell them.

Another information that can be known from Table 3 is the decrease in the number of traders selling types of side dishes during the pandemic. The small number of traders at that time was thought to be due to a decrease in people's purchasing power, a decrease in capital from traders due to a large enough part of the trade that did not sell. In addition, during the pandemic, when many consumers work from home, they take advantage of their yards or gardens by raising livestock, raising fish in ponds and or growing horticultural crops to meet their daily needs, while reducing daily expenses for foodstuffs. This method is in line with the study conducted by [36] that the Integrated Agricultural System (SPT) by utilizing land around the house is one of the alternatives to meet the needs of vegetable and animal food as well as economic blindness during the pandemic.

The number of merchants selling various goods according to the trading group, Table 4. From the Table, it can be seen that the number of merchants selling goods by trading group varies greatly.

Fluctuations in the number of traders occurred during the pre-pandemic period to the pandemic period, as well as during the pandemic to the easing period. There is a fairly significant difference between the numbers of merchants peddling goods according to the merchandise group in each period.

The behavior of the data presented in Table 4, it is known that the number of traders tends to decrease in each group of merchandise from the pre-pandemic period to the pandemic period. On the contrary, there is a tendency for data behavior to rise from the pre-to-time easing period. The increase from the pandemic period to the easing period is not as large as the decrease from the pre-pandemic period to the pandemic period.

The above phenomenon is the effect of the economic downturn due to restrictions. The global economic downturn [4] triggered a reduction in the activity of individual companies. The impact of the reduction in activities was the high number of employees who were laid off and laid off [9, 10]. The impact of the reduction or layoff of workers on traveling vegetable traders can be seen from the number of merchandises left or unsold

Table 4. Distribution of traders by trading group

Merchandise Group	Number of Traders (n = 85)		
	Before	Pandemic	Easing Period
Charbo. Source 4 ^{*)}	52	37	55
Beans, 4 ^{*)}	35	24	39
Veg. Leaves 14 ^{*)}	85	81	85
Veg. Fruit 9 ^{*)}	85	77	82
Veg. Concoction, 5 ^{*)}	67	55	62
Wet Seasoning 12 ^{*)}	66	58	68
Dry seasoning 9 ^{*)}	70	63	73
Fruits 16 ^{*)}	73	65	67
Trade remainig, %	15–30	30–50	20–35
Cruising km ²	8,65	12.80	9.73

Source: Primary Data Analysis, 2022

Note:*) Number of Trade Group Types

during the pandemic, showing the highest interval of 30% – 50% compared to the two periods, namely the pre-pandemic period and the easing period. The large percentage of merchandise left during the pandemic is thought to be due to the decline in purchasing power of consumers and the shift of labor to the agricultural sector, so that they can provide needs independently during the pandemic.

The cruising range of traders shown in Table 4 can be seen that the range is getting farther than the pre-pandemic period with the pandemic period, and on the contrary there is a slight increase in the cruising range from traders during the pandemic to the easing period. The increase in the distance of cruising range from the pandemic period to the easing period has not been as large as the decrease in cruising range in the period before to the pandemic period. This is understandable because the socioeconomic conditions that have just begun to be relaxed / allowed to return to activities, economic actors including itinerant vegetable traders need time to adapt to restore their situation to their original level.

The sluggish economic conditions due to the presence of laid-off employees or laid off, as well as the activities of most employees that take place at home, open up new business opportunities to overcome difficulties in meeting the needs and economy of the household. During the pandemic, there was a transfer of labor from the industrial and service sectors to the agricultural sector. At that time, the agricultural sector was considered a safety valve that absorbed labor from various sectors due to being laid off. From the results of the study, it was found that during the pandemic, there was an increase in optimal use of land as a source of food [38–40].

Macro data according to [41] is known that there has been an increase of 0.37% in agricultural, forestry and fisheries jobs in the last one year (month Februari 2021 – February 2022). In contrast, there was a decrease in the percentage of labor in the service

Table 5. Average working time, costs and daily income and cash capital

Description	Trader Performances (n = 85)		
	Before	Pandemic	Easing Period
Work time, hour	9.83	8.36	9.47
Cost, IDR	88,773	81,255	86,635
Income, IDR	167,345	113,200	161,500

Source: Primary Data Analysis, 2022

sector, large trade and retail and defense government administration and social security by 0.51% each; 0.17% and 0.13%.

3.3 Comparison of the Socio-Economic Aspects of Traveling Vegetable Traders

The socioeconomic aspects of traveling vegetable traders are working time, production costs and variable daily income of traders as well as ownership of business capital, Table 4. Traced from the working time of each trader per day is 9.83 h; 8.36 h and 9.47 h respectively in the pre-pandemic period, the pandemic period and the easing period. Working time already covers the time to market, cleaning, and repackaging merchandise as well as time of sale.

Comparison of working time (Table 5) and cruising range (Table 4) during the pandemic traders have the shortest working time, but the farthest cruising range. It can be explained that sales during the pandemic, the frequency of stops (consumers buy) is less than the frequency of purchases by consumers in the pre-pandemic period and the easing period. The small number of consumer household purchases/demand, encourages merchants to look for buyers/consumers to other areas with a longer reach.

The amount of costs incurred by traders per day is IDR, 81,255; Rp. 86,635 and Rp. 88,773. Judging from the face value, the costs incurred during the pandemic were relatively lower than in the two periods before and the easing. However, judging from the expenditure structure, the portion of expenditure on transportation fuel purchases during the pandemic is slightly greater than during the pre-pandemic period and the easing period.

The daily income value of traveling vegetable traders was recorded during the pandemic to obtain the lowest income of Rp. 113,200 compared to the previous period and the pandemic easing period. This is understandable given that the number of merchants selling on certain groups of merchandise is relatively smaller.

Table 6 data indicates that during the pandemic there was the largest percentage of traders in the lowest capital class. At the interval the second class of capital had the largest percentage of traders in the pre-pandemic period.

As for the third interval class of capital, the largest percentage of traders was in the easing period and the lowest in the pre-pandemic period. The largest capital holdings in the fourth interval class, there was one trader, each during the pandemic and the easing period.

Table 6. Merchant percentage attribution according to cash capital intervals

Category, IDR	Merchant Appearance (n = 85), %		
	Before	Pandemic	Easing Period
0,00 – 500,000	23.06	35.41	25.41
501,000 - 1.000.000	66.35	52.83	59.29
1,000,001 – 1,500.000	9,41	10,32	12,94
1,501,000 – 2,000,000	0.00	2.35	2.35

Source: Primary Data Analysis, 2022

The spread of capital ownership at the third and fourth intervals that existed during the pandemic and the easing period, is suspected to have something to do with the desire to have reserves in the face of risks. During a pandemic when the economy is uncertain, the existence of capital reserves is very helpful to maintain business continuity.

The ownership of cash capital by traders comes from savings that are set aside gradually based on the size of the daily income earned. Apart from savings, there is also cash capital ownership that comes from credit. The study conducted by [42] shows that financial access is important for the implementation of the MSME business. However, there are doubts from banks due to the personal effects of MSME owners, especially in repayment of credit. This study found that competitiveness, financial culture and payment decisions are important factors in the smooth access of MSMEs to finance.

Based on Eqs. (1) and Table 1, then referencing Eq. (2) comparing working time before and after the pandemic, a calculated X^2 value = 17.15 > X^2_3 is obtained; $0, 05 = 7.82$ then H_0 was rejected, so it can be concluded that there is a significant difference in working time between before and during the pandemic.

The results of the analysis of *working time* during the pandemic and the easing period obtained a value of X^2 count = 12.16 > X^2_3 ; $0, 05 = 7.82$ then H_0 was rejected. In conclusion, there is a significant difference in working time between the pandemic period and the easing period.

The results of the analysis of *working time* in the period before and the easing period obtained the value of X^2 count = 5.99 < X^2_3 ; $0, 05 = 7.82$ then H_0 is accepted. From the decision criteria, it can be concluded that there is no difference in working time between the pandemic period and the easing period.

The results of the analysis of *costs* incurred by traders in the period before and after the pandemic, obtained the value of X^2 count = 8.58 > X^2_3 ; $0, 05 = 7.82$ then H_0 was rejected, so it can be concluded that there is a significant difference in costs between the pre-pandemic period and the pandemic period.

The results of the cost analysis during the pandemic and the easing period obtained a value of $X^2 \text{ calculated} = 8.56 > X^2 3; 0, 05 = 7.82$ then H_0 was rejected. From these criteria, it can be concluded that there are significant differences in the costs incurred by traders during the pandemic and the easing period.

The results of the *cost* analysis in the period before and the easing period obtained the value of $X^2 \text{ count} = 7.53 < X^2 3; 0, 05 = 7.82$ then H_0 is accepted. From the decision criteria, it can be concluded that there is no difference in the costs incurred by traders during the pandemic and the easing period.

The results of the analysis of *income* incurred by traders in the period before and after the pandemic, obtained the value of $X^2 \text{ calculated} = 8.20 > X^2 3; 0, 05 = 7.82$ then H_0 was rejected, so it can be concluded that there was a significant difference in income in the period before and pandemic.

The results of the *income* analysis obtained the value of $X^2 \text{ count} = 11.67 > X^2 3; 0, 05 = 7.82$ then H_0 was rejected. From these criteria, it can be concluded that there is a significant difference in the income of traders during the pandemic and the easing period.

The results of the *income* analysis obtained the value of $X^2 \text{ count} = 7.29 < X^2 3; 0, 05 = 7.82$ then H_0 is accepted. From the decision criteria, it can be concluded that there is no difference in the income of traders during the pandemic and the easing period.

4 Conclusion

Based on the results of the analysis and discussion, it can be implied that:

1. There are *significant* differences in the socioeconomic aspects (working time, costs and daily income) of itinerant vegetable traders during the pandemic and the easing period. Next
2. There are *differences in the socioeconomic aspects* (working time, costs and daily income) of itinerant vegetable traders during the pandemic and the easing period.
3. There was no difference in socioeconomic aspects (working time, costs and daily income) in the pre-pandemic period and the easing period.

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