Logistics and Efficiency Indicator Survey 2020, Philippines

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Part 1: Introduction

1.1. Background of the Study[1]

The logistics cost in the Philippines remains the most expensive as compared to its neighboring Southeast Asian countries (Arvis, et al., 2018). According to the World Bank, high logistics costs can be attributed to poor logistics performance. And based on the World Bank's 2018 Global Logistics Performance Index (LPI) rankings, the Philippines lags behind Malaysia, Indonesia, Thailand, and Singapore at 60th spot.

The Department of Trade and Industry (DTI), specifically the Supply Chain and Logistics Management Division (SCLMD), embarked on a partnership with the World Bank and conducted a survey on the country's logistics efficiency in 2017. This was conducted to determine the logistics performance of the country as experienced by both manufacturers and logistics services providers. The result of the survey was widely used by policymakers, researchers, and business owners as baseline data for developing analysis, strategies, and research studies.

The 2017 survey results are summarized as follows:

- The country's logistics cost relative to sales is higher compared with other ASEAN countries. The country' logistics cost over sales stand at 27.16% as compared to Indonesia at 21.4%, Vietnam at 16.3%, and Thailand at 11.11%.

- Large variations by regions and sectors in terms of performance and cost.

- Reliability of the logistics system in the Philippines needs to be improved.

- Outsourcing is still focused on traditional logistics activities.

DTI-SCLMD decided to conduct a follow-up survey to assess the current state of logistics efficiency in the country as of 2020, measure the results of programs initiated in the past three years (after the DTI crafted The Ten Commitments with Logistics Services Providers, and considering the impact of the COVID-19

[1] Source: DTI Terms of Reference: Consulting Service for the Development and Conduct of Logistics Cost and Efficiency Survey

pandemic), and, based on the results of this assessment, develop programs to reduce logistics cost and improve efficiency and competitiveness.

1.2. Objectives of the Study

The primary objectives of the current survey are to review and update information about the logistics practices of manufacturers as of 2020 and evaluate these practices' impact on logistics cost.

Specifically, the survey intends to:

- Determine the country's current logistics costs and evaluate if there had been improvements relative to the past logistics cost and efficiency study conducted by the World Bank,
- Identify logistics issues raised by respondents (manufacturers/exporters), and
- Provide recommendations on how to further reduce logistics cost and improve logistics efficiency.

1.3. Research Approach

2017 as Baseline

For consistency and comparability, DTI-SCLMD and World Bank consultants decided to follow the approach used in the 2017 survey for the 2020 edition including the questionnaire, area coverage and industry sectors. DTI-SCLMD introduced some adjustments to improve the sampling frame and sample selection. It also decided to modify the data collection system from a self-administered questionnaire done in multiple locations to a combination of telephone and web surveys conducted or administered by trained enumerators.

DTI-SCLMD engaged the services of Strategic Research and Development Center, Inc. (STRAND-Asia) to assist in systematic respondent selection, design of a computer-aided telephone and web interviewing system, data collection and supervision of enumerators, data processing, data analysis and report writing.

Sample Size for the 2020 Survey

The team of DTI-SCLMD and WB also decided to increase the number of interviews from 159 in 2017 to 300 manufacturing firms in the present survey so that each of the primary segments (regions and industry sectors) is better represented and that sub-segment analyses may be done at a more definitive level of statistical significance. Target Regions are National Capital Region, Region III, Region IV-A, Region VI, Region VII, Region X, Region XI and Region XII. Target industry sectors are Agribusiness, Auto and Auto Parts, Chemicals, Construction Materials, Electronics, Furniture, Garments and Textile, and Processed Food.

Sampling Frame for the 2020 Survey

The list of respondents was drawn from DTI's database including listings from the Bureau of Small and Medium Enterprise Development (DTI-BSMED), Bureau of Domestic Trade Promotion (DTI-BDTP), Export Marketing Bureau (DTI-EMB), Center for International Trade Expositions and Missions (DTI-CITEM), Philippine Trade Training Center (DTI-PTTC), Board of Investment (DTI-BOI), Philippine Economic Zone Authority (PEZA), and Philippine Exporters Confederation Inc. (PHILEXPORT). STRAND-Asia supplemented these databases using its own resources.

The databases from these various sources were consolidated into one file. From this file, companies with complete contact details were filtered and organized into a sub file which served as the 2020 survey's sampling frame. From this filtered file, the research agency applied a systematic sampling system using IBM-SPSS to generate a target list of 300 respondents and a supplementary list as replacement for companies that have closed, cannot be contacted, do not have a clear telephone signal or refused to participate. Respondents were either owner, president/managing director, operations manager or supply chain manager.

Data Collection

In compliance with health protocols and in recognition of the risks attendant to face to face surveys such as delays due to varying lockdown rules in different regions and infection, and as approved by DTI-SCLMD, the research agency conducted the interviews through telephone using tablets and QuestionPro (a software designed for surveys and data collection) for respondents who prefer a guided interview, and

through an online application through a link provided to them for those who prefer to respond to the survey without assistance from interviewers. The online questionnaire was designed to enable respondents to answer the questions without assistance from interviewers.

The research agency used highly experienced survey enumerators to conduct the interviews through the telephone. It used a platform that allowed the server of QuestionPro to automatically collect and save the completed responses through telephone and online.

Questionnaire/Training

As mentioned earlier, DTI-SCLMD and WB decided to use the survey instrument that was used in the 2017 survey for consistency and comparability. However, the team included new questions to capture practices of manufacturing given new developments in logistics management. A copy of the questionnaire is shown as Annex A.

The questionnaire was originally designed in English. Considering the type of respondent-firms and type of respondents for this survey, the research agency used the same questionnaire in designing the computer-aided data collection system and in the actual interviews. Respondents were able to understand and respond to the survey questions.

Online training was arranged to orient the interviewers about the objectives of the survey and the technical details of the questionnaire. DTI-SCLMD conducted a client briefing to provide interviewers with an overview and importance of the survey.

Part 2: Respondent Profiles[2]

2.1. By Region

Close to three-fifths of respondent-manufacturing firms (172 of 300 or 57.3%) say that their base of operation is in Region IV-A (Calabarzon). Forty six of 300 respondent-manufacturing firms (15.3%) say that their base of operation is in Region VII (Central Visayas). About three-fourths of respondent-manufacturing firms are based in Luzon (75.9%), as shown below:

T1: Region Where Main Operations Located	Frequency	Percent
Base: Total respondents	300	100.0
Region IVA - CALABARZON	172	57.3
Region VII - Central Visayas	46	15.3
National Capital Region (NCR)	37	12.3
Region III - Central Luzon	19	6.3
Region XI - Southern Mindanao	10	3.3
Region X - Northern Mindanao	7	2.3
Region XII - Central Mindanao	4	1.3
Region VI - Western Visayas	3	1.0
Region IX - Western Mindanao	2	0.7
Total Mention	300	100.0

Source: 2020 Logistics and Efficiency Indicator Survey, Philippines

This report shall present total logistics cost and its five components by region. The logistics cost and component cost by region would provide a statistical basis to determine which regions contribute to a high logistics cost.

2.2. By Industry Sector

Respondent-manufacturing firms are well distributed by industry sector. The industry sector with the highest number of respondents is Electronics with 82 firms or 27.3 percent of total respondent-firms

[2] Respondent-manufacturing firms, respondent-firms, firms, and respondents are used interchangeably.

(300). There are 47 firms (15.7%) classified as Auto and Auto Parts while 41 firms (13.7%) are classified as manufacturers of Chemical products. The industry sector with the least representation is Furniture (18 or 6.0% of total), as shown in the table below:

T2: Industry Sector of Respondent-Firms	Frequency	Percent
Base: Total respondents	300	100.0
Electronics	82	27.3
Auto and auto parts	47	15.7
Chemicals	41	13.7
Construction materials	32	10.7
Processed Food	31	10.3
Garments and textile	28	9.3
Agribusiness	21	7.0
Furniture	18	6.0
Total Mention	300	100.0

Source: 2020 Logistics and Efficiency Indicator Survey, Philippines

This report shall present total logistics cost and its five components by industry sector. The logistics cost and component cost by industry sector would provide a statistical basis to determine which sectors contribute to a high logistics cost.

2.3. By Main Market

Of the 300 respondent-manufacturing firms, 121 or 40.3% cater exclusively to the domestic market while only 79 or 26.3% cater exclusively to the international market. The rest of respondent-manufacturing firms (100 or 33.3%) cater to both domestic and international markets. All three categories have sample sizes suitable for segment analysis.

This report shall present total logistics cost and its five components by main market. The logistics cost and component cost by main market would provide a statistical basis to determine which market contributes to a high logistics cost.

T3: Main Markets	Frequency	Percent
Base: Total respondents	300	100.0
Domestic	121	40.3
International	79	26.3
Both Domestic and International	100	33.3
Total Mention	300	100.0

Source: 2020 Logistics and Efficiency Indicator Survey, Philippines

2.4. By Asset Size

Close to one-half of respondent-manufacturing firms (141 or 47.0%) are classified as Small firms. Close to one-third of total respondent-manufacturing firms (87 or 29.0%) are classified as Medium-Size firms while the remaining respondents (72 or 24.0%) are classified as Large firms.

Based on DTI's classification, small business firms have an asset size of between P3 million to P15 million or 10 to 100 employees. Medium size firms have an asset size of between P15 million to P100 million or 100 to 199 employees. Large firms have an asset size of more than P100 million or more than 200 employees. Micro firms whose asset size is up to P3 million or 1 to 9 employees were not included in the sampling frame.

Size of Business was also used as banner for the presentation of all survey findings including the analysis of logistics cost and its components. The logistics cost and component cost by asset size would provide a statistical basis to determine which category contributes to a high logistics cost.

T4: Asset Size	Frequency	Percent
Base: Total respondents	300	100.0
Large	72	24.0
Medium	87	29.0
Small	141	47.0
Total Mention	300	100.0

Source: 2020 Logistics and Efficiency Indicator Survey, Philippines

2.5. By Gross Sales

Respondent-manufacturing firms are almost evenly distributed based on their 2020 gross sales. Respondents were given a choice among three sales intervals as shown in the table below. It was necessary to limit the choices to get positive responses.

Of the 300 respondent-manufacturing firms, 78 or 26.0% have gross sales in 2020 of more than P100 million. Close to two-fifths of these firms (109 or 36.3%) have gross sales of between P15 million to P100 million. A total of 113 firms or 37.7% have gross sales of less than P15 million. Gross sales for 2020 was also used as banner for the presentation of all survey findings including the analysis of logistics cost and its components. The logistics cost and component cost by gross sales would provide a statistical basis to determine which category contributes to a high logistics cost.

T5: Gross Sales	Frequency	Percent
Base: Total respondents	300	100.0
Less than P15 Million	113	37.7
P15 Million up to P100 Million	109	36.3
More than P100 Million	78	26.0

Source: 2020 Logistics and Efficiency Indicator Survey, Philippines

2.6. By Years in Operation

Of the 300 respondent-manufacturing firms, 121 or 40.4% have been in operation for 10 years or less while 114 respondent-manufacturing firms or 38.0% have been in operation for more than 20 years. Only 65 or 21.6% of these firms have been in operation for 11 to 20 years. Average number of years that these firms have been operating is 18.9 years. This indicates that respondent-manufacturing firms are familiar with their operations including opportunities and challenges related to logistics cost.

Years of operation as of April 2021 was also used as a banner for the presentation of all survey findings including the analysis of logistics cost and its components. The logistics cost and component cost by years of operation would provide a statistical basis to determine which category contributes to a high logistics cost.

T6: Number of Years in Operation	Frequency	Percent
Base: Total respondents	300	100.0
5 years and below	53	17.7
6 to 10 years	68	22.7
11 to 15 years	31	10.3
16 to 20 years	34	11.3
21 to 25 years	34	11.3
More than 25 years	80	26.7
Total Mention	300	100.0
Mean number of years in operation	18.9	

Source: 2020 Logistics and Efficiency Indicator Survey, Philippines

2.7. By PEZA/Non-PEZA

Of the 300 respondent-manufacturing firms, 169 or 56.3% declared that their plant is located in one of the country's export processing zones (PEZA) while 131 respondent-manufacturing firms or 43.7% declared that their plant is located outside of the Zone.

Location of the plant by PEZA or non-PEZA was also used as a banner for the presentation of all survey findings including the analysis of logistics cost and its components. The logistics cost and component cost by PEZA and Non-PEZA would provide another basis to determine which category contributes to a high logistics cost.

2.8. By Type of Business

Respondents were asked to cite if the type of business, as currently registered with appropriate government agencies, is a corporation, single proprietorship, partnership or a cooperative. Based on respondent-manufacturing firms declaration, nine out of 10 respondent-manufacturing firms (274 or 91.3%) say that the company is a corporation. The rest of the respondent-manufacturing firms (8.7%) say that the company was registered as Single Proprietorship (19 or 6.3%), Partnership (4 or 1.3%) and Cooperative (3 or 1.0%).

T7: Type of Business	Frequency	Percent
Base: Total respondents	300	100.0
Corporation	274	91.3
Single	19	6.3
Partnership	4	1.3
Cooperative	3	1.0
Total Mention	300	100.0

Source: 2020 Logistics and Efficiency Indicator Survey, Philippines

2.9. By Percentage of Foreign Equity

Respondent-manufacturing firms were asked if the company has foreign equity and the extent of foreign ownership to total equity. As presented by them, more than one-half of respondent-manufacturing firms (57.3%) say that the company does not have a foreign equity. About one-third of these firms (32.3%) have a foreign equity ratio of at least 50% of total. Only 31 respondent-manufacturing firms (10.3%) have a foreign equity ratio of less than 50%.

T8: Percentage of Foreign Equity	Frequency	Percent
Base: Total respondents	300	100.0
None	172	57.3
Less than 50%	31	10.3
50% and more	97	32.3
Total Mention	300	100.0

Source: 2020 Logistics and Efficiency Indicator Survey, Philippines

2.10. By Number of Full Time Employees

Only 47 of the 300 respondent-manufacturing firms (15.7%) have less than 20 employees. More than on-tenth of firms (34 or 11.3%) have a labor-intensive organization with 500 or more employees. The rest of these respondent-manufacturing firms (151 or 50.3%) have 50 to 499 employees: 20 to 49 employees (68 or 22.7%), 50 to 99 employees (58 or 19.3%), and 200 to 499 employees (40 or 13.3%). The average number of employees among all 300 respondent-manufacturing firms is 243.

T9: Number of Full Time Employees	Frequency	Percent
Base: Total respondents	300	100.0
Less than 20	47	15.7
20 - 49	68	22.7
50 - 99	58	19.3
100 - 199	53	17.7
200 - 499	40	13.3
500 or More	34	11.3
Total Mention	300	100.0

Source: 2020 Logistics and Efficiency Indicator Survey, Philippines

Part 3: Logistics Cost and its Components[3]

3.1. Summary

Based on 300 interviews with respondent-manufacturing firms using a sampling frame derived from the various databases and using the research approach as described in Part 1 of this report, the 2020 Logistics Efficiency Indicator (defined as a percentage of total logistics cost in 2020 to total sales in 2020) for respondent-manufacturing firms is **25.5%**.

The component with the highest contribution to cost is Transport and Cargo Handling Cost at **7.6%**. The component with the least contribution to total cost is Logistics Administration at **3.4%.** The contribution ratios for the rest of the components are: Inventory Carrying Costs (**6.7%**), Other Logistics Cost (**4.3%**), and Warehousing (**3.5%**). The other logistics cost mentioned in the interview are the following: Processing and documentation cost, Broker/customs charge, Clearance and permits, PEZA and BOC expenses, Demurrage fee/stevedoring, Trainings and seminars, Repair and maintenance, and Miscellaneous (communications, ballpen, unexpected expenses). In this report, Logistics Efficiency Indicator are sometimes referred to as LEI or Efficiency Ratios.

3.2. By Region

There were 10 Philippine regions that were included in the databases provided by DTI and in the sampling frame that was generated from these databases. The actual sample for this report was skewed in favor of three regions, these are Region IV-A, Region VII and the National Capital Region (NCR). The rest of the regions with limited representation was collapsed into one category 'Others'.

Logistics Efficiency Indicator in NCR practically replicates the overall average at **25.4%** in 2020. Region IV-A, where many of respondent-firms are in PEZA locations and are therefore mainly exporting, has the least Logistics Efficiency Indicator at **26.4%**[4]. Firms that export are expected to use more sophisticated resources and technology and follow stringent schedules. For example, in Transport and Cargo Handling Cost, the cost that accounts for the biggest portion of the Logistics Efficiency Indicator, Region IV-A reported a cost ratio of 7.9%. The average cost ratio for all respondent-manufacturing firms is 7.6%.

[3] Logistics Efficiency Indicator and Efficiency Ratio are used interchangeably
[4] The higher the Logistics Efficiency Indicator, the higher the cost.

Logistics Efficiency Indicators for the other regions are: Region VII at **22.1%**, which is the best ratio across comparable regions, and Others (7 other regions combined) at **24.0%**.

T10: Logistics Cost as % of Total Sales by Region	Total	NCR	Region 4A	Region 7	Others
Base: Total respondents	300	37	172	46	45
Transport and cargo handling cost	7.6	6.2	7.9	7.2	7.7
Warehousing	3.5	3.8	3.5	2.8	3.7
Inventory carrying cost	6.7	8.3	6.9	5.4	6.0
Logistics administration	3.4	3.3	3.3	4.1	2.8
Other logistics costs	4.3	3.8	4.8	2.5	3.8
Logistics Cost Over Annual Sales Total Percentage	25.5	25.4	26.4	22.1	24.0

Source: 2020 Logistics and Efficiency Indicator Survey, Philippines

3.3. By Industry Sector

There were eight industry sectors that were included in the databases provided by DTI and in the sampling frame that was generated from these databases. The sample is somewhat skewed in favor of electronics with 82 respondent-manufacturing firms. Respondent-manufacturing firms in the Construction Sector are the most efficient with a Logistics Cost to Total Sales Ratio (Logistics Efficiency Indicator) of only **22.7%,** 2.8 percentage points lower than the total Efficiency Ratio of **25.5%** and 9.8 percentage points lower than the LEI of the Furniture Sector which is least efficient with a Logistics Efficiency Indicator of **32.5%.** The rest have Efficiency Ratios from **23.7%** to **26.3%.**

T11: Logistics Cost as % of Total Sales by Industry Sector	Total	Agribusiness	Auto & Parts	Chemical	Construction Materials	Electronics	Furniture	Garments and Textile	Processed Food
Base: Total respondents	300	21	47	41	32	82	18	28	31
Transport and cargo handling cost	7.6	7.7	7.5	7.8	5.5	7.1	10.3	8.9	7.5
Warehousing	3.5	3.9	3.5	3.4	3.6	2.6	5.4	3.8	4.0
Inventory carrying cost	6.7	8.1	7.5	6.5	6.9	5.8	7.7	7.7	5.5
Logistics administration	3.4	3.5	3.5	2.9	3.3	3.0	6.1	3.6	3.1
Other logistics costs	4.3	0.5	4.2	4.4	3.4	6.2	3.0	2.0	4.0
Logistics Cost Over Annual Sales Total Percentage	25.5	23.7	26.3	25.0	22.7	24.8	32.5	26.0	24.1

Source: 2020 Logistics and Efficiency Indicator Survey, Philippines

3.4. By Main Market

There were three categories of main markets that were included in the questionnaire based on the assumption that these categories affect Logistics Efficiency.

The categories are respondent-manufacturing firms catering to the Domestic Market only (121), respondent-manufacturing firms that cater to the International Market only (79), and respondent-manufacturing firms that cater to both Domestic and International Markets (100). There are enough samples for each category for statistical analysis.

Respondent-manufacturing firms that cater to both Domestic and International markets have the best Efficiency Ratio at **24.5%** which is better than the efficiency ratio for manufacturing firms that cater only to the Domestic Market at **25.3%.**

The domestic market requires less sophistication in processes and equipment and demands less cost. The international market, by virtue of the distance, regulatory policies from various country-destinations, and customer requirements demands better and more expensive services.

T12: Logistics Cost as % of Total Sales by Main Market	Total	Domestic Only	International Only	Domestic + International
Base: Total respondents	300	121	79	100
Transport and cargo handling cost	7.6	7.8	7.4	7.3
Warehousing	3.5	3.4	3.3	3.7
Inventory carrying cost	6.7	6.9	6.8	6.3
Logistics administration	3.4	3.3	3.0	3.8
Other logistics costs	4.3	3.9	6.1	3.3
Logistics Cost Over Annual Sales Total Percentage	25.5	25.3	26.6	24.5

Source: 2020 Logistics and Efficiency Indicator Survey, Philippines

3.5. By Size of Business

There are three categories of business size that were included in the questionnaire based on the assumption that these categories affect Logistics Efficiency. Respondent-manufacturing firms were asked to self-classify. The categories are Large (72), Medium Size (87) and Small (141). There are enough samples for each category for statistical analysis.

Respondent-manufacturing firms that were classified as Medium and Large have the best Efficiency Ratio at **24.4%** as compared to the overall Efficiency Ratio of **25.5%.** Respondent-manufacturing firms that were classified as Small were the least efficient based on the 2020 data at **26.6%.** Notably, respondent-manufacturing firms classified as small reported a relatively high Transport and Cargo Handling Cost at 8.3% as compared to 6.1% for Large firms and 7.5% for Medium-Size firms.

T13: Logistics Cost as % of Total Sales by Business Size	Total	Large	Medium	Small
Base: Total respondents	300	72	87	141
Transport and cargo handling cost	7.6	6.1	7.5	8.3
Warehousing	3.5	2.8	3.0	4.1
Inventory carrying cost	6.7	8.7	6.3	6.0
Logistics administration	3.4	2.3	3.5	3.8
Other logistics costs	4.3	4.6	4.0	4.4
Logistics Cost Over Annual Sales Total Percentage	25.5	24.4	24.4	26.6

Source: 2020 Logistics and Efficiency Indicator Survey, Philippines

3.6. By Gross Sales in 2020

There were three categories of Gross Sales in 2020 that were included in the questionnaire based on the assumption that these categories affect Logistics Efficiency. Respondent-manufacturing firms were asked to self-classify.

The categories are respondent-manufacturing firms with more than P100M in annual sales (78 firms), respondent-manufacturing firms with annual sales of between P15 million to P100 million (109) and

respondent-manufacturing firms with annual sales of less than P15 million (113). There are enough samples for each category for statistical analysis.

Respondent-manufacturing firms that that have gross annual sales of more than P100 million have the best Efficiency Ratio at **22.7%** as compared to the overall Efficiency Ratio of **25.5%.** Respondent-manufacturing firms that have gross annual sales of less than P15 million are the least efficient at **28.4%.** Respondent-manufacturing firms with annual gross sales of P15 million to P100 million have an average Efficiency Ratio that of **24.4%.**

T14: Logistics Cost as % of Total Sales by Gross Sales in 2020	Total	More than P100 million	P15 Million up to P100 Million	Less than P15 Million
Base: Total respondents	300	78	109	113
Transport and cargo handling cost	7.6	5.1	7.7	9.1
Warehousing	3.5	2.8	3.1	4.3
Inventory carrying cost	6.7	8.4	6.1	6.2
Logistics administration	3.4	2.5	3.3	4.1
Other logistics costs	4.3	4.0	4.3	4.6
Logistics Cost Over Annual Sales Total Percentage	25.5	22.7	24.4	28.4

Source: 2020 Logistics and Efficiency Indicator Survey, Philippines

3.7. By Years in Operation

There are three categories on years of operation that were included in the questionnaire based on the assumption that these categories affect Logistics Efficiency. Respondent-manufacturing firms were asked to self-classify.

The categories are respondent-manufacturing firms which have been in operation for 10 years or below (121), respondent-manufacturing firms which have been operating between 11 to 20 years (65) and respondent-manufacturing firms which have been in operation for more than 20 years (114). There are enough samples for each category for statistical analysis.

Respondent-manufacturing firms that that have been in operation between 11 to 20 years have the best Efficiency Ratio at **23.0%** as compared to the overall Efficiency Ratio of **25.5%.** Such firms have gained enough experience and exposure associated with companies who have been operating for a long time and have manufacturing assets and technology that were acquired only in the last 20 years.

Respondent-manufacturing firms that have been in operation for 10 years and below are the least efficient at **27.9%.** These are the companies that have yet to develop better resources and supply chain management systems. Respondent-manufacturing firms who have been in operation for more than 20 years have an average Efficiency Ratio of **24.6%** which is about a point lower than the overall efficiency ratio.

T15: Logistics Cost as % of Total Sales by Years in Operation	Total	10 years and below	11 to 20 years	More than 20 years
Base: Total respondents	300	121	65	114
Transport and cargo handling cost	7.6	7.9	7.5	7.2
Warehousing	3.5	3.4	3.7	3.4
Inventory carrying cost	6.7	6.2	5.4	8.1
Logistics administration	3.4	3.4	3.5	3.3
Other logistics costs	4.3	6.9	3.0	2.6
Logistics Cost Over Annual Sales Total Percentage	25.5	27.9	23.0	24.6

Source: 2020 Logistics and Efficiency Indicator Survey, Philippines

Part 4: Practices and Performance

4.1. Scope

This part of the report focuses on respondent-manufacturing firms' practices and performances which may have relevance and influence in these firms' Logistics Efficiency ratio. These include the following 30 variables:

- Markets served by respondent-manufacturing firms operating in the domestic market.
- Markets served by respondent-manufacturing firms operating in the international market.
- Distribution channels that respondent-manufacturing firms are using.
- Main load type of respondent-manufacturing firms when serving the domestic market.
- Main load type respondent-manufacturing firms when serving the international market.
- Logistics operations/functions that respondent-manufacturing firms outsource.
- Outsourced operations/functions of respondent-manufacturing firms with service level agreements.
- Respondent-manufacturing firms' average lead time from the time when order is received to the time when order is ready for dispatch to customers (measured in number of days).
- Respondent-manufacturing firms' average lead time from the time when order is dispatched to the time when customers receive the goods (measured in number of days).
- Respondent-manufacturing firms' total volume of monthly land cargo (measured in cubic meters - CBM).
- Respondent-manufacturing firms' total volume of monthly sea shipment (measured in cubic meters - CBM).
- Respondent-manufacturing firms' total volume of monthly air cargo (measured in kilograms)
- Percentage of orders shipped complete by respondent-manufacturing firms to main customers per month.
- Percentage of orders shipped on time by respondent-manufacturing firms to main customers per month.
- Percentage of orders shipped that are damaged upon arrival to main customers per month.
- Respondent-manufacturing firms's average number of days sales outstanding.
- Percentage of clients' payments made within respondent-manufacturing firms's target credit terms.
- Respondent-manufacturing firms' average number of days of payables outstanding.

- Average number of days respondent-manufacturing firms hold their inventory.
- Percentage of respondent-manufacturing firms' customers with a complaint.
- Percentage accuracy of respondent-manufacturing firms' forecast for customers demand of main products.
- Respondent-manufacturing firms' percentage of returns for main products.
- Respondent-manufacturing firms' main reasons for not fulfilling orders.
- Proportion of respondent-manufacturing firms with documented logistics plan.
- Proportion of respondent-manufacturing firms with logistics plan linked to a corporate plan.
- Proportion of respondent-manufacturing firms that update logistics plan linked to a corporate plan.
- Activities in the development and deployment of the strategic logistics plan.
- Percentage of permanent staff to total employees in the company.
- Percentage of contractual staff to total employees in the Company.
- Firms' human resource policies related to logistics skills development.

Results of the above topics are summarized in the succeeding sections.

4.2. Domestic Markets Firms Currently Served

There are 221 respondent-manufacturing firms (out of 300) that serve mainly the domestic market. Less than two-thirds of these manufacturing firms (60.6%) say that they operate in Region IV-A (Calabarzon). Slightly more than one-third of these manufacturing firms (36.2%) say that they operate in the National Capital Region (NCR). Only 12.2% of these manufacturing firms say that they operate in all regions in the Philippines.

Other regions where 10.0% or more of respondent-manufacturing firms targeting mainly the domestic market operate in Region III (17.6%), Region VII (17.6%), Region XI (13.1%), and Region VI (10.0%). On the average, respondent-manufacturing firms targeting mainly the domestic market operate in at least two regions (2.2) in the Philippines. Regions that are least served by respondent-manufacturing firms operating mainly in the domestic market are Region XIII (Caraga region) at 2.7%, and Region II (Cagayan Valley) at 4.1%.

T16: Markets Served by Firms Operating Mainly in the Domestic Market	Frequency	Percent
Base: Firms' main market is domestic	221	100.0
Region IV-A (CALABARZON)	134	60.6
NCR	80	36.2
Region III (Central Luzon)	39	17.6
Region VII (Central Visayas)	39	17.6
Region XI (Davao Region)	29	13.1
Region VI (Western Visayas)	22	10.0
Region V (Bicol Region)	16	7.2
Region X (Northern Mindanao)	16	7.2
Region 8 (Eastern Visayas)	14	6.3
Region 12 (SOCCKSARGEN)	12	5.4
Region I (Ilocos Region)	11	5.0
Region IX (Zamboanga Peninsula)	11	5.0
CAR	11	5.0
Region IV-B (MIMAROPA)	10	4.5
Region II (Cagayan Valley)	9	4.1
Region XIII (CARAGA Region)	6	2.7
Entire Philippines	27	12.2
Total Mention	486	219.9

Source: 2020 Logistics and Efficiency Indicator Survey, Philippines

4.3. International Markets Firms Currently Served

There are 179 respondent-manufacturing firms (out of 300) that serve mainly the international market. About four-fifths of these manufacturing firms (80.4%) say that they operate mainly in Asia. Only 4.5% of firms targeting mainly the international market say that they operate in all the international regions.

Other regions where 10.0% or more of respondent-manufacturing firms targeting mainly the international market operate in North America (34.1%), Europe including Russia (26.3%), Australia/Oceania (10.6%), and South America (10.6%). On the average, respondent-manufacturing firms targeting mainly the

international market operate in two international regions (1.8). The region that is least served by respondent-manufacturing firms operating mainly in the international market is Africa (only 1 out 179 firms or 0.6%).

T17: Markets served by Firms Operating Mainly in the International Market	Frequency	Percent
Base: Firms' main markets is international	179	100.0
Asia	144	80.4
North America	61	34.1
Europe (including Russia)	47	26.3
Australia/Oceania	19	10.6
South America	19	10.6
Middle East	14	7.8
Africa	1	0.6
All regions	8	4.5
Total Mention	314	175.4

Source: 2020 Logistics and Efficiency Indicator Survey, Philippines

4.4. Distribution Channels Respondent-Manufacturing Firms Use

More than two-fifths of the 300 respondent-manufacturing firms (179 or 42.5%) use exporters or export distribution channels to market their products. About one-fifth of respondent-manufacturing firms sell distribute Direct to Customer Sites (21.4%) or to Industrial Customers (19.7%) as shown below.

T18: Distribution Channels	Frequency	Average % Share
Base: Total respondents	300	100.0
Exporters	179	42.5
Direct to customer site	121	21.4
Industrial customers	105	19.7
Direct to wholesalers' distribution center	60	8.9
Direct to stores or retailers	55	7.2
Walk-in customers	4	0.3
Company owned stores/branches	2	0.2

Source: 2020 Logistics and Efficiency Indicator Survey, Philippines

4.5. Main Load Type When Delivering to Domestic Clients

Main load type describes the types of loads a carrier (or service agency) transports on behalf of the shipper (seller). There were nine load types presented to 221 respondent-manufacturing firms serving mainly the domestic markets. They were asked to cite which of these nine load types would apply to them. Firms use mainly six load types, these are Full Truck Load (38.5%), Unitised cargo (containers, trailers), Less than Container Load (LCL) and/or Less than Truck Load (LTL) (33.0%), Smaller Land-Based Transportation (26.2%), Unitised cargo (containers, trailers), Full Container Load (FCL) (19.0%), Express Freight (13.6%), and Break Bulk (11.3%). Respondent-manufacturing firms use and average of 1.5 load types per firm.

T19: Main Load Type When Delivering to Domestic Clients	Frequency	Percent
Base: Firms' main market is domestic	221	100.0
Full Truck Load (FTL)	85	38.5
Unitised cargo (containers, trailers), Less than Container Load (LCL) and/or Less than Truck Load (LTL)	73	33.0
Smaller land-based transportation	58	26.2
Unitised cargo (containers, trailers), Full Container Load (FCL)	42	19.0
Express freight (e.g., LBC, Air21, Fedex, Grab Express, Lalamove, etc)	30	13.6
Break Bulk (pallets, roller cages, packages, etc.)	25	11.3
Air freight	8	3.6
Liquid Bulk	2	0.9
Dry bulk	1	0.5
Others	2	0.9
Total Mention	326	147.5

Source: 2020 Logistics and Efficiency Indicator Survey, Philippines

4.6. Main Load Type When Delivering to International Clients

Nine load types were also presented to 179 respondent-manufacturing firms serving mainly the international market. They were asked to cite which of these nine load types would apply to them. Firms use mainly five load types, these are Unitised cargo (containers, trailers), Full Container Load (FCL) (55.9%), Air Freight (43.0%), Unitised cargo (containers, trailers), Less than Container Load (LCL) and/or Less than Truck Load (LTL) (34.6%), Express Freight (15.6%), and Break Bulk (13.4%). Respondent-manufacturing firms use 1.7 load types per firm.

T20: Main Load Type When Delivering to International Clients	Frequency	Percent
Base: Firms' main market is international	179	100.0
Unitised cargo (containers, trailers), Full Container Load (FCL)	100	55.9
Air freight	77	43.0
Unitised cargo (containers, trailers), Less than Container Load (LCL) and/or Less than Truck Load (LTL)	62	34.6
Express freight (e.g., LBC, Air21, Fedex, Grab Express, Lalamove, etc)	28	15.6
Break Bulk (pallets, roller cages, packages, etc.)	24	13.4
Full Truck Load (FTL)	13	7.3
Dry bulk	1	0.6
Mail shipping (PHLPost)	1	0.6
Smaller land-based transportation	1	0.6
Others	2	1.1
Total Mention	312	174.3

Source: 2020 Logistics and Efficiency Indicator Survey, Philippines

4.7. Logistics Operations Respondent-Manufacturing Firms Outsource

Outsourcing or the contracting out of a non-core business function to a third party is a common business practice. Businesses choose to outsource their supply chains to leverage the resources and expertise that a third party can provide and to free up time to focus on core business objectives.[5]

All respondent-manufacturing firms were asked to cite which of seven logistics operations or functions presented to them they currently outsource. Firms cited more than one function that they outsource. There are four operations or functions that many of these respondent-manufacturing firms outsource, these are: Customs Brokerage (49.7%), International Transportation (45.7%), Domestic Freight Forwarding (36.0%), and Domestic Transportation (34.7%), as shown in the table below.

Respondent-manufacturing firms outsource an average of two operations or functions per firm. About one-fifth of respondent-manufacturing firms (20.3%) say that that they do not outsource any of the logistics operations or functions presented to them.

T21: Logistics Operations Manufacturing Firms Outsource	Frequency	Percent
Base: Total respondents	300	100.0
Customs brokerage	149	49.7
International transportation (including international freight forwarding)	137	45.7
Domestic freight forwarding	108	36.0
Domestic transportation	104	34.7
Value added services (i.e., product finishing and customization)	25	8.3
Logistics IT systems (WMS, TMS)	18	6.0
Warehouse and inventory management	15	5.0
None	61	20.3
Total Mention	617	205.7

Source: 2020 Logistics and Efficiency Indicator Survey, Philippines

[5] https://www.staffmanagement.com/resourcecenter/blog/insourced-vs-outsourced-supply-chain-management

4.8. Logistics Operations Outsourced with Service Level Agreements (SLA)

A service level agreement (SLA) is a documented agreement between a service provider and a customer that identifies both the services required and the expected level of service. The agreement varies between vendors, services, and industries.[6]

Respondent-manufacturing firms were asked to cite if logistics operations or functions that they outsourced to third-party suppliers have a service level agreement. Of the 239 respondent-manufacturing firms that say they outsource their logistic operations or functions, more than one-half (53.1%) of respondent-firms claim that they have a service level agreement with third-party suppliers. About two-thirds say that the outsourced functions have no service level agreements.

T22: Logistics Operations Manufacturing Firms Outsource	# of Firms Outsourcing = 100%	Percent with SLAs	Percent without SLAs
Total Outsourcing	239	53.1[7]	46.9[8]
Customs brokerage	149	48.3	51.7
International transportation (including international freight forwarding)	137	49.6	50.4
Domestic freight forwarding	108	39.8	60.2
Domestic transportation	104	40.4	59.6
Value added services (i.e., product finishing and customization)	25	28.0	72.0
Logistics IT systems (WMS, TMS)	18	27.8	72.2
Warehouse and inventory management	15	46.7	53.3

Source: 2020 Logistics and Efficiency Indicator Survey, Philippines
Note: Horizontal Reading of Percentages.

[6] https://www.bmc.com/blogs/sla-template-examples/
[7] Sum of all percentages in this column divided 7.
[8] Sum of all percentages in this column divided 7.

4.9. Average Lead Time from Order to Completion of Order Prior to Dispatch

Lead time is the amount of time it takes from the moment a customer places an order to the moment the product is out for a delivery.[9] In this study, lead time is defined as the number of days a firm needs from the moment when the firm receives an order from its customer to the time when the firm completes the production of this order prior to the actual delivery of the order to the customer.

The average lead time as cited by the 300 respondent-manufacturing firms is 23 days. The actual lead time varies across the 300 respondent-manufacturing firms. About one-fifth of respondent-manufacturing firms (19.7%) need more than 30 days of lead time. Close to one-third of respondent-manufacturing firms (34.3%) need between 15 to 30 days of lead time. The rest (46.0%) of the firms need only up to 14 days of lead time as shown in the table below.

T23: Firms' Average Lead Time from Receipt of Order to Dispatch Prior to Actual Delivery (in # of Days)	Frequency	Percent
Base: Total respondents	300	100.0
3 days or less	48	16.0
4 - 7 days	52	17.3
8 - 14 days	38	12.7
15 - 30 days	103	34.3
More than 30 days	59	19.7
Total Mention	300	100.0
Average No. of Days	23 days	

Source: 2020 Logistics and Efficiency Indicator Survey, Philippines

4.10. Average Lead Time to Deliver to Main Customer

Average lead time to deliver to main customer refers to the number of days that manufacturing firms take to deliver an order by the main customer from the firms' warehouse to the main customer's site. On average, the number of days it takes respondent-manufacturing firms to deliver the order of a main customer from the firms' warehouse to the main customer's site is **11** days. More than one-third of respondent manufacturing firms say that it takes them one day or less to deliver to the main customer

[9] https://www.creativesafetysupply.com/glossary/lead-time/

while 18.3% of them say that it takes them more than 20 days to deliver the main customer. The rest of the respondent-manufacturing firms (46.3%) say that it takes them between two days to 20 days.

T24: Average Lead Time to Deliver to Main Customers (in number of days)	Frequency	Percent
Base: Total respondents	300	100.0
1 day or less	106	35.3
2 days	16	5.3
3 - 7 days	68	22.7
8 - 20 days	55	18.3
More than 20 days	55	18.3
Total Mention	300	100.0
Average No. of Days	11 days	

Source: 2020 Logistics and Efficiency Indicator Survey, Philippines

4.11. Volume of Shipment per Month

Respondent-manufacturing firms were asked about their volume of shipment per month for land cargo (in cubic meters), sea cargo (in cubic meters), and air cargo (in kilograms). The average volume of shipment for land cargo, as mentioned by 128 respondent-manufacturing firms, is 1,935 cubic meters per month. The average volume of shipment for sea cargo, as mentioned by 129 respondent-manufacturing firms, is 2,260 cubic meters. The average volume of shipment for air cargo, as mentioned by 85 respondent-manufacturing firms, is 29,735 kilograms. There were respondents who did not respond.

T25: Types of Shipments Respondent-Firms are Using	Frequency	Percent
Base: Total respondents	300	100.0
Land Cargo	191	63.7
Sea Shipment	145	48.3
Air Cargo	95	31.7
Total Mention	431	143.7

Source: 2020 Logistics and Efficiency Indicator Survey, Philippines

T26: Volume of Land Cargo Shipment Per Month to Main Customer (in CBM)	Frequency	Percent
Base: Those who delivers their products using land cargo	191	100.0
0.01 - 0.35 CBM	33	17.3
0.36 - 42.48 CBM	48	25.1
More than 42.48 CBM	47	24.6
Don't know volume	63	33.0
Total Mention	191	100.0
Average Volume	1,935.4 CBM	

Source: 2020 Logistics and Efficiency Indicator Survey, Philippines

T27: Volume of Sea Cargo Shipment Per Month to Main Customer (in CBM)	Frequency	Percent
Base: Those who delivers their products using sea shipment	145	100.0
0.01 - 2.00 CBM	33	22.8
2.01 - 100.00 CBM	41	28.3
More than 100.00 CBM	55	37.9
Don't know volume	16	11.0
Total Mention	145	100.0
Average Volume	2,260.1 CBM	

Source: 2020 Logistics and Efficiency Indicator Survey, Philippines

T28: Volume of Air Cargo Shipment Per Month to Main Customer (in Kg)	Frequency	Percent
Base: Those who delivers their products using air cargo	95	100.0
0.01 - 100.00 kg	27	28.4
100.01 - 1,000.00 kg	28	29.5
More than 1,000.00 kg	30	31.6
Don't know volume	10	10.5
Total Mention	95	100.0
Average Volume	29,734.8 Kg	

Source: 2020 Logistics and Efficiency Indicator Survey, Philippines

4.12. Percentage of Orders Shipped Complete to Main Customers Each Month

Respondent-manufacturing firms were asked to estimate the percentage of orders that they were able to ship complete to their main customers in a month. More than seven out of ten firms (71.3%) claim that they have been able to ship their customers' orders complete each month. This is an important metric that defines manufacturing firms' logistics efficiency.

T29: Percentage of Orders Shipped Complete to Main Customer Per Month	Frequency	Percent
Base: Total respondents	300	100.0
70% and below	20	6.7
71% - 89%	25	8.3
90% - 94%	17	5.7
95% - 99%	24	8.0
100% shipped complete	214	71.3
Total Mention	300	100.0
Average Percent	95.1%	

Source: 2020 Logistics and Efficiency Indicator Survey, Philippines

4.13 Percentage of Orders Shipped on Time Each Month

Another important metric that defines respondent-manufacturing firms' efficiency is their ability to ship customers' orders on time. They were asked to estimate the percentage of orders that they were able to ship on time to their main customers in a month. More than five out of ten manufacturing firms (51.0%) claim that they have been able to ship their customers' orders on time each month.

T30: Percent of Products Shipped on Time to Main Customer Per Month	Frequency	Percent
Base: Total respondents	300	100.0
70% and below	23	7.7
71% - 89%	47	15.7
90% - 94%	25	8.3
95% - 99%	52	17.3
100% shipped on time	153	51.0
Total Mention	300	100.0
Average Percent	91.8%	

Source: 2020 Logistics and Efficiency Indicator Survey, Philippines

4.14 Percentage of Orders Damaged Upon Arrival at Customers Site

Another important metric that defines respondent-manufacturing firms' efficiency is their ability to ship customers' orders without any damage. They were asked to estimate the percentage of orders that were damaged in transit to the main customers each month. The percentage of orders damaged in transit is tolerable at 2.2% with 63.0% of respondent-manufacturing firms claiming that shipment each month to the customers had zero damage. Less than one-third of respondent-manufacturing firms (28.7%) claim that up to 5% of shipments were damaged in transit to their customers' site. Only 8.3% of these firms say that more than 5.0% of shipments were damaged in transit to customers' site.

T31: Percent of Damaged Products Upon Arrival to the Main Customers Per Month	Frequency	Percent
Base: Total respondents	300	100.0
None	189	63.0
Up to 2.00%	56	18.7
2.01% - 5.00%	30	10.0
More than 5.00%	25	8.3
Total Mention	300	100.0
Average Percent	2.2%	

Source: 2020 Logistics and Efficiency Indicator Survey, Philippines

4.15 Average Number of Days Sales Outstanding

Days sales outstanding (DSO) is a measure of the average number of days that it takes a company to collect payment for a sale. DSO is often determined on a monthly, quarterly, or annual basis. Days sales outstanding is an element of the cash conversion cycle and may also be referred to as days receivables or average collection period.[10]

The average number of days sales outstanding, as cited by respondent-manufacturing firms, is 37 days. Significantly, 21 or 7 percent of manufacturing firms say that they are paid in cash. Only 9.3% say that their average number of days outstanding is more than 60 days. The majority of respondent-manufacturing firms (83.7%) say that their average number of days sales outstanding is from 1 to 60 days.

[10] https://www.investopedia.com/terms/d/dso.asp

T32: Firm's Average Number of Days Sales Outstanding	Frequency	Percent
Base: Total respondents	300	100.0
Paid in Cash	21	7.0
Up to 15 days	37	12.3
16 - 30 days	143	47.7
31 - 60 days	71	23.7
More than 60 days	28	9.3
Total Mention	300	100.0
Average No. of Days	37 days	

Source: 2020 Logistics and Efficiency Indicator Survey, Philippines

4.16 Percentage of Collections Paid Within the Agreed Credit Terms

In this section of the report, credit terms indicate when a payment is due for respondent-firms' sales invoice (which the customer will refer to accounts payable). Credit terms also indicate whether a discount can be taken if the invoice is paid in a shorter period of time (the discount period).[11]

Respondent-manufacturing firms were asked to cite the percentage of collectibles that these firms received within the agreed credit terms specified by them to the customers. This metric indicates how respondent firms manage its relationship with customers and its financial obligations.

More than 5 out of 10 respondent-manufacturing firms (54.3%) say that they received payments from customers within the credit terms specified by them. Of 300 respondent-firms, 135 or 45% say that, occasionally, customers were not able to comply with the terms. Only two respondent-firms (0.7%) say that none of their customers complied at all with the credit terms agreed with these customers. The average collection rate is 88.4%.

[11] Partly based on https://www.accountingcoach.com/blog/what-are-credit-terms

T33: Percentage of Payments Made by Clients within the Firm's Credit Terms	Frequency	Percent
Base: Total respondents	300	100.0
None	2	0.7
Up to 60%	31	10.3
61% - 80%	53	17.7
81% - 99%	51	17.0
100% paid	163	54.3
Total Mention	300	100.0
Average Percent	88.4%	

Source: 2020 Logistics and Efficiency Indicator Survey, Philippines

4.17 Average Number of Days Payables Outstanding

Days payable outstanding (DPO) is a financial ratio that indicates the average time (in days) that a company takes to pay its bills and invoices to its trade creditors, which may include suppliers, vendors, or financiers. The ratio is typically calculated on a quarterly or annual basis and indicates how well the company's cash outflows are being managed.[12] The usual practice is for firms to replicate its payment ratio with its collection ratio. This metric indicates how respondent firms manage its financial obligations and its relationship with suppliers.

Respondent-manufacturing firms were asked to state the average number of days payables outstanding (average number of days between supplier order receipt to order payment).

The average number of days payables outstanding across all 300 respondent-manufacturing firms is 38 days. Notably, 15 of 300 respondent-firms (5.0%) claim that they pay in cash while 21 of 300 respondent-firms (7.0%) say that the average number of days payables outstanding is more than 60 days. The rest of respondent-firms operate within 15 to 60 days payables outstanding: Up to 15 Days (10.3%), 16 to 30 days (53.7%), and 31 to 60 days (24.0%).

[12] https://www.investopedia.com/terms/d/dpo.asp

T34: Firms' Average Number of Days Payables Outstanding	Frequency	Percent
Base: Total respondents	300	100.0
Paid in Cash	15	5.0
Up to 15 days	31	10.3
16 - 30 days	161	53.7
31 - 60 days	72	24.0
More than 60 days	21	7.0
Total Mention	300	100.0
Average No. of Days	38 days	

Source: 2020 Logistics and Efficiency Indicator Survey, Philippines

4.18 Average Number of Days Respondent-Firms Hold Inventory of Finished Products

The average age of inventory is the average number of days it takes for a firm to sell off inventory. It is a metric that analysts use to determine the efficiency of sales. The average age of inventory is also referred to as days' sales in inventory (DSI).[13] This metric indicates how respondent firms manage its resources, costs and relationship with customers.

Respondent-manufacturing firms were asked to cite the average number of days that they hold its inventory of finished products until they are delivered to customers. The average number of days respondent-firms hold its inventory of finished products is 26 days.

There are 26 respondent firms that say zero inventory which is impressive. Fifty respondent-firms (16.7%) say that their average number of days they hold its inventory of finished products is more than 30 days. About three-fourths of respondent-firms (74.6%) mention between one to 30 days: 1 to days (11.0%), 3 to 7 days (22.3%), and 8 to 30 days (41.3%).

[13] https://www.investopedia.com/terms/a/average-age-of-inventory.asp

T35: Average Number of Days Firms Hold Their Inventory	Frequency	Percent
Base: Total respondents	300	100.0
None	26	8.7
1 - 2 days	33	11.0
3 - 7 days	67	22.3
8 - 30 days	124	41.3
More than 30 days	50	16.7
Total Mention	300	100.0
Average No. of Days	26 days	

Source: 2020 Logistics and Efficiency Indicator Survey, Philippines

4.19 Customer Complaint Rate

Customer Complaint Report Rate (CCRR) is a measure of customers' dissatisfaction of the service or product as reported by the customer. CCRR is the ratio of number of complaints over the customer base for the service.[14] This metric indicates how respondent-firms manage its relationship with customers and how they translate customers' feedback to improve products or services.

T36: Percentage of Customer Complaint	Frequency	Percent
Base: Total respondents	300	100.0
None	162	54.0
Up to 1%	72	24.0
2% - 5%	43	14.3
More than 10%	23	7.7
Total Mention	300	100.0
Average Percent	4.2%	

Source: 2020 Logistics and Efficiency Indicator Survey, Philippines

[14] https://tl9000.org/handbooks/documents/meas-ex-9-2.pdf

Respondent-manufacturing firms were asked to recall or estimate the percentage of customers that filed a complaint about respondent-firms' quality of products, deliveries or sales services. Significantly, more than one-half of respondent-firms (54.0%) say that they have not encountered any complaints from customers. Only 23 respondent-firms (7.7%) say that customer complaint rate is more than 10% of total customers. The rest of respondent-firms (38.3%) say that customer complaint rate is between 1% to 5% of total customers.

4.20 Accuracy of Forecast for Customer Demand

Sales forecasting accuracy is essentially how close you come to actually hitting your forecast. The better your sales forecasting accuracy, the more likely a business is able to operate smoothly and be agile in reacting to the changing dynamics of the market.[15]

In this this report, accuracy of forecast refers to how respondent-firms are able to anticipate and serve customers' demand for their products. Accuracy covers many activities in the value chain including ability to anticipate exactly the volume and type of products that customers will require, translate customers' needs to production and inventory management, and establish the services needed to deliver these products to the customers as required.

Respondent-manufacturing firms were asked to estimate the accuracy of their forecasts made regarding customers demand for these customers' main products. The average accuracy rate, as stated by 300 respondent-manufacturing firms, is 77.5%.

A report published by Upland Software covering 200 companies established that sales people spend about 2.5 hours each week on sales forecasting, and for most companies, the forecasts are less than 75% accurate.[16] For this report, the average accuracy rate of respondent-firms is slightly higher than standard. However, 47 respondent-firm say that they have not been accurate at all.

[15] https://www.clari.com/blog/sales-forecasting-accuracy/
[16] https://uplandsoftware.com/altify/resources/blog/sales-forecast-accuracy-the-results-are-in-and-its-not-pretty

T37: Accuracy of Forecast for Customer Demand on Main Product	Frequency	Percent
Base: Total respondents	300	100.0
None	47	15.7
Up to 50%	94	31.3
51% - 80%	81	27.0
More than 90%	78	26.0
Total Mention	300	100.0
Average Percent	77.5%	

Source: 2020 Logistics and Efficiency Indicator Survey, Philippines

4.21 Ratio of Returns for Main Products

Ratio of returns for respondent-manufacturing firms main product refers to the percentage of volume of products returned by customers to total volume of products delivered. It is a metric that measures the quality of product manufactured by respondent-firms according to customers specifications and the quality of service used to deliver these products.

In a prior section, respondent-firms were asked to estimate the percentage of orders that were damaged in transit to the main customers each month. The percentage of orders damaged in transit is tolerable at 2.2% with 63.0% of respondent-manufacturing firms claiming that shipment each month to the customers had zero damage.

Respondent-manufacturing firms were asked to recall or estimate the ratio of returns for main products delivered to customers. The average rate of return for all 300 respondent-firms is 3.1%. Assuming that 2.2% of products delivered were damaged in transit, less than one percent (0.9%) would be due to factors other than damages incurred in transit. Slightly more than two-thirds of respondent-firms (68.3%) claim that they experience zero returns which is a good indication.

T38: Ratio of Returns for Main Product	Frequency	Percent
Base: Total respondents	300	100.0
None	205	68.3
1.01% - 5.00%	54	18.0
More than 5.00%	41	13.7
Total Mention	300	100.0
Average Percent	3.1%	

Source: 2020 Logistics and Efficiency Indicator Survey, Philippines

According to an e-commerce report, "at least 30% of all products ordered online are returned as compared to 8.89% in brick-and-mortar stores. 92% of consumers surveyed said that they will buy again if product return process is easy whereas 79% of consumers want free return shipping.[17]

From this same report, reasons for returns were -- received damage product (20%), product received looks different (22%), received wrong item (23%), and other reasons (35%).

4.22 Reasons Respondent-Firms are not Able to Fulfill Orders (Order Fill Rate)

Fill rate is the percentage of customer orders that a company can ship immediately from the stock without placing backorders or missing a sale. In supply chain management, demand satisfaction rate comes as one of the most essential metrics to follow. It points out how effectively you meet the consumer demand.[18]

Respondent-manufacturing firms were asked to cite reasons for the occasions when they are not able to fulfill orders by main customers and which led to lower order fill rate. There was a host of reasons mentioned by respondent firms foremost of which is the "Delays in Customs Process (35.4%) and Port Congestion (35.4%). Respondent-firms mention an average of close to two reasons for not being able to fulfil orders.

[17] https://www.invespcro.com/blog/ecommerce-product-return-rate-statistics/
[18] https://intuendi.com/blog/what-is-fill-rate/

T39: Main Reasons for Not Fulfilling Orders	Frequency	Percent
Base: Those who did not fulfill the orders of their clients	212	100.0
Delays in Customs process	75	35.4
Congestion	75	35.4
Delays in receiving cargo	68	32.1
Weather	44	20.8
Availability of logistics services/problems coordinating transport	38	17.9
Lack / delay delivery of raw materials	32	15.1
Inspection delays (other than customs-related)	25	11.8
Additional costs	23	10.8
Lack of manpower	17	8.0
Checkpoints	14	6.6
Delay / can't ship to customers (e.g., suspended, no schedule, lack of container, congested port)	10	4.7
Covid 19 pandemic related issues (e.g., lockdowns, no operation, new normal process)	9	4.2
Quality control issue of produced products	8	3.8
Accidents	7	3.3
Damage of cargo	6	2.8
Others	15	7.1
Total Mention	466	219.8

Source: 2020 Logistics and Efficiency Indicator Survey, Philippines

4.23 Documented Logistics Plan

This part of the report tries to profile respondent-manufacturing firms based on presence or absence of a documented logistics plan. This profile presents the importance of a documented logistics plan with detailed objectives and performance targets including metrics discussed in prior sections of this report. Presence of a logistics plan suggest that the manufacturing firm is better able to manage all resources to satisfy customers.

Respondent-manufacturing firms were asked to state if their company has a documented logistics plan that is a subset of a corporate plan and has detailed objectives and performance targets. The majority of respondent-firms (69.7%) say that they do not have a logistics plan that is a subset of a corporate plan

and has detailed objectives and targets. Only 30% of these firms say that they have a logistics plan, as shown in the table below.

The 91 respondent-firms who say that have a logistics plan were asked follow-up questions: Is it linked to a corporate plan? How often do you update this plan? And what activities are part of the development and deployment of this plan? Responses are shown in Tables 40 to 43.

T40: Proportion of Firms with Documented Logistics Plan	Frequency	Percent
Base: Total respondents	300	100.0
Yes	91	30.3
No	209	69.7
Total Mention	300	100.0

Source: 2020 Logistics and Efficiency Indicator Survey, Philippines

T41: Proportion of Firms with Logistics Plan Linked to Corporate Plan	Frequency	Percent
Base: Those who have documented logistics plan that is a subset of the corporate plan	91	100.0
Yes	83	91.2
No	8	8.8
Total Mention	91	100.0

Source: 2020 Logistics and Efficiency Indicator Survey, Philippines

T42: Frequency of Updating the Logistics Plan	Frequency	Percent
Base: Those who have documented logistics plan that is a subset of the corporate plan	91	100.0
Monthly	28	30.8
Every 12 months	26	28.6
Quarterly	7	7.7
Every 2-3 years	2	2.2
As needed	23	25.3
Not at all	1	1.1
Others	4	4.4
Total Mention	91	100.0

Source: 2020 Logistics and Efficiency Indicator Survey, Philippines

T43: Activities that Occurred in the Development and Deployment of the Strategic Logistics Plan	Frequency	Percent
Base: Those who have documented logistics plan that is a subset of the corporate plan	91	100.0
Operational Key Performance Indicators (KPIs) aligned with individual's objectives	63	69.2
Performance Appraisal	49	53.8
People set targets as part of planning process	32	35.2
Operational workshops involving workforce	25	27.5
Others	1	1.1
Total Mention	170	186.8

Source: 2020 Logistics and Efficiency Indicator Survey, Philippines

4.24 Tenure of Employees

Respondent-manufacturing firms were asked the number of years that operational level staff and management level staff stay in the company.

On average how long does operational level staff stay in your firm?
On average how long does management level staff stay in your firm?

Survey results show that on the average, employees have stayed considerably long with the firms, 9.7 years for operational level staff and 11.1 years for management level staff suggesting excellent human resource management policies.

T44: Average Length of Stay of the Operational Level Staff in the Firm	Frequency	Percent
Base: Total respondents	300	100.0
Less than 1 year	1	0.3
1 - 3 years	65	21.7
4 - 5 years	61	20.3
6 - 10 years	81	27.0
11 - 15 years	32	10.7
More than 15 years	60	20.0
Total Mention	300	100.0
Average Percent	9.7 years	

Source: 2020 Logistics and Efficiency Indicator Survey, Philippines

T45: Average Length of Stay of the Management Level Staff in the Firm	Frequency	Percent
Base: Total respondents	300	100.0
Less than 1 year	1	0.3
1 - 3 years	50	16.7
4 - 5 years	48	16.0
6 - 10 years	84	28.0
11 - 15 years	38	12.7
More than 15 years	79	26.3
Total Mention	300	100.0
Average Percent	11.1 years	

Source: 2020 Logistics and Efficiency Indicator Survey, Philippines

4.25 Percentage of Permanent/Contractual Staff in the Company

Respondent-manufacturing firms were asked to mention the proportion of employees that are employed by them on a regular basis and employed by them as contractuals. Regular employees are those hired by these firms and regularized as permanent or regular employees. Contractual employees are those hired by them for a specified period of time, usually less than six months. On the average, more than three-fourths of respondent-firms employees are regular (76.1%) while 23.9% of these firms' employees work as contractuals, as shown in the tables below:

T46: Proportion of Permanent Staff in the Company	Frequency	Percent
Base: Total respondents	300	100.0
1% - 50% regular employees	65	21.7
51% - 80% regular employees	76	25.3
81% - 95% regular employees	41	13.7
96% - 100% regular employees	117	39.0
Refused	1	0.3
Total Mention	300	100.0
Average Percent	76.1%	

Source: 2020 Logistics and Efficiency Indicator Survey, Philippines

T47: Proportion of Contractual Staff in the Company	Frequency	Percent
Base: Total respondents	300	100.0
None	98	32.7
1% - 5% contractual employees	31	10.3
6% - 20% contractual employees	52	17.3
21% - 50% contractual employees	67	22.3
More than 50% contractual employees	52	17.3
Total Mention	300	100.0
Average Percent	23.9%	

Source: 2020 Logistics and Efficiency Indicator Survey, Philippines

4.26 Human Resource Policies Related to Logistics Skills Development

An important human resource program implemented by respondent-manufacturing firms to improve productivity in logistics management is to offer them training in various forms. They were asked to select from among a list of programs those activities that they implement to train their people involved in logistics management. At the top of the list are Internal Development Program with Internal Trainers (38.3%), External Development Program (38.0%) and On-the-Job Training (28.0%). On average, respondent-firms implement two programs.

T48: Firms' Human Resource Policies Related to Logistics Skills Development	Frequency	Percent
Base: Total respondents	300	100.0
Internal development programme with internal trainers	115	38.3
External development programme (i.e., outside seminars or workshops)	114	38.0
On the job training	84	28.0
Internal development programme with external trainers	69	23.0
Continuing professional development (i.e., external certificate or diploma courses)	69	23.0
None, or not relevant	89	29.7
Others	4	1.3
Total Mention	544	181.3

Source: 2020 Logistics and Efficiency Indicator Survey, Philippines

Part 5: Perceptions and Evaluations

5.1 Relative Importance of Time, Cost and Reliability

Respondent-manufacturing firms were asked to indicate the relative importance of time, cost, and reliability. Reliability is defined as consistency in performance both in the delivery of products and safe delivery of products. They were asked to nominate which is more important between cost and time on a scale and the degree of importance of the nominated factor if reliability is not an issue. They were also asked to nominate which is more important between reliability and time on a scale and the degree of importance of the nominated factor if cost is not an issue. Finally, they were asked to nominate which is more important between reliability and cost on scale and the degree of importance if time is not an issue.

A scoring formula was provided by World Bank to compute the importance of Cost, Time, and Reliability. The results are shown in the table below. Reliability has the highest importance index at 35.8 followed by cost at 33.4. Time has an importance index of 30.8.

T49: Perception on the Relative Importance of Time, Cost and Reliability	Importance Index
Base: Total respondents (300)	
Cost	33.4
Time	30.8
Reliability	35.8

Source: 2020 Logistics and Efficiency Indicator Survey, Philippines

5.2 Availability and Importance of Skilled Logistics-Related Staff in the Philippines – Staff Level

Respondent-manufacturing firms were also asked to choose which skills in the field of logistics are available in the Philippines and the degree of importance of these skills. This question aims to establish which skills in the field of logistics are sufficiently available in the Philippines and the degree of importance of these skills as evaluated by respondent-firms. The top three skills considered to be most available in the Philippines are Customs Brokerage (91.3%), Warehouse Operatives (89.7%), and Truck Drivers (87.7%). The top three skills which respondent-firms consider as important are Truck Drivers (4.5 on a 5-point scale), Customs Brokerage (4.4 on the scale) and Warehouse Operatives and Inventory Planner (both at 4.3 on the scale) as shown in the table below:

T50: Availability and Degree of Importance of Skilled Logistics-Related Staff in the Philippines	Percent Available	Mean of Importance (5-highest)
Base: Total respondents (300)		
Customs Brokerage	91.3	4.4
Warehouse Operatives	89.7	4.3
Truck Drivers	87.7	4.5
Packing/Packaging Operatives	85.3	4.1
Inventory Planner	81.7	4.3
Forklift Operators	78.0	4.2
Logistics Planner	73.7	4.1
Forecast Planner	71.7	4.1
Logistics/Supply Chain Analyst	65.0	3.9
Traffic/Transport/Load Planner	63.3	3.8

Source: 2020 Logistics and Efficiency Indicator Survey, Philippines

5.3 On Availability and Importance of Skilled Logistics-Related Staff in the Philippines – Manager Level

Respondent-manufacturing firms were also asked to choose which logistics-related staff are available in the Philippines and the degree of importance of these skills. This question aims to establish which skills are sufficiently available in the Philippines and the degree of importance of these skills as evaluated by these respondent-firms. Nine out of 10 firms (96%) say that Operations Manager are available. Only eight out of 10 (84.3%) say that Procurement and Supply Managers are available while only 77.7% of these respondent-firms say that Logistics/Supply Chain Managers are available.

T51: Availability and Degree of Importance of Skilled Logistics-Related Staff in the Philippines	Percent Available	Mean of Importance (5-highest)
Base: Total respondents (300)		
Operations Manager	96.0	4.7
Procurement & Supply Manager	84.3	4.5
Logistics/Supply Chain Manager	77.7	4.3

Source: 2020 Logistics and Efficiency Indicator Survey, Philippines

On a 5-point scale with five as the highest, respondent-firms rate the importance of Operations Manager at 4.7, Procurement & Supply Manager at 4.5, and Logistics/Supply Chain Manager at 4.3 on the scale.

5.4 Effectiveness and Importance of International Logistics Functions in the Philippines

Respondent-manufacturing firms were shown a list of 10 international logistic functions and were asked to rate the effectiveness of each of these functions on a 5-point scale with five as Very Good. They were also asked to evaluate the importance of each of these functions on the same scale with five as the highest. Respondent-firms rated all 10 logistics functions high from a low of 3.6 to a high of 4.0 on the scale. They rated Probability of Shipment Arriving at the Promised Time as most important at 4.7.

T52: Rating and Degree of Importance of International Logistics Functions in the Philippines	Mean of Effectiveness (5 – Very Good)	Mean of Importance (5-highest)
Base: Total respondents (300)		
Quality of Logistics Services and Competence of Service Providers	4.0	4.5
Quality of Airport Infrastructure	3.9	4.6
Availability of Logistics Infrastructure (i.e., Warehouse, Distribution Centres, etc.)	3.9	4.5
Availability of Reliable Transport Services	3.9	4.5
Possibility to Track and Trace Shipments	3.9	4.6
Quality of Transport and Telecommunications Infrastructure	3.7	4.5
Quality of Port Infrastructure	3.7	4.5
Quality of Road Infrastructure	3.7	4.6
Probability of Shipment Arriving at the Promised Time	3.7	4.7
Effectiveness of Customs and other Authorities in Customs Services	3.6	4.4

Source: 2020 Logistics and Efficiency Indicator Survey, Philippines

5.5 Effectiveness and Importance of Domestic Logistics Functions in the Philippines

Respondent-manufacturing firms were also shown a list of 11 domestic logistic functions and were asked to rate the effectiveness of each of these functions on a 5-point scale with five as Very Good. They were also asked to evaluate the importance of each of these functions on the same scale with five as the

highest. Respondent-firms rated all 10 logistics functions high from a low of 3.6 to a high of 3.9 on the scale. They rated all of them as important at 4.5 or 4.6 on the scale.

T53: Rating and Degree of Importance of Domestic Logistics Functions in the Philippines	Mean of Effectiveness (5 – Very Good)	Mean of Importance (5-highest)
Base: Total respondents (300)		
Availability of Domestic Shipping Services	3.9	4.6
Availability of Reliable Transport Services	3.9	4.6
Quality of Logistics Services and Competence of Service Providers	3.8	4.5
Availability of Logistics Infrastructure (i.e. Warehouse, Distribution Centres, etc.)	3.8	4.6
Possibility to Track and Trace Shipments	3.8	4.6
Quality of Domestic Shipping Services	3.8	4.6
Probability of Shipment Arriving at the Promised Time	3.8	4.6
Quality of Airport Infrastructure	3.7	4.6
Quality of Transport and Telecommunications Infrastructure	3.7	4.6
Quality of Port Infrastructure	3.7	4.6
Quality of Road Infrastructure	3.6	4.6

Source: 2020 Logistics and Efficiency Indicator Survey, Philippines

Part 6. Comparison of Key Findings: 2017 vs 2020

6.1. Logistics Cost

In comparing the results of the survey, it is important to consider the differences in the methodologies and conditions obtaining in the two surveys.

- In 2020, the Philippine economy contracted 9.5% year-on-year mainly because of the health quarantine lockdown which the government imposed starting in March 2020 with the onset of Covid-19 and which lockdown persisted till the end of the year. Many industries, including transportation, were restricted from operating. In 2017, the Philippine economy grew 6.7 percent year-on-year. The World Bank (https://data.worldbank.org/indicator) reported that the country registered impressive economic growth rates in gross domestic product since 2000 and was among the fastest growing economies in Asia.
- In 2020, the Logistics and Efficiency Indicator Survey had a sample size of 300 respondent- firms which were individually interviewed through telephone using computer-aided telephone interviewing devices. In 2017, the survey had a sample size of 159 respondent-manufacturing firms who self-administered the questionnaires in multiple central locations. Both surveys used the same survey instrument and drew the sample from the same regions and industry sectors.

Logistics Efficiency Ratio (total logistics cost over total annual sales) in 2020 is 25.5% which is 1.7 percentage points lower than 2017's 27.2. Discounting Other Logistics Cost, Transport and Cargo Handling Cost posted the most impressive improvement from 10.7% in 2017 to 7.6% in 2020 or 3.1 percentage points lower, as shown in the table below.

T54: Logistics Cost as a Percent of Total Sales	2017	2020	Variance 2020-2017
Base: Total respondents	159	300	141
Transport and cargo handling cost	10.7	7.6	-3.1
Warehousing	5.2	3.5	-1.7
Inventory carrying cost	8.8	6.7	-2.1
Logistics administration	2.5	3.4	0.9
Other logistics costs	-	4.3	4.3
Logistics Cost Over Annual Sales Total Percentage	27.2	25.5	-1.7

Source: 2020 Logistics and Efficiency Indicator Survey, Philippines

6.2. Key Performance Indicators

The 2017 report identified 11 questions as the key performance indicators, these are:

- *M11a. What is your average lead time from the moment your company gets the order from your main customer to the delivery of your service?*
- *M11b. What is your average lead time when transporting products to your main customer?*
- *M11d. What was the percentage of products shipped complete2 per month to your main customer?*
- *M11e. What was the percentage of products shipped on time per month to your main customer?*
- *M11f. What was the percentage of shipments per month that arrives damaged to your main customer?*
- *M11g. What was the average number of days of sales outstanding in your firm (i.e., average number of days between customer order delivery to receipt of customer payment?*
- *M11h. What was the average number of days of payables outstanding in your firm (i.e., average number of days between supplier order receipt to order payment)?*
- *M11i. What was the average number of days your firm holds its inventory (of finished product)?*
- *M11j. What is your customer complaint rate?*
- *M11k. What was the accuracy of forecasts made regarding customer demand for your main product?*
- *M11I. What was the ratio of returns for your main product?*

These questions were consolidated into two major key performance indicators which were measured as is or consolidated into one metric as shown below:

TIME PERFORMANCE KPIs (in Days)

* Order Cycle Time (OCT) = M11a

* Transportation Lead Time (TLT) = M11b

* Cash Conversion Cycle (C2C) = M11g + M11i - M11h

RELIABILITY PERFORMANCE KPIs (in %)

* Delivery In Full On Time (DIFOT) = (M11d * M11e)/100

* Damage rate = M11f

* Customer complaint rate (%) = M11j

* Forecast Accuracy (%) = M11k.

* Return (%) = M11l.

These key performance indicators were used and replicated in the 2020 survey. The results are shown in the tables below and compared with the results in 2017. The 2020 results were cross tabulated using selected variables.

TIME PERFORMANCE KPIs (in Days)

T55: Key Performance Indicators		2020 *Mean*	2017 *Mean*
Order Cycle Time (OCT)	days	22.76	*
Transportation Lead Time (TLT)	days	10.83	*
Cash Conversion Cycle (C2C)	days	25.45	21.77

Source: 2020 Logistics and Efficiency Indicator Survey, Philippines
* No available data.

RELIABILITY PERFORMANCE KPIs (in %)

T56: Key Performance Indicators		2020 *Mean*	2017 *Mean*
Delivery in Full on Time (DIFOT)	%	87.95	89.62
Damage rate	%	2.22	3.70
Customer complaint rate	%	4.15	5.97
Forecast Accuracy	%	77.54	80.15
Return Ratio	%	3.07	5.15

Source: 2020 Logistics and Efficiency Indicator Survey, Philippines

T57: LEI Survey 2020 by Industry Sector	**Order Cycle Time (OCT)**	**Transportation Lead Time (TLT)**	**Cash Conversion Cycle (C2C)**	**Delivery In Full On Time (DIFOT)**	**Damage rate**	**Customer complaint rate**	**Forecast Accuracy**	**Return**
Agribusiness	10.38	10.29	30.38	87.05	0.82	2.33	77.57	3.48
Auto and auto parts	20.45	10.91	23.51	90.66	2.62	3.16	83.40	1.85
Chemicals	21.22	12.83	29.83	91.34	1.49	5.51	77.88	4.82
Construction materials	21.47	8.00	16.28	85.72	2.91	5.61	78.75	2.74
Electronics	27.32	8.63	24.57	87.95	1.77	4.32	81.83	2.37
Furniture	39.06	17.11	27.00	78.44	7.94	7.17	61.94	3.00
Garments and textile	27.64	16.54	37.36	88.98	1.29	2.71	75.14	1.50
Processed Food	12.06	8.39	19.39	86.90	1.50	2.71	66.77	6.00

Source: 2020 Logistics and Efficiency Indicator Survey, Philippines

T58: LEI Survey 2020 by Main Market	Order Cycle Time (OCT)	Transportation Lead Time (TLT)	Cash Conversion Cycle (C2C)	Delivery In Full On Time (DIFOT)	Damage rate	Customer complaint rate	Forecast Accuracy	Return
Domestic	16.72	4.74	25.63	88.01	2.47	4.25	75.74	3.53
International	26.70	16.24	30.13	86.91	1.36	4.16	76.44	1.24
Both Domestic and International	26.95	13.93	21.54	88.71	2.59	4.03	80.57	3.96

Source: 2020 Logistics and Efficiency Indicator Survey, Philippines

T59: LEI Survey 2020 by Asset Size	Order Cycle Time (OCT)	Transportation Lead Time (TLT)	Cash Conversion Cycle (C2C)	Delivery In Full On Time (DIFOT)	Damage rate	Customer complaint rate	Forecast Accuracy	Return
Large	24.97	13.11	33.00	88.41	1.54	4.15	82.50	1.56
Medium	24.44	13.08	24.36	85.88	1.43	3.63	77.13	3.62
Small	20.59	8.28	22.27	89.00	3.06	4.48	75.26	3.50

Source: 2020 Logistics and Efficiency Indicator Survey, Philippines

T60: LEI Survey 2020 by Gross Sales	Order Cycle Time (OCT)	Transportation Lead Time (TLT)	Cash Conversion Cycle (C2C)	Delivery In Full On Time (DIFOT)	Damage rate	Customer complaint rate	Forecast Accuracy	Return
Less than P15 Million	22.27	9.17	26.55	87.13	3.02	4.12	70.63	3.28
P15 Million up to P100 Million	21.91	10.95	22.32	88.73	1.97	4.31	83.23	3.68
More than P100 million	24.65	13.08	28.23	88.06	1.41	3.98	79.59	1.91

Source: 2020 Logistics and Efficiency Indicator Survey, Philippines

T61: LEI Survey 2020 by Years in Operation	Order Cycle Time (OCT)	Transportation Lead Time (TLT)	Cash Conversion Cycle (C2C)	Delivery In Full On Time (DIFOT)	Damage rate	Customer complaint rate	Forecast Accuracy	Return
10 years and below	20.09	9.11	25.36	88.15	1.90	3.33	78.11	2.36
11 to 20 years	24.08	8.91	20.52	93.00	1.81	4.00	80.49	4.08
More than 20 years	24.83	13.76	28.36	84.86	2.79	5.12	75.25	3.25

Source: 2020 Logistics and Efficiency Indicator Survey, Philippines

T62: LEI Survey 2020 by Region	Order Cycle Time (OCT)	Transportation Lead Time (TLT)	Cash Conversion Cycle (C2C)	Delivery In Full On Time (DIFOT)	Damage rate	Customer complaint rate	Forecast Accuracy	Return
NCR	16.54	10.14	18.95	80.98	1.83	3.97	72.03	5.75
Region 4A	22.92	9.49	26.94	90.86	1.41	3.54	82.15	2.90
Region 7	25.70	16.35	31.09	83.54	5.11	6.52	69.07	2.24
Others	24.22	10.89	19.36	87.08	2.67	4.22	73.09	2.36

Source: 2020 Logistics and Efficiency Indicator Survey, Philippines

T63: LEI Survey 2020 by PEZA/Non-PEZA	Order Cycle Time (OCT)	Transportation Lead Time (TLT)	Cash Conversion Cycle (C2C)	Delivery In Full On Time (DIFOT)	Damage rate	Customer complaint rate	Forecast Accuracy	Return
PEZA	25.05	11.48	30.36	89.88	2.13	4.17	80.86	2.35
Non-PEZA	19.79	10.00	19.12	85.47	2.33	4.14	73.25	4.00

Source: 2020 Logistics and Efficiency Indicator Survey, Philippines

Part 7. Factors that Affect Logistics Costs

A statistical analysis was conducted using several statistical procedures (One-Way ANOVA, Pairwise Comparison using LSD Post-Hoc Analysis, and Independent Sample T-Test) to determine which among the categorical variables analyzed significantly affect logistics cost.

Business Objective

The modeling objective is to determine the firmographic attributes that have significant effect to total logistic cost and its components – namely, transport and cargo handling cost, warehousing cost, inventory carrying cost, and logistics administration cost.

Methodology

Using IBM-SPSS Modeler, logistic regression model was utilized to build models for each cost component with high or low cost as the target categories, which were derived by comparing the actual cost value to the average.

Cost Component	High Category	Low Category
Total Logistic Cost	> 25.5%	<= 25.5%
Transport and Cargo Handling Cost	> 7.55%	<= 7.55%
Warehousing Cost	> 3.48%	<= 3.48%
Inventory Carrying Cost	> 6.71%	<= 6.71%
Logistics Administration Cost	> 3.38%	<= 3.38%

Before interpreting the logistic regressions model, it is important to check some goodness-of-fit measures for the model. IBM-SPSS Modeler includes the following measures in its model outputs:

- ***Omnibus Tests of Model Coefficients***. The *Chi-square* statistic tests the null hypothesis that the coefficients for all of the predictors in the model are zero. Reject the null hypothesis if p-value is less than or equal to the level of significance, say $\alpha = 0.05$.

- ***R-Square.*** IBM-SPSS provides two measures (Cox & Snell and Nagelkerke) that are analogs to the R-square in Ordinary Least Square regression. They determine the amount of variance explained by the model. The higher the value of this pseudo R-square, the better. Nagelkerke pseudo R-

square is preferred because it can achieve a maximum value of one, unlike the Cox and Snell R-square (See. "*Advanced Techniques: Regression"* of SPSS Inc. page 8-10).

- ***Hosmer and Lemeshow Test.*** This is a goodness-of-fit measure that tests whether the observed and expected (or predicted) values are close. Hence, it is best to get a non-significant probability – that is, a p-value that is less than the level of significance.

Model Results for Total Logistics Cost

Value	Proportion	%	Count
High		25.33	76
Low		74.67	224

224 out of 300 (75%) companies were classified under low total logistics cost (i.e. total logistics cost <= 25.5%), while about 25% of the companies had high total logistics cost.

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 6	Step	4.752	1	.029
	Block	36.158	6	.000
	Model	36.158	6	.000

Forward Stepwise was used as method in the logistic regression model. The significance value is 0.029, which is less than the level of significance. Thus, we reject the null hypothesis that the coefficients in the model are zero, and they improve the prediction of the log odds.

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
6	472.670[a]	.079	.115

a. Estimation terminated at iteration number 5 because parameter estimates changed by less than .000.

The Nagelgerke R-Square is at 0.115, which means that the predictors can only explain a modest amount of the variance.

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
6	3.617	4	.460

The Hosmer and Lemeshow Test has a non-significant probability of 0.460, which indicates the expected values and observed are close. Therefore, the model has a good fit.

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 6[a]	MainOp_Reg4A(1)	.535	.250	4.580	1	.032	1.707
	Intl_LoadType_LCL(1)	1.184	.304	15.212	1	.000	3.267
	Intl_LoadType_ExFreight(1)	-1.074	.511	4.419	1	.036	.342
	LA_DomFreightForwarding(1)	.911	.302	9.113	1	.003	2.487
	MainSector_Furniture(1)	1.090	.429	6.450	1	.011	2.973
	BusSize_Small(1)	.651	.244	7.142	1	.008	1.918
	Constant	-1.203	.735	2.677	1	.102	.300

The B coefficients in the variable register of the model indicates the effect of one-unit change in a predictor on the log of odds. Moreover, IBM-SPSS Modeler includes in the output the Exp(B) or e^B, which can now be used to express the effect of one-unit change in a predictor to the odds of having high cost.

- If the company's main operation is in Region-4A (CALABARZON), the odds of having high cost increase by a factor of 1.71.
- Having load type of less than container load (LCL) for international clients increases the odds of having high cost by a factor of 3.27.
- Having load type of express freight for international clients decreases the odds of having high cost by a factor of 0.34.
- If the company has service level agreement for domestic freight forwarding, the odds of having high cost increase by a factor of 2.49.
- If the company's main sector is furniture, the odds of having high cost increase by a factor of 2.97.
- If the business size is small, the odds of having high cost increase by a factor of 1.92.

Results for output field Total Logistics Cost Target

Comparing $L-Total Logistics Cost Target with Total Logistics Cost Target

Correct	224	74.67%
Wrong	76	25.33%
Total	300	

Finally, IBM-SPSS Modeler provides the misclassification risk table that provides the accuracy of the model. The accuracy of the logistic model for classifying correctly high or low categories is 75% - that is, predicted and observed values are the same 75% of the time.

Model Results for other Cost Components

Below are model coefficient tables for each cost component. Please see appendices for results on Omnibus Test of Model Coefficients, R-square outputs, and Hosmer and Lemeshow Test.

A. Transport and Cargo Handling Cost

Value	Proportion	%	Count
High		41.92	122
Low		58.08	169

169 out of 291 (58%) companies have low transport and cargo handling cost (i.e. transport and cargo handling cost <= 7.5%), while 42% have high cost. There are 9 companies who did not specify any transport and cargo handling cost.

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 7[a]	Dom_LoadType_LCL(1)	.425	.208	4.177	1	.041	1.529
	Intl_LoadType_AirFreight(1)	-1.158	.276	17.602	1	.000	.314
	LA_DomTranspo(1)	-1.524	.342	19.839	1	.000	.218
	LA_CustomsBrokerage(1)	.588	.257	5.259	1	.022	1.801
	MainSector_Construction(1)	-1.291	.332	15.114	1	.000	.275
	MainSector_Furniture(1)	1.978	.561	12.442	1	.000	7.232
	MainSector_GarmentsTextile(1)	1.895	.593	10.221	1	.001	6.652
	Constant	-.699	.967	.523	1	.470	.497

- Having load type of less than container load (LCL) for domestic clients increases the odds of having high cost by a factor of 1.53.
- Having load type of air freight for international clients decreases the odds of having high cost by a factor of 0.31.
- If the company has service level agreement for domestic transportation, the odds of having high cost decrease by a factor of 0.22.
- If the company has service level agreement for customs brokerage, the odds of having high cost increase by a factor of 1.80.
- If the company's main sector is construction, the odds of having high cost decrease by a factor of 0.28.
- If the company's main sector is furniture, the odds of having high cost increase by a factor of 7.23.
- If the company's main sector is garments and textile, the odds of having high cost increase by a factor of 6.65.

Results for output field TranspoCargoCost_byMean

Comparing $L-TranspoCargoCost_byMean with TranspoCargoCost_byMean

Correct	187	64.26%
Wrong	104	35.74%
Total	291	

This logistic regression model was able to classify correctly high and low categories 64% of the time.

B. Warehousing Cost

Value	Proportion	%	Count
High		35.8	87
Low		64.2	156

156 out of 243 (64%) companies have low warehousing cost (i.e. warehousing cost <= 3.5%), while 36% have high cost. There are 57 companies who did not specify any warehousing cost.

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 8[a]	MainOp_NCR(1)	-.509	.254	3.998	1	.046	.601
	LA_DomTranspo(1)	-.887	.436	4.138	1	.042	.412
	LA_DomFreightForwarding(1)	1.781	.441	16.269	1	.000	5.933
	LA_IntlTranspo(1)	-1.911	.492	15.082	1	.000	.148
	LA_CustomsBrokerage(1)	.800	.352	5.169	1	.023	2.226
	MainSector_Electronics(1)	-1.680	.364	21.283	1	.000	.186
	BusSize_Small(1)	1.283	.285	20.264	1	.000	3.606
	MainMarket_Dom(1)	-1.119	.305	13.492	1	.000	.327
	Constant	2.340	.639	13.426	1	.000	10.379

- If the company's main operation is in NCR, the odds of having high cost decrease by a factor if 0.60.
- If the company has service level agreement for domestic transportation, the odds of having high cost decrease by a factor of 0.41.
- If the company has service level agreement for domestic freight forwarding, the odds of having high cost increase by a factor of 5.93.
- If the company has service level agreement for international transportation, the odds of having high cost decrease by a factor of 0.15.
- If the company has service level agreement for customs brokerage, the odds of having high cost increase by a factor of 2.23.

- If the company's main sector is electronics, the odds of having high cost decrease by a factor of 0.19.
- If business size is small, the odds of having high cost increase by a factor of 3.61.
- If the company's main market is domestic, the odds of having high cost decrease by a factor of 0.33.

Results for output field WarehousingCost_byMean

Comparing $L-WarehousingCost_byMean with WarehousingCost_byMean

Correct	165	67.9%
Wrong	78	32.1%
Total	243	

This logistic regression model for warehousing cost has a model accuracy of 68%.

C. Inventory Carrying Cost

Value	Proportion	%	Count
High		31.91	75
Low		68.09	160

160 out of 235 (68%) companies have low inventory carrying cost (i.e. inventory carrying cost <= 6.7%), while 32% have high cost. There are 65 companies who did not specify any inventory carrying cost.

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 7[a]	Ave Lead Time for Transport	.034	.012	7.606	1	.006	1.035
	Ave Days Payables Outstanding	-.012	.005	5.273	1	.022	.988
	MainOp_EntirePH(1)	.969	.375	6.662	1	.010	2.635
	Dom_LoadType_FCL(1)	-1.125	.363	9.590	1	.002	.325
	Intl_LoadType_LCL(1)	.764	.348	4.829	1	.028	2.147
	MainSector_Agribusiness(1)	1.102	.431	6.545	1	.011	3.011
	BusSize_Small(1)	-1.209	.269	20.128	1	.000	.298
	Constant	.117	.643	.033	1	.855	1.125

- An additional day for transporting products to customer increases the odds of having high cost by a factor of 1.04.
- An additional day of payables outstanding decreases the odds of having high cost by a factor of 0.99.
- If the company's main operation is entire PH, the odds of having high cost increase by a factor if 2.64.

- Having load type of full container load (FCL) for domestic clients decreases the odds of having high cost by a factor of 0.33.
- Having load type of less than container load (LCL) for international clients increases the odds of having high cost by a factor of 2.15.
- If the company's main sector is agri-business, the odds of having high cost increase by a factor of 3.01.
- If business size is small, the odds of having high cost decrease by a factor of 0.30.

Results for output field InventoryCost_byMean

Comparing $L-InventoryCost_byMean with InventoryCost_byMean

Correct	155	65.96%
Wrong	80	34.04%
Total	235	

The logistic regression model for inventory carrying cost has 66% model accuracy.

D. Logistics Administration Cost

Value	Proportion	%	Count
High		32.0	96
Low		68.0	204

240 out of 300 (68%) companies have low logistics administration cost (i.e. logistics administration cost <= 3.4%), while 32% have high cost.

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 10[a]	% Damaged Shipments	.065	.024	7.045	1	.008	1.067
	Number of Employees	.001	.000	3.698	1	.054	1.001
	Dom_LoadType_ExFreight(1)	-1.083	.366	8.771	1	.003	.338
	Intl_LoadType_AirFreight(1)	1.137	.335	11.508	1	.001	3.118
	LA_DomFreightForwarding(1)	.774	.328	5.586	1	.018	2.168
	LA_IntlTranspo(1)	-1.013	.392	6.685	1	.010	.363
	LA_CustomsBrokerage(1)	.898	.318	7.974	1	.005	2.456
	MainSector_Electronics(1)	-.727	.312	5.423	1	.020	.483
	MainSector_Furniture(1)	1.585	.475	11.114	1	.001	4.877
	BusSize_Small(1)	1.144	.260	19.341	1	.000	3.140
	Constant	-1.567	.731	4.602	1	.032	.209

- A percent increase in damaged shipments increases the odds of having high cost by a factor of 1.07.
- An additional employee increases the odds of having high cost by a factor of 1.001.
- Having load type of express freight for domestic clients decreases the odds of having high cost by a factor of 0.34.
- Having load type of air freight for international clients increases the odds of having high cost by a factor of 3.12.
- If the company has service level agreement for domestic freight forwarding, the odds of having high cost increase by a factor of 2.17.
- If the company has service level agreement for international transportation, the odds of having high cost decrease by a factor of 0.36.
- If the company has service level agreement for customs brokerage, the odds of having high-cost increase by a factor of 2.46.
- If the company's main sector is electronics, the odds of having high cost decrease by a factor of 0.48.
- If the company's main sector is furniture, the odds of having high cost increase by a factor of 4.88.
- If business size is small, the odds of having high cost increase by a factor of 3.14.

Results for output field LogAdminCost_byMean

Comparing $L-LogAdminCost_byMean with LogAdminCost_byMean

Correct	205	68.33%
Wrong	95	31.67%
Total	300	

The logistic regression model for logistics administration cost has 68% model accuracy.

Part 8: Conclusions and Recommendations

Logistics Efficiency Indicator for the Philippines based on total logistics cost as a percentage of total sales improved to 1.7 percentage points from 27.2% in 2017 to 25.5% in 2020.

The component cost Transport and Cargo Handling Cost, which accounted for 10.7 percentage points in 2017, improved to 7.6 percentage points or 3.1 points lower in 2020. Among the reasons cited by respondent-manufacturing firms for a lower order fill rate are delays in customs process, port congestion and delays in receiving cargos for primary materials needed for manufacturing.

T64: Logistics Cost as a Percent of Total Sales	2017	2020	Variance 2020-2017
Base: Total respondents	159	300	141
Transport and cargo handling cost	10.7	7.6	-3.1
Warehousing	5.2	3.5	-1.7
Inventory carrying cost	8.8	6.7	-2.1
Logistics administration	2.5	3.4	0.9
Other logistics costs	-	4.3	4.3
Logistics Cost Over Annual Sales Total Percentage	27.2	25.5	-1.7

Source: 2020 Logistics and Efficiency Indicator Survey, Philippines

There are three major variables that significantly affect logistics efficiency ratios, these are regions, industry sectors, load type of the firms and size of these firms. Initiatives to assist manufacturing firms manage logistics cost should be industry-focused and size-focused.

On the other hand, only 30% of respondent-manufacturing firms have a documented logistics plan. The other 70%, which are mostly the smaller companies in identified sectors, do not have any documented logistic plan. Providing these small firms virtual training on and a self-help manual for developing a logistics plan would create significant ripple effects on these firms' ability to manage their logistics costs.

There are logistics-related skills whose lack of availability may undermine these firms' ability to manage logistics operations and cost. These skills include Forklift Operators, Logistics Planner, Forecast Planner,

Logistics/Supply Chain Analyst, and Traffic/Transport/Load Planner. There is also a lack of Logistics/Supply Chain Manager as evaluated by respondent-firms.

Initiatives to train workers and managers that would augment the existing pool of workers where there is a shortage of such skill can have far reaching effect on the ability of manufacturing firms to manage logistics cost and resources. The training program can focus on very specific skills sets particularly those that would greatly contribute to better in key performance indicators particularly in managing order fill rate, contracts with customers and suppliers, customer expectations and demand forecasting.