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Livelihoods Survival Strategies of Informal Sector Workers and Influencing Factors

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ABSTRACT: The aims of this research are to determine: 1) Livelihood survival strategies of informal sector workers during the COVID-19 pandemic; 2) Factors that influence the choice of survival strategy taken; and 3) Model of livelihood survival strategies for informal sector workers based on socio-economic characteristics and factors that influence them. The research was conducted in Denpasar City and Badung Regency in Bali Province, Indonesia. Sampling was carried out by purposive sampling with 150 respondents. Survey methods are used for data collection in the field. The variables used in the research include: socio-economic characteristics of informal sector workers, survival strategy variables, and variable factors that influence the choice of survival strategy adopted. The data analysis method uses descriptive analysis and multivariate analysis using multinomial logistic regression analysis. It was found that most respondents used more than one strategy to survive and maintain the continuity of their business. The most important survival strategy chosen by respondents among the five strategy choices, the results obtained are: Relying on other family members (36.6 percent), taking loans from informal lenders (30.7 percent), followed by the strategy of apply for government social assistance programs (18.7 percent), job mobility strategies (10.0 percent), and only 4 percent chose negative coping strategies such as selling assets as the main strategy in an effort to survive and maintain the business in pandemic period. Respondent's answer to the first choice regarding the factors that influence the choice of the main survival strategy is due to the respondent's ownership of livelihood assets in the form of social capital (32.0 percent), financial capital 29.3 percent, 24.0 percent due to ownership of physical capital/physical asset ownership, 13.0 percent due to ownership of human capital (human resources that can be utilized/available, Human Resources Education), and only 1.3 percent due to natural capital and access to infrastructure. The livelihood strategies model for informal sector workers with multinomial logistic regression obtained from socio-economic characteristic variables, variable factors that influence the selection of survival strategies adopted with the main survival strategy variables produces a classification accuracy of 93.2 percent, indicating that the model formed accurately describe the data.

KEYWORDS: Livelihoods survival strategies, survival strategies, survival strategy, informal sector workers

I. INTRODUCTION

Bali Province is a global tourist destination that is very popular with foreign and domestic tourists. The tourism sector in Bali is a mainstay sector in Indonesia's largest foreign exchange earner. The livelihood of the Balinese people is very dependent on the tourism sector and related sectors. The travel and tourism industry has been shaken by the COVID-19 pandemic. UNWTO [1] reported a significant decline in domestic tourist arrivals and international tourist arrivals also decreased by 74%. The COVID-19 pandemic has had an impact on both formal and informal workers, namely reduced working hours, reduced income, and also job loss. Therefore, in an effort to maintain their income, they carry out various strategies to survive. According to the FAO report [2], negative coping strategies such as asset sales, child labor, and taking loans from informal lenders, are likely to be strategies that informal sector workers will adopt as survival strategies during the COVID-19 pandemic.

Based on the research background, it is important to study the livelihood survival strategies of informal sector workers during the COVID-19 pandemic. Specifically, this research is important to examine the model of informal sector workers' livelihood survival strategies is linked to socio-economic characteristics and factors that influence the choice of survival strategies undertaken.

The informal sector according to Leibo [3] is a part of economic activity that generally has the following characteristics: irregular activity patterns, small capital and income, and is not affected by government regulations. They are: those who work alone without workers, those who work alone with casual workers/family workers, and unpaid family workers.

Handoyo & Setiawan's research [4], regarding the survival strategies of street vendors, found that for lower-class people, becoming a street vendor is the most possible way to survive and is the only choice. In meeting their daily needs, some street vendors use survival strategies.

According to Efendic, Pasovic & Efendic[5], the survival strategy of relying on the informal economy is a way for households to supplement their insufficient formal income, compensate for economic insecurity, or to lower formal business costs by using "envelope wage" practices, as well as to overcome the problem of formal institutional rigidity associated with current contradictory laws.

Deswandi's research findings [6] explain that the range of livelihood strategies that can be developed by fishermen in Nagari Sungai Pisang, West Sumatra, Indonesia, depends on the livelihood assets that they can utilize. The available livelihood assets are classified into: natural capital, social capital, human capital, financial capital, and physical capital. It was further revealed that social capital has become the most resource-rich livelihood asset.

Livelihood strategies and dynamics in rural Cambodia were studied by Jiao, Pouliot & Walelign [7], the research findings showed that in response to changing pressures, incentives and opportunities, 70% of households changed their livelihood strategies over time.

The aims of this research are to determine: (1) Livelihood survival strategies of informal sector workers; (2) Factors that influence the choice of survival strategy taken; and (3) Model of livelihood survival strategies for informal sector workers based on socio-economic characteristics and factors that influence them.

II. METHODS

The research location is in Denpasar City and Badung Regency, Bali Province, Indonesia. The basis for choosing the location is: 1) Bali Province is a barometer of national tourism development, and the main industry of Bali Province is the tourism sector; 2) Many tourism components have closed due to the impact of the COVID-19 pandemic which has resulted in a drastic decline in tourist visits; 3) The tertiary sector, which includes trade/hotels and restaurants, industry, transportation, finance and services that rely on the tourism sector as its main industry, is the main employment opportunity for the majority of the population in the two districts/cities studied. BPS [8] reported that the number of unemployed in Bali Province according to Regency/City increased drastically in 2020 compared to the previous year, as well as an increase in layoffs.

The research respondents were individuals who during the COVID-19 pandemic and when the survey was conducted worked as informal sector workers at the research location. The types of informal sector jobs in this study include: street vendors, hawkers, craftsmen, laborers, individual services, and other types of informal jobs. Sampling was carried out by purposive sampling of 150 respondents. Data were collected using a survey method using a questionnaire. The list of questions in the questionnaire includes: socio-economic characteristics, survival strategies, and variable factors that influence the choice of survival strategy adopted.

Livelihood survival strategies include: negative coping strategies (selling assets), taking loans from informal lenders, relying on/applying for government social assistance programs, relying on other family members, carrying out job mobility/changing jobs/switching to other types of work other. The variable factors that influence the choice of survival strategy adopted, namely the livelihood assets owned, include: (1) Natural capital and access to infrastructure; (2) Social capital: (i) social networks that can be utilized/available; (ii) close relationship with relatives/family); (3) Human capital: human resources that can be utilized/available, HR education); (4) Financial/financial capital; (5) Physical capital/ownership of physical assets. Descriptive analysis is used to analyze data and multivariate analysis using multinomial logistic regression analysis [9].

III. RESULT AND DISCUSSION

A. Socioeconomic Characteristics of Respondents

The socio-economic characteristics of the respondents obtained an average age of workers of 37.21 years with a range of 15 to 63 years. Male workers dominate the respondents (65.3 percent). Marital status is dominated by workers with married status (69.3 percent) and unmarried (26.0 percent). The level of education of respondents obtained high school (56.7 percent), junior high school (20.0 percent) and 18.0 percent elementary school.

The types of informal sector jobs that respondents were engaged in during the COVID-19 pandemic included: street vendors (27.3 percent), street vendors (23.3 percent), individual services (20.0 percent), other types of informal jobs (12.7 percent), craftsmen (11.3 percent), and farm laborers (5.3 percent). The types of jobs that respondents were engaged in included: casual laborers, small workshops, shoe sole makers, locksmiths, masseurs, farmers, laundry services, tailors, motorbike washers, porters, scavengers, barbers, ironers, body care services, screen printers, porters, and online traders. The types of jobs that respondents are currently engaged in have almost the same percentage distribution as the types of jobs that respondents were engaged in during the COVID-19 pandemic.

Employment status is grouped into: 1) Self-employed (self-employed with unpaid family workers), 2) self-employed with temporary workers, 3) self-employed with paid workers, dan 4) employee/worker. The employment status of respondents during the pandemic

and currently is dominated by workers with self-employed employment status (self-employed with unpaid family workers), followed by self-employed employment status with paid workers and employee/worker status.

The change in respondents' current income compared to during the COVID-19 pandemic (decreased, constant, increased) were obtained by the majority of respondents (93.3 percent) stating that income from working in the informal sector had increased compared to during the pandemic, 6.7 percent stated that their income had decreased and remained constant. The majority of respondents (95.3 percent) stated that they currently have no alternative income other than working as informal sector workers and 4.7 percent stated that they have other alternative income.

B. Livelihood Survival Strategies for Informal Sector Workers During the COVID-19 Pandemic

Respondents' answers to the strategy choices made during the pandemic showed that most respondents used more than one strategy to survive and maintain the continuity of their business. Respondents' answers regarding the survival strategies they adopted included: strategies of relying on other family members (61.3 percent), taking loans from informal lenders (33.3 percent), relying on/applying for government social assistance programs (30.0 percent), overcoming negative things such as selling assets (10.7 percent), and strategies of switching to other types of work in the informal sector (14.0 percent).

Next, respondents were asked to answer the question "Which is the main survival strategy that you chose during the Covid-19 Pandemic? Choose the most important one among the five strategy options." The most important survival strategy chosen by respondents among the five strategy choices, the results obtained were: 36.6 percent of respondents relied on other family members, 30.7 percent used the strategy of taking loans from informal lenders, 18.7 percent relied on/applied for assistance from government social assistance programs, job mobility strategies (10.0 percent), and only 4 percent chose negative coping strategies such as selling assets as the main strategy in efforts to survive and maintain business during the pandemic.

Table 1. Main Survival Strategies During the COVID-19 Pandemic

Main Survival Strategy	Total	
	Frequency	Percent
Negative coping strategies such as selling assets	6	4
Taking a loan from an informal lender	46	30.7
Relying on/applying for government social assistance programs (direct cash assistance, basic food packages, and other assistance programs)	28	18.7
Relying on other family members	55	36.6
Switching to other types of work in the informal sector (Employment Mobility)	15	10.0

Source: Data processed 2023

C. Factors that Influence the Selection of Survival Strategy Taken

The next question was to find out the factors that influenced the main survival strategy chosen by the respondent, as follows: "Based on your answer to the previous question, what factors influenced you in choosing the survival strategy that was adopted?" Because of your ownership of livelihood assets, with answer options namely: (1) Natural capital and access to infrastructure; (2) Social capital, such as: (i) social networks that can be utilized/available; (ii) close relationship with relatives/family; (3) Human capital: human resources that can be utilized/available, Human Resources/HR Education; (4) Financial/financial capital; and (5) Physical capital/ownership of physical assets. From the five answer choices, respondents were then asked to choose 3 (three) of the 5 (five) answer choices and ordered them from the most important. The results of respondents' answers are presented in tables 2, 3 and 4.

Table 2. Factors Influencing the Selection of the Main Survival Strategy (First Choice)

Factors Influencing Strategy Selection	Total	
	Frequency	Percent
Natural capital and access to infrastructure	2	1.3
Social capital, such as: (i) social networks that can be utilized/are available; (ii) close relationships with relatives/family	48	32.0
Human capital: human resources that can be utilized/available, Human Resources Education	20	13.3
Financial capital	44	29.3
Physical capital/ownership of physical assets	36	24.0

Source: Data processed 2023

Livelihoods Survival Strategies of Informal Sector Workers and Influencing Factors

Respondents' answer to first choice regarding the factors that influence the choice of the main survival strategy is because the respondent's ownership of livelihood assets in the form of social capital was answered by 32.0 percent of respondents, 29.3 percent answered financial/financial capital, 24.0 percent answered because of ownership of physical capital/ ownership of physical assets, 13.0 percent due to ownership of human capital (human resources that can be utilized/available, Human Resource Education), and only 1.3 percent due to natural capital and access to infrastructure.

Table 3. Factors Influencing the Selection of the Main Survival Strategy (Second Choice)

Factors Influencing Strategy Selection	Total	
	Frequency	Percent
Natural capital and access to infrastructure	4	2.6
Social capital, such as: (i) social networks that can be utilized/are available; (ii) close relationships with relatives/family	24	16.0
Human capital: human resources that can be utilized/available, Human Resources Education	52	34.7
Financial capital	39	26.0
Physical capital/ownership of physical assets	31	20.7

Source: Data processed 2023

Respondents' answers (second choice) regarding the factors that influence the choice of the main survival strategy is because the respondent's ownership of livelihood assets in the form of human capital (human resources that can be utilized/available, Human Resources Education) was answered by 34.7 percent of respondents, financial capital 26.0 percent, 20.7 percent answered because of ownership of physical capital/ownership of physical assets, 16.0 percent because of ownership of social capital such as: (i) social networks that can be utilized/available; (ii) close relationships with relatives/family, and only 2.6 percent answered because of natural capital and access to infrastructure, the details are presented in table 3.

The respondent's answer (third choice) regarding the factors that influence the choice of the main survival strategy is because the respondent's ownership of livelihood assets in the form of financial capital was answered by 43.3 percent of respondents, social capital was 29.3 percent, 17.3 percent answered because of ownership. regarding human capital, 7.3 percent due to ownership of physical capital/ownership of physical assets and only 2.6 percent due to natural capital and access to infrastructure, the details are presented in table 4.

Table 4. Factors Influencing the Selection of the Main Survival Strategy (Third Choice)

Factors Influencing Strategy Selection	Total	
	Frequency	Percent
Natural capital and access to infrastructure	4	2.6
Social capital, such as: (i) social networks that can be utilized/are available; (ii) close relationships with relatives/family	44	29.3
Human capital: human resources that can be utilized/available, Human Resources Education	26	17.3
Financial capital	65	43.3
Physical capital/ownership of physical assets	11	7.3

Source: Data processed 2023

Cross tabulation analysis between the first (1st) choice factors and the main survival strategy is presented in table 5.

Table 5. Cross Tabulation of Survival Strategy Selection Factors (First Choice) and Main Survival Strategy

Crosstab

		Main Survival Strategy					
		1	2	3	4	5	Total
First Choice - Factors in Strategy Selection 2	Count	0	0	0	48	0	48
	Expected Count	1.3	14.9	9.1	17.8	4.9	48.0
	% within First Choice - Factors in Strategy Selection	0.0%	0.0%	0.0%	100.0%	0.0%	100.0%

	3	Count	0	0	1	4	15	20
		Expected Count	.5	6.2	3.8	7.4	2.0	20.0
		% within First Choice - Factors in Strategy Selection	0.0%	0.0%	5.0%	20.0%	75.0%	100.0%
	4	Count	0	15	26	3	0	44
		Expected Count	1.2	13.7	8.3	16.4	4.5	44.0
		% within First Choice - Factors in Strategy Selection	0.0%	34.1%	59.1%	6.8%	0.0%	100.0%
	5	Count	4	31	1	0	0	36
		Expected Count	1.0	11.2	6.8	13.4	3.6	36.0
		% within First Choice - Factors in Strategy Selection	11.1%	86.1%	2.8%	0.0%	0.0%	100.0%
Total		Count	4	46	28	55	15	148
		Expected Count	4.0	46.0	28.0	55.0	15.0	148.0
		% within First Choice - Factors in Strategy Selection	2.7%	31.1%	18.9%	37.2%	10.1%	100.0%

Table 6. Results of Chi-Square Test of Factors for Selecting Survival Strategy (First Choice) with Main Survival Strategy

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	295.269[a]	12	.000
Likelihood Ratio	269.930	12	.000
Linear-by-Linear Association	97.592	1	.000
N of Valid Cases	148		

a. 9 cells (45.0%) have expected count less than 5. The minimum expected count is .54.

The results of the Chi-Square test on the Factors for Selecting a Survival Strategy (1st Choice) and the Main Survival Strategy obtained a Pearson Chi-Square value of 295.269 with a significance of 0.000, which shows that there is an association between the Factors for Selecting a Survival Strategy (1st Choice) with Main Survival Strategies.

Table 7. Results of Chi-Square Test of Factors for Selecting Survival Strategy (Second Choice) with Main Survival Strategy

Crosstab

			Main Survival Strategy					
			1	2	3	4	5	Total
Second Choice - Factors in Strategy Selection	1	Count	2	0	0	0	0	2
		Expected Count	.1	.6	.4	.7	.2	2.0
		% within 2nd Choice - Factors in Strategy Selection	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%
	2	Count	0	13	0	0	11	24
		Expected Count	.6	7.5	4.5	8.9	2.4	24.0
		% within 2nd Choice - Factors in Strategy Selection	0.0%	54.2%	0.0%	0.0%	45.8%	100.0%
	3	Count	0	0	10	42	0	52
		Expected Count	1.4	16.2	9.8	19.3	5.3	52.0
		% within 2nd Choice - Factors in Strategy Selection	0.0%	0.0%	19.2%	80.8%	0.0%	100.0%

	4	Count	2	19	1	13	4	39
		Expected Count	1.1	12.1	7.4	14.5	4.0	39.0
		% within 2nd Choice - Factors in Strategy Selection	5.1%	48.7%	2.6%	33.3%	10.3%	100.0%
	5	Count	0	14	17	0	0	31
		Expected Count	.8	9.6	5.9	11.5	3.1	31.0
		% within 2nd Choice - Factors in Strategy Selection	0.0%	45.2%	54.8%	0.0%	0.0%	100.0%
Total		Count	4	46	28	55	15	148
		Expected Count	4.0	46.0	28.0	55.0	15.0	148.0
		% within 2nd Choice - Factors in Strategy Selection	2.7%	31.1%	18.9%	37.2%	10.1%	100.0%

Table 8. Results of Chi-Square Test of Factors for Selecting Survival Strategy (Second Choice) with Main Survival Strategy

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	218.888[a]	16	.000
Likelihood Ratio	187.178	16	.000
Linear-by-Linear Association	11.619	1	.001
N of Valid Cases	148		

a. 13 cells (52.0%) have expected count less than 5. The minimum expected count is .05.

The results of the Chi-Square test on the Factors for Selecting a Survival Strategy (2nd Choice) and the Main Survival Strategy obtained a Pearson Chi-Square value of 218.888 with a significance of 0.000, which shows that there is an association between the Factors for Selecting a Survival Strategy (2nd Choice) with Main Survival Strategies.

Table 9. Cross Tabulation of Survival Strategy Selection Factors (Third Choice) and Main Survival Strategy

Crosstab

			Main Survival Strategy					
			1	2	3	4	5	Total
Third Choice - Factors in Strategy Selection	1	Count	2	0	0	0	0	2
		Expected Count	.1	.6	.4	.7	.2	2.0
		% within 3rd Choice - Factors in Strategy Selection	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%
	2	Count	0	33	0	7	4	44
		Expected Count	1.2	13.7	8.3	16.4	4.5	44.0
		% within 3rd Choice - Factors in Strategy Selection	0.0%	75.0%	0.0%	15.9%	9.1%	100.0%
	3	Count	0	0	17	9	0	26
		Expected Count	.7	8.1	4.9	9.7	2.6	26.0
		% within 3rd Choice - Factors in Strategy Selection	0.0%	0.0%	65.4%	34.6%	0.0%	100.0%
	4	Count	2	12	1	39	11	65
		Expected Count	1.8	20.2	12.3	24.2	6.6	65.0
		% within 3rd Choice - Factors in Strategy Selection	3.1%	18.5%	1.5%	60.0%	16.9%	100.0%

	5	Count	0	1	10	0	0	11
		Expected Count	.3	3.4	2.1	4.1	1.1	11.0
		% within 3rdChoice - Factors in Strategy Selection	0.0%	9.1%	90.9%	0.0%	0.0%	100.0%
Total		Count	4	46	28	55	15	148
		Expected Count	4.0	46.0	28.0	55.0	15.0	148.0
		% within 3rdChoice - Factors in Strategy Selection	2.7%	31.1%	18.9%	37.2%	10.1%	100.0%

Table 10. Results of Chi-Square Test of Factors for Selecting Survival Strategy (Third Choice) with Main Survival Strategy

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	218.516[a]	16	.000
Likelihood Ratio	161.300	16	.000
Linear-by-Linear Association	21.166	1	.000
N of Valid Cases	148		

a. 16 cells (64.0%) have expected count less than 5. The minimum expected count is .05.

The results of the Chi-Square test on the Factors for Selecting a Survival Strategy (3rd Choice) and the Main Survival Strategy obtained a Pearson Chi-Square value of 218.516 with a significance of 0.000, which shows that there is an association between the Factors for Selecting a Survival Strategy (3rd Choice) with Main Survival Strategies.

D. Livelihood Survival Strategies Model for Informal Sector Workers Based on Socio-Economic Characteristics and Factors That Influence Them

The livelihood survival strategies model of informal sector workers based on socio-economic characteristics and the factors that influence them is obtained by multinomial logistic regression analysis to obtain a model between socio-economic characteristics variables, variables of factors that influence the choice of survival strategies taken with the main survival strategy variables.

Table 11. Model Classification Accuracy

Classification

	Predicted					
Observed	1	2	3	4	5	Percent Correct
1	3	1	0	0	0	75.0%
2	0	45	1	0	0	97.8%
3	3	0	25	0	0	89.3%
4	3	0	1	50	1	90.9%
5	0	0	0	0	15	100.0%
Overall Percentage	6.1%	31.1%	18.2%	33.8%	10.8%	93.2%

The logistic regression model obtained from socio-economic characteristic variables, variable factors that influence the choice of survival strategy adopted and the main survival strategy variable produces a classification accuracy of 93.2 percent, indicating that the model formed accurately describes/explains the data.

IV. CONCLUSION

The main survival strategy chosen by respondents among the five strategic choices, the results showed that the main strategies carried out by respondents were: Relying on other family members was carried out by 36.6 percent of respondents, the strategy of taking loans from informal lenders (30.7 percent), followed by relying on/applying for government social assistance programs (18.7 percent), the strategy of carrying out job mobility (10.0 percent), and only 4 percent chose negative coping strategies such as selling assets as the main strategy in an effort to survive and maintain a business during the pandemic.

Respondents' answers (first choice) regarding the factors that influence the selection of the main survival strategy are because of the respondents' ownership of livelihood assets in the form of social capital answered by 32.0 percent of respondents, financial capital 29.3 percent, 24.0 percent answered because of ownership of physical capital/ownership of physical assets, 13.0 percent because of

ownership of human capital (human resources that can be utilized/available, Human Resource Education), and only 1.3 percent because of natural capital and access to infrastructure.

The livelihood survival strategies model of informal sector workers based on socio-economic characteristics and factors that influence them was obtained by multinomial logistic regression analysis to find a model between socio-economic characteristics variables, variables of factors that influence the choice of survival strategies taken with the main survival strategy variables. The logistic regression model obtained from socio-economic characteristics variables, factors that influence the choice of survival strategies taken with the main survival strategy variables produced a classification accuracy of 93.2 percent, indicating that the model formed accurately describes the data.

Research findings show that the respondent's income variable during the COVID-19 pandemic had a significant effect on the main survival strategy chosen by the respondent. Based on these findings, suggestions can be made for the need to evaluate policies for informal sector workers related to improving worker welfare through empowerment programs and post-pandemic business recovery programs.

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