

## COVID-19 and Business Sentiment: The Purchasing Managers' Index in the Philippines

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### ABSTRACT

The Purchasing Manager's Index (PMI) captures the expectations and sentiments of senior managers. This study examined the Philippines PMI levels during the Covid-19 pandemic. The findings suggested that business sentiment was mostly pessimistic during the period of March 2020 to August 2021. In particular, a crosstab analysis indicates that the sentiment was almost always pessimistic during Enhanced Community Quarantine (i.e., a hard lockdown), while the sentiment was predominantly optimistic during General Community Quarantine (i.e., a less stringent type of lockdown). Results from a multiple regression also indicate that the PMI decreased with the severity of community quarantine, suggesting that such restrictions need to balance public health and economic vitality.

Keywords: Covid-19, Business Sentiment, Purchasing Manager's Index, Lockdown.

## 1. INTRODUCTION

Sentiments are what consumers and business owners believe about current and future economic conditions (Friesner et al., 2013). Economic agents including consumers and business owners form expectations and sentiments amidst various social, political, and economic events. The Covid-19 pandemic changed the expectations, economic activities, and market behavior of economic agents by affecting their decisions on investment, consumption, and saving (Marcato & Nanda, 2016; Martináková & Kapounek, 2013; Tomic et al., 2020). The structure of expectations can be measured by sentiment indicators (Lux et al, 2020), which help determine where the economy is heading towards (Friesner et al., 2013). Covid-19 has been economically damaging (Brodeur et al., 2021; Baber & Rao, 2021; Barua, 2021). The hard lockdown, i.e., Enhanced Community Quarantine (ECQ), during March to May 2020 in the Philippines resulted in the country's high unemployment and decrease in Gross Domestic Product (Lim, 2020).

A commonly used sentiment survey is the Purchasing Manager's Index (PMI). PMI is derived from answers of senior managers overseeing operations on questions related to business activities such as output, employment, new orders, prices, costs, and other aspects of business activity (Erik et al., 2019). It provides a monthly summary of business conditions, allowing users to see if there is improvement or deterioration in general business conditions (Williamson, 2008).

Sentiment is affected by economic shocks (Martináková & Kapounek, 2013). In fact, household consumption declined in different parts of the world during the Covid-19 pandemic as reported by past studies (Liu et al., 2020, as cited in Nandy & Sussan, 2022a). Stock market indices across continents also declined by about 20% from the peak (Bieszk-Stolorz & Dmytrow, 2021; Nandy & Sussan, 2022b). In China, for instance, stock prices declined because investors were less willing to invest (Marjerison et al.,

2023). In the Philippines, the Gross Domestic Product (GDP) declined by 16.5% during the second quarter of 2020. There was also a fall in income due to the massive unemployment and a decline in the remittances from Overseas Filipino Workers (Lim, 2020). Such Covid-19 economic impacts can be reflected by sentiment indicators such as the PMI (Teresiene et al., 2021).

This study aims to address the question: What are the indications of the impact of Covid-19 on business sentiment, specifically as reflected in the Philippine Purchasing Manager's Index? This study aims to describe the impact of the spread of the Covid-19 pandemic on business sentiment in the Philippines, as captured by the Purchasing Manager's Index. It sought to support the Purchasing Manager's Index's ability to capture business sentiment by using the Purchasing Manager's Index data during periods covered by the quarantine system in the Philippines (i.e., March 2020 to August 2021).

## 2. LITERATURE REVIEW

Sentiment is the “optimism or pessimism manifested in expectations but unrelated to fundamentals” (Buchheim et al., 2022, p. 186). Sentiments are embodied in indicators, which comprise respondents' perceptions or expectations as they evaluate the phenomenon of interest, not covered by traditional statistics (Kitrar & Lipkind, 2021). The views of managers and consumers, for instance, are captured by business and consumer surveys that are relatively simple in terms of implementation and interpretation (Friesner et al., 2013; Kitrar, & Lipkind, 2021; Sorić et al., 2016).

The Purchasing Manager's Index is a sentiment indicator based on a cyclically repeated survey (monthly) intended to give first-hand information about the economic situation in the nearest future (Sobko & Klonowska-Matynia, 2021). Four hundred members of the Institute of Supply Management (ISM), usually purchasing managers or executives, are surveyed on how the current level of five key economic variables compares with the previous month's level (Ogwang, 2005). Business conditions are believed to be best captured by asking purchasing people who order intermediate products, decide on inventory levels, or set prices (Erik et al., 2019). The five key economic variables are New orders, Production, Employment, Supplier delivery, and Inventories. The respondents are asked whether the activity level is higher or lower than the preceding month. A diffusion index is generated by adding the percentage of those reporting an increase to one-half of the percentage of respondents reporting the same. A diffusion index of 50 indicates no change in activity, while a diffusion index above 50 indicates expanding activity. When the index is below 50, the activity is in contraction. The weighing scheme, taking all the variables together, is as follows: New orders (0.3), production (0.25), employment (0.2), Supplier deliveries (0.15), and Inventories (0.1) (Ogwang, 2005).

When risks and uncertainty are present, sentiments tend to be pessimistic (Batrancea, 2021). Uncertainty increased tremendously with Covid 19 (Baker et al., 2020). For instance, the average PMI in India from the 1<sup>st</sup> of January to the 31<sup>st</sup> of August 2020 was 36.21, indicating a contraction of business activity and pessimistic expectations (Baber & Rao, 2021). To address the risk and uncertainty, the goal is to slow down the spread of the virus at least, so countries implemented lockdowns or community quarantines of varying length, scope, and stringency (Jiang et al., 2022; Buchheim et al., 2022; Baber & Rao, 2021). Community quarantines or lockdowns restrict mobility between quarantined areas (Talabis et al., 2021).

Aside from public health outcomes related to infection and mortality, lockdowns also

have economic outcomes (Jiang et al., 2022). In Germany, in March 2020, they had a lockdown and imposed travel restrictions, closed most service enterprises, including childcare and sports facilities, closed schools, and prohibited social contacts in public. Results from the study of Buchheim et al. (2022) show that revenues are expected to decline as respondents to the survey conducted expect the lockdown to be longer than four months. In India, when a total lockdown was implemented in March 2020, people were instructed to observe social distancing, and there were stringent restrictions on people's movements. Only essential services were open. It resulted in a rise in the inflation level and the depreciation of the exchange rate (Baber & Rao, 2021).

There are four levels of the community quarantine policy in the Philippines, namely the enhanced community quarantine (ECQ), modified enhanced community quarantine (MECQ), general community quarantine (GCQ), and modified general community quarantine (MGCQ). They differ in stringency, with the ECQ being the most stringent and the MGCQ as the least stringent or most lenient (Jiang et al., 2022). Talabis et al. (2021, pp 3-4) explain the differences between the four policy levels as follows:

- *Enhanced Community Quarantine (ECQ): strict home quarantine is implemented, and the movement of residents is limited to access essential goods and services. Public transportation is suspended. Only economic activities related to essential and utility services are allowed. There is a heightened presence of uniformed personnel to enforce community quarantine protocols.*
- *Modified Enhanced Community Quarantine (MECQ): a transition phase between ECQ and GCQ. Strict home quarantine and suspension of public transportation are still in place. Mobility restrictions are relaxed for work-related activities. Government offices operate under a skeleton workforce. Manufacturing facilities can operate with up to 50% of the workforce. Transportation services are only allowed for essential goods and services.*
- *General Community Quarantine (GCQ): individuals from less susceptible age groups and without health risks can move within quarantined zones. Public transportation can operate at reduced vehicle capacity observing physical distancing. Government offices may be at full work capacity or under alternative work arrangements. Up to 50% of the workforce in industries (except for leisure and amusement) are allowed to work.*
- *Modified General Community Quarantine (MGCQ): the transition phase between GCQ and the New Normal. All persons are allowed outside their residences. Socio-economic activities are allowed with minimum public health standards*

Like the other countries, the lockdowns in the Philippines had economic costs (Ocampo & Yamagishi, 2020). In a survey by UNDP from May to July 2020 among Micro, Small, and Medium-sized Enterprises (MSMEs), businesses had to suspend operations or operate at limited capacity. There were also concerns about unpaid loans, reduced demand, and supply chain disruptions (UNDP, 2020a,b).

### 3. METHODOLOGY

This study is based on the results of surveys conducted by Imetrics Asia in Manila under

the auspices of the Philippine Institute of Supply Management and Society of Fellows in Supply Management. It covers twelve basic sectors of manufacturing and is conducted monthly. The opinions and expectations of about 300 senior executives in the Philippines' top corporations are integrated to construct the PMI. The surveys contain qualitative assessments and expectations of respondents by tracking changes in production levels, new orders, employment, supplier deliveries, and inventories, as well as the direction of change in each series at their own companies.

The PMI used in this study is the PMI Manufacturing from March 2020 to August 2021, when the Enhanced Community Quarantine (ECQ) or General Community Quarantine (GCQ) and their variations were implemented in the Philippines. The PMIs are analyzed by their magnitude to determine whether sentiment is pessimistic or optimistic during the period covered. A cross-tabulation analysis was done to characterize business sentiment across quarantine types and in the period covered by the study. Multiple regression was likewise conducted using the Statistical Package for the Social Sciences (SPSS) to determine whether the PMI varies with the number of new Covid-19 cases and the type of community quarantine. A stricter community quarantine was assigned the value of "1", while the more lenient type was assigned the value of "0". Data on new Covid-19 cases in the Philippines were derived from ourworldindata.org.

#### 4. RESULTS AND DISCUSSION

The levels of Purchasing Manager's Index in the Philippines from March 2020 to August 2021 are found in Table 1.

Table 1: PMI

Month/Year	PMI
MAR 2020	28.43
APR 2020	30.55
MAY 2020	41.07
JUN 2020	47.66
JUL 2020	48.75
AUG 2020	46.51
SEP 2020	46.30
OCT 2020	47.34
NOV 2020	48.63
DEC 2020	51.11
JAN 2021	52.72
FEB 2021	50.25
MAR 2021	50.95
APR 2021	50.78
MAY 2021	51.65
JUN 2021	51.36
JUL 2021	50.63
AUG 2021	47.47

Levels below 50 express pessimism or contraction in business activity, while above 50 express optimism or expansion. The average PMI for the period is 46.79, indicating

that overall, the sentiment is pessimistic. Among the five economic variables that comprise the PMI, it is mainly attributable to expectations of a decline in New Orders, Production, and Employment. Figures 1, 2 & 3 show graphs of these three variables that are mostly below 50.

Figure 1: New Orders (March 2020 to August 2021)



Figure 2: Production (March 2020 to August 2021)

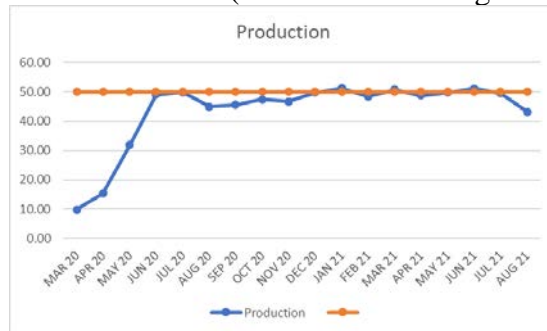
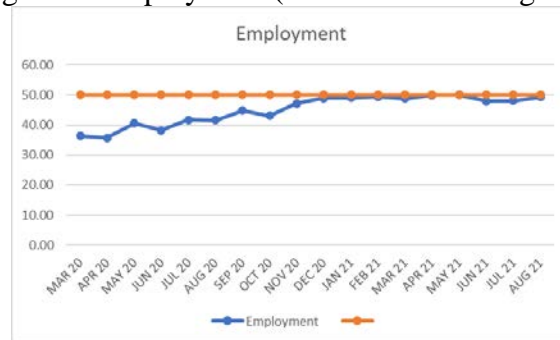


Figure 3: Employment (March 2020 to August 2021)



Demand was sluggish, output decreased, and some employees were laid off because of business closures. The hard lockdown or Enhanced Community Quarantine from March to May 2020 had the lowest levels of PMI in the period covered. Table 2 contains the crosstab results, which indicate that as government restrictions eased, the PMI levels improved in the subsequent months and were even optimistic (above 50). Overall, however, the impact of Covid 19 to business sentiment is negative. There were more periods of pessimism or contraction than optimism or expansion.

Table 2: No. of Periods in Contraction or Expansion among Quarantine Types

Quarantine Type	Contraction	Expansion
GCQ	7	8
ECQ	3	0

On the other hand, new Covid-19 cases in the Philippines in the period covered were as follows:

Table 3: New Covid-19 Cases in the Philippines (March 2020 to August 2021)

Month/Year	New Cases
MAR 2020	2081
APR 2020	6404
MAY 2020	9598
JUN 2020	19428
JUL 2020	55840
AUG 2020	127465
SEP 2020	90875
OCT 2020	69035
NOV 2020	50901
DEC 2020	42434
Jan 2021	51554
FEB 2021	50734
MAR 2021	170936
APR 2021	290172
MAY 2021	192841
JUN 2021	182258
JUL 2021	176406
AUG 2021	400892

Table 4 presents the results of a regression of PMI on the number of new Covid-19 cases and the type of community quarantine. The  $R^2$  level indicates that 81% of the variation in PMI is explained by the model. The findings indicates that type of community quarantine has a negative effect on PMI, while the coefficient on the number of new cases is statistically insignificant.

Results further indicate that the PMI decreases as the community quarantine imposed becomes stricter. This supports the findings of the cross-tabulation analysis that contractions occurred during periods of hard lockdown, and there were more expansions than contractions in more lenient community quarantines.

Table 4: Regression Results of PMI against Community Quarantine Type and New Cases

Variable	Coefficient	Standard Error	t-value	p-value
Constant	49.320*	1.328	37.147	.000
CQ	-15.977*	2.239	-7.135	.000
New Cases	1.159E-006	.000	.146	.886
R-squared	.812			
F-statistic	32.342			
P-value (F-stat)	.000			

\* indicates significance at the 1% level.

## 5. CONCLUSIONS

The impact of Covid-19 on business sentiment is captured by the PMI that indicates pessimism/contraction and optimism/expansion. This study's findings are consistent with the prevailing business conditions. Specifically, the pessimism and contraction almost always occurred during a hard lockdown, suggesting that government restrictions significantly influenced the formation of business sentiment and that such restrictions should be imposed to balance public health and economic vitality.

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