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TRANSFORMING MARKET SYSTEMS (TMS)

Activity

Business Resilience Analysis

COVID-19



UNAH
UNIVERSIDAD NACIONAL
AUTÓNOMA DE HONDURAS



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ACRONYMS

CANATURH	National Chamber of Tourism of Honduras
COHEP	Honduran Council of Private Enterprise
COVID-19	Coronavirus Disease 2019
FEDECAMARAS	Federation of Chambers of Commerce and Industry of Honduras
GOH	Government of Honduras
IIES	Institute of Economic and Social Research
MSD	Market Systems Diagnostic
TMS	Transforming Marketing Systems
UNAH	National Autonomous University of Honduras
USAID	United States Agency for International Development

ACKNOWLEDGEMENTS

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Respondents were able to complete the survey online or by phone. Chambers contributed staff time to do outreach to enterprises in their regions and to help complete members by phone if they were not able to complete online.

SUMMARY

Given the scale and scope of the global crisis caused by COVID-19, rapid responses and proactive adaptations are required. In Honduras, a deficit of quality, real-time information on the effects of the crisis, and the capacities of enterprises and other market actors to mitigate, adapt to and recover from this shock has undercut the effective response of relevant public and private decision-makers.

A rapid survey has been developed to gather primary data to understand the impact and responses by enterprises to mitigate, adapt to and recover from the Covid-19 crisis. This effort has brought together the National Autonomous University of Honduras (UNAH), the National Chamber of Tourism (CANATURH), the Federation of Chambers of Commerce and Industry of Honduras (FEDECAMARAS) along with 16 regional chambers of commerce, the Honduran Council of Private Enterprise (COHEP) and the USAID Transforming Market Systems (TMS) Activity.

It should be noted that resilience requires capacities at different scales or levels of Honduran market systems. This survey generates primary data, including objective and subjective measures of resilience at the enterprise-level¹ with the aim of knowing the impact and responses by enterprises to effectively mitigate, adapt and recover from the health and economic crisis of COVID-19.

¹ Individuals and households interact with market systems through enterprise as consumers, as owners and/or as employees. Based on the results, the effects of COVID-19 are expected to ripple through enterprises to affect the well-being and resilience of individuals and households. TMS's partner UNAH completed a household resilience survey that complements this study.

METHODOLOGY

During the week of March 30 to April 6, 2020, the first mobile survey was conducted of 1,178 enterprises nationwide to collect data on resilience to the crisis caused by the coronavirus. The survey included indicators related to market systems resilience from the 2018 Honduras Market Systems Diagnostic (MSD), academic literature on resilience and specific data on the effects of COVID-19. Indicators included objective and subjective measures. Subjective measures included self-reported perceptions on the ability to mitigate, adapt to and recover from the crisis and related to degrees of enterprise connectivity, redundancy and other resilience determinants of market systems.

Survey responses from 1,178 enterprises in 16 departments and 17 different economic activities were validated. The results are presented in interactive dashboards that allow for the exploration of the data by geography, sector, and company size. Both descriptive and inferential analyses is presented in the report below. It is expected the next panel survey will be conducted in mid-May with the same panel of enterprises.

CHART 1. MAP OF SURVEY RESPONSES

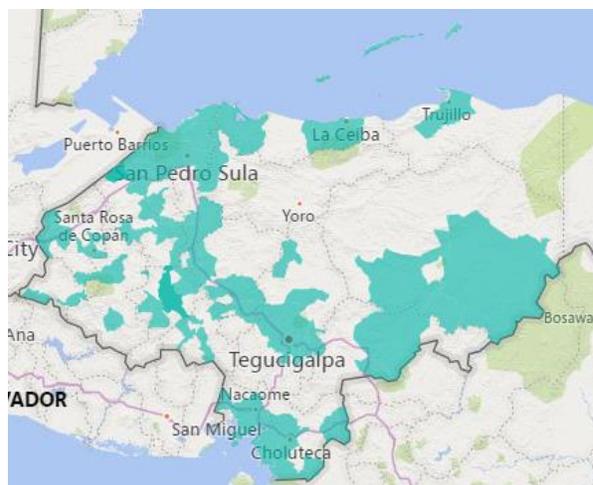


TABLE 1. RESPUESTAS A LA ENCUESTA COVID-19

Economic Activity	Freq.	Percent
Professional activities	80	7%
Agriculture (Production)	47	4%
Lodging	175	15%
Arts, Events, Recreation	72	6%
Commerce	194	16%
Construction	55	5%
Finance and insurance	10	1%
Manufacturing industries	63	5%
Information and communications	22	2%
Real Estate	19	2%
Human health	33	3%
Food services	291	25%
Administrative services	85	7%
Transport	32	3%
Total	1,178	100%

Enterprise Size	Freq.	Percent
Medium or large enterprise	46	4%
Small enterprise	903	77%
Microenterprise	229	19%
Total	1,178	100%

Region of Honduras	Freq.	Percent
Central	400	34%
Centro Occidental	190	16%
Islas De La Bahía	74	6%
Litoral Atlántico	64	5%
Occidental	103	9%
Oriental	60	5%
Sula	245	21%
Sur	42	4%
Total	1,178	100%

DESCRIPTIVE ANALYSIS

CHART 2. CHANGE IN ENTERPRISES SALES

The majority (67%) of enterprises did not sell in the first week of April 2020. Many enterprises (24%) had lower sales compared to the week before the crisis.

1. What were your enterprise's sales in the last week, compared to the week before the COVID-19 crisis began (as reference 9 to 15 of March of 2020)?



2. If your enterprises did sell, what percentage of sales did you have in the last week, compared to the week before the COVID-19 crisis began (as reference 9 to 15 of March of 2020)?

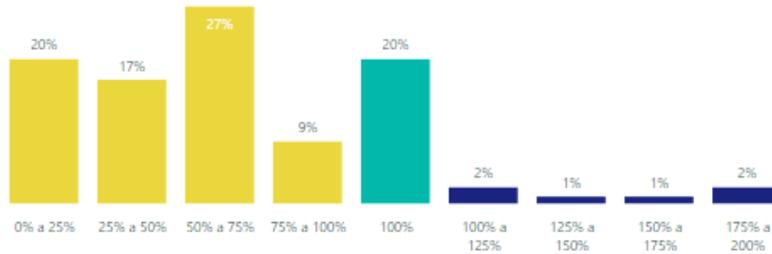


CHART 3. CHANGE IN WORKFORCE

Enterprises have already begun to lay off or suspend employees. Hourly or temporary employees are more likely to have their jobs suspended than permanent employees.

28% ... enterprises have had to lay off employees due to the crisis caused by COVID-19

3. How many employees did your enterprise have before the COVID-19 crisis began? (as reference March 15, 2020)

Permanent employees
17.8

Temporary employees
3.5

Hourly employees
1.4

4. How many employees has your enterprise laid off since the COVID-19 crisis began? (as reference March 15, 2020)

Permanent employees laid off
1.2

Temporary employees laid off
1.2

Hourly employees laid off
0.5

Permanent employees

6.0%

% laid off

Temporary employees

29.3%

% laid off

Hourly employees

31.3%

% laid off

CHART 4. MEASURES ADOPTED

Less than one-third of enterprises have employees that telework. Approximately one-in-ten of Honduran enterprises surveyed sell their products and services online.

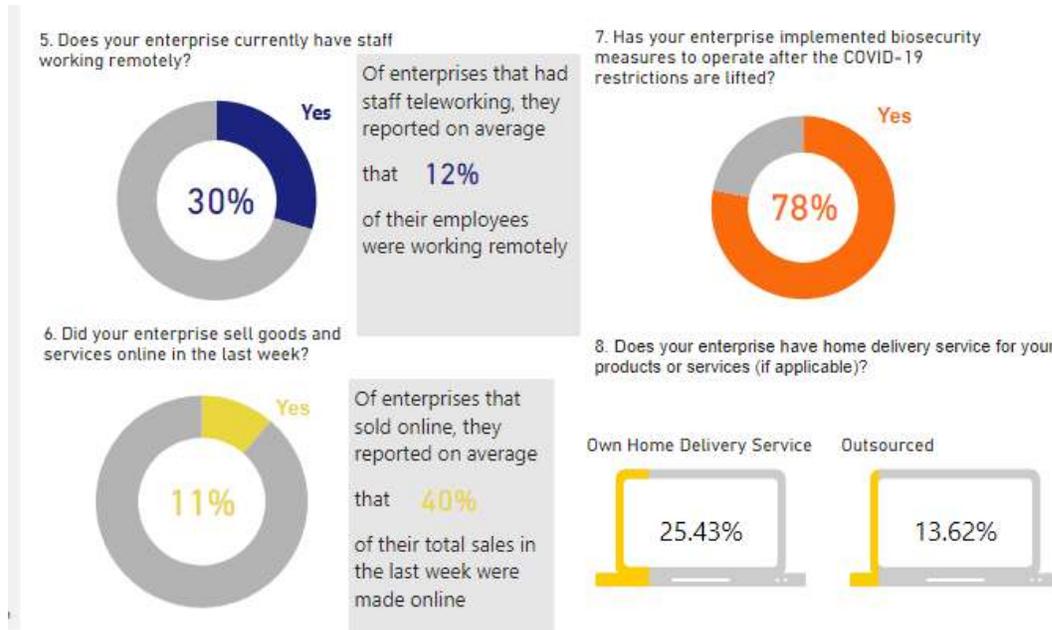


CHART 5. FINANCING OF ENTERPRISES

Most enterprises (77%) are seeking financing to cope with the COVID-19 crisis, but more than half of enterprises (59%) already have financing through commercial banks and credit cards.

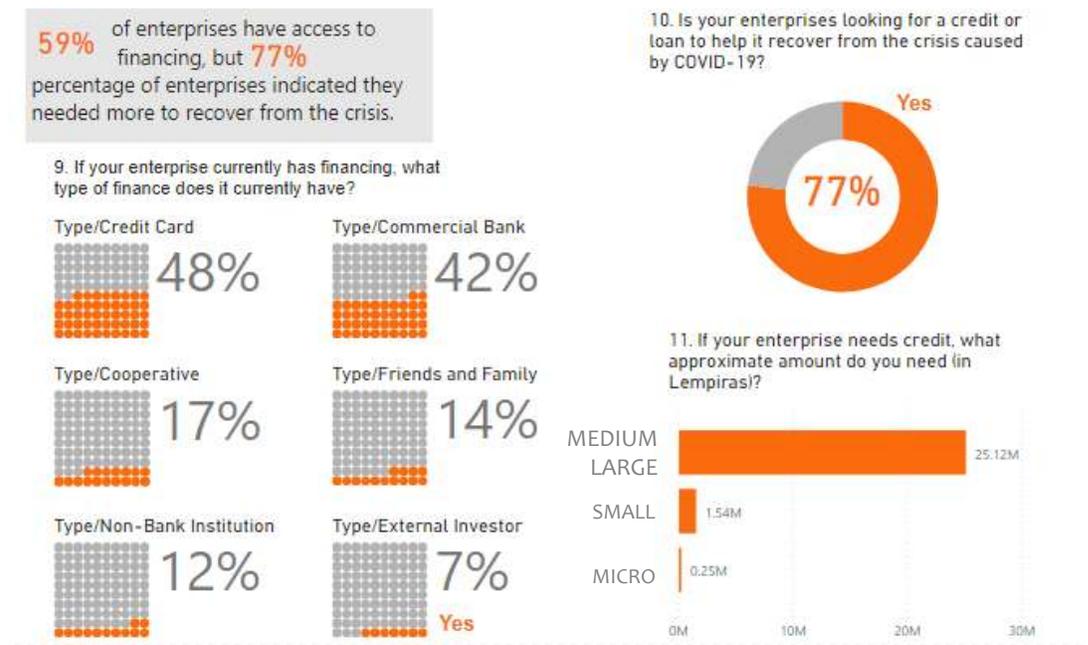


CHART 6. CAPACITIES TO RECOVER

Most enterprises (94%) express confidence that they can recover from the COVID-19 crisis but at the same time many enterprises expressed a lack of confidence in specific resilience capacities.



CHART 7. PERCEPTIONS ON RECOVERY

In three months, 83% of the enterprises surveyed will close their operations due to the COVID-19 crisis. Already 15% of enterprises surveyed have closed due to the COVID-19 crisis.

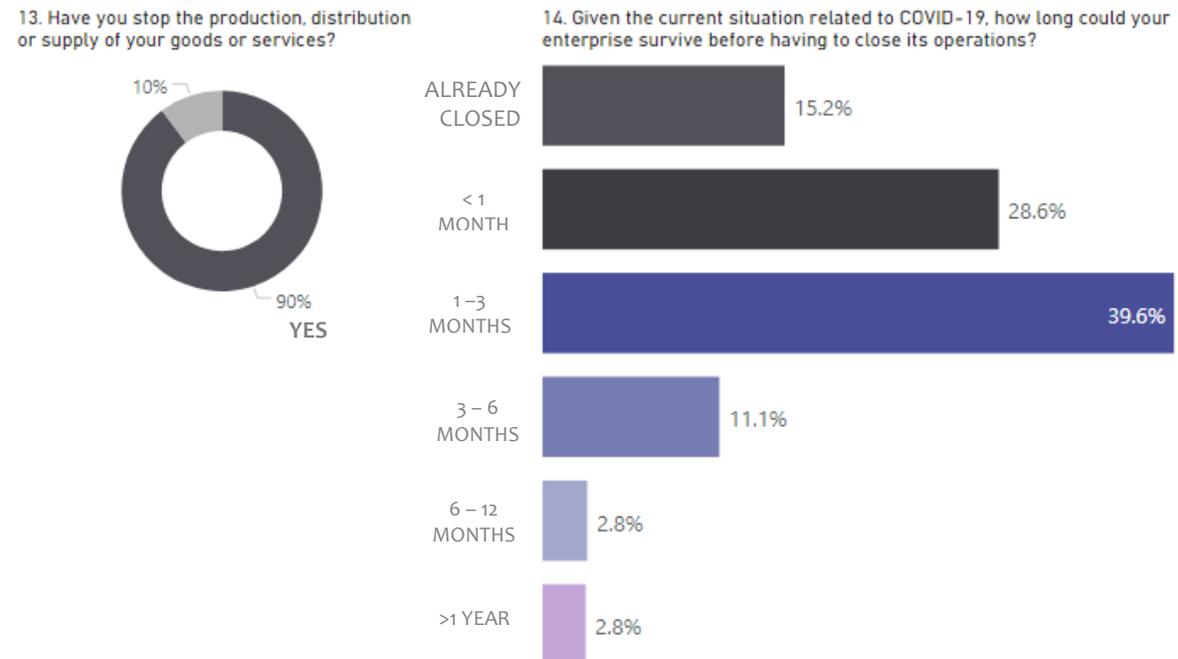


CHART 8. LESSONS LEARNED

58% of enterprises identified specific learning from the Covid-19 crisis that will help their enterprise prepare for future crises. This question was asked in an open-ended manner and responses were coded. Responses are ordered by percentage of enterprises responding.

Lesson Learned from COVID-19 Crisis	% Enterprises
Need for better cash flow planning for contingencies (reserves or savings)	22.8%
Adopt more proactive contingency, scenario and risk planning	10.9%
Diversify products and services so less vulnerable to shocks	8.6%
Adopt an online sales and home delivery model to maintain sales	5.1%
Implement biosecurity measures and stockpile medical supplies	3.7%
Improve teleworking options and digitalize business processes	2.4%
Change the inventory management system	1.6%
Avoiding riskier debt, e.g. credit cards that cannot afford repayments	1.2%
Restructure workforce, for example, to hourly employment	1.1%
Manage the supply chain to make it more flexible and adaptable	1.0%
Buy insurance policies that cover crisis events	0.6%
Implement more efficient or lean production models	0.6%
Prepare staff for how to work in crisis situations	0.6%
Improve the security of my business locations (to avoid theft)	0.4%
Strengthen networks with partners for better collaboration	0.3%
Adopt accessible and affordable e-banking services	0.3%

CHART 9. BUSINESS MODEL CHANGES

More than half of enterprises have identified specific changes in their business model to adapt to the Covid-19 crisis and its effects. This question was asked in an open-ended manner and responses were coded. Responses are ordered by percentage of enterprises responding.

Business model adaptations to COVID-19 Crisis	% Enterprises
Sell online and/or offer home delivery services	13.4%
Offer new products or services	8.7%
Adapt current products or services	6.9%
Implement biosecurity measures to enable staff to return to work	6.9%
Implement new advertising strategies	3.6%
Offer online commerce and payments	3.0%
Search for new customers or buyers	2.2%
Offer discounts on products	2.2%
Strengthen the technological skills of staff	2.0%
Reduce the size of the enterprise (number of employees)	1.5%
Change in ordering and programming	1.1%
Changes in employment contracts of employees	1.0%
Support employees to telework	1.0%
Open new distribution centers and points of sale	0.9%
Close the current business and start a new one	0.7%

New financing structure for business	0.6%
Renegotiate commercial contracts or partnerships	0.4%
Discard some current products or services	0.2%
Rent hotel rooms that are not being occupied	0.1%

CHART 10. BUSINESS NEEDS

Enterprises expressed their needs to recover from the COVID-19 crisis in an open-ended question and responses were coded. Responses are ordered by percentage of enterprises responding.

Needs Identified by Enterprises	% Enterprises
Financing (including low interest rate loans)	44.4%
Operational authorization granted by the GOH	21.2%
Tax credit or public subsidy (reduced taxes, etc.)	13.0%
Debt renegotiation	6.3%
Training and capacity building for staff	3.3%
Prevention and biosafety training	2.9%
Inputs or inventory to restart production.	2.4%
Marketing and advertising support	2.3%
Safe transport restored for distribution	1.7%
Relief from interest payments or fines	1.2%
Website or tools to sell products online	1.2%
Human resources legal advice	0.2%

INFERENCE ANALYSIS

STATISTICAL NOTE

The principal variables used in analysis are in Table 1. Nonparametric statistical analyses were used due to the non-normality of the response data. Statistical tests included logistic regression for binary or ordinal data, Kruskal-Wallis for comparison of medians, and chi-square test for frequency of categorical responses. In the interpretation of data, it should be noted the short time reference period of two to three weeks since the quarantine was initiated in Honduras on March 16, 2020.

TABLE 2. DEPENDENT VARIABLES

Variable	Description of variable	Descriptive Analysis
Percentage of employees laid off or suspended	This variable measures the percentage of employees laid off or suspended since the initiation of the crisis (marked as 16 of March of 2020 when quarantine began) with respect to the week before the crisis - March 30 to April 5 of 2020.	There were 1,040 observations to this variable with a mean of 15.50% and median of 0% staff laid off or suspended and a standard deviation of 30.695%. The lowest response was -0% or did lay off or suspend staff and the highest response 100%. No outliers were detected. A Shapiro-Wilk test showed the data to be non-normal $W(1,1040) = 0.93, p = 0.00$.
Percentage change in sales	This variable measures the percentage change in sales of the establishment, the week of March 30 to April 5 of 2020 compared to the week before the crisis 9 to 15 of March of 2020	There were 1,109 observations in percentage change in sales with a mean of -80.43% and median of -100% change in sales and standard deviation of -40.37%. The lowest response was -100% or did not sell and the highest response 300%. Two outliers were detected and removed. A Shapiro-Wilk test showed the data to be non-normal $W(1,109) = 0.85, p = 0.00$.
Number of months can survive COVID-19	This Likert variable measures the expected time that the enterprise can operate in the current COVID-19 context before it closes its operations. 0: closed already, 1: < 1 month, 2: 1-3 months, 3: 3-6 months, 4: 6-12 months, 5: >1 year	There were 1,054 observations with 15.18% (n=160) already closed, 28.56% (n = 301) expected to close within a month, 39.56% (n = 417) expected to close within 1 to 3 months, 11.10% (n = 117) expected to close within 3 to 6 months, 2.85% (n = 30) expected to close within 6 to 12 months and 2.75% (n = 29) expected to last > 1 year.

Hypothesis 1: The COVID-19 crisis has impacted enterprises, requiring them to stop or suspend production which would result in laying off and suspending employees.

Findings: 90% of enterprises stopped production and 67% of enterprises did not sell products or services the week of March 30 to April 5 of 2020. Enterprises that stopped production or did not sell were significantly more likely to lay off or suspend employees. This decision is likely a coping strategy in order to avoid closing their operations.

Enterprises that had stopped production were 1.71 times more likely to have laid off or suspended employees than enterprises that maintained production. Enterprises that had stopped selling the week of March 30 to April 5 of 2020 were 0.738 times more likely to have laid off or suspended employees than enterprises that maintained sales. Enterprises that reported laying off or suspending employees also expressed a shorter duration they could cope with the COVID-19 crisis before closing operations. This data suggests that a significant number of enterprises that have stopped production or sales have resorted to laying off or suspending employees to avoid closure.

As a note to this analysis, individuals and households interact with market systems through enterprise as consumers, as owners and/or as employees. These results suggest multiple potential

interactions of individuals and households are affected as people are laid off and suspended from work, production stops reduce product and service availability, and as returns of capital invested in enterprises are likely lower. It can be expected, the effects of COVID-19 is expected to ripple through enterprises to affect the well-being and resilience of individuals and households.

STATISTICAL ANALYSIS

A chi-square test of independence was performed to examine the relation between enterprises that laid off and suspended staff and whether the enterprise had stopped productions. The relation between these variables was significant $X(1) = 4.9068, p = .027$. A Kruskal-Wallis test showed that there was a statistically significant difference for enterprises that stopped production by the expected duration they could cope with COVID-19 before closing operations at $\chi^2(1) = 29.291, p = 0.000$. A logistic regression identified that enterprises that had stopped production were 1.71 times more likely to have laid off or suspended employees (95% 1.041736 to 2.8143), $\chi^2(1) = 4.91, p = 0.0268, R^2 0.0040$. A logistic regression identified that enterprises that did not sell were .738 times more likely to have laid off or suspended employees (95% .5486686 to .9932872), $\chi^2(1) = 4.10, p = 0.0429, R^2 0.0033$. A logistic regression identified that enterprises that had stopped production reported a shorter duration they could cope with the COVID-19 crisis before closing operations, with a coefficient of -1.08515 (95% -1.474359 to -.6959407), $\chi^2(1) = 30.11, p = 0.0000, R^2 0.01$. A logistic regression identified that enterprises that had laid off or suspended staff reported a shorter expected duration that they could cope with the COVID-19 crisis before closing operations, with a coefficient of -.8471547 (95% -1.111106 to -.5832031), $\chi^2(1) = 40.19, p = 0.0000, R^2 0.0147$.

Hypothesis 2: The COVID-19 crisis has a disproportionate impact on some industries more than others with implications on where support should be prioritized for recovery.

Findings: Tourism and manufacturing enterprises, including agro-processors, are more significantly impacted by the COVID-19 crisis and have a shorter expected duration that they can cope with the COVID-19 crisis before closing operations than other enterprise profiles.

There is a statistically significant difference by economic activity and (1) the percentage of employees laid off or suspended (2) the percentage change in enterprise sales and (3) the reported duration that enterprises could cope with the COVID-19 crisis before closing operations.

Enterprises engaged in lodging, manufacturing, and agricultural production were *more likely* to have *laid off* employees, while, enterprises in commerce, transport, finance, and administrative services were *less likely* to have *laid off* employees. Enterprises in lodging, arts and entertainment, and administrative services were *less likely* to have *made sales*, while, enterprises in commerce, agricultural production and restaurants were *more likely* to have had *made sales*.

The median enterprise reported that they could cope with the COVID-19 crisis for *1 to 3 more months*. Enterprises in the food services, arts, events, and recreational and manufacturing sectors, as well as enterprises that identified as a tourism-characteristic enterprise, reported that they could only cope with the COVID-19 crisis for *less than one month* before closing operations. And finance and insurance companies reported they could cope with the COVID-19 crisis for *3 to 6 months*.

TABLE 3. ANALYSIS BY ECONOMIC ACTIVITY

Economic Activity Category	% Employees Laid Off				% Change in Sales				Survival	
	Median	Mean	Stdev.	Freq.	Median	Mean	Stdev	Freq.	Median	Freq.
Professional Activities	0%	11%	28%	70	-100%	-71%	54%	76	1-3 months	69
Agriculture (Production)	0%	22%	33%	42	-100%	-73%	41%	42	1-3 months	42
Lodging	0%	19%	31%	153	-100%	-90%	29%	167	1-3 months	159
Arts, Events, Recreation	0%	24%	38%	65	-100%	-87%	32%	67	< 1 month	69
Commerce	0%	12%	29%	173	-100%	-71%	51%	186	1-3 months	167
Construction	0%	15%	30%	49	-100%	-82%	38%	53	1-3 months	51
Finance and insurance	0%	0%	0%	10	-100%	-71%	43%	10	3-6 months	10
Manufacturing industries	0%	20%	35%	55	-100%	-78%	41%	60	< 1 month	53
information and communications	0%	9%	23%	22	-100%	-81%	31%	21	1-3 months	19
Real Estate	0%	14%	29%	15	-100%	-92%	20%	18	1-3 months	18
Human health	0%	10%	22%	31	-100%	-88%	25%	32	1-3 months	28
food services	0%	17%	33%	254	-100%	-77%	41%	266	< 1 month	266
administrative services	0%	11%	26%	72	-100%	-95%	19%	81	1-3 months	76
Transport	0%	5%	17%	29	-100%	-81%	40%	30	1-3 months	27
Total	0%	15%	31%	1,040	-100%	-80%	40%	1,109	1-3 months	1,054

*Data is non-normal and the differences in mean values should not be interpreted as statistically significant

STATISTICAL ANALYSIS

Kruskal-Wallis tests showed that there was a statistically significant difference by sectors of:

- the percentage of employees laid off or suspended was significant at $\chi^2(13) = 9.470, p = 0.00$
- the percentage change in sales was significant at $\chi^2(13) = 26.144, p = 0.016$
- the number of months can survive COVID-19 was significant at $\chi^2(13) = 56.409, p = 0.00$

A chi-square test of independence was performed to examine the relation between economic activity and whether/if the enterprises laid employees off. The relation between these variables was significant $X(13) = 31.4948, p = .003$. A second chi-square test of independence was performed to examine the relation between economic activity and whether/if the enterprises had sales March 30 to April 6, 2020. The relation between these variables was also significant $X(13) = 55.9014, p = 0.000$.

Hypothesis 3: Smaller enterprises are less able to cope with the COVID-19 crisis than larger enterprises and will be more likely to lay off or suspend their employees.

Findings: No significant effects were identified by the size of enterprises and whether they laid off or suspended staff. However, microenterprises and small enterprises were significantly less likely than medium or large to have made sales.

Medium or large enterprise tended to report sales during the period of March 30 to April 6, 2020, however, a median reduction of 90% from March 9 to 15 of 2020. Micro or small enterprise tended to report no sales from March 30 to April 6, 2020. There was no statistically significant relation between size of enterprises and the percentage of employees laid off or suspended. However, there is mixed evidence on the relation between the size of the enterprise and the reported duration that the enterprise could cope with the COVID-19 crisis before closing operations. Depending on the test, either a statistically insignificant or relatively immaterial effect is due to enterprise size.

TABLE 4. ANALYSIS BY ENTERPRISE SIZE

Tamaño de la empresa	% Employees Laid Off				% Change in Sales				Survival	
Category	Median	Mean	Stdev.	Freq.	Median	Mean	Stdev	Freq.	Median	Freq.
Medium or large enterprise	0%	11%	27%	42	-90%	-54%	73%	45	1-3 months	35
Small enterprise	0%	15%	29%	209	-100%	-83%	34%	218	1-3 months	207
Microenterprise	0%	16%	31%	789	-100%	-81%	39%	846	1-3 months	812
Total	0%	15%	31%	1,040	-100%	-80%	40%	1,109	1-3 months	1,054

*Data is non-normal and the differences in mean values should not be interpreted as statistically significant

STATISTICAL ANALYSIS

Kruskal-Wallis tests showed that there was a statistically significant difference by size of enterprise of:

- the percentage change in sales was significant at $\chi^2(2) = 14.750, p = 0.00$
- the number of months can survive COVID-19 was significant at $\chi^2(2) = 8.007 p = 0.02$

A chi-square test of independence was conducted to examine the relation between enterprise size and the reported duration that the enterprise could cope with COVID-19 before closing its operations. The relation between these variables was not significant at the .05 level, $\chi^2(13) = 178.1939, p = 0.072$. A logistic regression was performed to ascertain the effects of size of the enterprise on the reported number of months that the enterprise could cope with COVID-19 before ending operations. The regression model identified an increase in the number of permanent employees at the enterprise (as measure of size) was associated with an increase in the reported duration that the enterprise could cope with the COVID-19 before closing, with a coefficient of 0.0047 (95% 0.0000 to 0.0099), $\chi^2(1) = 4.34, p = 0.0373$ but the effect appears immaterial.

Hypothesis 4: The COVID-19 crisis has affected enterprises located in some regions of Honduras more significantly than enterprises location in other regions of Honduras.

Findings: There are no significant differences in the effects of the COVID-19 crisis for enterprises located in the different regions of Honduras.

No statistical relations were identified between different regions, departments or cities and the reported change in enterprise sales, the expected duration the enterprise could cope with the COVID-19 crisis before closing operations, or the percentage of employees laid off or suspended.

TABLE 5. ANALYSIS BY ENTERPRISE LOCATION

Geography	% Employees Laid Off				% Change in Sales				Survival	
Category	Median	Mean	Stdev.	Freq.	Median	Mean	Stdev	Freq.	Median	Freq.
Central	0%	16%	32%	344	-100%	-81%	45%	377	1-3 months	370
Centro Occidental	0%	15%	30%	175	-100%	81%	32%	178	1-3 months	164
Islas De La Bahía	0%	25%	37%	66	-100%	-90%	27%	71	1-3 months	64
Litoral Atlántico	0%	9%	22%	57	-100%	-82%	35%	63	1-3 months	54
Occidental	0%	18%	32%	86	-100%	-79%	41%	96	< 1 month	95
Oriental	0%	9%	23%	55	-100%	-82%	40%	56	1-3 months	49
Sula	0%	13%	29%	216	-100%	-77%	42%	234	1-3 months	220
Sur	0%	22%	35%	41	-100%	-71%	41%	34	1-3 months	38
Total	0%	15%	31%	1,040	-100%	-80%	40%	1,109	1-3 months	1,054

*Data is non-normal and the differences in mean values should not be interpreted as statistically significant

Hypothesis 5: Enterprises whose employees are able to telework will be better able to cope with the COVID-19 crisis than enterprises whose employees are not able to telework.

Findings: Enterprises that reported employees teleworking also reported being able to cope with COVID-19 crisis for longer duration than enterprises whose employees did report employees teleworking. However, the percentage of employees teleworking varied significantly by economic activity suggesting there are sectoral differences.

There is a statistically significant difference in the percentage of employees teleworking by economic activity. Enterprises in finance and insurance, information, and communications were significantly more likely to report a higher percentage of employees working remotely. In addition to these two activities, enterprises in real estate, administrative services, construction, and professional services were also more likely to report employees working remotely. Likewise, enterprises that reported a higher percentage of employees teleworking tended to report a longer duration that they could cope with the COVID-19 crisis before closing operations.

TABLE 6. TELEWORKING

Economic Activity	% Employees Teleworking			
	Category	Median	Mean	Stdev.
Professional activities	1%	24%	36%	80
Agriculture (Production)	0%	13%	28%	47
Lodging	0%	3%	12%	175
Arts, Events, Recreation	0%	5%	16%	72
Commerce	0%	4%	15%	194
Construction	2%	13%	22%	55
Finance and insurance	25%	40%	36%	10
Manufacturing industries	0%	9%	23%	63
Information and communications	25%	43%	44%	22
Real Estate	1%	13%	25%	19
Human health	0%	5%	12%	33
Food services	0%	2%	11%	291
Administrative services	0%	20%	34%	85
Transport	1%	11%	25%	32
Total	0%	9%	22%	1,178

STATISTICAL ANALYSIS

A Kruskal-Wallis test showed that there was a statistically significant difference across sectors for the percentage of employees that were teleworked $\chi^2(13) = 195.670, p = 0.00$. There was also a statistically significant difference between companies that did and did not have employees teleworking and the expected number of months the enterprise could cope with the COVID-19 crisis before ending operations $\chi^2(1) = 30.079, p = 0.00$. A chi-square test of independence was performed to examine the relation between economic activity and enterprises that had employees teleworking. The relation between these variables was significant $X(13) = 178.1939, p = .0000$. A logistic regression was performed to ascertain the effects of teleworking on the expected number of months reported by the enterprise that they could cope with COVID-19 before ending operations. An increase in the percentage of employees teleworking was associated with an increase in reported number of months the enterprise could cope with COVID-19 crisis before shutting down operations with a coefficient of 1.42 (95% .921 to 1.932), $\chi^2(1) = 31.30, p = 0.000$.

Hypothesis 6: Enterprises that sell online are better able to cope with the COVID-19 crisis than enterprises that do not sell online.

Findings: Enterprises which sold online were better able to continue selling through the COVID-19 crisis than those that did not sell online. Enterprises with online sales had a smaller decline in percentage change of sales than those enterprises that did not sell online. Microenterprises were less likely to report online sales than larger enterprises.

Microenterprises were less likely than larger enterprises to have had sales online. And enterprises which sold online were more likely to have had higher sales than those without online sales. The median change in enterprises sales from March 16 to April 6, 2020 as compared to the week before the crisis from March 9-15 of 2020 was -100% for enterprises that *did not sell online* (N = 959) and -80% for enterprises that *did sell online*

TABLE 7. ONLINE SALES

Enterprise Size Category	% Online Sales			
	Median	Mean	Stdev.	Freq.
Medium or large enterprise	0%	6%	17%	44
Small enterprise	0%	6%	21%	225
Microenterprise	0%	4%	16%	879
Total	0%	4%	17%	1,148

(N = 121). In other words, enterprises which sold online were better able to continue selling through the COVID-19 crisis than those that did not sell online. No differences for online sales were statistically different across economic activity. No significant differences were found for enterprises with or without delivery services.

STATISTICAL ANALYSIS

A Kruskal-Wallis test showed that there was a statistically significant difference between enterprises with online sales and the percentage change in sales of enterprises from March 16 to April 6, 2020 compared to the week before the crisis from March 9-15 of 2020 $\chi^2(1) = 56.148, p = 0.0001$. A Kruskal-Wallis test also showed that there was a statistically significant difference between enterprise size and the percentage of online sales $\chi^2(2) = 17.630, p = 0.000$. A chi-square test of independence was performed to examine the relation between the size of enterprise and whether the enterprise had online sales. The relation between these variables was significant $\chi^2(2) = 15.2923, p = .0000$. A Kruskal-Wallis test showed that there was a statistically significant difference between enterprises with online sales and the expected duration they could cope with COVID-19 before closing operations $\chi^2(1) = 6.180, p = 0.0129$.

Hypothesis 7: Enterprises with external financing are better able to cope with the COVID-19 crisis than enterprises that do not have external financing.

Findings: No relationship was found between enterprises that had external financing and their ability to cope with the COVID-19 crisis. However, microenterprises are less likely to have financing than larger enterprises. At the same time, enterprises which don't already have financing are less likely to require additional financing.

Microenterprises are less likely to have access to financing than small, medium, or large enterprises. However, enterprises that did not have financing already were less likely to report needing financing. Also, medium, and large enterprises are less likely to express confidence that they can access financing that they need in the COVID-19 crisis. The relation between financing and ability to cope with the COVID-19 crisis is unclear based on the results of this analysis.

TABLE 8. FINANCING

Category	Micro	Small	Med/LG	All
Have financing	55%	71%	76%	56%
Confidence in accessing	76%	80%	60%	76%
Need financing	77%	77%	71%	77%

No statistical relationship was found between enterprises that had financing, expressed confidence in being able to access financing, or whether the enterprise needed financing and the percentage of staff suspended or laid off, the change in enterprise sales, or the expected duration that the enterprise could cope with the COVID-19 crisis before closing operations.

STATISTICAL ANALYSIS

A chi-square test of independence was showed that there was a statistically significant relationship between the size of enterprise and whether they had financing $\chi^2(1) = 24.423$, $p = 0.00$ and whether they had confidence accessing financing $\chi^2(1) = 5.645$, $p = 0.059$. A chi-square test of independence showed that there was a statistically significant relationship between enterprises that already had financing and whether they needed more financing $\chi^2(1) = 26.6221$, $p = 0.000$.

Hypothesis 8: Enterprises that are able to adapt their business models to the COVID-19 crisis context are more likely to cope with and recover from COVID-19 crisis

Findings: Half of all enterprises identified specific changes they were making to their business models. Enterprises that are making specific changes to business models express greater confidence in their ability to cope with and recover from the COVID-19 crisis than enterprises that did not identify specific changes that they are making to their business models.

Enterprises that reported specific changes to their business models were more likely to express confidence in recovery from the COVID-19 crisis than enterprises that did not express changes. Half of all enterprises identified specific changes they were making to their business models. Lodging, administrative services, and transport were less likely to report changes in business models, while food service enterprises were more likely to report changes in business models. No significant relationship was identified between enterprise size or geography of enterprise.

No relation between reported changes to business models and the percentage change in sales, the percentage of employees laid off or suspended, or the expected duration the enterprise could cope with the COVID-19 crisis was identified in the analysis. It should be noted the short duration between the beginning of the COVID-19 crisis in Honduras and the completion of this survey (3 to 4 weeks). This is unlikely to be enough time to fully execute that change and see results.

STATISTICAL ANALYSIS

A chi-square test of independence was performed to examine the relation between business model changes and whether the enterprise expected to recover from COVID-19 crisis. The relation between these variables was significant $\chi^2(1) = 10.3631$, $p = .001$. A chi-square test of independence was performed to examine the relation between the economic activity of enterprises and whether business model transformations were identified. The relation between these variables was significant $\chi^2(13) = 36.8965$, $p = .0000$.

Hypothesis 9: Enterprises that are able to find new buyers and/or adapt their products in response to the COVID-19 crisis are more likely to cope with and recover from the crisis.

Findings: A set of resilience capacities are predictive of whether enterprises are changing their business models and/or have confidence in recovery from the COVID-19 crisis. These resilience capacities are essentially “transformative” and reflect the capacity of enterprises to turn the crisis/shock into new business opportunities, sources of strength or innovation.

The analysis identified a set of resilience capacities related to whether enterprises identified specific business model changes and whether they expected to recover from the COVID-19 crisis.

With respect to changes in business model, the rank order of five resilience capacities according to their strength in relation to the identification of specific changes to business models is presented in the adjacent table. Two capacities were identified as significantly predictive to adaptation of the enterprise to the COVID-19 crisis (1) enterprises having identified specific learning from the crisis were 3.51 times more likely to have made specific changes to business models, and (2) enterprises

having expressed confidence in their capability to find new or alternative buyers were 2.60 times more likely to have made specific changes to business models.

TABLE 9. CAPACITIES TO CHANGE BUSINESS MODEL

% Enterprises Reporting BY Change in Business Model				
Rank	By enterprises that...	No Change	Change	Freq.
1	Have learned from the crisis	27%	61%	1095
2	Can find new buyers	31%	58%	894
3	Can find new suppliers	36%	57%	861
4	Can renegotiate agreements	37%	51%	877
5	Can secure financing	42%	50%	849

With respect to changes in expected recovery from the COVID-19 crisis, three resilience capacities were related to confidence to recover from the COVID-19 crisis. Two of these resilience capacities are essentially transformative (1) confidence that the enterprise can find new or alternative buyers and (2) confidence that the enterprise can change their product or service. The third capacity (3) the enterprise having identified specific learning from the COVID crisis provides the feedback loop necessary for enterprises to learn from their experiences during COVID-19 and to make proactive change.

TABLE 10. CAPACITIES TO RECOVER FROM COVID-19

% Enterprises that report Confidence in Recovery				
Rank	By enterprises that...	Not Confident	Confident	Freq.
1	Can find new buyers	83%	97%	810
2	Learned from crisis	90%	97%	875
3	Can change product	87%	97%	762

STATISTICAL ANALYSIS

A Kruskal-Wallis test showed that there was a statistically significant difference between enterprises that did and did not identify specific changes to their business models and the number of resilience capacities identified $\chi^2(1) = 133.764, p = 0.000$. A chi-square test of independence was performed to examine the relation between whether enterprises were making specific changes to business models and the following set of resilience capacities:

- having learned a specific lesson from crisis $\chi^2(1) = 126.9920, p = .0000$
- confidence in finding new buyers $\chi^2(1) = 55.1125, p = .0000$
- confidence in finding new providers $\chi^2(1) = 38.1134, p = .0000$
- confidence in renegotiating agreement $\chi^2(1) = 11.9459, p = .0001$
- confidence in accessing financing $\chi^2(1) = 3.3833, p = .066$

A logistic regression was done to assess the relative effects of these resilience capacities on the likelihood that enterprises have identified specific changes to their business model. The logistic regression model was statistically significant $\chi^2(2) = 129.47, p < .0000$. The model explained 10.45% (pseudo R^2) of the variance in business model changes. Enterprises that identified specific learning from the COVID-19 crisis were 3.51 times more likely to have identified specific business model transformations. Enterprises that expressed confidence in finding new buyers were 2.60 times more likely to have identified specific business model transformations as a result of the COVID-19 crisis.

A Kruskal-Wallis test showed that there was a statistically significant difference between enterprises that had confidence in whether they could recover from the COVID-19 crisis and the number of resilience capacities identified by enterprises $\chi^2(1) = 43.234, p = 0.0001$.

A logistic regression was done to assess the relative effects of these resilience capacities on whether enterprises were confident they would recover from the COVID-19 crisis. The logistic regression model was statistically significant $\chi^2(3) = 55.26, p < .0000$. The model explained 17.14% (pseudo R^2) of the variance in enterprise confidence in recovery from COVID-19. In this logistic model, enterprises that -

- Expressed confidence in finding new buyers were 5.36 times more likely to have expressed confidence in recovery from the COVID-19 crisis,
- Identified specific learning from the COVID-19 crisis were 2.89 times more likely to have expressed confidence in recovery from the COVID-19 crisis,

- Expressed confidence in changing their product or services were 1.62 times more likely to have expressed confidence in recovery from the COVID-19 crisis.

Hypothesis 10: Enterprises that were already experiencing shocks or stressors prior to the crisis are less likely to be able to cope with COVID-19 crisis.

Findings: Enterprises which had not recovered from other shocks or stressors were less confident in their ability to recover from the COVID-19 crisis.

Enterprises that had not recovered from other shocks were less likely to express confidence in recovery from the COVID-19 crisis. The median enterprise that did not express confidence in recovery from the COVID-19 crisis had been affected and not fully recovered from another shock. The median enterprise that did express confidence in recovering from the COVID-19 crisis, either had not been affected by another shock or stressor or had been affected and recovered from it.

STATISTICAL ANALYSIS

A chi-square test of independence was performed to examine the relation whether enterprises that had recovered from other shocks prior in the year expressed confidence in their ability to recover from the COVID-19 crisis. The relation between these variables was significant $\chi^2(1) = 11.5746$, $p = 0.001$. A Kruskal-Wallis test showed that there was a statistically significant difference between whether enterprises had confidence in whether they could recover from the COVID-19 crisis and whether they had been affected and the degree to which they recovered from another shock or stressor $\chi^2(1) = 9.867$, $p = 0.0017$.

REFLECTIONS

Data and analytics can help to guide key stakeholders to make evidence-based decisions that result in more effective responses to crises like COVID-19. But that data needs to be collected and analyzed quickly to have a timely effect on decision-making. This survey took on average **16 minutes 21 seconds** to complete and data collection for all **1,173 responses** was done within **8 calendar days**. Data was cleaned, validated, and analyzed within **48 hours** before it was presented and published on the websites and social networks of participating organizations and chambers.

So far, the data has been used by the National Tourism Reactivation Board to inform a set of proposals collectively drafted by the Government of Honduras, National Council of Private Enterprises, National Chamber of Tourism and the National Institute of Tourism of Honduras. The data has been discussed on television on Honduras's *Frente a Frente* morning talk show covering political, social, and economic issues. It has been the subject of discussion at the national MSME Roundtable, which brings together influential public and private stakeholders, to discuss recovery strategies for MSMEs.

From a systems perspective, the facilitative process of bringing together two apex chambers, fifteen regional chambers and one university under one umbrella through this research initiative has helped to execute a more effective, coordinated response in the crisis. Collaboration through the WhatsApp COVID-19 Response Group has moved beyond the research initiative to include sharing of newly published resources and information between these partners. The strength of this network is best measured by the number of new and influential institutions that have since joined the initiative.

A key success factor for this initiative effective is how TMS was able to leverage both its project resources and capacity, including its monitoring systems, as well as its established relationships and trust established with a broad array of public and private partners to help convene them to come together through this umbrella initiative. In particular, the Market Systems Diagnostic had built an architecture which was able to be redeployed for this resilience response.

Finally, the team understood it was critical to make initiative a two-way learning process. Enterprises too were actively seeking out information to mitigate, adapt to and recover from the COVID-19 crisis. The initiative addressed this by allowing enterprises in the survey to request specific information which TMS and its partners would feedback to them. In addition, a tailored 17-course webinar series was developed with a business service provider and freely made available to enterprises which completed the survey.

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- M Design Thinking para el Diseño de Productos I Fase de Empatía y Fase de Definición Martes 21.4.20 9am y 2pm
- X Design Thinking para el Diseño de Productos II Fase de Ideación y Fase de Prototipo Miércoles 22.4.20 9am y 2pm
- V Design Thinking para el Diseño de Productos III Fase de Experimentación Jueves 24.4.20 9am y 2pm

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Note: Los webinars "Design Thinking" de las 3:00 pm estarán dirigidos a empresas del sector turismo.

Invitation to webinar series sent to enterprises that participated in COVID-19 survey

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