DIAGNOSING
HONDURAN
MARKET SYSTEMS

The drivers of inclusive economic growth in Honduras
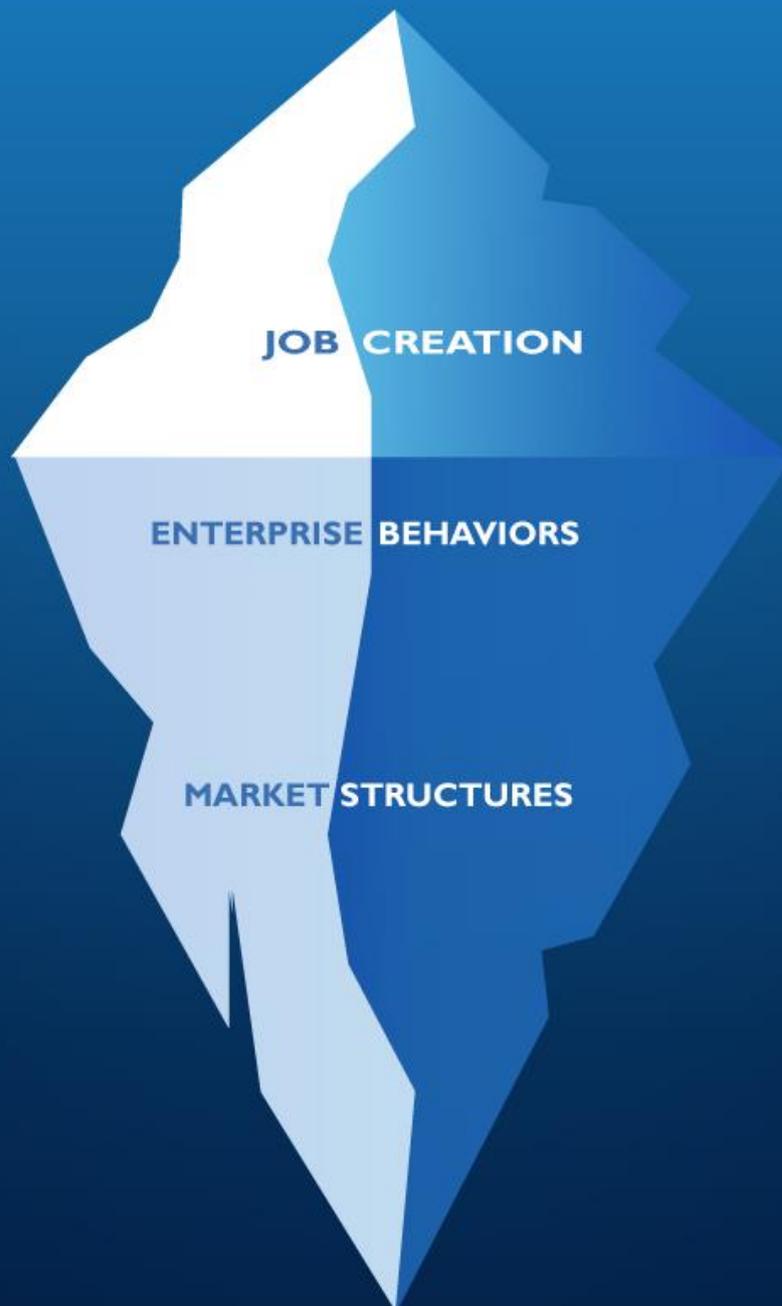
JOB CREATION

ENTERPRISE BEHAVIORS

MARKET STRUCTURES

NOTE

The market system diagnostic white paper was co-developed by Council of Private Enterprise Honduras, the National Autonomous University of Honduras Institute for Economic and Social Investigation, the Center for Latin America Competitiveness Studies at INCAE Business School and the USAID Honduras Transforming Market Systems Activity. The function of the market system diagnostic white paper is to strengthen evidence and provide knowledge needed by public and private stakeholders to support more competitive economic policies and decision-making and to insert new thinking and solutions on development challenges facing Honduras.

The Honduran Council for Private Enterprise (COHEP) is a non-profit institution founded in 1967 with the objective of providing the most appropriate macroeconomic, legal and institutional conditions to promote the creation of wealth and the socioeconomic development of Honduras, supported by the system of free enterprise and social responsibility.

The Institute of Economic and Social Research (IIES) is a research institute of the National Autonomous University of Honduras (UNAH) and is primarily responsible for the investigation, specialized teaching and advisory in the field of economic sciences. IIES researches development issues and innovations in economic sciences to propose solutions to the context of Honduras.

The Latin American Center for Competitiveness and Sustainable Development (CLACDS) is the center of thought and applied research of INCAE Business School. Its mission is to promote sustainable development in the region through research, capacity building and dialogue.

The Transforming Market Systems (TMS) Activity is a United Sates Agency for International Development (USAID) Honduras initiative to foster competitive, resilient and inclusive market systems that provide increased economic opportunities that provide sustainable increases in income, through more business sales and jobs for Hondurans, including vulnerable populations, while building the foundation for broad-based, long-term economic growth.

Data for the market systems diagnostic was collected in January and February 2019 for a sample of enterprises in the tourism and value-added agriculture sector for enterprise data related to the 2018 calendar year. Data was analyzed through May 2019 and findings presented in July of 2019.

Market systems measurement is nascent and emerging field. We welcome you to contribute to the process of learning and adaptation to continue to improve the field of market system measurement. If you have recommendations of variables to include in the 2019 diagnostic or recommended methodologies to model the data, please sent them to politica.economica@cohep.com. As part of your submission, please include any evidence and sources as to why this contribution can help us to better explain Honduras's market system performance.

CONTENTS

The market systems diagnostic analyzes changes in market structures and enterprise behaviors to understand how and whether the Honduran economy is changing to create more and better jobs and to become more inclusive, competitive and resilient.

- **The diagnostic is a survey of a statistically-representative sample of enterprises across diverse market functions** e.g. agroindustry and distribution that, in aggregate, allows for **industry-wide observations**

- Its measures slow-and-fast-paced variables collected **annually** on **competitiveness** (e.g. sales growth, export diversification, customer retention, pricing power); **inclusion** (e.g. marginalized ownership, quality of work, diverse hiring); and **resilience** (e.g. occurrence of shocks, degree of recovery, supply chain redundancy)

- The analysis is structured around five attributes of systems which shape its outcomes: **diversity, connectivity** and **power** for market structures - and **coopetition** and **business norms** for enterprise behaviors

- Its purpose is to identify correlations and predictors to measure **patterns of change** towards **broad-based, long-term growth** and provide real-time information for **adaptive decision-making** by stakeholders and partners
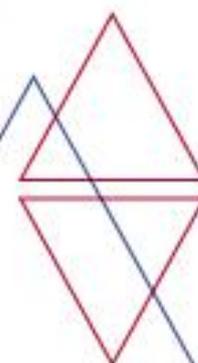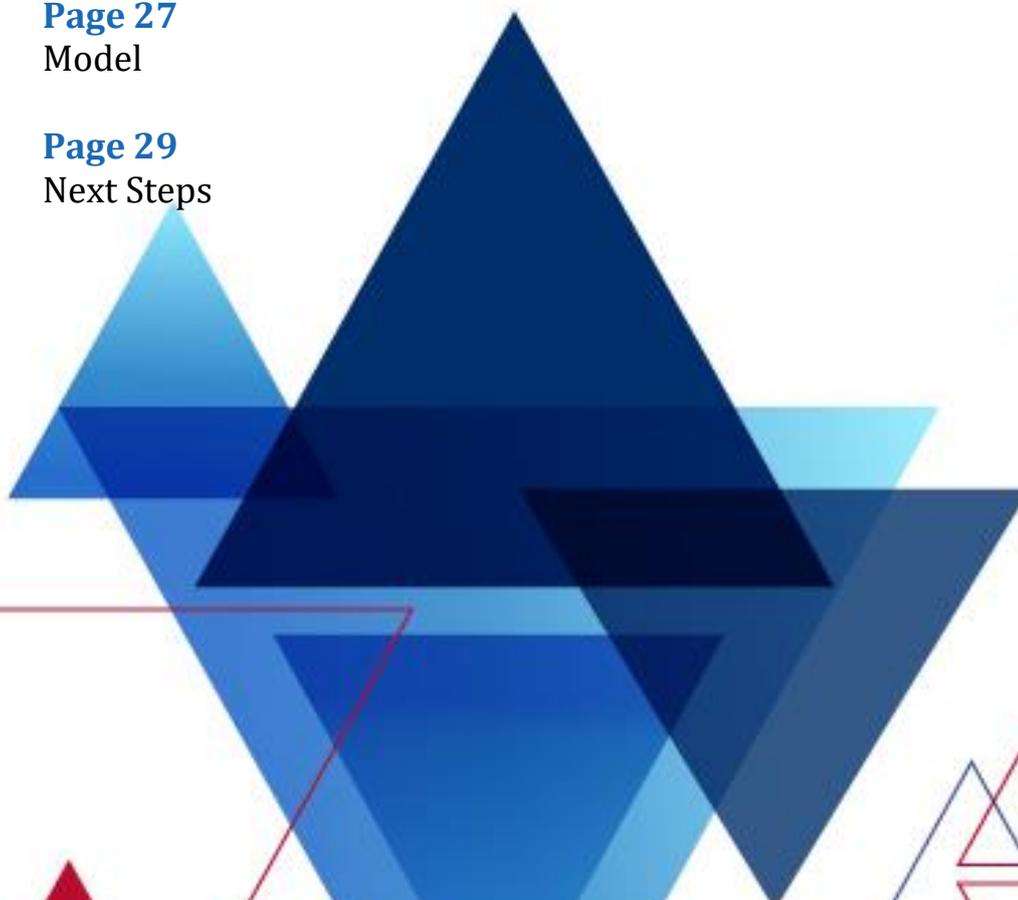
ACRONYMS

CDE	Enterprise Development Centers
COHEP	Honduran Council of Private Enterprises
CLACDS	Latin American Center for Competitiveness and Sustainable Development
GOH	Government of Honduras
ICT	Information and Communications Technology
IIES	Institute of Economic and Social Research
INCAE	Central American Institute of Business Administration
INE	National Institute of Statistics
MIS	Management Information System
MSD	Market Systems Development
SDGs	Sustainable Development Goals
PRONAGRO	National Agri-Food Development Program
TMS	Transforming Marketing Systems
UNAH	National Autonomous University of Honduras
USAID	United Sates Agency for International Development

SUMMARY

There is an urgent desire among public and private stakeholders to diagnose what drives more inclusive economic growth in Honduras. The primary result desired by stakeholders is greater job creation. Therefore, the research questions the team investigated was –

What drives job creation by enterprise in Honduras?

Markets are complex – and what drives job growth in one country is not necessarily the same as what drives job growth in another. There is a body of literature on growth diagnostics and other methods that draw primarily from secondary data and expert evaluation. This diagnostic applies descriptive and inferential statistics, using enterprise survey data[1] to attempt to diagnose the market system as a whole. Statistical analysis is used to discover relationships between variables, identify determinants and dig deeper to deduce how the market system works.

The summary conclusions of the white paper include an analysis of the drivers of job creation, competitive, resilient and inclusive market system performance and an identification of determinants of the foundation for broad-based, long-term economic growth:

Job creation. Enterprises reported the number of permanent, full-time persons employment unchanged between 2017 and 2018. This suggests that new permanent, full-time jobs are not being created within the analyzed market systems. A higher number of younger and smaller enterprises with faster-growing sales is predicted to generate more jobs in Honduras.

Competitiveness. The average enterprise reported a decrease in percentage sales in 2018 compared to 2017. Other aspects of competitiveness are presented in the body of this report. They suggest a decline in competitiveness in 2018 from 2017. Higher information and communications technology (ICT) adoption, business confidence, rate of investment, positive interactions with government institutions, recovery post-shock or stressor, access to external services that have significant contribution, and capacity utilization are predictive of increase enterprise sales.

Resilience. Enterprises widely reported being affected and unable to fully recover after experiencing shocks or stressors in 2018. This suggests high levels of vulnerability and low resilience capacities of enterprises. Experiencing fewer number of shocks, greater access to external services that have significant contribution, higher rates of investment and redundancy of buyers are predictive of reduced vulnerability and increased resilience capacities.

Inclusion. Enterprise ownership and employment of persons from vulnerable groups are lower than the national representation of these groups in the working age population for the market system. Tourism is more inclusive of women and value-added agriculture is more inclusive of youth. Increased interactions with government institutions, improved quality of employment, and increased enterprise ownership by vulnerable groups, not just employment, are predictive of increased economic participation and inclusion of women, youth and indigenous persons.

The *foundation for broad-based, long-term growth* comprises the enterprise behaviors and market structures that result in increased sales, job creation, strengthened recovery and the hiring of persons from vulnerable groups. Diagnosing this foundation can help to measure long-term

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[1] In international development, while much progress has been made in the application of qualitative approaches for measuring market systems (e.g. sense making, most significant change, outcome harvesting), significantly less work has been done on the application of quantitative approaches for monitoring market systems change. Building flexible, quantitative models for monitoring market systems change through a 'basket of indicators' complements qualitative approaches to provide quantitative data to regularly monitor and assess systems-level change.

sustainability of market system results. This foundation is defined in the market system diagnostic by five groups of enterprise behaviors and market structures that shape performance:

Business norms relate to the adoption of growth-oriented behaviors by enterprises to innovate and pursue value-addition business strategies. The business norms behavioral variables that emerged among the most evident predictors of market system performance were ICT adoption, the level of investment, business confidence, capacity utilization and the percentage of sales from product or service innovations in the past two years.

- The average enterprise had a computer, access to internet and social media account; it was still uncommon for enterprise to use accounting software, have a website or engage in e-commerce.
- More than two-thirds of enterprises invested the same or more in 2018 than the prior year, to both replace and expand productive capacity. The most common investments were marketing, publicity and machinery while investing in research and development was least frequent.
- Business confidence appears to be high, with generally positive outlook around growth in sales, employment and market prospects. Enterprises in the tourism sector reported having higher confidence than enterprises in the value-added agriculture.
- Less than half of all enterprises reported product or service innovations in the past two years, with an average of a quarter of sales coming from product or service innovations in past two years. Women-owned enterprises on average reported a higher percentage of sales from innovations in the past two years than were reported by male-owned enterprises.

Cooperation is the degree of cooperation between competing enterprises and how the competitive environment promotes trust and partnerships. Cooperation indicators were correlated, but, surprisingly, not predictive of market system performance variables in the 2018 diagnostic. Less than half of enterprises adopted any cooperative behaviors with other enterprises. The most common behaviors were to access market and to share information or knowledge. In general, enterprises were evenly split in terms of their orientation to cooperation. Most expressed agreement that relationships with competitors were important to success of enterprise and that they would collaborate with competitors in event it would help their enterprise. However, most enterprises expressed they were not willing to share information with their competitors. Based on research and stakeholder consultations, we consider issues of trust, information-sharing and inter-enterprise cooperation important to market system performance. In 2018, however we did not find evidence of these as determinant variables and further research and investigation is needed.

Diversity describes the variety, distribution and composition of features of a market system. Related to diversity is the concept of redundancy, or the need to maintain a diversity of elements that can perform the same function. The structural diversity variables that emerged among the most evident predictors of market system performance included enterprise size, enterprise age, enterprise sales growth, enterprise ownership by persons vulnerable groups, and the degree of confidence in finding alternative buyers in the event of a shock.

- Smaller and younger enterprises with faster-growing sales created a higher percentage of new jobs in Honduras. Younger enterprises also employed more youth. Less than one-third of enterprises reported an increase in sales in 2018 from 2017.
- Enterprises owned by women reported employing a higher percentage of women. More than one third of employees for all enterprises in 2018 were women. For women-owned enterprises, this rate increased to nearly half of all employees. The tourism sector tended to employ more women than the value-added agriculture sector.
- Half of enterprises expressed confidence they could find an alternative buyer in the event of a shock - a measure of redundancy and agility of response following supply chain disruptions.

Connectivity describes the frequency and degree of interactions and the exchange of resources between economic agents in a market system. The structural connectivity variables that emerged

among the most evident predictors of market system performance included the number of service types accessed by enterprises, capacity utilization and the percentage of external finance.

- Seventy-four percent of enterprises accessed external services in 2018, on average receiving two different types of services. More than half of services had significant contribution to the enterprise. The most valuable services were staff capacity building, administrative and legal processes and certifications, the latter two among the least utilized external service types.
- There appears to be underutilized capacity; hotels reported using only half of their installed capacity while enterprises in value added agriculture used sixty percent of installed capacity.
- The average percentage of capital financed externally for women-owned enterprise was lower than male-owned enterprises, but not predictive of other market system performance results.
- Client and supplier retention, which is the inverse of the percentage of customers lost over a period of time, proved positively correlated to market system performance variables, predictive of other variables such as business confidence and investment but did not fit in primary models.

Power is the concentration and exercise of influence over business enabling environment established by political, social and market institutions. The structural power variables that emerged among the most evident predictors of market system performance included the change in market price and the number of government institutions interacted with by enterprise.

- The average enterprise reported a decrease in market prices for their primary product or service. Market prices reported by enterprises in the value-added agriculture sector tended to decrease between 2017 and 2018 and stay the same for the tourism sector.
- Enterprises reported interactions with nearly five government institutions. The level of satisfaction with the interactions was positive for two, neutral for two and negative for one of those interactions. Increased interactions are a measure of formalization and the degree to which enterprises are accessing permits, licenses and registries to operate and access markets.
- Pricing power measures the degree that enterprises can raise prices based on corresponding loss of customers. While it did not prove predictive of performance variables, it did prove correlated to them, and predictive of other independent variables such as business confidence. More than half of enterprises reported if they raised prices 10 percent they would lose more than 25 percent of their customers to competitors, a signal of lack pricing power.

The above metrics can be used to measure and monitor whether Honduran market systems are evolving in such a way to produce more competitive, inclusive and resilient results and improve the level of greater job creation in Honduran market systems. Further analysis of these models is detailed in the paper below to serve as a resource for policy makers, development actors and private enterprise to better understand and diagnose the deeper-rooted enterprise behaviors and market structures that may be enhanced to achieve broad-based, long-term economic growth.

BACKGROUND

Globally, jobs are at the center of the virtuous cycle of inclusive economic development and poverty reduction. Job creation and rising productivity increases consumption, in turn facilitating inclusive economic development[2]. This occurs as workers develop skills and move from low-productivity to higher-productivity enterprise jobs. Economies are transformed and offer increasingly better wages and more stable jobs[3].

In Honduras, a shortage of quality jobs is at the center of the cycle of intransigent poverty and continued underdevelopment. It is estimated that 61.9 percent of Hondurans live in poverty, and Honduras ranks as the second poorest and most income-unequal countries in Latin America (Gini coefficient of 50.5). While the official rate of unemployment reported by the National Statistics Agency (INE) was 5.7 percent in 2018, **the invisible and visible underemployment rate in 2018 was 62.8 percent.**[4] More than a quarter of Honduran youth – age between 15 and 29 – is neither employed, nor in school or in training and the percentage is increasing every year.[5] Self-employment and informal employment accounted for 56.5 percent of total jobs in Honduras in 2018, which tend to be low-wage and offer little stability. **Only 53.5 percent of the working age population is actively engaged in the workforce**. The current economic situation results in high levels of external migration – **91 percent of migrants reported economic opportunity as the number one reason for external migration.[6]**

A strong and dynamic private sector will be the key to future inclusive economic growth and job creation in Honduras. **Between 2001 and 2018, 79 percent of jobs created in Honduras were by the private sector**.[7] It is with this recognition that the Government of Honduras (GOH) and the USAID committed to actively supporting private sector development through the Central America Strategy, which complements the Alliance for Prosperity. USAID developed and funded the Transforming Market Systems (TMS) Activity, USAID/Honduras's flagship private sector development activity to support this strategy. The objective of the TMS Activity is to facilitate transformative change that will result in a more competitive, resilient and inclusive market systems that will sustainably increases economic opportunities, through more business sales and jobs for Hondurans including vulnerable populations, reduce incentives to migrate, and build the foundation for broad-based, long-term economic growth.

The TMS Activity partnered with the Council of Private Enterprises of Honduras (COHEP), National Autonomous University of Honduras (UNAH), and Central American Institute of Business Administration (INCAE) Business School to diagnose the determinants of inclusive economic development and job creation in Honduras from the perspective of the principal job creation agent i.e. private enterprise. **This whitepaper synthesizes the results of the inaugural 2018 Market Systems Diagnostic.** As further described on Contents page, the Diagnostic is an annual enterprise-based survey that provides industry-level insights on key economic trends and the system attributes that influence market system performance over time.

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[2] Islam R (2004).) The nexus of economic growth, employment and poverty reduction: an empirical analysis. Issues in Employment and Poverty Discussion Paper, No. 14. Geneva: International Labour Organization, Recovery and Reconstruction Department.

[3] World Bank. 2012. World Development Report 2013 : Jobs. World Development Report. Washington, DC. World Bank.

[4] Situación del empleo en Honduras, Lineamientos para la formulación de una estrategia nacional de generación de empleo, Facultad de Ciencias Económicas, Administrativas y Contables de Economía UNAH, diciembre 2018, Tegucigalpa Honduras

[5] Ninis in Latin America, World Bank (WB), 2016. Visible underemployment is defined as working less than 40 hours a week and looking for more work. Invisible underemployment is working more than 40 hours a week but earning less than minimum wage.

[6] Sistema Integral de Atención al Migrante Retornado (SIAMIR). Retrieved from: http://ceniss.gob.hn/migrantes/

[7] Población Económicamente Activa por categoría ocupacional, año 2018-Situación del empleo en Honduras, Lineamientos para la formulación de una estrategia nacional de generación de empleo, Facultad de Ciencias Económicas, Administrativas y Contables de Economía, diciembre 2018, Tegucigalpa Honduras. Note: work in the form of domestic work constituted 3 percent of growth, and the public sector represented 4 percent, with unpaid work constituting the remainder.

CONCEPTUAL FRAMEWORK

Markets are complex and dynamic systems, where social, political and market institutions, enterprises and individuals interact for the production, distribution and consumption of goods and services. Markets serve various functions, but one of their primary functions is the distribution of a sustained flow of income to people. The primary mechanism by which people earn income is through employment, including self-employment, by private enterprise.

Market systems development (MSD) is a branch of private sector development that addresses the underlying causes for why a market fails to produce desired results. A tenant of MSD is the recognition that to improve how markets function requires a transformation of the market system itself – a reshaping of market system actor behaviors, roles, relationships, and rules – to more effectively reinvest and transform economic resources into results - in the case of Honduras: **more, better and inclusive jobs** [s*ee USAID's 5Rs framework for further explanation on how market systems transform resources into results through the interactions of market actors which are governed by a set of rules].*

An iceberg is an analogy used to explain the layers of complex adaptive systems, such as markets. The result you see – in this case job creation – is a small fraction of the depth of what is happening below the surface. To understand the reasons why job creation is happening or not, deeper analysis is required to identify the underlying causes for these results. The result of job creation stems from deeper-rooted enterprise behaviors and market structures that are hard to see.

Results are the tip of the iceberg. The desired results measured in this diagnostic are enterprise sales, job creation, recovery post-shock or stressor, and the hiring of persons from vulnerable groups. These results are characteristic of **competitive**, **inclusive** and **resilient** market systems.

Patterns of behaviors go one level below the surface. In this diagnostic we measured enterprise behaviors related to cooperation and business norms:
- *Cooperation* is the degree of cooperation between competing enterprises and how competitive environment promotes trust and partnerships,
- *Business norms* relate to the adoption of growth-oriented behaviors by enterprises to innovate and pursue value-addition business strategies.

Market structures go a level deeper to analyze what enables and constrains enterprise behaviors, related to diversity, connectivity and power in market:
- *Diversity* describe the variety, distribution and composition of features of a market system. Related to diversity is the concept of redundancy, or the need to maintain a diversity of elements that can perform the same function.
- *Connectivity* describes the frequency and degree of interactions and the exchange of resources between economic agents in a market system.
- *Power* is the concentration and exercise of influence over business enabling environment established by political, social and market institutions.

METHODOLOGY

SURVEY SAMPLING

The principal economic agent analyzed in the diagnostic is the enterprise. TMS surveyed a sample of 616 enterprises from a population of micro, small, medium, and large enterprises across 9 departments in Honduras within the value-added agricultural and tourism sectors (95 percent confidence and <5 percent margin of error).[8] The sample frame is representative across the enterprise functions (1) agroindustry (2) distribution (3) lodging and (4) tourism services. The critical functions for the sample frame were elected based on whether changes in behaviors or structures by those respondents would signal broader changes in the market system:

- *Agroindustry* is the end market for value-added, agricultural products and is the link to export markets, representative of the collective know-how and productive capabilities of Honduran agricultural industry. Agroindustry actors surveyed include: (a) fruit processors, (b) fresh and cut vegetable washing, chopping and/or packaging operators, (c) snacks - include roots and tubers (banana, yucca, malanga, papa, sweet potato, etc.) and ready-to-eat frozen food processors (d) bean processors (e) beef and poultry processors (f) industrial and small and medium milk processors (g) coffee exporters and roasters (j) chocolate processors (i) primary and secondary wood processing (j) non-forest product processing.
- *Distribution entities* serve as a central link in agricultural supply chains. Distribution entities directly sell inputs to and off-take products from agricultural producers. Their growth signals growth among the many hundreds of thousands of producers that buy and sell from them. Distribution entities surveyed include: (a) warehouse and distribution center operators (b) 2PL or 3PL logistics operators (c) input distributors (d) wholesaler and intermediaries off-take agricultural products.
- *Lodging establishments* provide lodging to overnight tourists which visit destinations. Overnight visitors spend more money and have a stronger direct and indirect effect on restaurants, entertainment and the host of enterprises that supply to the tourism market. Lodging entities surveyed include hotels and related lodging establishments.
- *Tourism services* create the experiences that motivate tourists to visit destinations. Changes within tourism services signal changes towards greater destination competitiveness and to appeal to more diverse and higher-value market segments. Tourism entities surveyed include museums, galleries, craft shops, tour operators, travel agencies, parks, etc. Given the relevance of festivals, fairs and creative industries to tourism promotion in Honduras, production companies and entertainment organizers were included in the sample frame.

The population list for value-added agriculture drew primarily the National Commercial Directory of Buyers by the Secretary of Agriculture and Livestock (SAG), the Agribusiness Unit of the National Agri-Food Development Program (PRONAGRO) updated in 2016 and multiple other secondary sources. For the tourism sector, the population list was developed from the Honduran Institute of Tourism Directory of Tourism Establishments updated on 10 February 2017.

STATISTICAL ANALYSIS

Linear and logistic regression models were used to assess the significance and predictability of different independent variables on job creation in Honduras. The statistical process applied was to test first for the strength in relationship between each variable using Spearman's rank

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[8] In a participatory sector selection workshop, Honduran stakeholders jointly prioritized and ranked economic sectors based on the selection criteria of: ability to affect systemic change, ability to impact the drivers of migration, potential to raise incomes in departments of interest (Francisco Morazán, Cortes, Atlántida, Santa Bárbara, Copán, Ocotepeque, Lempira, Intibucá, and La Paz) and the potential for promoting inclusive development for youth, women and other vulnerable persons. Out of sixteen economic sectors, two primary economic sectors emerged: (i) value-added agriculture and (ii) tourism.

correlation. Variables that were statistically correlated were added to the regression model. Many of the variables were also correlated with other determinants in the model i.e. there was multicollinearity in the model. A stepwise selection process was followed to remove redundant variables and identify the regression model with the highest fit (R-squared for linear regression or pseudo R-squared for logistic regression). In reading results, it is important to note that determination does not prove causality. However, the results of a regression are more useful than correlation as they provide a predictive relationship and summarize the relationship between multiple variables. In instances where specific sub-groups were identified (e.g. vulnerable group ownership), a two-sample (independent) T-test was performed to test the statistical difference in means. Table 1 below illustrates the primary variables used in the regression analysis. In cases, one or more disaggregations of the primary variable are used to better explain or fit the model.

TABLE 1: PRIMARY VARIABLES USED IN THIS DIAGNOSTIC ANALYSIS

Dependent variables explored in the model
The percentage change in permanent, full-time employment in 2018 over 2017
The percentage change in enterprise sales in 2018 over 2017
The degree of recovery of enterprises that reported experiencing shocks in 2018
The percentage of enterprises owned by individual(s) from vulnerable groups
The percentage of employees of vulnerable groups, defined as women and youth (under 30)
Independent variables explored in the model
The number of non-salary benefits offered to permanent, full-time employees in 2018
The total number of permanent, full-time employees of enterprises (i.e. enterprise size)
The percentage of enterprises that offered an agreement to most or all employees in 2018
The percentage of enterprises that invested more in 2018 compared to 2017
The number of types of shocks experienced by enterprises in the reporting period
The number of types of services accessed by enterprises that had 'significant' contribution in 2018
The Information and Communications Technology (ICT) index score of enterprises
The number of years since the enterprise began operations in Honduras (i.e. enterprise age)
The business confidence index score for enterprises
The percentage of enterprises that could raise prices 10 percent without losing 25 percent of clients
The percentage change in external market price in primary product or service 2017 to 2018
The percentage of export sales reported by the enterprise in 2018
The percentage capacity utilization of enterprises in 2018 (hotels and agroindustry)
The percentage of new clients reported by the enterprise in 2018 (VAA)
The percentage of clients in 2017 that were also clients in 2018 (i.e. client retention) (VAA)
The percentage of new suppliers reported by the enterprise in 2018 (VAA)
The percentage of suppliers in 2017 that were also suppliers in 2018 (i.e. supplier retention) (VAA)
The number of opinions of users on social media (Facebook and TripAdvisor) (TOUR)
The degree to which enterprises agree with statements about cooperation with competitors
The number of types of collaborative behaviors adopted by enterprises
The degree of confidence in finding alternative suppliers in event of a shock
The degree of confidence in finding alternative buyers in the event of a shock
The percentage of sales from product or service innovations in the past two years
The number of governmental institutions interacted with by enterprise
The percentage of enterprise capital that is externally financed
The degree to which enterprises report it is easy to obtain information they need

BRIEF GUIDELINES ON READING STATISTICAL NOTATIONS

An *independent variable* is a variable used to predict another variable: the *dependent variable.* A *regression analysis* is a technique to help determine the degree of variability of a dependent variable caused by the variations of one or more independent variables within a certain margin of error. When performing a regression analysis, the researcher is concerned with the degree of *confidence* – how much potential error there may be – in a claim of a relationship between two

variables. A 95 percent *confidence interval* would mean the researcher is willing to accept a 5 percent chance of error that there is no relationship between the independent and dependent variable within the calculated interval. When performing a regression analysis, the researcher will calculate a *P-value* for each coefficient to determine if the independent variable is a *statistically significant* addition to the model – i.e. confidence changes in this independent variable are related to changes in the dependent variable. The lower the p-value the stronger the significance of the result. Only results with P-values of <0.01, <0.05 and <0.1 were used and represented as ***, ** and *. *R-squared* is the statistical measure for how close the data is fitted to the regression model. The higher the R-squared, the better the model fits the data. 0 percent indicates the model explains none of the variability and 100 percent indicates the model explains all the variability around the predicted mean.

LIMITATIONS

Sampling and surveying. Enterprises had low willingness to report sensitive information which required substituting direct measures, such as profits or value of sales, with proxy or indirect measures. Even with proxy indicators, responses for several indicators were low. Practical challenges around scheduling interviews with enterprise owners and managers and other forms of "passive" non-response, resulted in lower rate survey response rates. Finally, inaccurate directory information, relocations of establishments, and in some cases enterprises closures, made it difficult to locate or survey enterprises. Self-selection was an issue noted in the case where enterprises were concerned with the risk or sharing information for fear of extortion.

Proxy measures. Market system dynamics are highly context dependent and their performance patterns are emergent i.e. the overall system performance is more than the performance of their individual parts. Many indicators used for variables related to inclusivity, competitiveness and resilience are imperfect measures of these results. There is also a timing complication as market systems are constantly evolving. The degree of influence of specific variables are likely to change in response to other variables and degree to which the entire system evolves. Further, variables may be slow or fast-moving and their degree of influence to desired results may be delayed. This means that we may see not see a variable emerge as predictive after several years. The indicators and statistical model developed in this diagnostic are proxies for the overall system based on our understanding of the market system at a point in time. This proxy will improve over time as 'time will tell' which variables matter, and our understanding of complexity improves. The diagnostic is an exploratory process that we intend to continue to iterate, adapt and refine over time.

Statistical models. The independent variables that are predictive of competitiveness, inclusion, resilience and job creation are determined based on statistical analysis. Multicollinearity was an issue in the models tested as many independent variables are correlated with one another. A stepwise selection process was followed to remove redundant variables, and in some cases, significantly correlated variables were removed to meet regression conditions. Data and relationships were lost in this stepwise selection regression process, and as a result some aspects of our understanding of market system performance are limited. Since we are measuring complex phenomena, many models had low R squared values yet were still statistically significant. This made more nuanced interpretation of coefficients not possible beyond identifying than directionality of the relationships. In other cases, non-normally distributed data required data transformations, and non-linear relationships between data required alternate regression techniques that limited simply by time available to develop a more robust model.

In sum, the method and model aren't perfect. Issues of complexity, emergence, data collection and non-linear modeling are limiting factors. The method and model do however identify statistically materially significant variables, that if improved, will result in competitive, inclusive and resilient market systems and create more jobs in Honduras. Over time, the model will become better as we learn more about market systems in Honduras and what drives inclusive economic growth.

2018 DIAGNOTIC RESULTS

THE CHANGE ENTERPRISE EMPLOYMENT IN 2018 FROM 2017 (GOAL)

Sustainable growth requires productive employment and decent work. This is an objective of COHEP, GOH, USAID Honduras, and UNDP Sustainable Development Goal (SDG 8). Employment that is temporary, part-time, or self-employment can be considered non-standard forms of employment that is characteristic of precarious or insecure work[9]. In Honduras, where underemployment is high, the creation of permanent, full-time employment is considered an important measure for whether the economy is growing in an inclusive and sustainable manner.

Descriptive analysis

Honduran enterprises reported adding 0.03 permanent, full-time employees in 2018, or a 0.08 percent change in employees over 2017. Most enterprises (66.94 percent) reported no change at all, 16.12 percent reported an increase and 16.94 percent of enterprises reported a decrease in the number of permanent, full-time employees. During this period, enterprises reported adding an average of 0.30 temporary of part-time employees, or a 2.91 percent change over 2017.

Regression analysis

A stepwise selection regression process eliminated 7 independent variables that were found statistically correlated with the dependent variable, the percentage change in employment of permanent, full-time employees by enterprises between 2017 and 2018. A three independent variable linear regression model was identified that was predictive of 13.2 percent (adjusted R square) of the reported percentage increase in permanent, full-time employment by enterprises. A logarithmic transformation of the percentage change in permanent, full-time employment was used to correct for non-normality in the employment data (non-positive data adjusted plus one to enable the transformation to be used). Permanent, full-time employment was used in lieu of total employment given high degree of variation in temporary and part-time employment.

TABLE 2: REGRESSION MODEL: LOGARITHM OF CHANGE IN PERMANENT FULL TIME EMPLOYMENT

Dependent Variable	Independent Variables	Coefficient *,**,***	Range (95% confidence)		Std. Error
			Low	High	
The logarithm of one plus the percentage change in permanent, full-time employees R square .132 Observations 546	*Regression constant*	4.686***	4.643	4.729	0.22
	The percentage change in enterprise sales in 2018 over 2017	.003***	.002	.004	.000
	The logarithm of number of permanent, full-time employees of enterprises in 2017	- .023**	-.041	-.005	.009
	The number of years since the enterprise started operations in Honduras	- .002*	-.004	.000	.001

*,**,*** Significance at 90 percent, 95 percent and 99 percent level, respectively.

In the three independent variable linear regression model above, for enterprises that reported a higher percentage increase in the employment of permanent, full-time employees in 2017 to 2018, you'd expect to see that the same enterprise also report:
  (1) Higher percentage change in enterprise sales in 2018 over 2017
  (2) Fewer number of years since an enterprise started operations in Honduras
  (3) Fewer number of permanent, full-time employees in 2017

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[9] Non-standard employment around the world: Understanding challenges, shaping prospects International Labour Office – Geneva: ILO. 2016

In other words, smaller and younger companies with faster-growing sales were more likely to report higher percentage point change in permanent, full-time employment from 2017 to 2018.

These findings are consistent with research that smaller and younger enterprises with faster-growing sales tend to generate a substantial portion of new employment in economies globally.[10] It should be noted that academic research has also pointed to a regression bias in which the effects of enterprise size are overstated in regressions based on percentage change in employment. Nonetheless, the effects of smaller enterprise size and younger age tend to hold true.[11]

TABLE 3: DIVING DEEPER INTO QUALITY OF EMPLOYMENT

The desired result of a market system is not simply more employment, but also better employment. Engaging the working poor in better and more productive employment is believed to have among the highest potential to sustainably increase incomes and reduce poverty.[12] The diagnostic included indicators related to **stability of employment** and **non-wage benefits**.[13] In terms of non-wage benefits, 79.93 percent of enterprises offered non-wage benefits to permanent, full-time employees: 19.41 percent offered one benefit, 22.02 percent two, 24.47 percent three, 10.77 percent four, 3.26 percent five non-wage benefits. The most frequent benefits offered by enterprises were vacation (72.59 percent), sick leave (48.74 percent), maternity and/or paternity leave (45.63 percent), private health insurance (20.26 percent) and retirement/pension (10.13 percent). In terms of security of employment, 52.44 percent of enterprises offered an agreement (verbal or written) to most or all of employees. This percentage was 55.56 percent of enterprises for permanent and full-time employees and 73.96 percent for temporary or part-time employees.

THE PERCENTAGE CHANGE IN ENTERPRISE SALES 2017 TO 2018 (COMPETITIVENESS)

Enterprise sales growth measures the rate of growth in market share and performance of enterprises reflecting market competitiveness. Given the confidentiality in directly reporting sales figures, enterprises instead reported on percentage change in sales from 2017 to 2018.

Descriptive analysis

The average Honduran enterprise reported a decrease in sales in 2018 compared to 2017. Given the sensitivity of enterprise sales data, enterprises directly reported the percentage change in sales. 28.84 percent of enterprises reported no change in sales. 32.04 percent of enterprises reported an increase in sales in 2018 compared to 2017. 12.65 percent of enterprises reported sales growth rates characteristic of high-growth enterprises (greater than 20 percent). 39.12 percent of enterprises reported a decrease in sales in 2018 compared to 2017. 27.49 percent of enterprises had higher than 20 percent decrease in sales, which suggests that more than one in four enterprises were significantly troubled in 2018. When asked if enterprises earned profits in 2018, 19.62 percent of enterprises reported not earning any profits, 26.45 percent reported still earning profits but less than 2017, 19.97 percent reported the same profit levels as 2017 and 33.96 percent reported earning higher profits in 2018 than 2017.

Regression analysis

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[10] See among examples: (1) Brixy, Udo & Kohaut, Susanne. (1999). Employment Growth Determinants in New Firms in Eastern Germany. Small Business Economics. 13. 155-70. (2) Hoogstra, G., & Van Dijk, J. (2004). Explaining Firm Employment Growth: Does Location Matter? Small Business Economics, 22(3/4), 179-192. (3) Ipinnaiye, O., Dineen, D. & Lenihan, Drivers of SME performance: a holistic and multivariate approach. H. Small Bus Econ (2017) 48: 883.

[11] See Davis, S., Haltiwanger, J., & Schuh, S. (1996). Small Business and Job Creation: Dissecting the Myth and Reassessing the Facts. Small Business Economics, 8(4), 297-315.

[12] See among others: Report of the Secretary General: The centrality of employment to poverty eradication (2005). United Nations General Assembly. Sixtieth Session. A/60/314. and Georgescu, Maria-Ana & Herman, Emilia. (2019). Productive Employment for Inclusive and Sustainable Development in European Union Countries: A Multivariate Analysis. Sustainability. 11. 1-19. 10.3390/su11061771.

[13] Market Systems and Job Quality: What Do We Know and What Can We Do About It? Geneva: ILO, 2017.

A stepwise selection regression process eliminated 15 independent variables that were found statistically correlated with the dependent variable the percentage change in sales by enterprises between 2017 and 2018. A five independent variable linear regression model was identified that was predictive of 19.6 percent (adjusted R square) of the reported percentage increase in sales of enterprises between 2017 and 2018. Note two of the variables were ordinal and in regression their responses broken out into dummy variables for which responses were significant.

TABLE 4: PRIMARY REGRESSION MODEL: PERCENTAGE CHANGE IN ENTERPRISE SALES 2017-2018

Dependent Variable	Independent Variables	Coefficient *,**,***	Range (95% confidence)		Std. Error
			Low	High	
	Regression constant	-32.987***	-40.39	-25.58	3.768
The percentage change in enterprise sales in 2018 over 2017 R square .196 Observations 446	Enterprises that invested the same in 2018 compared to 2017	7.289**	.074	14.504	3.671
	Enterprises that invested more in 2018 compared to 2017	14.723***	8.108	21.338	3.366
	Enterprises that fully recovered after experiencing a shock or stressor in 2018	13.067***	6.161	19.973	3.514
	Enterprises that were not affected or fully recovered and grew after experiencing a shock or stressor in 2018	17.101***	10.396	23.807	3.412
	The percentage change in external market price in primary product or service 2017 to 2018	.235***	.084	.386	.077
	The Information and Communications Technology (ICT) index score of enterprises	2.811**	.588	5.035	1.131
	The number of service types accessed by enterprises that had 'significant' contribution in 2018	2.347**	.475	4.219	.952

*,**,*** Significance at 90 percent, 95 percent and 99 percent level, respectively.

Given the large number of variables with a strong correlation to the change in enterprise sales with many eliminated through stepwise selection, a second regression model was developed. This second model excluded the variables identified in the first model and through a subsequent stepwise selection process, a three independent variable linear regression model was identified as predictive of 8.7 percent (adjusted R square) of the reported percentage increase in sales of enterprises between 2017 and 2018. It should be noted these variables may be explained by the variables included in the first model and present risk of overfitting/complicating the model. However, with these caveats aside, for the risk of excluding variables which may indeed have predictive value, this second model is included in the findings. It should be noted the inclusion of capacity utilization excludes tourism services (but includes hotels) from the regression model.

TABLE 5: SECOND REGRESSION MODEL: PERCENTAGE CHANGE IN ENTERPRISE SALES 2017- 2018

Dependent Variable	Independent Variables	Coefficient *,**,***	Range (95% confidence)		Std. Error
			Low	High	
The percentage change in enterprise sales in 2018 over 2017 R square .087 Observations 297	*Regression constant*	-39.545***	-57.16	-21.93	8.950
	The business confidence index score for enterprises	.124***	.024	.223	.051
	The number of governmental institutions interacted with by enterprise in 2018	2.234***	.813	3.655	.722
	The number of governmental institutions interacted with by enterprise in 2018, where interaction was 'negative'	-4.014***	-6.581	-1.448	1.304
	The percentage capacity utilization of enterprises in 2018 (hotels and agroindustry)	.194***	.070	.319	.063

*,**,*** Significance at 90 percent, 95 percent and 99 percent level, respectively.

First Regression Model

In the five independent variable linear regression model for enterprises that reported an increase in the percentage sales from 2017 to 2018, you'd expect to see the same enterprise also report:

(1) Invested the same or more in 2018 compared to 2017
(2) Were not affected, fully recovered or grew after experiencing a shock of stressor in 2018
(3) Increase in external market price for primary product or service for 2017 to 2018
(4) Higher Information and Communications Technology (ICT) adoption
(5) Accessed more service types accessed that had 'significant' contribution in 2018

(1) Enterprises that invested the same or more in 2018 compared to 2017
Enterprises that invested the same in 2018 compared to 2018 tended to report a 7.29 higher percentage point change in sales in 2018 compared to 2017. Enterprises that invested more in 2018 compared to 2017 tended to report a 14.72 higher percentage point change in sales.

Investment is defined in terms of any productive, long-term assets, whether tangible or intangible. Tangible assets include property, plant and equipment. Intangible assets include technical innovations, brand image or the technical workforce capacity. 40.73 percent of enterprises reported investing more in 2018 than 2017, while 29.47 percent of enterprises reported investing the same and 16.06 percent of enterprises reported investing less. 13.74 percent of enterprises did not invest at all. 55.21 percent of enterprises invested primarily to grow their productive capacity, 19.06 percent of enterprises invested primarily to replace capacity and 25.74 percent to both expand and replace capacity. Enterprises reported most commonly investing more in 2018 than 2017 in brand through marketing and publicity (29.18 percent), vehicles and machinery (23.85 percent), staff capacity and training (20.66 percent), land and buildings (17.02 percent) and research and development (14.97 percent).

TABLE 6: DIVING DEEPER INTO DEGREE OF INVESTMENT IN 2018 COMPARED TO 2017
Sixteen variables correlated with the degree of investment reported by enterprises, a stepwise logistic regression model identified four independent variables for the degree of investment. As non-linear regression model, coefficients are not interpreted beyond directionality. The pseudo R squares were .068 (McFadden) and .161 (Cox and Snell). In the four independent variable linear regression model, for enterprises that reported a higher degree of investment in 2018 compared to 2017, you'd expect to see the same enterprise also report:
   (a) Higher degree of confidence in business conditions in 2018[14]
   (b) Accessed more service types accessed that had 'significant' contribution in 2018
   (c) Were not affected, fully recovered or grew after experiencing a shock of stressor in 2018
   (d) Able to raise prices 10 percent without losing 25 percent of clients (i.e. pricing power)

Pricing power measures the degree that enterprises can raise prices 10 percent based on corresponding loss of customers. It is a heuristic used by investors as a quick test if an enterprise has some degree of pricing power.[15] In the sample, if enterprises raised prices 10 percent, 54.46 percent of enterprises reported they would lose more than 25 percent of customers to competitors, 5.89 percent would lose between 16-25 percent, 11.96 percent would lose between 6-15 percent, and 27.68 percent would lose between 0-5 percent of customers to competitors. High pricing power is defined as losing 0-5 percent of customers to competitors if raising price 10 percent. A stepwise logistic regression model identified two variables that were predictive of higher levels of pricing power reported by enterprises. The pseudo R square on the model however were only .046 (Cox and Snell) and .022 (McFadden). In this model, enterprises that

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[14] Business confidence has been linked to investment growth rates. See among others: Hashmat Khan & Santosh Upadhayaya, 2017. "Does Business Confidence Matter for Investment?," Carleton Economic Papers 17-13, Carleton University, Department of Economics, revised 20 Mar 2019. And Khoi, Van & Luong, Khoi & Vixathep, Souksavanh. (2016). Business Confidence Index : A Reflection of Business Sentiment in Viet Nam Business Confidence Index: A Reflection of Business Sentiment in Viet Nam. Journal of International Cooperation Studies. 23. 28.
[15] Though no there is no academic research to support this indicator, it is derived from quote accredited to Warren Buffet is "The single most important decision in evaluating a business is pricing power. If you've got the power to raise prices without losing business to a competitor, you've got a very good business. And if you have to have a prayer session before raising the price by 10 percent, then you've got a terrible business."

reported higher pricing power, you'd expect to see report higher percentage client retention between 2017 and 2018 and higher reported confidence in finding alternate suppliers in the event of a shock. The statistical significance of both coefficients was at 95 percent level. The degree of confidence in finding alternate suppliers in the event of a shock is discussed further in resilience section below. Client retention is the inverse of client churn, which is the percentage of customers lost over a period of time. Client retention is often reflective of business strategy to invest in client relationships through customer services and marketing strategies.

(2) The degree of recovery of enterprises that reported experiencing shocks in 2018

Enterprises that reported fully recovering after a shock or stressor in 2018 tended to report a 13.07 higher percentage point change in sales in 2018 compared to 2017. Enterprises that reported either not being affected or fully recovery and growing after a shock or stressor in 2018 tended to report a 17.10 higher percentage point change in sales in 2018 compared to 2017.

The degree to which an enterprise was able to mitigate, adapt to and recover from the experienced shock or stressor is a measure of resilience. This result provides evidence linking resilience to competitiveness (measured in percentage change in sales), and in turn job creation. Further analysis on the degree on shocks and recovery by enterprises is detailed below.

(3) The percentage change in market price in primary product or service 2017 to 2018

Enterprises that reported a one percentage point higher change in price for their primary product or service tended to report a 0.23 higher point percentage change in sales in 2018 compared to 2017.

The average enterprise reported the market prices for their primary product or service decreased in 2018. In the value-added agriculture sector, enterprises that reported selling coffee and horticultural products tended to report a decrease in external market prices, while enterprises that reported selling agricultural inputs, logistics, wood and animal products tended to report an increase in external market prices. In the tourism sector, enterprises that reported providing lodging services tended to report a decrease in market prices, while enterprises that reported selling tourism services tended to report no significant change in market price.

(4) The Information and Communications Technology (ICT) index score of enterprises

Enterprises that reported a one-point higher score on ICT index tended to report a 2.81 higher percentage point change in sales in 2018 compared to 2017.

The ICT index comprises nine questions used to determine if enterprises have adopted behaviors associated with 5 stages of ICT development.[16] The percentage of enterprises that ranked across the five stages of ICT development identified in the index are:

7.65 percent **Inactive (0-1pt):** no current use of ICT in the enterprise
28.05 percent **Basic (1-2pt):** (1) access to computer; (2) internet access
24.95 percent **Substantial (2-3pt)** (3) on social network; (4) using accounting software
24.95 percent **Web-based (3-4pt)** (5) own website; (6) buys/sells online; (7) payments on-line
14.39 percent **Knowledge-oriented (4-5pt)** (8) MIS; (9) e-marketing

The average enterprise in Honduras has a computer (83.09 percent), access to internet (82.25 percent) and a social media account (54.43 percent). It is uncommon that enterprises have accounting software (38.68 percent), buy and sell goods and services online (37.25 percent), receive payments online (36.82 percent), have a management information system (33.44 percent), maintain an updated website (31.75 percent) or do e-marketing (24.26 percent).

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[16] Pham, Quoc Trung. (2010). Measuring the ICT maturity of SME. Journal of Knowledge Management Practice.

Digitalization is a business strategy that facilitates access to information internal and external to the enterprise to make informed business decisions, connect with clients and streamline operational practices. ICT adoption provides a source of competitive advantage and is linked in research literature to enterprise performance metrics, including increase in enterprise sales. [17] As context, in the Global Competitiveness Report 2017, Honduras ranked 99th in technological readiness - a composite measure of propensity to exploit the opportunities in information and communications technology (ICT) sectors. This is a drop in Honduras's position of 91st in 2011 ranking, and behind regional leaders of Costa Rica (43rd), Panama (63rd), Mexico (71st).[18]

(5) The number of service types accessed by enterprises that had 'significant' contribution
Enterprises that reported one more service type that had significant contribution tended to report a 2.35 higher percentage point change in sales in 2018 compared to 2017.

Seventy-four percent of enterprises reported accessing external services in 2018. The average enterprise accessed external services for two types of business purposes. Enterprises reported 58.55 percent of those external service types had significant contribution to their business. The table below identifies that the two most frequently utilized service types, certifications and administrative/legal processes, were highly rated as having significant contribution. Staff capacity building is both highly frequently utilized and rated as having significant contribution.

TABLE 7: COMPARING FREQUENCY AND CONTRIBUTION OF SERVICE TYPES ACCESSED

The most frequently utilized external service types by enterprises were:	*The service types most rated as having significant contribution to business were:*
(36.69%) finding new buyers (1)	(1) staff capacity building (77.83%)
(36.20%) staff capacity building (2)	(2) administrative/legal processes (68.66%)
(35.71%) financing (3)	(3) certifications (63.03%)
(33.12%) advertising and promotion (4)	(4) financing (57.73%)
(22.73%) launching products or services (5)	(5) launching products or services (54.35%)
(21.92%) administrative/legal processes (6)	(6) advertising and promotion (48.04%)
(19.64%) certifications (7)	(7) finding new buyers (46.02%)

Second Regression Model
In the second, three-variable independent variable linear regression model above, for enterprises that reported an increase in the percentage sales from 2017 to 2018, you'd expect to see the same enterprise also report:
  (6) Higher confidence in business conditions in 2018
  (7) Higher number of government agencies interacted with that were not negative in 2018
  (8) Higher capacity utilization rate in 2018

(6) The business confidence index score for enterprises
Enterprises that reported higher business confidence tended to report higher percentage point change in sales in 2018 compared to 2017.

Business confidence index scores are normalized to a 0-200 scale where 0 is no confidence, 100 is neutral, and 200 is high confidence. Business confidence is a leading indicator used to predict

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[17] See among many examples of research: (1) Ollo López, Andrea & Aramendia-Muneta, Maria Elena. (2012). ICT impact on competitiveness, innovation and environment. Telematics and Informatics. 29. 204-210. (2) Turulja, Lejla & Bajgoric, Nijaz. (2016). Innovation and Information Technology Capability as Antecedents of Firms' Success. Interdisciplinary Description of Complex Systems. 14. 148-156. (3) Estrada, Salvador & Cuevas-Vargas, Héctor & larios-gómez, Emigdio. (2016). Cuevas-Vargas, H., Estrada, S., Larios-Gómez, E. (2016) The effects of ICTs as innovation facilitators for a greater business performance. Evidence from Mexico" Procedia Computer Science, 91, 47-56. Procedia Computer Science.
[18] World Economic Forum (2017). The Global Competitiveness Report 2017–2018

future growth trajectories based current and future business conditions according to the opinions of the enterprise.[19] In this diagnostic, tourism enterprises use a services index calculation, agroindustry the manufacturing index calculation and distributors the retail index calculation. The average enterprise business confidence score was 146 out of 200. The scores ranged from agroindustry (125), distributors (141), lodging (151) and tourism services (167). Specific questions and response rates for each category are in tables below:

TABLE 8: BUSINESS CONFIDENCE INDEX AGROINDUSTRY

Excluding normal seasonal changes, what changes you expect in the next 12 months regarding the volume of production / sales?	**1 = Increase** 66.67%	**0 = Maintain** 21.48%	**-1 = Decrease** 11.85%
Excluding normal seasonal changes, what do you consider that the current total level of your purchase orders / orders in terms of volume is?	**1 = Above normal** 20.74%	**0 =Normal Seasonally adequate** 62.96%	**-1 = Below normal** 16.30%
Excluding normal seasonal changes, what do you consider that the current level of stocks of your finished products in terms of volume is?	**-1 = Higher than normal** 14.81%	**0 =Normal Seasonally adequate** 65.19%	**1 = Below normal** 20.00%

TABLE 9: BUSINESS CONFIDENCE INDEX DISTRIBUTORS

Do you think that the current situation of your enterprise is?	**1 = Good** 45.89%	**0 = Normal** 46.38%	**-1 = Bad** 7.73%
Do you expect the business situation of your enterprise during the next 12 months to be?	**1 = Better** 86.47%	**0 =The Same** 10.14%	**-1 = Worse** 3.38%
If you exclude normal seasonal changes, do you consider that the current level of your inventory in terms of volume is?	**-1 = Higher than normal** 8.74%	**0 =Normal Seasonally adequate** 73.30%	**1 = Below normal** 17.96%

TABLE 10: BUSINESS CONFIDENCE INDEX LODGING SERVICES

Excluding normal seasonal changes, what changes do you expect during the next 12 months with the number of people employed in your enterprise?	**1 = Increase** 39.10%	**0 = Maintain** 57.69%	**-1 = Decrease** 3.21%
Do you consider that the current situation of your enterprise is?	**1 = Good** 43.59%	**0 =Normal** 44.87%	**-1 = Bad** 11.54%
Do you expect the business situation of your enterprise during the next 12 months to be?	**1 = Better** 91.03%	**0 =The Same** 7.69%	**- 1 = Worse** 1.28%

TABLE 11: BUSINESS CONFIDENCE INDEX LODGING SERVICES

Excluding normal seasonal changes, what changes do you expect during the next 12 months with the number of people employed in your enterprise?	**1 = Increase** 49.59%	**0 = Maintain** 49.59%	**-1 = Decrease** 0.81%
Do you consider that the current situation of your enterprise is?	**1 = Good** 59.35%	**0 =Normal** 38.21%	**-1 = Bad** 2.44%
Do you expect the business situation of your enterprise during the next 12 months to be?	**1 = Better** 91.06%	**0 =The Same** 8.94%	**- 1 = Worse** 0.00%

TABLE 12: DIVING DEEPER INTO BUSINESS CONFIDENCE

No regression model was identified that was statistically and materially predictive of business confidence. More than sixteen variables proved correlated to business confidence, many of which are likely explained as characteristic of the tourism sector (in which enterprises had higher reported business confidence) or are explained by their predictive relationship to competitiveness, resilience and inclusion results explained by business confidence linked by sales. Three non-related indicators were statistically correlated (Spearman's) with higher levels of business confidence:

- Lower percentage of capital externally financed (Rho -.106**)
- Higher percentage of sales from innovation in past two years (Rho .112**)
- Higher confidence in redundancy of buyers (Rho .096**)

According to independent samples T-test, enterprises that reported a higher than average business confidence score (>145) tended to report higher average percent of sales from recent innovations

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[19] OECD (2019), Business confidence index (BCI) doi: 10.1787/3092dc4f-en (Accessed on 10 May 2019)

(12.54) compared to 9.43 percent for enterprises with lower than average business confidence. The other two variables did not have statistically significant differences of means.

(7) The number of governmental institutions interacted with by enterprise in 2018
Enterprises that reported additional government agencies with which it had any interaction in 2018, tended to report a higher percentage point change in sales in 2018 compared to 2017. Enterprises that reported additional government agencies with which it had a negative interaction in 2018 tended to report lower percentage point change in sales.

The number of enterprise interactions with government institutions is a measure of formalization and whether enterprises are accessing permits, licenses and registries required operate and access markets. Enterprises reported interactions with nearly five government institutions. The most frequently reported government institutions with which enterprises interacted in 2018 were municipalities (91.36 percent), *Servicio de Administración de Rentas* de Honduras (88.62 percent) and *Empresa Nacional de Energía Eléctrica* (75.93 percent). The least frequently reported institutions were the *Secretaría de Desarrollo Económico* (9.95 percent), *Centro de Trámites de Exportaciones* (13.10 percent) and *Secretaría de Finanzas* (20.93 percent).

Enterprises reported their satisfaction with the ease of interactions with government institution.[20] Enterprises reported positive interactions with over two government agencies, regular interactions with nearly two agencies and negative interactions with at least one government agency. The government institutions with which enterprises reported the highest percentage of positive interactions were *Centro de Trámites de Exportaciones* (65.82 percent), municipality (55.82 percent), and *Agencia de Regulación Sanitaria* (54.55 percent). The institutions with which enterprises reported the lowest percentage of positive interactions were *Empresa Nacional de Energía Eléctrica* (20.62 percent), *Instituto Hondureño de Seguridad Social* (33.04 percent) and *Aduanas* (41.25 percent).

(8) The percentage capacity utilization of enterprises in 2018
Enterprises that reported higher capacity utilization in 2018, tended to report higher percentage points change in sales in 2018 compared to 2017.

Capacity utilization is a metric used in manufacturing, distribution and lodging to measure the extent to which an enterprise uses its installed capacity. Hotels reported an average occupancy rate of 52.19 percent and agroindustry and distributors a utilization of 60.14 percent. Only 41.33 percent of hotels calculated occupancy rate and 31.02 percent of agroindustry and distributors. In cases where calculated figured were not identified, estimates reported by enterprise were used. When reported, average estimates did not differ significantly from calculated figures.

THE DEGREE OF RECOVERY BY AN ENTERPRISE POST-SHOCK OR STRESSOR (RESILIENCE)
Reducing vulnerability and increasing resilience capabilities are globally recognized as important to compete. A survey by the World Economic Forum (2013) found that more than 80 percent of companies globally are concerned about the resilience of their supply chain.[21] The success of an enterprise's response to events that disrupt supply chains is a function of both enterprise behavior and market structures. Cooperation, information systems, supply chain engineering among other enterprise-level behaviors are demonstrated to improve the mitigation, adaptation and recovery from such events. Underlying market structures, how industries are organized, the

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[20] It should be noted, this does not reflect opinion by the enterprise on the policies or performance of the institution beyond that interaction.
[21] World Economic Forum (2013). Building Resilience in Supply Chains

rules that comprise the enabling environment, and how risk is transferred through commercial arrangements are also increasingly recognized as determinants to market system resilience.[22]

Resilience measurement considers the degree of shock or stressor experienced by an enterprise and the capacities of the enterprise to mitigate, adapt to and recover from the shock or stressor. There is an emerging consensus that market systems resilience relates to how risk is managed at a market system-level. As the market-system better manages risk –through policies and practices, mechanisms which serve as buffers such as insurance or stock-piling, etc., – a more solid floor is established that allows enterprises and individuals to step-out, innovate and take risks. [23]

Resilience frameworks measure capabilities in terms of preparation, response, recovery and growth after an event, whether shock or stressor. In this diagnostic, the degree of recovery and growth by an enterprise post-shock or stressor is a 4-point Likert: 1= enterprise did not recover or collapse, 2 = enterprise partially recovered, 3= enterprise fully recovered to same level as before 4=enterprise recovered and continued to grow. Enterprises and supply chains may also learn from prior disruptive events and develop capabilities that allow them mitigate, or even fully avoid, similar events in the future. [24] Enterprises that responded experiencing a shock or stressor but not being affected by the event also received a 4-score on the Likert scale for this indicator.

Table 13: Enterprise Recovery Visualization
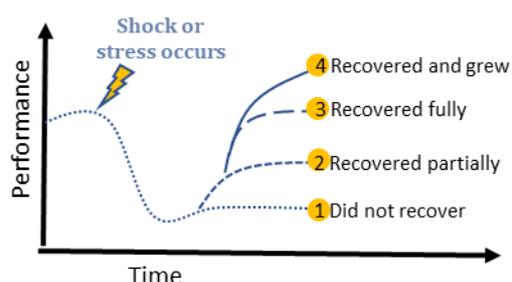
Descriptive analysis

92.52 percent of enterprises reported experiencing a shock or stressor in 2018. 88.80 percent of enterprises that experienced shocks or stressors in 2018 reported being affected, with 11.20 percent not being affected at all. 7.72 percent of enterprises were not able to recover, 43.05 percent of enterprises partially recovered, 23.17 percent of enterprises recovered to the same level and 14.86 percent of enterprises were able to recover and continue to grow after the shock or stressor. In other words, the majority of enterprises were affected, but not able to fully recover (much less grow), after experiencing a shock or stressor.

Regression analysis

Nine variables were found correlated with the degree of recovery reported by enterprises. A stepwise logistic regression model identified four independent variables for the degree of recovery. As non-linear regression model, coefficients are not interpreted beyond directionality. The pseudo R squares were .070 (McFadden) and .161 (Cox and Snell).

TABLE 14: LOGISTIC REGRESSION MODEL: DEGREE OF RECOVERY POST-SHOCK/ STRESSOR IN 2018

Dependent Variable	Independent Variable	Estimate * ** ***	Range (95% confidence)		Std. Error
			Low	High	
	The number of types shocks experienced by enterprises in 2018	-.284***	-.431	-.137	.075

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[22] Tukamuhabwa, Benjamin & Stevenson, Mark & Busby, Jerry & Zorzini Bell, Marta. (2015). Supply chain resilience: Definition, review and theoretical foundations for further study. International Journal of Production Research. 53. 1-32. 10.1080/00207543.2015.1037934.

[23] This discussion emerged out of the 2019 Market Systems Symposium – Market Systems Resilience Track – See https://www.marketsystemssymposium.org/

[24] Tukamuhabwa, Benjamin & Stevenson, Mark & Busby, Jerry & Zorzini Bell, Marta. (2015). Supply chain resilience: Definition, review and theoretical foundations for further study. International Journal of Production Research. 53. 1-32. 10.1080/00207543.2015.1037934.

The degree of recovery by enterprise post-shock or stressor in 2018	The number of service types accessed by enterprises that had 'significant' contribution in 2018	.174***	.053	.294	.061
	Enterprises that invested the same in 2018 compared to 2017	1.039***	.557	1.522	.246
	Enterprises that invested more in 2018 compared to 2017	1.248***	.800	1.697	.229
Observations 274	The degree of confidence in finding alternative buyers in the event of a shock	.334***	.163	.505	.087

*,**,*** Significance at 90 percent, 95 percent and 99 percent level, respectively.

In the four independent variable logistic regression model, for enterprises that reported a higher degree recovery following a shock or stressor, you'd expect to see the same enterprise also report:
  (1) Experienced fewer number of types of shocks and stressors in 2018
  (2) Accessed more service types accessed that had 'significant' contribution in 2018
  (3) Invested the same or more in 2018 compared to 2017
  (4) Higher degree of confidence in identifying new buyers in event of a shock

(1) The number of types of shocks or stressors experienced by enterprise in 2018
Enterprises that reported experiencing a higher number of types of shocks or stressors in 2018, tended to report a lower degree of recovery post-shock or stressor in 2018.

Consistent with household resilience literature, it is more difficult to recover when confronted multiple types of shock or stressor events.[25] 92.54 percent of enterprises experienced *one or more* shocks or stressors in 2018. 43.23 percent experienced one, 25.66 percent experienced two, 18.28 percent experienced three, 7.38 percent experienced four, and 5.45 percent experienced five or more shocks or stressors. The average number of shocks or stressors experienced by enterprises in 2018 was 1.91 shocks or stressors.

The most frequent shocks or stressor types reported by enterprises were not necessarily the most severe ones, defined by the percentage of enterprises that were able to recover after experiencing the shock or stressor in 2018. The most frequent shocks were political (67.84 percent) and climatic (35.68 percent), however, 40.70 percent and 41.67 percent of enterprises were able to recover after experiencing the shocks respectively. On the other hand, extortion (4.39 percent) was the least frequent type of shock or stressor reported, but only 23.81 percent of enterprises were able to recover.[26] Enterprises also experienced insecurity (33.92 percent), market price or demand (26.19 percent) and regulatory (24.43 percent) shocks and stressors, and 32.53 percent, 35.29 percent 39.02 percent of enterprises were able to recover from them respectively in 2018.

(2) The number of service types accessed by enterprises that had 'significant' contribution
Enterprises that reported accessing more service types that had significant contribution to their enterprise reported a higher degree of recovery post-shock or stressor in 2018

This indicator is described in further detail in the competitiveness section above. There is research linking connectivity in the form of increase access to services to improved resilience capacities of enterprises within supply chains.[27]

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[25] Sagara, B. (2018). USAID Resilience Measurement Practical Guidance Note Series 2: Measuring Shocks and Stresses. Produced by Mercy Corps as part of the Resilience Evaluation, Analysis and Learning (REAL) Associate Award.
[26] In the sample, a self-selection bias likely reduced the frequency of responses of extortion shocks as enterprises refused to participate in the survey due to fear of giving out information for risk of extortion.
[27] See Vroegindewey, Ryan & Hodbod, Jennifer. (2018). Resilience of Agricultural Value Chains in Developing Country Contexts: A Framework and Assessment Approach. Sustainability (Switzerland) and Smith, K.; Lawrence, G.; MacMahon, A.; Muller, J.; Brady, M. The resilience of long and short food chains: A case study of flooding in Queensland, Australia. Agric. Hum. Values 2016, 33, 45–60.

(3) The degree of confidence in finding alternative buyers in the event of a shock
Enterprises that reported a higher degree of confidence in identifying alternative buyers in the event of a shock or stressor, reported higher degree of recovery post-shock or stressor in 2018

Redundancy and flexibility are among the most researched areas of supply chain resilience, with robust evidence linking them to enterprise performance. Having alternate suppliers and buyers to quickly respond to a supply chain disruption allows enterprises and industries to better respond to external shocks and stressors. [28] Enterprises that reported a higher degree of confidence in identifying alternate buyers in the event of a shock or stressor, reported a higher degree of recovery post-shock or stressor. 50.88 percent of enterprises expressed confidence they could find alternate buyers after a shock or stressor, while 18.47 percent were neutral, and 30.65 percent were not confident.

(4) Enterprises that invested the same or more in 2018 compared to 2017
Enterprises that reported investing the same or higher in 2018 than 2017 reported a higher degree of recovery post-shock or stressor in 2018.

This indicator is described in further detail in the competitiveness section above. There appears to be a research gap in proving the links between investment and resilience outcomes but could conceivable be connected to business model transformation and innovation which are necessary for enterprises to persevere in the face of a changing environment. [29]

ENTERPRISE OWNERSHIP AND EMPLOYMENT OF VULNERABLE PERSONS (INCLUSION)
Enterprise Ownership*.* 31.86 percent of enterprises were owned by persons from vulnerable groups - indigenous persons, women, youth, and afro-descendent persons, whereby ownership was defined in terms of whether more than half of owners were from a single vulnerable group. 21.87 percent of enterprises were owned by women, 3.80 percent owned by youth (15 to 29 years old), 7.40 percent by indigenous persons and 1.13 percent Afro-descendent persons.

It should be noted 27.96 percent of all enterprises had two proprietors, and more than two-thirds of those dual proprietorship enterprises had one female owner. These enterprises are likely family-owned business and were not counted as women-owned as their ownership share was less than 50 percent. Overall, 64.64 percent of enterprises had at least one owner from a vulnerable group. 57.94 percent of enterprises had at least one-woman owner, 15.78 percent one youth owner, 8.92 percent one indigenous owner and 1.88 percent one Afro-descendent owner.

Enterprise ownership by women. Nine variables were found to have statistically significant differences of means between female-owned and male-owned enterprises in 2018. Table 15 below provides descriptive statistics on the variable means for these two populations and their statistical significance for all variables using T-tests to determine the difference in means.

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[28] Kamalahmadi, Masoud & Parast, Mahour. (2015). A Review of the Literature on the Principles of Enterprise and Supply Chain Resilience: Major Findings and Directions for Future Research. International Journal of Production Economics. 171. 10.1016

[29] See among others: Carayannis, Elias & Grigoroudis, Evangelos & Sindakis, Stavros & Walter, Christian. (2014). Business Model Innovation as Antecedent of Sustainable Enterprise Excellence and Resilience. Journal of the Knowledge Economy. 5. 440-463. 10.1007/s13132-014-0206-7. and Lv, Wen-Dong & Tian, Dan & Wei, Yuan & Xi, Rui-Xue. (2018). Innovation Resilience: A New Approach for Managing Uncertainties Concerned with Sustainable Innovation. Sustainability. 10. 3641. 10.3390/su10103641.

TABLE 15: INDEPENDENT SAMPLES T-TEST OF MEANS WOMEN-OWNED ENTERPRISES

Independent Variable	Women-owned		Male-owned		Diff Means	Std. Error	Sig.
	# Obs	Mean	# Obs	Mean			
Enterprises tourism sector	117	66%	418	41%	.247	.051	***
Enterprises that provide agreements to temporary or part-time staff	47	85.11%	200	69.00%	16.106%	6.189%	**
Percentage of women employees	112	47.93%	406	33.01%	14.928%	3.416%	***
Percentage of export sales	117	19.77%	418	14.52%	5.245%	2.752%	*
Percentage of sales from product innovations in the past two years	111	14.58%	396	9.46%	5.111%	2.418%	**
Percentage of enterprise capital that is externally financed	112	28.68%	396	38.40%	-9.718%	3.769%	***
The number of governmental institutions interacted with in 2018	117	4.44	408	4.97	-.5261	.2460	**
Business confidence index score for enterprises	112	151.64	389	144.90	6.735	3.528	*
Percentage of suppliers in 2017 that were suppliers in 2018	38	81.50%	239	66.99%	14.512%	5.715%	**

*,**,*** Significance at 90 percent, 95 percent and 99 percent level, respectively.

Women-ownership of enterprise is statistically higher in the tourism sector than in value-added agriculture sector. As a result, the difference in means for indicators such as business confidence and export sales are not materially significant for women-owned enterprises, as these indicators were significantly higher for tourism enterprises. Women-owned enterprises tended to employ a higher percentage of women (47.93 percent) compared to male-owned businesses (33.01 percent). The same is true for women managers, but the results are difficult to interpret as the variable would include managers who are also owners of their enterprise. Women-owned enterprises had a higher percentage of sales from innovations in the past two years (14.58 percent) compared to male-owned enterprises (9.46 percent), but there was no materially significant different in overall business sales performance. Women-owned enterprises are significantly less leveraged than male owned enterprises, reporting 28.68 percent compared to male-owned (38.40 percent). Women-owned enterprises also reported interactions with fewer number of government institutions (4.44) versus male-owned enterprises (4.97). Despite the low number of women-owned enterprise respondents, there was a statistically significant higher percentage of supplier retention from 2017 to 2018 (81.50 percent) compared to male-owned enterprise (66.99 percent). There were no statistically significant and material differences identified in the other variables analyzed in this diagnostic.

Enterprise ownership by indigenous persons. Five variables were found to have statistically significant differences of means between indigenous-owned and non-indigenous owned enterprises in 2018. Table 16 below provides descriptive statistics on the means for these two populations and their statistical significance, using T-tests for the difference in means.

TABLE 16: INDEPENDENT SAMPLES T-TEST OF MEANS INDIGENOUS-OWNED ENTERPRISES

Independent Variable	Indigenous-owned		Non-indigenous		Diff Means	Std. Error	Sig.
	# Obs	Mean	# Obs	Mean			
Enterprises in value-added sector	39	82%	488	51%	.308	.082	***
Percentage of export sales	39	8.564%	488	16.139%	-7.575%	3.520%	**
Information and Communications Technology (ICT) index score	25	1.828	438	2.633	-.805	.265	***
Number of governmental institutions interacted with in 2018	37	3.811	480	4.931	-1.120	.396	***
Number of benefits to permanent, full-time employees in 2018	39	.923	486	1.942	-1.019	.227	***

*,**,*** Significance at 90 percent, 95 percent and 99 percent level, respectively.

There were few observations for indigenous-owned enterprises, but T-test results for independent means did reveal suggestive findings that were statistically significant. Indigenous-ownership of enterprise is statistically higher in the value-added agriculture sector than in the tourism sector. The correlation between indigenous-ownership and the percentage export sales is likely linked to this sectoral difference. Indigenous-owned enterprises on average reported fewer interactions with fewer number government agencies (3.811) compared to non-indigenous owned (4.931). Indigenous-owned enterprises also scored lower on the ICT Index (1.828) compared to non-indigenous-owned enterprises (2.633). The fewer number of non-wage benefits to employees offered by indigenous-owned enterprises (.923) compared to non-indigenous owned enterprises (1.942) is likely linked to lower levels of formalization.

Due to low levels of enterprises ownership by youth and Afro-descendants within the sample frame, there are too few observations to run reliable T-test for independence of means.

Enterprise Employment. 35.89 percent of all employees of surveyed enterprises were women and 33.1 percent were youth. This compares an economically active population that is 39.83 percent women and 36.9 percent who were youth in 2018. With respect to working age population, however, 52.33 percent are women and 35.40 percent of youth out of the total working age population.[30] Women represented 24.87 percent of employees in agroindustry, 24.10 percent in distribution, 52.90 percent in lodging and 45.43 percent in tourism services. Youth represented 39.25 percent in agroindustry, 35.79 percent in distribution, 30.44 percent in lodging and 27.31 percent in tourism services. Across all sectors, women occupied 43.20 percent of management positions while youth occupied 15.54 percent of management positions.

Employment of women. Twelve variables, and three disaggregated variables, were found correlated with the percentage of employees that were women in 2018. Table 17 below lists the coefficients and statistical significance for correlations applying Spearman's Correlation Analysis.

TABLE 17: CORRELATIONS FOR PERCENTAGE OF WOMEN EMPLOYEES IN 2018

Correlated Variable	Coefficient	Num. Obs.	Sig.
Enterprises in the tourism sector	.451	590	***
The percentage of clients in 2018 that were new	.111	286	*
Percentage of suppliers in 2017 that were suppliers in 2018	.096	310	*
The business confidence index score for enterprises	.165	553	***
The percentage of enterprise capital that is externally financed	-.089	554	**
The Information and Communications Technology (ICT) index score	.190	527	***
percentage of sales from product or service innovations in the past two years	.124	558	***
Percentage increase in sales in 2018 compared to 2017	.101	576	**
Percentage change in enterprise sales in 2018 over 2017	.250	590	***
Enterprises owned by women	.211	518	***
The percentage of enterprise managers that were women in 2018	.344	557	***
Number of benefits to permanent, full-time employees in 2018	.206	588	***
Enterprises that offered vacation to most or all P/FT employees in 2018	.180	588	***
Enterprises that offered sick leave to most or all P/FT employees in 2018	.103	582	**
Enterprises that offered parental leave to most all P/FT employees	.225	580	***

*,**,*** Significance at 90%, 95% and 99% level, respectively.

A stepwise linear regression model identified three independent variables that were predictive of 24.7 percent (adjusted R square) of the percentage of women employed by enterprise in 2018.

TABLE 18: REGRESSION MODEL: PERCENTAGE OF WOMEN EMPLOYEES OF ENTERPRISES IN 2018

Independent Variables	Coefficient	Range (95% confidence)	

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[30] Instituto Nacional de Estadística (INE). Encuesta Permanente de Hogares de Propósitos Múltiples, LXI 2018.

Dependent Variable		*, **, ***	Low	High	Std. Error
The percentage of employees that were women in 2018 R square .247 Observations 516	*Regression constant*	17.106***	12.673	21.538	2.256
	Enterprises in the tourism sector	26.018***	12.365	30.670	2.368
	The number of benefits to permanent, full-time employees in 2018	1.1910**	.238	3.583	.851
	The percentage of enterprises owners that were women in 2018	.103***	.040	.166	.032

*,**,*** Significance at 90 percent, 95 percent and 99 percent level, respectively.

In the three independent variable linear regression model, for enterprises that reported a higher percentage of women employees, you'd expect to see the same enterprise also report:
   (1) Operating in the tourism sector as opposed to the value-added agriculture sector
   (2) Providing a higher number of benefits to permanent, full-time employees in 2018
   (3) Having a higher percentage of women owners

(1) Enterprises in the tourism sector
Enterprises that operated in the tourism sector tended reported a higher percentage of women employees than enterprises that operated in the value-added agriculture sector.

Enterprises in the tourism sector reported that women accounted for 49.60 percent of all employees in 2018, compared to 24.25 percent of employees in the value-added agriculture sector. This explanatory variable likely accounts for correlations with business confidence index, percentage export sales and percentage change in sales which were eliminated in step-wise.

(2) The number of benefits offered to permanent, full-time employees in 2018
Enterprises that offered one more benefit to permanent, full-time employees in 2018 tended to report a higher percentage of women employees.

The number of non-wage benefits offered by enterprises in 2018 that were positively correlated with the percentage of women employees were vacation, sick leave and maternity/paternity leave. 72.59 percent of enterprises offered vacation leave, 48.76 percent offered sick leave and 45.63 percent offered maternity/paternity leave. The strongest correlation to increase in permanent, full-time employees existed for maternity/paternity leave. Research into the gender gaps in employment suggest that a gender-smart strategy for jobs should include a focus on parental leave policies to make employment opportunities accessible to women.[31]

(3) The percentage of enterprise owners that were women in 2018
Enterprises that had a one percent higher ownership by women in 2018 tended to report a higher percent of women employees.

These findings are consistent with the T-test difference of means results above in which women-owned enterprises tended to employ a higher percentage of women (47.93 percent) compared to male-owned businesses (33.01 percent). The explanatory variable of women-ownership likely explains correlations between the percentage of women employees and the higher retention rate of suppliers, higher percentage of sales from innovations in past two years, higher percentage women managers and the lower percentage of capital externally financed as independent predictor variables which were eliminated in the step-wise process.

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[31] "Datta, Namita; Kotikula, Aphichoke. 2017. Not Just More, but Better: Fostering Quality of Employment for Women. Jobs Working Paper;No. 1. World Bank, Washington, DC. World Bank.

Employment of youth. Fifteen variables were found correlated with the percentage of employees that were youth in 2018. Table 19 below lists the coefficients and statistical significance for all correlated variables applying Spearman's Correlation Analysis.

TABLE 19: CORRELATIONS FOR PERCENTAGE OF YOUTH EMPLOYEES IN 2018

Correlated Variable	Coefficient	Num. Obs.	Sig.
Enterprises in the value-added agriculture sector	.153	576	***
Number of Trip Advisor reviews posted on enterprise	.147	269	**
Number of types of shocks or stressors experienced by enterprise in 2018	.088	576	**
The number of years since the enterprise started operations in Honduras	-.119	571	***
The total number of service types accessed by enterprise in 2018	.209	576	***
The number of governmental institutions interacted with by enterprise	.114	560	***
The Information Communications Technology (ICT) index score	.119	513	***
The number of information sources used by the enterprise in 2018	.109	520	**
The total number of employees reported by enterprise in 2018	.171	576	***
The percentage of enterprise managers that were youth in 2018	.226	541	***
The percentage of enterprise employees that are managers in 2018	.126	558	***
The percentage of employees that were permanent, full-time in 2018	.081	574	**
Enterprises that provided a contract to temporary or part-time employees	.177	270	***
Enterprises that guaranteed a minimum number of hours to temporary or part-time employees in 2018	.135	346	**
The percentage capacity utilization of enterprises in 2018	.114	300	**

*,**,*** Significance at 90 percent, 95 percent and 99 percent level, respectively.

A stepwise linear regression model identified five independent variables that were predictive of 8.3 percent (adjusted R squared) of the percentage youth employed by enterprises. The removal of two variables in the model - enterprises that guarantee hours to most or all temporary or part-time employees and percentage of employees that were managers in 2018 – would increase the number of observations to 571 (from 327) but only explain 4.5 percent (adjusted R squared).

TABLE 20: REGRESSION MODEL: PERCENTAGE OF YOUTH EMPLOYEES OF ENTERPRISES IN 2018

Dependent Variable	Independent Variables	Coefficient *, **, ***	Range (95% confidence)		Std. Error
			Low	High	
The percentage of women employees in 2018 R square .083 Observations 327	*Constant*	25.111***	18.285	31.936	3.469
	Enterprises in the value-added agriculture sector	9.046***	3.467	14.625	2.836
	The number of years since the enterprise started operations in Honduras	-.226**	-.483	-.048	.110
	Number of service types accessed by enterprise in 2018	1.923**	.453	3.394	.747
	Enterprises that guarantee hours to most or all temporary or part-time employees in 2018	.050*	-.008	.108	.030
	Percentage of employees that were managers in 2018	16.568*	-.095	33.231	8.470

*,**,*** Significance at 90 percent, 95 percent and 99 percent level, respectively.

In the five independent variable linear regression model, for enterprises that reported a higher percentage of youth employees, you'd expect to see the same enterprise also report:
   (1) Operating in the value-added agriculture sector as opposed to the tourism sector
   (2) Fewer number of years since an enterprise started operations in Honduras
   (3) Accessed more service types accessed that had 'significant' contribution in 2018
   (4) Guaranteed hours to most or all temporary or part time staff in 2018
   (5) Higher percentage of managers that were youth in 2018

Enterprises in the value-added agriculture sector tended report a higher percent of youth employees than enterprises in the tourism sector. Enterprises in value-added agriculture reported that youth accounted for 37.13 percent of all employees in 2018, compared to 28.49

percent of employees in the tourism sector. This explanatory variable likely accounts for correlations with higher capacity utilization rates variable, which differed between agroindustry and hotels, and was removed in the model through the step-wise process.

Enterprises that reported a fewer number of years since they began operations tended to report a higher percentage of youth employees. In other words, younger enterprises tend to employ a higher percentage of youth employees. There is some research that links start-ups and entrepreneurship to job creation particularly for youth. The findings of this research link higher levels of recruiting, hiring and mentoring by start-up enterprises particularly for youth and an interest by youth in pursuing entrepreneurial careers.[32]

Enterprises that accessed more types of services also tended to report a higher percentage of youth employees. A likely explanation is that the second most frequently accessed service type (33.20 percent) by enterprises, and the highest rated service type as having significant contribution (77.83 percent) to the enterprise in 2018, was capacity building for employees. Workforce development services may then be linked to higher youth employment outcomes.

Enterprises that guarantee hours to most or all of temporary or part-time staff tended to report a higher percentage of youth employees, yet the relationship is not material in this model. Enterprises that reported a higher percentage of manager of total employees in 2018 tended to report a higher percentage of youth employees. Further investigation is required to understand the relevance of employment security and staff management with youth employment.

TABLE 21: DIVING DEEP INTO ENTERPRISES THAT REPORTED EXTERNAL MIGRATION

19.53 percent of enterprises reported employees migrating externally out of Honduras in 2018. A stepwise logistic regression model identified three independent variables that were predictive of 11.39 percent (pseudo R squared) of enterprises reporting employees migrating externally. Enterprises that had a higher percentage of youth employees tended to report employees migrating externally in 2018. Enterprises that were larger in terms of the total number of employees in 2017, tended to report employees migrating externally. Finally, enterprises that had a lower percentage of permanent, full-time employees tended to report employees migrating externally in 2018.

MODEL

The model in Table 22 summarizes the independent variables are their relations to the dependent variables of increased sales, job creation, strengthened recovery and the hiring of persons from vulnerable groups. The directionality of the relationship between the variables is noted if positive or inverse i.e. not positive. A further note on the level of significance of this relationship and the type statistical analysis used to determine this relationship is also identified in the table.

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[32] Ernst and Young. (2015). Global job creation and youth entrepreneurship survey.

TABLE 22: SIGNIFICANT VARIABLES IDENTIFIED IN 2018 DIAGNOSTIC

Independent variables \ Dependent variables	The percentage change in permanent, full-time employees in 2018 over 2017	The percentage change in enterprise sales in 2018 over 2017	The degree of recovery of enterprises that reported experiencing shocks in 2018	The percentage of enterprises owned by individuals from vulnerable groups	The percentage of employees of vulnerable groups, defined as women and youth
The percentage change in enterprise sales in 2018 over 2017	**Positive** *** *Linear regression*				
The degree of recovery of enterprises post-shock or stressor in 2018		**Positive** *** *Primary linear regression*			
The number of non-salary benefits offered to permanent, full-time employees in 2018					**Positive** *** *women* *Linear regression*
The percentage of employees of vulnerable groups, defined as women and youth				**Positive** *** *female-owned* *T-test diff of means*	
The total number of permanent, full-time employees of enterprises (i.e. enterprise size)	**Inverse** ** *Linear regression*				
The number of years since the enterprise started operations in Honduras (i.e. enterprise age)	**Inverse** * *Linear regression*				**Inverse** ** *youth* *Linear regression*
The percentage of enterprises that invested the same or more in 2018 compared to 2017		**Positive** *** *Primary linear regression*	**Positive** *** *Logistic regression*		
The Information and Communications Technology (ICT) index score of enterprises		**Positive** ** *Primary linear regression*		**Inverse** ** *indigenous* *T-test diff of means*	
The number of service types accessed by enterprises that had 'significant' contribution in 2018		**Positive** ** *Primary linear regression*	**Positive** *** *Logistic regression*		**Positive** *** *youth* *Linear regression*
The percentage change in external market price in primary product or service 2017 to 2018		**Positive** ** *Primary linear regression*			
The business confidence index score for enterprises		**Positive** ** *Second linear regression*			
The number of governmental institutions interacted with by enterprise (i.e. formalization)		**Positive** *** *Second linear regression*		**Inverse** ** *indigenous* *T-test diff of means*	
The percentage capacity utilization of enterprises in 2018 (hotels and agroindustry)		**Positive** *** *Second linear regression*			
The number of types of shocks or stressors experienced by enterprise in 2018			**Inverse** *** *Logistic regression*		

The degree of confidence in finding alternative buyers in the event of a shock			**Positive** *** *Logistic regression*		
The percentage of sales from product or service innovations in the past two years				**Positive** ** *T-test diff of means*	
The percentage of enterprise capital that is externally financed				**Inverse** ** *female-owned* *T-test diff of means*	

NEXT STEPS

The information provided by this diagnostic is intended to provide key data points and evidence to strengthen dialogue and debate among key stakeholders around economic policy and jobs creation strategy in Honduras. The analysis and research in this white paper is presented with minimal qualitative interpretation or judgement by its authors. COHEP and UNAH IIES will disseminate findings, gather expert opinions, investigate key findings and educate a diverse ecosystem of stakeholders on market systems issues more broadly. This process includes priority-setting for areas to diagnose in the next year and a more comprehensive engagement of stakeholders in this learning process. There is no one-size-fits all solution to creating more, better and inclusive jobs in Honduras. Through iterations of the diagnostic, the goal is to achieve greater clarity into this complex issue and together find new development pathways forward.