

The COVID-19 Pandemic and Its Effect in the Seasonality of the National Accounts of the Philippines (NAP)

by

**Mark C. Pascasio, Sonny U. Gutierrez, Charlene G. Sison,
and Naha Marie T. Bañoc¹**

ABSTRACT

One of the most important macroeconomic indicators of the economy is the Gross Domestic Product (GDP). The GDP provides a comprehensive picture of the performance of the economy over a period. However, it could be distorted by several seasonal factors. Recognizing the importance of the seasonally adjusted data especially during the COVID-19 Pandemic is vital in strengthening economic planning and policy formulation. Economic planners make use of these data in analyzing the underlying trends and seasonal effects in the Quarterly National Accounts (QNA). It provides early signals of turning points that will serve as a guide for better plans and decisions in maintaining the economic stability of the country.

Towards the continuous efforts of developing and improving economic indicators, the Philippine Statistics Authority (PSA) through the Macroeconomic Accounts Service (MAS) conducted a research agenda on the improvement of the generation of SANA that can be utilized by economic and policy planners, and researchers. This paper aims to present the results of the research agenda, enumerating the improvements on the methodology and configuration of the SANA. This also presents the detailed diagnostics test of the series and estimation process done.

Keywords: Seasonally Adjusted National Accounts, Gross Domestic Product, COVID-19 Pandemic, seasonality

¹ Chief Statistical Specialist, Senior Statistical Specialist, Statistical Specialist I, and Statistical Analyst of the Expenditure and Integrated Accounts Division of the Philippine Statistics Authority

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I. Introduction

One of the most important macroeconomic indicators of the economy is the Gross Domestic Product (GDP). The GDP provides a comprehensive picture of the performance of the economy over a period. However, it could be distorted by several factors such as calendar related effects (e.g., holidays, leap year, trading days), weather patterns, and institutional factors (e.g., tax period, start of academic year, etc.). Some of these factors could be eliminated through seasonal adjustment.

Seasonal adjustment is a tool that identifies the underlying trend revealing the true behavior of the series, compares the quarter-on-quarter changes, and analyzes the seasonal effects in the series. It is a relevant tool especially in economic policy formulation and decision making as it provides the economic planners and policymakers bases in measuring the effectiveness of the economic policies, maintaining the economic stability, and planning for economic development of the country. More importantly, seasonally adjusted data is well suited for short-term forecasting.

Given its several uses, one of the major challenges in seasonal adjustment is when there is a major disruption in the time series data. In 2020, the COVID-19 pandemic heavily disrupted different economies globally. It caused an economic shock which led different economic industries to slow down and shut down. Its impact on the global economy has been widely discussed by analysts and economists as it posed a challenge in producing reliable macroeconomic indicators that are vital in economic planning and policymaking. Several macroeconomic indicators of the Philippine economy including the GDP measured extreme values during the pandemic. This sudden and abrupt change may have caused distortion of the seasonal patterns in the time series and may have affected the correctness in the estimation of the seasonally adjusted data.

Recognizing the importance of the seasonally adjusted data especially during the COVID-19 pandemic, this paper aims to improve the estimation procedure of the Seasonally Adjusted National Accounts (SANA) of the Philippines by enumerating the improvements on its methodology and configuration. This paper also shows the simulation strategy and detailed diagnostics performed to understand the possible effects of the COVID-19 phenomenon on the SANA of the Philippines.

II. Methodology

Decomposition of a time series

A time series may be analyzed by examining its four components: the trend-cycle component, seasonal component, calendar component and the irregular component. The trend-cycle component (TC_t) characterizes the long-term movement of the series. It also includes the cycle component defined as periodic patterns that occur longer than a year. The seasonal component (S_t) of a time series are the regular fluctuations within a year that may be induced by climatic factors, social/cultural traditions, and regular institutional events. The calendar component captures the trading day effect, working day effect, moving holidays effect and the leap year effect. The irregular component (I_t) characterizes the behavior of the series that may not be captured by the trend-cycle, seasonal, and calendar component. This includes outliers that may be attributed to unusual behavior of the series. Outliers are classified as additive outlier, level shift and transitory change. Additive outliers are unusual values occurring only at one period; level shifts are permanent shifts in the series; and transitory changes are like level shifts but with diminishing effects over time (IMF, 2017).

Seasonal Adjustment

Seasonal adjustment is the process of removing seasonal and calendar effects from a time series. This process is widely used in official statistics to reveal underlying trends masked by seasonal occurrences such as holidays and weather changes. These seasonal patterns may be removed by moving average methods wherein the average is computed sequentially over a fixed period of time or through model-based methods, wherein time series models such as autoregressive integrated moving average (ARIMA) model are used to characterize the behavior of the unobserved components of the series.

The components of the time series may be additive or multiplicative. In the additive decomposition, it is assumed that the components are mutually independent thus the original series is equal to the sum of the components. The additive model is defined as:

$$Y_t = TC_t + S_t + I_T \quad [1]$$

The multiplicative decomposition model assumes that the seasonal component is proportional to the level of the trend:

$$Y_t = TC_t * S_t * I_T \quad [2]$$

X-13-ARIMA-SEATS

The X-13-ARIMA-SEATS is the internationally recommended procedure for seasonally adjusting the quarterly national accounts (IMF, 2017). This method was developed by the US Census Bureau which allows for the use of X11 filter and SEATS filter in decomposing the time series.

The general process for seasonal adjustment includes two steps: pre-adjustment and decomposition. In the pre-adjustment stage, a model is fitted to the original series to adjust

for outliers, calendar effects and other deterministic factors. The assumption on whether the components of the time series are additive or multiplicative is also determined during this stage. From the model, backcasts and forecasts are produced in preparation for the decomposition stage.

The objective of the decomposition stage is to identify the trend-cycle, seasonal, and irregular component of the series. Outliers and calendar effects are reallocated to the different components to come up with the final components of the series.

Two widely known methods or filters used for decomposition are the X11 and SEATS filter. The X-11 filter uses an iterative application of moving average filters to extract the components of the series while the SEATS filter fits an ARIMA model to the original series, and the trend-cycle, seasonal, and irregular component. Components are estimated using signal extraction techniques in the SEATS method.

Diagnostic

The M-statistics and the Q-aggregate measure are some of the diagnostic measures to be considered in the seasonal adjustment process. Values higher than 1 are considered to be problematic. The following are the description of each measure:

- M7 is the most important measure. It measures the amount of moving seasonality in relation to stable seasonality.
- M1 and M2 show the contribution of the irregular component in relation to the original series. High irregularities may lead to inaccurate estimation of the seasonal component.
- M6 measures the irregular component when a 3x5 filter is used.
- M8 to M11 measure the stable seasonality in the series. High fluctuations may be suggested seasonal breaks.

- M3 and M5 measure the irregular component in relation to the trend-cycle.

The Q-statistics give the overall measure of the quality of seasonal adjustment. It is a weighted average of the M-statistics and is given by:

$$Q = 0.13 M1 + 0.13 M2 + 0.10 M3 + 0.05 M4 + 0.11 M5 + 0.10 M6 + 0.16 M7 + 0.07 M8 + 0.07 M9 + 0.04 M10 + 0.04 M11 \quad [3]$$

Seasonal Adjustment Procedure

Currently, in the SANA, the quarterly GDP is generated using Indirect Approach or by seasonally adjusting the 80 sub-industries and summing the seasonally adjusted components to produce indirect seasonal adjustment aggregates. Hence, the seasonally adjusted GDP is derived at the production side.

Moreover, the expenditure items are also seasonally adjusted independently and aggregated to major expenditure categories.

The seasonally adjusted Gross National Income (GNI) is also derived by adding the seasonally adjusted GDP and Net Primary Income (NPI).

The following were the formulas used to derive the seasonally adjusted series:

$$GDP_{SA} = AFF^{ind}_{SA} + INDUSTRY^{ind}_{SA} + SERVICES^{ind}_{SA} \quad [4]$$

$$GNI_{SA} = GDP_{SA} + NPI^{ind}_{SA} \quad [5]$$

$$AFF^{ind}_{SA} = \sum_1^n AFF \text{ component} \quad [6]$$

$$INDUSTRY^{ind}_{SA} = \sum_1^n INDUSTRY \text{ subcomponent} \quad [7]$$

$$SERVICES^{ind}_{SA} = \sum_1^n SERVICES \text{ subcomponent} \quad [8]$$

$$HFCE^{ind}_{SA} = \sum_1^n HFCE \text{ component} \quad [9]$$

$$NPI^{ind}_{SA} = \sum_1^n NPI \text{ component} \quad [10]$$

Where:

GDP_{SA}^{ind} – Indirect Seasonally Adjusted Gross Domestic Product

GNI_{SA}^{ind} – Indirect Seasonally Adjusted Gross National Income

AFF_{SA}^{ind} – Indirect Seasonally Adjusted Agriculture, Forestry and Fishing

$INDUSTRY_{SA}^{ind}$ – Indirect Seasonally Adjusted INDUSTRY

$SERVICES_{SA}^{ind}$ – Indirect Seasonally Adjusted SERVICES

$HFCE_{SA}^{ind}$ – Indirect Seasonally Adjusted Household Final Consumption Expenditure

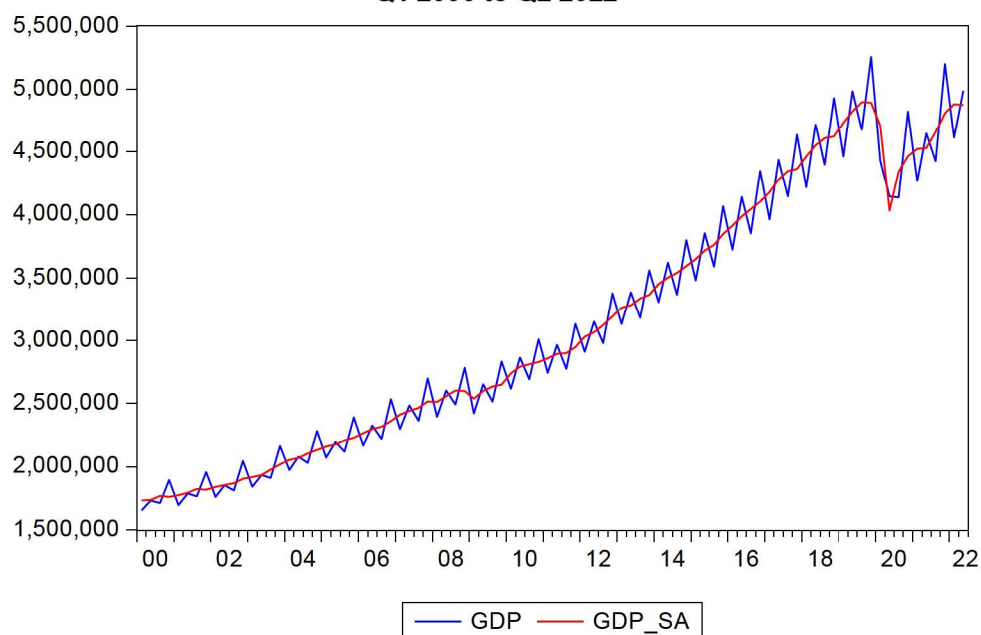
NPI_{SA}^{ind} – Indirect Seasonally Adjusted Net Primary Income

SA – Seasonally Adjusted Series

Ind – Indirect

III. Results and Discussions

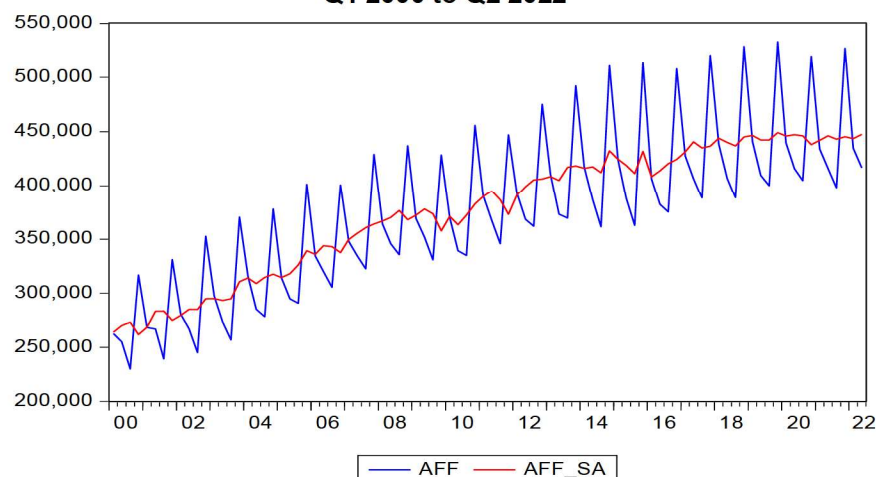
Figure 1. **Gross Domestic Product
Original Data vs. Seasonally Adjusted
Q1 2000 to Q2 2022**



The Seasonally Adjusted Gross Domestic Product declined by -14.5 percent in the second quarter of 2020. Manufacturing, Construction, and Wholesale and retail trade; repair of motor vehicles and motorcycles were the top contributors to the decline of the GDP. Among the three major industries, only Agriculture posted a growth of 0.2 percent for the second quarter of 2020. Meanwhile, Industry and Services posted declines of -19.8 percent and -14.1 percent, respectively, the lowest recorded quarter-on-quarter declines starting year 2000. For the second quarter of 2020, 2.7 percent of GDP for the quarter is due to seasonality. This is lower compared to the forecasted seasonal index without the pandemic which accounts for 3.9 percent of the GDP for the second quarter of 2020.

The GDP exhibited presence of seasonality for both pre-pandemic and post-pandemic periods (See Annex Table E.1.1, Table E.2.1). In the pre-pandemic period, the GDP exhibited an increasing trend and the only significant outliers identified were in the years 2008 and 2009 when the global financial crisis happened. The next outlier was observed in the second quarter of 2020 which was the onset of the COVID-19 pandemic.

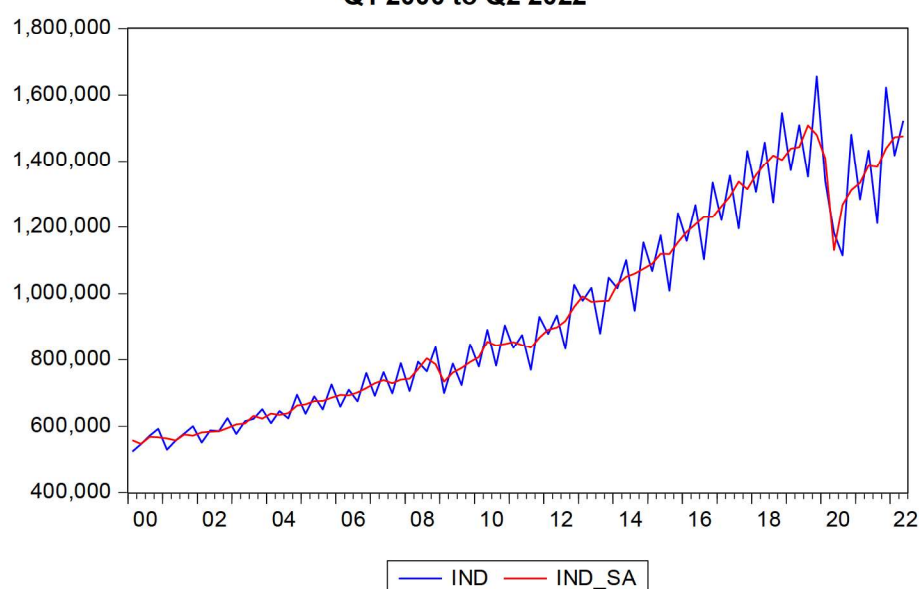
**Figure 2. Gross Value Added for Agriculture, forestry, and fishing
Original Data vs. Seasonally Adjusted
Q1 2000 to Q2 2022**



Agriculture, Forestry, and Fishing (AFF) grew by 0.2 percent in the second quarter of 2020. Palay, Support activities to agriculture, forestry, and fishing, and Corn were the top contributors to the quarter-on-quarter growth of AFF. For the second quarter of 2020, AFF is 93.1 percent of its value without seasonality. Thus, AFF for the quarter decreased by 6.9 percent due to seasonality. This is a lower decrease compared to the forecasted seasonal index without the pandemic which decreases AFF by 7.8 percent for the second quarter of 2020 (See Annex *Summary Table 3*).

All sub-industries of AFF exhibited presence of seasonality for both pre-pandemic and post-pandemic periods (See Annex *Table A.1.1, Table A.2.1*). Differences in the decomposition model were only noted in the Abaca industry when comparing pre-pandemic and post-pandemic periods. Outliers were also detected in the majority of the sub-industries. Outliers were mostly observed from the years 2007 to 2010 where the global financial crisis happened. All sub-industries showed no violations in the Q-statistics, hence, the seasonal adjustment for the AFF industry passed the overall quality assessment.

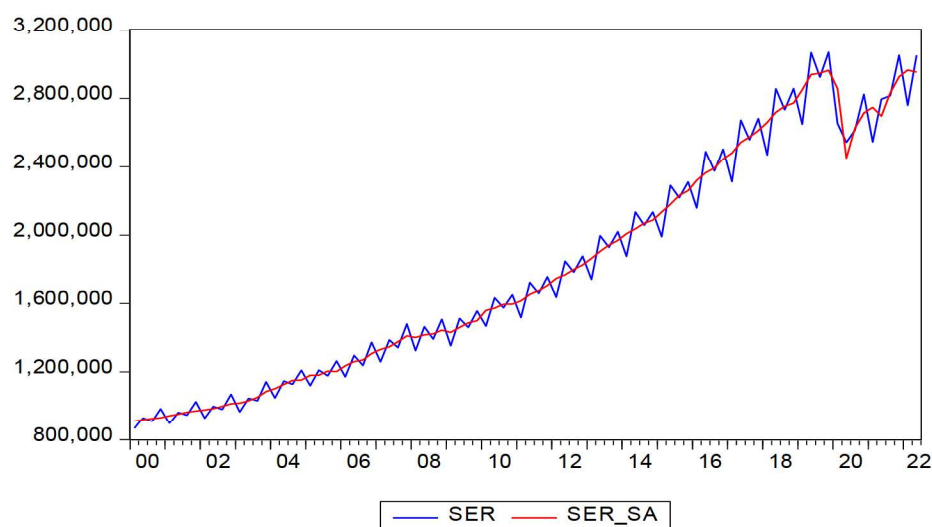
**Figure 3. Gross Value Added for Industry
Original Data vs. Seasonally Adjusted
Q1 2000 to Q2 2022**



Industry posted a quarter-on-quarter decline of -19.8 percent. All industries posted negative growth rates with Manufacturing and Construction as the main drivers to the decline. For the second quarter of 2020, 4.5 percent of Industry for the quarter is due to seasonality. This is slightly higher compared to the forecasted seasonal index without the pandemic (See Annex *Summary Table 3*).

All sub-industries showed presence of seasonality except for Mining of gold and other precious metal ores in the pre-pandemic and post-pandemic periods (See Annex *Table B.1.1, Table B.2.1*). There were differences in the decomposition models noted in five (5) sub-industries of manufacturing and in one (1) sub-industry of Electricity, steam, water and waste management when comparing pre-pandemic and post-pandemic periods. Significant easter effects that were observed in the Manufacturing of machinery and equipment except electrical, Manufacturing of transport equipment, and Construction during the pre-pandemic period were no longer significant in the post-pandemic period while Manufacturing of wood, bamboo, cane, rattan articles and related products with no detected easter effect in the pre-pandemic period had shown significant easter effect in the post-pandemic period.

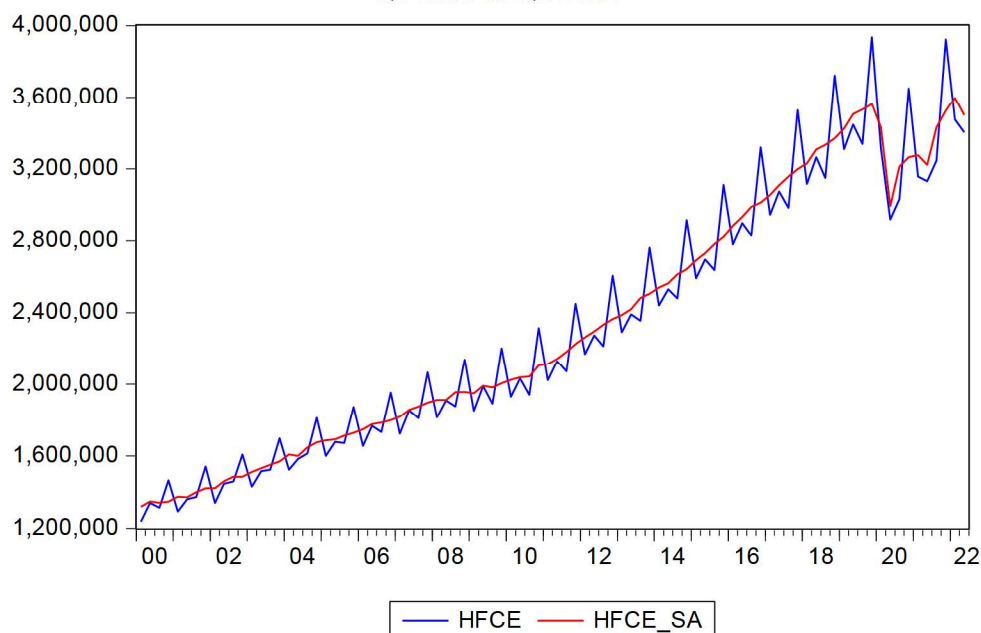
**Figure 4. Gross Value Added for Services
Original Data vs. Seasonally Adjusted
Q1 2000 to Q2 2022**



Services declined by -14.1 percent in the second quarter of 2020. Only Financial and insurance activities and Public administration and defense; compulsory social activities and Financial and insurance activities posted positive growths while the rest of the sub-industries posted declines. Wholesale and retail trade; repair of motor vehicles and motorcycles and Transportation and storage were the top contributors to the decline. For the second quarter of 2020, 3.8 percent of Services for the quarter is due to seasonality. This is lower compared to the forecasted seasonal index without the pandemic which accounts for 5.4 percent of Services for the second quarter of 2020 (See Annex *Summary Table 3*).

The most affected industry during the pandemic was the Services as it affected trading, transportation, restaurants, and hotels due to the strict community quarantine protocols during the period. All sub-industries of Services exhibited presence of seasonality during the pre-pandemic and post-pandemic periods (See Annex *Table C.1.1, Table C.2.1*). Majority of the sub-industries detected outliers in the series. Outliers detected were mostly observed from 2020 to 2022 and were most likely attributed by the impact of the COVID-19 phenomenon. These outliers had significantly affected the irregular components of some of the sub-industries of Services. Among the sub-industries under Services, Sale and repair of motor vehicles and motorcycles, and Accommodation services showed violations in the Q-statistics which were caused by the large irregular components in its series.

Figure 5. Household Final Consumption Expenditure
Original Data vs. Seasonally Adjusted
Q1 2000 to Q2 2022



Household Final Consumption Expenditure (HFCE) also declined by -12.7 percent in the second quarter of 2020. Only Food and non-alcoholic beverages, Housing, water, electricity, gas, and other fuels, and Communication posted positive growths. Transport, Restaurant and hotels were the top contributors to the decline of HFCE. For the second quarter of 2020, HFCE decreased by 2.5 percent due to seasonality. This is a higher decrease compared to the forecasted seasonal index without the pandemic which decreases HFCE by 0.9 percent only for the second quarter of 2020.

All components of the HFCE exhibited presence of seasonality during the pre-pandemic and post-pandemic periods (See Annex Table D.1.1, Table D.2.1). In terms of the quality measures of the seasonal adjustment, majority of the components were affected by the pandemic with the large effect on the irregular components which made the most of the series with large M3 to M5 on the quality assessment during the post-pandemic period. Health, Transport, Recreation and culture,

Education and Restaurants and hotels were the components that were greatly affected by the pandemic.

IV. Conclusions and Future Directions

The effect of the pandemic to the Philippine economic time series was evident, affecting most of the series with extreme downturns or outliers making the seasonal adjustment more complicated.

Several Institutions like US Bureau of Labor Statistics (BLS), Stats NZ, Australian Bureau of Statistics (ABS), European Commission and others have already applied some interventions in terms of their seasonal adjustment procedure. Some of their interventions include modelling of the outliers during the pandemic periods. With appropriate model to properly account or allocate these outliers in the time series components, the use of Semi-concurrent seasonal adjustment procedure may also help in the intervention. Consider the length of the series from 5 to 15 years as recommended for seasonal adjustment. Likewise, the use of Census X13-SEATS or TRAMO SEATS can be tested through simulations to ensure which method can account/estimate the seasonality better during the pandemic periods.

For the National Accounts of the Philippines, PSA shall continue to conduct studies and research to improve its seasonal adjustment procedure based on international recommendations. Also, the PSA shall continue doing the indirect approach in the generation of SANA as this would give detailed information or explanations on the possible contributors affecting the performance of the economy. Moreover, the PSA shall conduct future trainings to capacitate its technical staff on manual specification of the time series models that will best fit the data, and other possible treatments of factors affecting the series other than seasonality such as outliers, calendar effects, and structural change.

As presented in the discussion of AFF above, Agriculture industry is the least affected during the time of pandemic as it continued to exhibit same patterns during the series. Many studies show that this sector is vulnerable to climate shocks but not to shocks like the COVID-19 pandemic.

With this, economic planners may consider interventions that may lead to more investments in the agriculture industry since it is the least affected by the pandemic. The agriculture sector is one of the main sources of raw materials needed to produce other materials like those in the Manufacturing industries. For Industry, Services, and Household Consumption, planners may consider new and effective strategies for the economy to speed up the recovery and to prepare for the future uncertainties like other pandemic/disasters that may occur that can lead to another global recession.

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ANNEX

I. Series Assessments

A. Agriculture, Forestry and Fishing

A.1 Post Pandemic Period

Table A.1.1 Agriculture, Forestry and Fishing Series Assessment, Q1 2000 to Q2 2022

Series	Palay	Corn	Coconut	Sugarcane including sugar-making in the farm	Banana	Mango	Pineapple	Coffee	Cassava	Rubber
Transformation	None	None	Log	Log	Log	Log	Log	Log	Log	None
Seasonality Present	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Trading days	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant
Easter	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant
Outliers	1 Outlier Detected	None	3 Outliers Detected	1 Outlier Detected	1 Outlier Detected	3 Outliers Detected	4 Outliers Detected	3 Outliers Detected	4 Outliers Detected	3 Outliers Detected
ARIMA	(0,1,1) (0,1,1)	(0,0,0) (0,1,1)	(2,0,0) (0,1,0)	(3,0,1) (0,1,1)	(1,0,0) (0,1,0)	(0,0,0) (1,1,0)	(1,0,1) (0,1,1)	(0,0,1) (0,1,1)	(1,0,0) (1,1,0)	(2,0,0) (0,1,0)
m1	0.08	0.26	0.03	0.01	0.06	0.00	0.06	0.01	0.03	0.05
m2	0.09	0.40	0.03	0.09	0.02	0.01	0.08	0.01	0.04	0.08
m3	1.35	1.83	0.71	1.20	0.21	1.40	1.50	0.13	0.72	1.66
m4	0.52	0.33	1.31	1.31	0.52	0.33	0.42	0.36	0.72	1.40
m5	1.71	3.00	0.99	1.00	0.44	2.19	1.37	0.37	0.77	1.06
m6	0.30	0.10	1.25	0.01	1.15	1.31	0.10	1.31	1.24	1.14
m7	0.07	0.20	0.29	0.09	0.24	0.14	0.06	0.90	0.30	0.42
m8	0.23	0.43	0.72	0.23	0.98	0.33	0.22	0.59	0.95	0.78
m9	0.05	0.27	0.44	0.15	0.37	0.25	0.14	0.52	0.49	0.56
m10	0.24	0.27	0.37	0.47	0.78	0.15	0.17	0.26	0.90	0.69
m11	0.24	0.21	0.37	0.47	0.78	0.14	0.17	0.25	0.90	0.47
q	0.46	0.72	0.51	0.43	0.35	0.54	0.41	0.38	0.50	0.69
q-m2	0.51	0.76	0.57	0.47	0.40	0.61	0.45	0.44	0.56	0.78
Trend Filter	7-Henderson	7-Henderson	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	7-Henderson	7-Henderson	5 terms Henderson moving average	5 terms Henderson moving average	7-Henderson
Seasonal Filter	3x5	3x5	3x3	3x5	3x3	3x3	3x5	3x3	3x3	3x3
Residual Seasonality (entire series)	None	None	None	None	None	None	None	None	None	None
Residual Seasonality (last 3 years)	None	None	None	None	None	None	None	None	None	None

Table A.1.1 Agriculture, Forestry and Fishing Series Assessment, Q1 2000 to Q2 2022 (continuation)

Series	Cacao	Abaca	Tobacco	Other agricultural crops, n.e.c.	Livestock	Poultry and egg production	Other animal production	Forestry and logging	Fishing and aquaculture	Support activities to agriculture, forestry and fishing
Transformation	Log	None	Log	Log	Log	Log	Log	Log	Log	None
Seasonality Present	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Trading days	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant
Easter	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant
Outliers	None	3 Outliers Detected	3 Outliers Detected	None	1 Outlier Detected	None	1 Outlier Detected	None	3 Outliers Detected	None
ARIMA	(0,1,1) (0,1,1)	(1,0,0) (0,1,0)	(2,0,0) (0,1,0)	(0,1,1) (0,1,1)	(0,1,0) (0,1,1)	(1,0,0) (0,1,1)	(0,1,1) (0,1,1)	(0,0,2) (0,1,1)	(0,1,1) (0,1,0)	(1,0,0) (0,1,0)

Series	Cacao	Abaca	Tobacco	Other agricultural crops, n.e.c.	Livestock	Poultry and egg production	Other animal production	Forestry and logging	Fishing and aquaculture	Support activities to agriculture, forestry and fishing
m1	0.04	0.04	0.08	0.03	0.03	0.01	0.01	0.38	0.06	0.05
m2	0.05	0.03	0.14	0.03	0.02	0.02	0.00	0.28	0.03	0.04
m3	0.75	0.76	1.34	0.64	0.01	0.17	0.00	1.06	0.66	0.16
m4	0.62	0.62	0.52	0.33	0.72	0.62	0.62	1.31	1.01	0.33
m5	0.81	0.69	1.02	0.85	0.20	0.33	0.20	0.74	0.63	0.21
m6	0.89	0.87	0.85	0.93	0.77	0.69	0.59	0.04	1.05	1.16
m7	0.11	0.10	0.16	0.10	0.13	0.06	0.06	0.15	0.30	0.32
m8	0.55	0.48	0.81	0.50	0.45	0.26	0.21	0.52	0.72	0.80
m9	0.27	0.17	0.40	0.18	0.22	0.13	0.07	0.21	0.55	0.56
m10	0.76	0.54	1.32	0.54	0.74	0.11	0.27	0.53	0.38	0.93
m11	0.76	0.54	1.28	0.54	0.74	0.06	0.27	0.43	0.37	0.87
q	0.40	0.35	0.59	0.33	0.24	0.17	0.14	0.48	0.44	0.33
q-m2	0.45	0.39	0.65	0.38	0.27	0.19	0.16	0.50	0.50	0.37
Trend Filter	5 terms Henderson moving average	5 terms Henderson moving average	7-Henderson	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average
Seasonal Filter	3x3	3x3	3x3	3x3	3x3	3x3	3x3	3x5	3x3	3x3
Residual Seasonality (entire series)	None	None	None	None	None	None	None	None	None	None
Residual Seasonality (last 3 years)	None	None	None	None	None	None	None	None	None	None

A.2 Pre-Pandemic Period

Table A.2.1 Agriculture, Forestry and Fishing Series Assessment, Q1 2000 to Q2 2019

Series	Palay	Corn	Coconut	Sugarcane including sugar-making in the farm	Banana	Mango	Pineapple	Coffee	Cassava	Rubber
Transformation	None	None	Log	Log	Log	Log	Log	Log	Log	None
Seasonality Present	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Trading days	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Significant	Not Significant	Not Significant
Easter	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant
Outliers	None	None	2 Outliers Detected	5 Outliers Detected	1 Outlier Detected	3 Outliers Detected	5 Outliers Detected	1 Outlier Detected	3 Outliers Detected	2 Outliers Detected
ARIMA	(1,0,0) (0,1,0)	(0,0,0) (0,1,1)	(2,0,0) (0,1,0)	(0,0,0) (0,1,0)	(1,0,0) (0,1,0)	(0,0,0) (1,1,0)	(0,0,0) (1,1,1)	(1,0,1) (1,1,0)	(1,0,0) (1,1,0)	(1,0,1) (0,1,0)
m1	0.10	0.28	0.04	0.00	0.07	0.01	0.03	0.02	0.04	0.07
m2	0.11	0.40	0.05	0.04	0.03	0.01	0.03	0.02	0.06	0.10
m3	1.34	1.72	0.84	0.62	0.21	1.40	0.92	0.51	0.66	1.43
m4	0.21	0.31	1.25	0.62	0.31	0.31	0.94	0.42	0.42	1.04
m5	1.60	3.00	0.96	1.71	0.43	2.19	0.89	0.75	0.73	1.03
m6	0.44	0.02	1.20	0.62	1.14	1.32	0.57	1.29	1.20	1.08
m7	0.08	0.21	0.35	0.08	0.23	0.14	0.07	1.09	0.33	0.44
m8	0.26	0.44	0.84	0.33	0.97	0.37	0.20	0.74	0.91	0.83
m9	0.09	0.38	0.66	0.13	0.31	0.28	0.16	0.60	0.61	0.63
m10	0.21	0.28	0.16	0.38	1.21	0.46	0.22	0.57	0.49	0.90
m11	0.20	0.24	0.13	0.30	1.18	0.46	0.21	0.56	0.42	0.90
q	0.45	0.72	0.53	0.42	0.37	0.57	0.38	0.56	0.43	0.68
q-m2	0.49	0.76	0.60	0.47	0.41	0.65	0.42	0.64	0.49	0.76

Series	Palay	Corn	Coconut	Sugarcane including sugar-making in the farm	Banana	Mango	Pineapple	Coffee	Cassava	Rubber
Trend Filter	7-Henderson	7-Henderson	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	7-Henderson	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	7-Henderson
Seasonal Filter	3x5	3x5	3x3	3x3	3x3	3x3	3x5	3x3	3x3	3x3
Residual Seasonality (entire series)	None	None	None	None	None	None	None	None	None	None
Residual Seasonality (last 3 years)	None	None	None	None	None	None	None	None	None	None

Table A.2.1 Agriculture, Forestry and Fishing Series Assessment, Q1 2000 to Q2 2019 (*continuation*)

Series	Cacao	Abaca	Tobacco	Other agricultural crops, n.e.c.	Livestock	Poultry and egg production	Other animal production	Forestry and logging	Fishing and aquaculture	Support activities to agriculture, forestry and fishing
Transformation	Log	Log	Log	Log	Log	Log	Log	Log	Log	None
Seasonality Present	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Trading days	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant
Easter	Easter [15]	Easter [15]	Not Significant	Easter [15]	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant
Outliers	1 Outlier Detected	1 Outlier Detected	2 Outliers Detected	1 Outlier Detected	2 Outliers Detected	None	None	None	2 Outliers Detected	None
ARIMA	(1,0,0) (0,1,0)	(1,0,0) (0,1,0)	(1,0,0) (0,1,0)	(1,0,0) (0,1,0)	(2,0,1) (0,1,1)	(1,0,0) (0,1,1)	(1,1,0) (0,1,1)	(0,0,2) (0,1,1)	(0,1,1) (0,1,0)	(1,0,0) (0,1,0)
m1	0.02	0.02	0.01	0.02	0.01	0.02	0.01	0.47	0.07	0.06
m2	0.03	0.02	0.01	0.02	0.02	0.02	0.00	0.31	0.04	0.06
m3	0.72	0.71	0.40	0.67	0.00	0.17	0.00	1.05	0.63	0.19
m4	0.62	0.62	0.62	0.62	0.52	0.52	0.73	1.25	0.94	0.62
m5	0.87	0.88	0.59	0.84	0.20	0.25	0.20	0.68	0.54	0.32
m6	0.86	0.86	0.95	0.86	0.69	0.78	0.60	0.03	1.02	1.14
m7	0.09	0.09	0.09	0.09	0.07	0.07	0.07	0.15	0.32	0.33
m8	0.43	0.43	0.43	0.43	0.32	0.27	0.20	0.46	0.79	0.83
m9	0.16	0.16	0.14	0.16	0.22	0.14	0.16	0.14	0.57	0.65
m10	0.28	0.28	0.31	0.29	0.39	0.15	0.14	0.34	0.36	1.19
m11	0.27	0.27	0.31	0.28	0.37	0.13	0.14	0.33	0.34	1.11
q	0.34	0.34	0.26	0.33	0.17	0.16	0.14	0.46	0.43	0.41
q-m2	0.38	0.38	0.30	0.37	0.19	0.18	0.16	0.48	0.49	0.46
Trend Filter	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average
Seasonal Filter	3x3	3x3	3x3	3x3	3x3	3x3	3x3	3x5	3x3	3x3
Residual Seasonality (entire series)	None	None	None	None	None	None	None	None	None	None
Residual Seasonality (last 3 years)	None	None	None	None	None	None	None	None	None	None

B. Industry

B.1 Post Pandemic Period

Table B.1.1 Industry Series Assessment, Q1 2000 to Q2 2022

Series	Mining of coal	Extraction of crude petroleum and natural gas	Mining of gold and other precious metal ores	Mining of nickel ores	Mining of copper ores	Stone quarrying, and other mining and quarrying	Manufacture of food products	Manufacture of beverages	Manufacture of tobacco products	Manufacture of textiles	Manufacture of wearing apparel
Transformation	Log	None	Log	Log	Log	Log	Log	Log	Log	None	None
Seasonality Present	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Trading days	Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Significant	Not Significant	Not Significant	Not Significant
Easter	Not significant	Not significant	Not significant	Not significant	Not significant	Not significant	Not significant	Not significant	Not significant	Not significant	Not significant
Outliers	None	2 Outliers Detected	1 Outlier Detected	2 Outliers Detected	3 Outliers Detected	2 Outliers Detected	1 Outlier Detected	2 Outliers Detected	1 Outlier Detected	1 Outlier Detected	1 Outlier Detected
ARIMA	(1,0,1) (0,1,1)	(0,1,1) (0,1,1)	(0,1,1) (0,1,1)	(0,1,1) (0,1,0)	(0,1,1) (0,1,0)	(0,1,1) (0,1,1)	(0,0,0) (0,1,0)	(1,0,0) (0,1,1)	(1,0,0) (0,1,0)	(1,0,0) (0,1,0)	(1,0,0) (0,1,0)
m1	0.43	0.18	3.00	0.09	0.01	0.22	0.02	0.04	0.19	0.33	0.16
m2	0.26	0.16	3.00	0.08	0.02	0.21	0.03	0.02	0.15	0.22	0.14
m3	0.81	1.30	1.20	0.58	0.47	0.78	0.35	0.37	0.73	0.89	0.49
m4	1.11	0.72	1.01	1.01	0.82	1.50	0.82	0.91	0.07	1.50	0.52
m5	0.88	1.35	0.98	0.88	0.98	0.79	0.53	0.26	0.90	0.70	0.37
m6	0.76	0.52	0.01	0.90	0.78	0.66	0.98	0.49	0.83	0.93	1.20
m7	0.21	0.26	1.99	0.17	0.16	0.25	0.17	0.09	0.31	0.57	0.43
m8	0.39	0.62	1.96	0.71	0.27	0.87	0.46	0.22	0.84	1.78	1.22
m9	0.06	0.30	0.87	0.23	0.10	0.41	0.32	0.10	0.53	0.50	0.60
m10	0.43	0.47	1.41	0.42	0.37	0.97	0.40	0.16	1.12	2.08	0.41
m11	0.38	0.47	1.41	0.23	0.37	0.97	0.34	0.15	1.12	2.08	0.37
q	0.52	0.82	1.61	0.42	0.34	0.60	0.31	0.25	0.50	0.86	0.44
q-m2	0.55	0.64	1.44	0.46	0.39	0.66	0.35	0.27	0.55	0.95	0.49
Trend Filter	5 terms Henderson moving average	7-Henderson	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average
Seasonal Filter	3x5	3x3	3x5	3x3	3x3	3x3	3x3	3x5	3x3	3x3	3x3
Residual Seasonality (entire series)	None	None	None	None	None	None	None	None	None	None	None
Residual Seasonality (last 3 years)	None	None	None	None	None	None	None	None	None	None	None

Table B.1.1 Industry Series Assessment, Q1 2000 to Q2 2022 (continuation)

Series	Manufacture of leather and related products, including footwear	Manufacture of wood, bamboo, cane, rattan articles and related products	Manufacture of paper and paper products	Printing and reproduction of recorded media	Manufacture of coke and refined petroleum products	Manufacture of chemical and chemical products	Manufacture of basic pharmaceutical products and pharmaceutical preparations	Manufacture of rubber and plastic products	Manufacture of other non-metallic mineral products	Manufacture of basic metals	Manufacture of fabricated metal products, except machinery and equipment
Transformation	None	Log	Log	Log	None	Log	Log	Log	Log	Log	Log
Seasonality Present	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Trading days	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant
Easter	Easter [1]	Easter [8]	Not significant	Not significant	Not significant	Not significant	Easter [15]	Not significant	Not significant	Not significant	Not significant
Outliers	None	None	1 Outlier Detected	1 Outlier Detected	1 Outlier Detected	None	None	2 Outliers Detected	1 Outlier Detected	None	1 Outlier Detected
ARIMA	(1,0,0) (0,1,0)	(1,0,0) (0,1,0)	(1,0,0) (0,1,1)	(1,0,0) (0,1,1)	(1,0,0) (0,1,0)	(0,0,1) (0,1,1)	(1,0,0) (1,1,0)	(1,0,0) (0,1,0)	(1,0,0) (0,1,0)	(1,0,0) (0,1,1)	(1,0,0) (0,1,0)

Series	Manufacture of leather and related products, including footwear	Manufacture of wood, bamboo, cane, rattan articles and related products	Manufacture of paper and paper products	Printing and reproduction of recorded media	Manufacture of coke and refined petroleum products	Manufacture of chemical and chemical products	Manufacture of basic pharmaceutical products and pharmaceutical preparations	Manufacture of rubber and plastic products	Manufacture of other non-metallic mineral products	Manufacture of basic metals	Manufacture of fabricated metal products, except machinery and equipment
m1	0.07	0.04	0.08	0.07	0.22	0.42	0.21	0.20	0.11	0.27	0.03
m2	0.05	0.05	0.04	0.05	0.14	0.25	0.13	0.13	0.10	0.25	0.06
m3	0.75	0.43	0.29	0.49	0.31	0.84	0.62	0.56	0.36	0.69	0.75
m4	1.01	0.72	0.72	0.82	1.11	0.82	0.82	0.82	0.62	0.72	1.11
m5	0.73	0.49	0.36	0.47	0.66	0.65	0.56	0.59	0.42	0.64	0.59
m6	1.13	0.83	0.51	0.81	1.07	0.38	0.89	1.05	0.93	0.51	0.62
m7	0.32	0.24	0.18	0.17	0.95	0.22	0.30	0.55	0.21	0.48	0.12
m8	0.73	0.67	0.55	0.82	1.88	0.60	0.83	1.10	1.04	1.32	0.48
m9	0.69	0.40	0.22	0.15	0.87	0.38	0.38	0.90	0.44	0.86	0.16
m10	0.67	0.30	0.38	1.10	3.00	1.30	1.68	1.13	1.00	1.23	0.65
m11	0.67	0.26	0.32	1.05	3.00	1.30	1.68	1.07	0.97	1.07	0.65
q	0.51	0.34	0.28	0.40	0.93	0.54	0.55	0.61	0.42	0.65	0.40
q-m2	0.57	0.38	0.32	0.45	1.04	0.58	0.61	0.68	0.46	0.70	0.44
Trend Filter	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average
Seasonal Filter	3x3	3x3	3x3	3x3	3x3	3x5	3x3	3x3	3x3	3x3	3x3
Residual Seasonality (entire series)	None	None	None	None	None	None	None	None	None	None	None
Residual Seasonality (last 3 years)	None	None	None	None	None	None	None	None	None	None	None

Table B.3 Industry Series Assessment, Q1 2000 to Q2 2022 (continuation)

Series	Manufacture of computer, electronic and optical products	Manufacture of electrical equipment	Manufacture of machinery and equipment except electrical	Manufacture of transport equipment	Manufacture of furniture	Other manufacturing	Electricity	Steam	Water supply	Waste management	Construction
Transformation	Log	Log	Log	Log	Log	Log	Log	Log	None	None	Log
Seasonality Present	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Trading days	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant
Easter	Not significant	Not significant	Not significant	Not significant	Not significant	Not significant	Not significant	Not significant	Not significant	Not significant	Not significant
Outliers	2 Outliers Detected	2 Outliers Detected	1 Outlier Detected	1 Outlier Detected	2 Outliers Detected		2 Outliers Detected	None	None	2 Outliers Detected	2 Outliers Detected
ARIMA	(1,0,0) (0,1,1)	(1,0,0) (1,1,0)	(1,0,0) (0,1,0)	(1,0,0) (1,1,0)	(1,0,0) (0,1,1)	(1,0,0) (0,1,0)	(1,0,0) (0,1,1)	(0,1,1) (0,1,1)	(1,1,1) (1,1,0)	(2,0,1) (1,1,0)	(0,1,1) (0,1,1)
m1	0.06	0.25	0.25	0.28	0.14	0.26	0.05	0.67	0.29	0.09	0.34
m2	0.06	0.20	0.06	0.16	0.06	0.06	0.04	0.38	0.15	0.05	3.00
m3	0.28	0.51	0.26	0.43	0.33	0.19	0.11	1.02	0.20	0.05	1.10
m4	0.72	0.91	0.52	1.01	0.91	1.01	1.11	1.21	0.82	0.72	1.60
m5	0.59	0.54	0.42	0.59	0.42	0.25	0.20	0.94	0.20	0.20	0.70
m6	1.07	0.95	1.01	0.68	0.57	0.87	0.55	0.44	0.82	1.25	0.41
m7	0.40	0.53	0.70	0.40	0.19	0.84	0.11	0.39	0.31	0.78	0.27
m8	0.91	1.10	1.78	1.06	0.75	1.31	0.42	0.84	1.62	1.37	0.72
m9	0.49	0.48	0.74	0.80	0.27	1.00	0.26	0.39	0.55	0.84	0.54
m10	0.46	0.42	3.00	0.68	0.98	0.97	0.26	0.97	2.03	2.81	1.07
m11	0.39	0.41	3.00	0.52	0.96	0.97	0.26	0.96	1.79	2.81	1.07
q	0.41	0.52	0.77	0.54	0.40	0.61	0.24	0.69	0.57	0.69	0.94
q-m2	0.46	0.57	0.86	0.59	0.44	0.69	0.27	0.73	0.63	0.78	0.69
Trend Filter	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average
Seasonal Filter	3x3	3x3	3x3	3x3	3x3	3x3	3x3	3x5	3x3	3x3	3x5

Series	Manufacture of computer, electronic and optical products	Manufacture of electrical equipment	Manufacture of machinery and equipment except electrical	Manufacture of transport equipment	Manufacture of furniture	Other manufacturing	Electricity	Steam	Water supply	Waste management	Construction
Residual Seasonality (entire series)	None	None	None	None	None	None	None	None	None	None	None
Residual Seasonality (last 3 years)	None	None	None	None	None	None	None	None	None	None	None

B.2 Pre-Pandemic Period

Table B.2.1 Industry Series Assessment, Q1 2000 to Q2 2019

Series	Mining of coal	Extraction of crude petroleum and natural gas	Mining of gold and other precious metal ores	Mining of nickel ores	Mining of copper ores	Stone quarrying, and other mining and quarrying	Manufacture of food products	Manufacture of beverages	Manufacture of tobacco products	Manufacture of textiles	Manufacture of wearing apparel
Transformation	Log	None	Log	Log	Log	Log	None	Log	Log	Log	Log
Seasonality Present	Present	Present	None	Present	Present	Present	Present	Present	Present	Present	Present
Trading days	Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Significant	Not Significant	Not Significant	Not Significant
Easter	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant
Outliers	2 Outliers Detected	2 Outliers Detected	1 Outlier Detected	2 Outliers Detected	4 Outliers Detected	None	None	1 Outlier Detected	1 Outlier Detected	None	1 Outlier Detected
ARIMA	(1,0,0) (0,1,1)	(0,1,1) (1,1,0)	(0,1,1) (0,0,0)	(0,1,1) (0,1,0)	(1,0,1) (0,1,0)	(1,0,1) (0,1,1)	(1,0,0) (1,1,1)	(1,0,0) (0,1,1)	(1,0,0) (0,1,0)	(1,0,1) (1,0,0)	(1,0,0) (0,1,0)
m1	0.31	0.23	3.00	0.10	0.00	0.22	0.04	0.05	0.16	0.66	0.13
m2	0.22	0.19	3.00	0.09	0.01	0.18	0.03	0.03	0.12	0.42	0.09
m3	0.69	1.40	1.43	0.63	0.05	0.77	0.60	0.43	0.67	1.30	0.56
m4	1.14	0.73	0.21	0.83	0.31	1.14	0.83	0.83	0.10	0.73	0.52
m5	0.67	1.41	3.00	0.92	0.20	0.78	0.50	0.26	0.84	0.95	0.49
m6	0.09	0.54	0.11	0.92	0.40	0.55	1.18	0.43	0.86	0.78	1.20
m7	0.13	0.30	1.93	0.19	0.03	0.28	0.35	0.08	0.32	0.61	0.39
m8	0.35	0.63	2.20	0.71	0.08	0.97	0.66	0.23	0.93	1.80	1.26
m9	0.14	0.51	1.19	0.16	0.02	0.40	0.61	0.06	0.58	0.74	0.65
m10	0.63	0.26	2.73	0.49	0.11	0.97	0.84	0.29	1.16	2.32	0.79
m11	0.60	0.26	2.69	0.44	0.11	0.93	0.84	0.27	1.16	2.03	0.79
q	0.40	0.61	1.93	0.42	0.11	0.58	0.45	0.25	0.50	0.96	0.49
q-m2	0.43	0.67	1.80	0.47	0.13	0.63	0.51	0.27	0.56	1.04	0.54
Trend Filter	5 terms Henderson moving average	7-Henderson	7-Henderson	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	7-Henderson	5 terms Henderson moving average
Seasonal Filter	3x5	3x3	3x5	3x3	3x5	3x3	3x3	3x5	3x3	3x3	3x3
Residual Seasonality (entire series)	None	None	None	None	None	None	None	None	None	None	None
Residual Seasonality (last 3 years)	None	None	None	None	None	None	None	None	None	None	None

Table B.2.2 Industry Series Assessment, Q1 2000 to Q2 2019 (continuation)

Series	Manufacture of leather and related products, including footwear	Manufacture of wood, bamboo, cane, rattan articles and related products	Manufacture of paper and paper products	Printing and reproduction of recorded media	Manufacture of coke and refined petroleum products	Manufacture of chemical and chemical products	Manufacture of basic pharmaceutical products and pharmaceutical preparations	Manufacture of rubber and plastic products	Manufacture of other non-metallic mineral products	Manufacture of basic metals	Manufacture of fabricated metal products, except machinery and equipment
Transformation	Log	Log	Log	Log	Log	Log	Log	Log	Log	Log	Log
Seasonality Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present
Trading days	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant
Easter	Easter [1]	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Easter [15]	Not Significant	Not Significant	Not Significant	Not Significant
Outliers	1 Outlier Detected	None	None	2 Outliers Detected	None	None	1 Outlier Detected	1 Outlier Detected	None	None	None
ARIMA	(1,0,0) (0,1,0)	(1,0,0) (0,1,0)	(1,0,0) (0,1,1)	(1,0,0) (0,1,0)	(1,0,0) (0,1,1)	(0,1,1) (0,1,1)	(1,0,0) (0,1,0)	(1,0,0) (0,1,0)	(1,0,0) (0,1,0)	(1,0,0) (0,1,1)	(1,0,0) (0,1,0)
m1	0.08	0.05	0.10	0.04	0.60	0.35	0.10	0.23	0.09	0.29	0.03
m2	0.06	0.07	0.05	0.05	0.33	0.17	0.07	0.14	0.10	0.23	0.06
m3	0.59	0.50	0.31	0.34	0.49	0.91	0.60	0.55	0.23	0.60	0.76
m4	1.04	0.83	0.73	0.83	0.73	0.83	1.14	0.83	0.42	0.83	1.14
m5	0.59	0.57	0.36	0.47	0.75	0.67	0.62	0.64	0.43	0.60	0.56
m6	1.15	0.83	0.53	0.98	0.88	0.20	1.00	1.05	0.98	0.62	0.60
m7	0.26	0.27	0.21	0.18	0.89	0.17	0.36	0.59	0.22	0.50	0.13
m8	0.78	0.73	0.60	0.74	2.19	0.51	0.78	1.30	0.97	1.45	0.49
m9	0.66	0.43	0.27	0.26	0.74	0.14	0.53	1.06	0.32	1.03	0.21
m10	0.51	0.40	0.52	1.09	3.00	0.81	1.15	1.85	0.52	1.65	0.58
m11	0.51	0.37	0.43	0.89	3.00	0.76	1.04	1.85	0.46	1.57	0.41
q	0.46	0.39	0.31	0.38	0.99	0.44	0.53	0.72	0.32	0.71	0.39
q-m2	0.51	0.44	0.35	0.43	1.08	0.48	0.60	0.80	0.35	0.78	0.44
Trend Filter	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average
Seasonal Filter	3x3	3x3	3x3	3x3	3x3	3x5	3x3	3x3	3x3	3x3	3x3
Residual Seasonality (entire series)	None	None	None	None	None	None	None	None	None	None	None
Residual Seasonality (last 3 years)	None	None	None	None	None	None	None	None	None	None	None

Table B.2.3 Industry Series Assessment, Q1 2000 to Q2 2019 (continuation)

Series	Manufacture of computer, electronic and optical products	Manufacture of electrical equipment	Manufacture of machinery and equipment except electrical	Manufacture of transport equipment	Manufacture of furniture	Other manufacturing	Electricity	Steam	Water supply	Waste management	Construction
Transformation	Log	Log	Log	Log	Log	Log	Log	Log	None	Log	Log
Seasonality Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present
Trading days	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant
Easter	Not Significant	Not Significant	Easter [15]	Easter [15]	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Easter [15]
Outliers	None	None	1 Outlier Detected	None	None	None	1 Outlier Detected	1 Outlier Detected	None	None	1 Outlier Detected
ARIMA	(1,0,0) (0,1,0)	(2,0,1) (1,1,0)	(1,0,0) (0,1,0)	(1,0,0) (1,1,0)	(1,0,0) (0,1,1)	(1,0,0) (1,0,0)	(1,0,0) (0,1,1)	(0,1,1) (0,1,1)	(0,1,0) (1,1,0)	(2,0,1) (0,1,0)	(0,1,1) (0,1,1)
m1	0.08	0.32	0.26	0.33	0.14	0.29	0.05	0.48	0.24	0.07	0.26
m2	0.05	0.20	0.08	0.20	0.06	0.05	0.04	0.28	0.11	0.06	0.18
m3	0.22	0.43	0.16	0.51	0.21	0.17	0.11	0.72	0.14	0.00	0.71
m4	0.94	0.83	0.52	0.94	0.62	0.62	0.94	0.83	0.94	0.94	0.83
m5	0.45	0.41	0.22	0.53	0.20	0.20	0.20	0.77	0.20	0.20	0.61

Series	Manufacture of computer, electronic and optical products	Manufacture of electrical equipment	Manufacture of machinery and equipment except electrical	Manufacture of transport equipment	Manufacture of furniture	Other manufacturing	Electricity	Steam	Water supply	Waste management	Construction
m6	1.12	0.99	0.81	0.66	0.56	0.89	0.51	0.31	0.83	1.16	0.21
m7	0.48	0.59	0.51	0.35	0.23	0.90	0.11	0.38	0.34	0.46	0.20
m8	1.13	1.29	1.52	1.08	0.88	1.52	0.44	0.89	1.34	0.97	0.61
m9	0.60	0.61	0.44	0.64	0.29	1.00	0.25	0.46	0.33	0.67	0.32
m10	0.92	1.10	1.63	0.74	0.77	1.68	0.41	0.63	1.73	0.89	0.58
m11	0.90	0.98	1.14	0.57	0.51	1.60	0.40	0.46	1.60	0.82	0.50
q	0.49	0.59	0.51	0.53	0.32	0.66	0.24	0.57	0.51	0.42	0.41
q-m2	0.55	0.65	0.57	0.57	0.35	0.74	0.27	0.61	0.56	0.47	0.44
Trend Filter	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average
Seasonal Filter	3x3	3x3	3x3	3x3	3x3	3x3	3x3	3x3	3x3	3x3	3x5
Residual Seasonality (entire series)	None	None	None	None	None	None	None	None	None	None	None
Residual Seasonality (last 3 years)	None	None	None	None	None	None	None	None	None	None	None

C. Services

C.1 Post Pandemic Period

Table C.1.1 Services Series Assessment, Q1 2000 to Q2 2022

Series	Wholesale trade, except of motor vehicles and motorcycles	Retail trade, except of motor vehicles and motorcycles	Sale and repair of motor vehicles and motorcycles	Land transport	Water transport	Air transport	Warehousing and storage, and support activities for transportation	Postal and courier activities	Accommodation
Transformation	Log	Log	None	Log	Log	None	Log	Log	Log
Seasonality Present	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Trading days	Not significant	Not significant	Not significant	Not significant	Not significant	Not significant	Not significant	Not significant	Not significant
Easter	Not significant	Not significant	Not significant	Not significant	Not significant	Not significant	Easter [8]	Easter [8]	Not significant
Outliers	1 Outlier Detected	3 Outliers Detected	4 Outliers Detected	5 Outliers Detected	3 Outliers Detected	5 Outliers Detected	None	2 Outliers Detected	5 Outliers Detected
ARIMA	(1,0,0) (0,1,0)	(0,1,1) (1,1,0)	(0,1,0) (1,0,0)	(1,0,0) (0,1,0)	(0,0,1) (0,1,0)	(1,0,1) (0,1,0)	(0,1,0) (1,0,0)	(1,1,0) (1,1,0)	(1,0,1) (1,1,0)
m1	0.11	0.01	0.49	0.04	0.10	0.20	0.39	0.02	0.08
m2	0.07	0.01	3.00	3.00	3.00	3.00	0.09	0.00	3.00
m3	0.43	0.00	0.13	0.12	0.29	0.10	0.08	0.00	0.00
m4	1.01	0.72	0.72	1.31	0.07	0.42	0.62	0.52	0.36
m5	0.53	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
m6	0.92	1.12	0.91	1.08	1.15	1.00	0.82	1.02	1.08
m7	0.25	0.12	1.25	0.28	0.38	0.76	0.50	0.10	0.86
m8	0.64	0.41	2.26	0.69	1.23	1.37	1.64	0.47	1.29
m9	0.47	0.24	0.55	0.39	0.41	0.06	0.40	0.27	0.93
m10	1.46	0.31	3.00	0.62	1.89	2.59	3.00	0.48	3.00
m11	1.46	0.27	3.00	0.53	1.84	2.59	3.00	0.47	3.00
q	0.49	0.19	1.26	0.72	0.81	0.79	0.67	0.19	1.04
q-m2	0.55	0.21	1.02	0.40	0.51	0.67	0.75	0.22	0.77
Trend Filter	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average
Seasonal Filter	3x3	3x3	3x3	3x3	3x3	3x3	3x3	3x3	3x3

Series	Wholesale trade, except of motor vehicles and motorcycles	Retail trade, except of motor vehicles and motorcycles	Sale and repair of motor vehicles and motorcycles	Land transport	Water transport	Air transport	Warehousing and storage, and support activities for transportation	Postal and courier activities	Accommodation
Residual Seasonality (entire series)	None	None	None	None	None	None	None	None	None
Residual Seasonality (last 3 years)	None	None	None	None	None	None	None	None	None

Table C.1.2 Services Series Assessment, Q1 2000 to Q2 2022 (continuation)

Series	Food and beverage service activities	Information and publishing	Communication	Banking institutions	Non-banks	Insurance and pension funding except compulsory social security	Activities auxiliary to financial services	Real estate	Ownership of dwellings
Transformation	None	Log	Log	Log	None	Log	Log	Log	None
Seasonality Present	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Trading days	Not significant	Not significant	Not significant	Not significant	Not significant	Not significant	Not significant	Not significant	Not significant
Easter	Not significant	Not significant	Easter [1]	Not significant	Not significant	Not significant	Not significant	Not significant	Not significant
Outliers	5 Outliers Detected	1 Outlier Detected	None	2 Outliers Detected	3 Outliers Detected	None	None	1 Outlier Detected	5 Outliers Detected
ARIMA	(1,0,0) (1,1,0)	(0,1,1) (0,1,0)	(1,1,1) (0,1,0)	(1,0,0) (0,1,0)	(0,0,0) (0,1,1)	(1,0,0) (1,1,0)	(0,1,1) (0,1,1)	(0,1,1) (0,1,1)	(1,1,0) (0,1,1)
m1	0.08	0.08	0.02	0.12	0.06	0.22	0.24	0.67	0.01
m2	3.00	0.07	0.01	0.16	0.06	0.06	0.49	0.05	0.00
m3	0.05	0.09	0.00	0.13	0.84	0.01	0.63	0.27	0.00
m4	0.82	0.91	0.72	1.31	1.21	0.72	1.50	1.01	0.91
m5	0.22	0.20	0.20	0.20	0.70	0.20	0.56	0.20	0.20
m6	1.04	0.91	1.10	0.78	1.01	0.92	0.45	0.38	0.65
m7	0.32	0.36	0.13	0.28	0.40	0.44	0.30	0.34	0.05
m8	0.80	1.02	0.57	0.81	0.74	1.47	1.15	1.11	0.19
m9	0.62	0.48	0.28	0.61	0.58	0.33	0.31	0.52	0.06
m10	1.65	1.57	0.72	0.62	0.72	1.25	1.33	1.12	0.30
m11	1.60	1.57	0.72	0.58	0.67	1.22	1.33	1.09	0.30
q	0.80	0.46	0.25	0.41	0.54	0.46	0.65	0.51	0.16
q-m2	0.49	0.52	0.28	0.44	0.61	0.51	0.67	0.56	0.18
Trend Filter	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average
Seasonal Filter	3x3	3x3	3x3	3x3	3x3	3x3	3x3	3x5	3x3
Residual Seasonality (entire series)	None	None	None	None	None	None	None	None	None
Residual Seasonality (last 3 years)	None	None	None	None	None	None	None	None	None

Table C.1.3 Services Series Assessment, Q1 2000 to Q2 2022 (continuation)

Series	Professional and business services	Public administration and defense; compulsory social activities	Public education	Private education	Public human health	Private human health	Social work activities	Arts, entertainment and recreation	Other service activities
Transformation	Log	Log	Log	Log	Log	Log	Log	Log	Log
Seasonality Present	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Trading days	Not significant	Not significant	Not significant	Not significant	Not significant	Not significant	Not significant	Not significant	Not significant
Easter	Easter [8]	Not significant	Not significant	Not significant	Not significant	Not significant	Not significant	Not significant	Not significant
Outliers	5 Outliers Detected	2 Outliers Detected	1 Outlier Detected	4 Outliers Detected	4 Outliers Detected	2 Outliers Detected	5 Outliers Detected	5 Outliers Detected	3 Outliers Detected
ARIMA	(0,1,1) (0,1,0)	(1,1,1) (0,1,0)	(0,1,1) (0,1,1)	(1,0,1) (0,1,0)	(1,0,1) (1,1,0)	(3,1,1) (0,1,1)	(1,0,0) (0,1,1)	(0,1,1) (0,1,0)	(1,0,2) (0,1,0)
m1	0.07	0.05	0.19	0.11	0.16	0.09	0.13	0.04	0.11
m2	0.02	0.03	0.16	0.55	0.04	0.08	0.03	3.00	3.00
m3	0.00	0.12	0.51	0.44	0.00	0.18	0.00	0.00	0.10
m4	1.31	0.72	0.82	0.62	0.23	0.52	0.52	0.23	0.07
m5	0.20	0.20	0.40	0.70	0.20	0.20	0.20	0.20	0.20
m6	1.07	1.19	0.68	0.98	1.23	0.95	1.18	1.09	0.99
m7	0.30	0.39	0.32	0.35	1.70	0.39	0.61	0.41	0.73
m8	0.82	1.04	0.74	1.07	1.83	0.82	1.65	1.07	1.04
m9	0.44	0.48	0.47	0.30	1.02	0.42	0.53	0.57	0.66
m10	0.51	1.06	0.94	1.58	3.00	0.54	3.00	1.04	0.94
m11	0.37	1.06	0.85	1.50	3.00	0.50	3.00	0.93	0.93
q	0.35	0.40	0.46	0.58	0.90	0.33	0.65	0.71	0.78
q-m2	0.39	0.45	0.50	0.59	1.02	0.37	0.73	0.40	0.47
Trend Filter	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average
Seasonal Filter	3x3	3x3	3x3	3x3	3x3	3x3	3x3	3x3	3x3
Residual Seasonality (entire series)	None	None	None	None	None	None	None	None	None
Residual Seasonality (last 3 years)	None	None	None	None	None	None	None	None	None

C.2 Pre-Pandemic Period

Table C.2.1 Services Series Assessment, Q1 2000 to Q2 2019

Series	Wholesale trade, except of motor vehicles and motorcycles	Retail trade, except of motor vehicles and motorcycles	Sale and repair of motor vehicles and motorcycles	Land transport	Water transport	Air transport	Warehousing and storage, and support activities for transportation	Postal and courier activities	Accommodation
Transformation	Log	None	Log	Log	Log	Log	Log	Log	Log
Seasonality Present	Present	Present	Present	Present	Present	Present	Present	Present	Present
Trading days	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant
Easter	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Easter [1]	Not Significant
Outliers	1 Outlier Detected	None	3 Outliers Detected	None	1 Outlier Detected	2 Outliers Detected	None	None	1 Outlier Detected
ARIMA	(0,1,1) (0,1,1)	(3,0,0) (0,1,0)	(3,1,1) (1,0,1)	(1,1,1) (0,1,0)	(1,1,1) (0,1,0)	(1,0,0) (0,1,1)	(1,0,0) (0,1,1)	(1,1,0) (1,1,0)	(1,0,1) (1,1,0)
m1	0.17	0.01	0.25	0.04	0.07	0.17	0.43	0.02	0.05
m2	0.10	0.01	0.03	0.02	0.07	0.08	0.11	0.00	0.02
m3	0.71	0.00	0.02	0.08	0.38	0.17	0.16	0.00	0.00
m4	1.67	1.04	0.83	1.14	0.10	1.14	0.52	0.62	0.10

Series	Wholesale trade, except of motor vehicles and motorcycles	Retail trade, except of motor vehicles and motorcycles	Sale and repair of motor vehicles and motorcycles	Land transport	Water transport	Air transport	Warehousing and storage, and support activities for transportation	Postal and courier activities	Accommodation
m5	0.69	0.20	0.20	0.20	0.37	0.20	0.20	0.20	0.20
m6	0.60	1.33	0.71	1.16	1.14	0.63	0.66	1.00	0.94
m7	0.20	0.25	0.53	0.33	0.33	0.30	0.39	0.10	0.19
m8	0.46	0.54	1.40	0.66	0.87	0.63	1.38	0.43	0.61
m9	0.32	0.42	0.70	0.64	0.63	0.46	0.52	0.21	0.15
m10	0.57	0.53	0.64	0.92	0.59	0.97	1.34	0.29	0.62
m11	0.57	0.50	0.35	0.92	0.57	0.90	0.84	0.27	0.50
q	0.50	0.29	0.44	0.39	0.35	0.40	0.47	0.18	0.19
q-m2	0.55	0.33	0.50	0.44	0.38	0.45	0.52	0.20	0.21
Trend Filter	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average
Seasonal Filter	3x5	3x3	3x3	3x3	3x3	3x3	3x3	3x3	3x3
Residual Seasonality (entire series)	None	None	None	None	None	None	None	None	None
Residual Seasonality (last 3 years)	None	None	None	None	None	None	None	None	None

Table C.2.2 Services Series Assessment, Q1 2000 to Q2 2019 (continuation)

Series	Food and beverage service activities	Information and publishing	Communication	Banking institutions	Non-banks	Insurance and pension funding except compulsory social security	Activities auxiliary to financial services	Real estate	Ownership of dwellings
Transformation	Log	Log	Log	Log	None	None	Log	Log	None
Seasonality Present	Present	Present	Present	Present	Present	Present	Present	Present	Present
Trading days	Not Significant	Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant
Easter	Not Significant	Not Significant	Easter [1]	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Easter [15]
Outliers	None	None	None	2 Outliers Detected	3 Outliers Detected	2 Outliers Detected	None	2 Outliers Detected	10 Outliers Detected
ARIMA	(1,0,1) (1,1,0)	(0,1,1) (1,0,0)	(0,1,2) (0,1,0)	(0,0,0) (0,1,0)	(0,0,0) (0,1,1)	(0,1,1) (1,1,0)	(0,1,1) (0,1,1)	(0,2,2) (0,1,1)	(2,1,1) (0,1,0)
m1	0.04	0.05	0.02	0.18	0.08	0.38	0.54	0.75	0.00
m2	0.03	0.06	0.01	0.22	0.08	0.07	0.89	0.57	0.00
m3	0.00	0.00	0.00	0.19	0.91	0.10	1.04	0.28	0.00
m4	0.21	0.62	0.42	1.14	1.14	0.94	1.77	0.52	0.83
m5	0.20	0.20	0.20	0.20	0.72	0.20	0.71	0.20	0.20
m6	0.95	1.07	1.04	0.76	0.97	0.77	0.31	0.20	0.98
m7	0.18	0.38	0.11	0.31	0.44	0.39	0.33	0.37	0.06
m8	0.58	0.91	0.52	0.93	0.87	1.46	0.84	1.10	0.18
m9	0.16	0.41	0.24	0.70	0.71	0.49	0.32	0.64	0.09
m10	0.49	1.20	0.40	0.72	0.97	1.32	0.69	1.01	0.13
m11	0.43	1.20	0.34	0.61	0.93	1.24	0.69	0.99	0.10
q	0.19	0.38	0.18	0.44	0.60	0.51	0.70	0.52	0.14
q-m2	0.21	0.42	0.20	0.47	0.68	0.57	0.68	0.51	0.16
Trend Filter	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average
Seasonal Filter	3x3	3x3	3x3	3x3	3x3	3x3	3x5	3x5	3x3
Residual Seasonality (entire series)	None	None	None	None	None	None	None	None	None
Residual Seasonality (last 3 years)	None	None	None	None	None	None	None	None	None

Table C.2.3 Services Series Assessment, Q1 2000 to Q2 2019 (continuation)

Series	Professional and business services	Public administration and defense; compulsory social activities	Public education	Private education	Public human health	Private human health	Social work activities	Arts, entertainment and recreation	Other service activities
Transformation	Log	Log	Log	Log	Log	Log	Log	Log	Log
Seasonality Present	Present	Present	Present	Present	Present	Present	Present	Present	Present
Trading days	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Significant	Not Significant	Significant	Significant
Easter	Easter [15]	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant
Outliers	1 Outlier Detected	1 Outlier Detected	None	2 Outliers Detected	3 Outliers Detected	None	3 Outliers Detected	2 Outliers Detected	2 Outliers Detected
ARIMA	(1,0,1) (0,1,0)	(0,1,1) (0,1,0)	(0,1,1) (0,1,1)	(1,0,0) (0,1,0)	(0,1,0) (1,0,0)	(3,1,1) (0,1,1)	(2,1,0) (0,1,0)	(1,0,0) (0,1,0)	(2,1,0) (0,1,0)
m1	0.08	0.05	0.24	0.09	0.13	0.07	0.11	0.04	0.05
m2	0.04	0.03	0.18	0.11	0.01	0.04	0.02	0.04	0.03
m3	0.00	0.10	0.39	0.39	0.00	0.06	0.00	0.03	0.00
m4	0.83	0.42	0.83	0.94	0.31	0.31	0.42	0.00	0.21
m5	0.20	0.20	0.40	0.49	0.20	0.20	0.20	0.29	0.20
m6	1.05	1.19	0.68	0.95	1.06	1.15	1.10	1.24	1.14
m7	0.36	0.39	0.35	0.38	0.40	0.44	0.44	0.47	0.78
m8	0.88	1.16	0.81	0.95	1.32	0.79	1.35	1.22	1.05
m9	0.57	0.46	0.47	0.40	0.10	0.52	0.20	0.75	0.82
m10	0.66	1.41	0.64	1.09	1.99	0.48	1.91	2.01	1.38
m11	0.66	1.38	0.62	0.84	1.99	0.47	1.86	2.01	1.38
q	0.36	0.41	0.44	0.48	0.44	0.30	0.45	0.47	0.48
q-m2	0.40	0.46	0.48	0.53	0.49	0.34	0.51	0.53	0.54
Trend Filter	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average
Seasonal Filter	3x3	3x3	3x3	3x3	3x3	3x3	3x3	3x3	3x3
Residual Seasonality (entire series)	None	None	None	None	None	None	None	None	None
Residual Seasonality (last 3 years)	None	None	None	None	None	None	None	None	None

D. Household Final Consumption Expenditure (HFCE)

D.1 Post Pandemic Period

Table D.1.1 HFCE Series Assessment, Q1 2000 to Q2 2022

Series	Food and non-alcoholic beverages	Alcoholic beverages, tobacco	Clothing and footwear	Housing, water, electricity, gas and other fuels	Furnishings, household equipment and routine household maintenance	Health	Transport	Communication	Recreation and culture	Education	Restaurants and hotels	Miscellaneous goods and services
Transformation	Log	Log	None	Log	Log	Log	Log	Log	Log	Log	None	None
Seasonality Present	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Trading days	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant
Easter	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant
Outliers	None	7 Outliers Detected	3 Outliers Detected	None	1 Outlier Detected	2 Outliers Detected	7 Outliers Detected	None	2 Outliers Detected	3 Outliers Detected	7 Outliers Detected	None
ARIMA	(0,1,1) (0,1,1)	(0,1,1) (0,1,1)	(1,0,1) (0,1,0)	(1,0,2) (0,1,0)	(1,0,0) (0,1,0)	(0,1,1) (0,1,0)	(0,1,1) (0,1,1)	(0,1,1) (0,1,1)	(0,1,1) (0,1,1)	(0,1,1) (1,1,0)	(0,0,2) (1,1,1)	(0,0,0) (0,1,0)
m1	0.02	0.04	0.06	0.12	0.15	0.06	0.03	0.03	0.14	0.05	0.04	0.07

Series	Food and non-alcoholic beverages	Alcoholic beverages, tobacco	Clothing and footwear	Housing, water, electricity, gas and other fuels	Furnishings, household equipment and routine household maintenance	Health	Transport	Communication	Recreation and culture	Education	Restaurants and hotels	Miscellaneous goods and services
m2	0.02	0.03	0.11	0.08	0.16	0.03	3.00	0.01	3.00	3.00	3.00	0.03
m3	0.14	0.48	0.93	0.13	0.57	-	-	-	0.57	0.05	-	0.38
m4	1.11	0.62	0.91	0.23	1.11	0.82	1.01	0.91	1.31	1.21	0.82	1.40
m5	0.20	0.62	0.96	0.21	0.48	0.20	0.20	0.20	0.70	0.20	0.20	0.36
m6	0.63	1.12	0.98	0.72	1.10	1.08	1.24	0.92	1.03	1.16	1.22	1.00
m7	0.08	0.32	0.32	0.24	0.43	0.32	0.27	0.13	0.60	0.20	0.72	0.34
m8	0.27	0.72	0.80	1.01	1.53	0.91	0.79	0.53	1.10	0.81	0.85	0.69
m9	0.16	0.51	0.39	0.36	0.37	0.35	0.43	0.29	0.96	0.55	0.82	0.45
m10	0.33	0.74	0.83	1.01	2.52	1.28	0.39	0.38	2.08	0.95	2.52	0.89
m11	0.32	0.69	0.77	0.83	2.52	1.28	0.39	0.30	2.08	0.95	2.52	0.87
q	0.22	0.41	0.55	0.32	0.71	0.38	0.67	0.23	1.11	0.74	0.97	0.46
q-m2	0.25	0.47	0.61	0.35	0.79	0.43	0.34	0.26	0.85	0.42	0.68	0.52
Trend Filter	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average
Seasonal Filter	3x3	3x3	3x3	3x3	3x3	3x3	3x3	3x3	3x3	3x3	3x3	3x3
Residual Seasonality (entire series)	None	None	None	None	None	None	None	None	None	None	None	None
Residual Seasonality (last 3 years)	None	None	None	None	None	None	None	None	None	None	None	None

D.2 Pre-Pandemic Period

Table D.2.1 HFCE Series Assessment, Q1 2000 to Q2 2019

Series	Food and non-alcoholic beverages	Alcoholic beverages, tobacco	Clothing and footwear	Housing, water, electricity, gas and other fuels	Furnishings, household equipment and routine household maintenance	Health	Transport	Communication	Recreation and culture	Education	Restaurants and hotels	Miscellaneous goods and services
Transformation	Log	Log	Log	Log	Log	Log	Log	Log	Log	Log	Log	None
Seasonality Present	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Trading days	Not Significant	Not Significant	Not Significant	Significant	Not Significant	Not Significant	Not Significant	Not Significant	Significant	Not Significant	Not Significant	Not Significant
Easter	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Easter [1]	Not Significant	Not Significant	Easter [15]	Not Significant
								-0.007536			0.007177	
								-1.9747			2.1894	
Outliers	None	3 Outliers Detected	1 Outlier Detected	None	None	None	1 Outlier Detected	None	None	1 Outlier Detected	None	None
ARIMA	(0,1,1) (0,1,1)	(1,0,0) (0,1,1)	(1,0,1) (0,1,0)	(0,0,1) (0,1,0)	(2,0,0) (0,1,0)	(0,1,1) (0,1,1)	(0,1,1) (0,1,0)	(0,1,0) (0,1,1)	(1,0,0) (0,1,0)	(1,0,0) (0,1,0)	(2,0,1) (0,1,0)	(0,0,0) (0,1,0)
m1	0.02	0.02	0.09	0.08	0.10	0.07	0.03	0.02	0.04	0.07	0.04	0.09
m2	0.02	0.03	0.11	0.06	0.14	0.03	0.02	0.01	0.05	0.06	0.03	0.04
m3	0.14	0.35	0.99	0.01	0.54	0.00	0.03	0.00	0.13	0.22	0.00	0.41
m4	0.94	0.94	0.52	0.42	0.83	0.83	1.14	0.62	1.04	1.14	0.52	0.83
m5	0.20	0.67	0.83	0.20	0.40	0.20	0.20	0.20	0.31	0.20	0.20	0.40
m6	0.52	1.12	0.93	0.99	1.02	0.99	1.24	1.04	1.23	1.13	0.74	0.92
m7	0.08	0.32	0.23	0.26	0.42	0.31	0.31	0.13	0.45	0.17	0.14	0.34
m8	0.26	0.65	0.80	0.88	1.33	0.82	0.88	0.52	0.91	0.71	0.54	0.73
m9	0.17	0.45	0.53	0.44	0.25	0.40	0.59	0.28	0.73	0.42	0.20	0.49
m10	0.25	0.31	1.13	0.94	1.34	0.71	0.64	0.50	1.01	0.83	0.51	0.90
m11	0.23	0.18	1.10	0.91	1.31	0.71	0.64	0.50	0.96	0.77	0.32	0.88
q	0.20	0.38	0.53	0.32	0.54	0.33	0.37	0.22	0.46	0.36	0.20	0.43
q-m2	0.22	0.43	0.59	0.35	0.59	0.37	0.41	0.25	0.52	0.40	0.22	0.48

Series	Food and non-alcoholic beverages	Alcoholic beverages, tobacco	Clothing and footwear	Housing, water, electricity, gas and other fuels	Furnishings, household equipment and routine household maintenance	Health	Transport	Communication	Recreation and culture	Education	Restaurants and hotels	Miscellaneous goods and services
Trend Filter	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average	5 terms Henderson moving average
Seasonal Filter	3x3	3x3	3x3	3x3	3x3	3x3	3x3	3x3	3x3	3x3	3x3	3x3
Residual Seasonality (entire series)	None	None	None	None	None	None	None	None	None	None	None	None
Residual Seasonality (last 3 years)	None	None	None	None	None	None	None	None	None	None	None	None

E. Gross Domestic Product (GDP)

E.1 Post Pandemic Period

Table E.1.1 GDP Series Assessment, Q1 2000 to Q2 2022

Series	GDP
Transformation	Log
Seasonality Present	Present
Trading days	None
Easter	Not Significant
Outliers	4 Outliers Detected
ARIMA	(0,1,0) (0,1,0)
m1	0.01
m2	0.03
m3	0.00
m4	0.33
m5	0.20
m6	1.02
m7	0.09
m8	0.39
m9	0.12
m10	0.49
m11	0.45
q	0.16
q-m2	0.18
Trend Filter	5 terms Henderson moving average
Seasonal Filter	3x3
Residual Seasonality (entire series)	None
Residual Seasonality (last 3 years)	None

E.2 Post Pandemic Period

Table E.2.1 **GDP Series Assessment, Q1 2000 to Q2 2019**

Series	GDP
Transformation	Log
Seasonality Present	Yes
Trading days	Not Significant
Easter	Not Significant
Outliers	2 Outliers Detected
ARIMA	(0,1,0) (0,1,0)
m1	0.01
m2	0.02
m3	0.00
m4	0.94
m5	0.20
m6	1.03
m7	0.10
m8	0.32
m9	0.24
m10	0.34
m11	0.34
q	0.20
q-m2	0.23
Trend Filter	5 terms Henderson moving average
Seasonal Filter	3x3
Residual Seasonality (entire series)	None
Residual Seasonality (last 3 years)	None

II. Summary Tables and Graphs

Summary Table 1 **Seasonally Adjusted National Accounts Series**
At Constant 2018 Prices, In Million Pesos (First Quarter 2000 to Second Quarter 2022)

Year	Qtr	AFF	Industry	Services	GDP	GNI	HFCE
2000	Q1	263,839	557,411	910,804	1,732,054	1,906,498	1,318,789
	Q2	269,895	546,851	918,948	1,735,695	1,890,757	1,348,686
	Q3	273,039	567,641	925,405	1,766,085	1,931,011	1,340,709
	Q4	261,668	566,207	931,085	1,758,960	1,947,786	1,347,026
2001	Q1	268,386	562,808	942,332	1,773,526	1,948,469	1,374,788
	Q2	283,186	557,180	952,017	1,792,383	1,984,712	1,371,074
	Q3	283,294	574,871	963,653	1,821,818	2,009,609	1,399,327
	Q4	274,719	571,083	970,623	1,816,425	1,975,147	1,421,723

Year	Qtr	AFF	Industry	Services	GDP	GNI	HFCE
2002	Q1	279,417	581,311	977,200	1,837,928	2,032,948	1,420,776
	Q2	284,949	583,119	985,363	1,853,431	2,024,740	1,459,657
	Q3	284,893	584,790	997,863	1,867,547	2,039,865	1,484,509
	Q4	294,804	593,895	1,013,515	1,902,214	2,102,561	1,485,000
2003	Q1	294,890	605,139	1,017,497	1,917,526	2,107,762	1,511,064
	Q2	293,271	608,233	1,030,772	1,932,276	2,120,842	1,531,661
	Q3	294,686	630,736	1,051,337	1,976,758	2,178,529	1,551,246
	Q4	310,632	622,227	1,085,341	2,018,199	2,208,896	1,569,301
2004	Q1	314,055	637,614	1,101,910	2,053,578	2,263,985	1,607,297
	Q2	308,808	633,666	1,126,566	2,069,040	2,271,896	1,598,659
	Q3	314,523	638,781	1,150,775	2,104,079	2,308,699	1,645,685
	Q4	317,536	661,672	1,152,591	2,131,799	2,324,786	1,675,105
2005	Q1	314,320	665,495	1,180,101	2,159,916	2,375,491	1,686,225
	Q2	317,932	675,105	1,181,810	2,174,846	2,379,843	1,691,449
	Q3	326,037	675,392	1,205,251	2,206,680	2,432,336	1,712,768
	Q4	339,184	685,004	1,203,151	2,227,340	2,463,190	1,727,432
2006	Q1	336,009	693,336	1,235,092	2,264,437	2,490,664	1,746,347
	Q2	343,835	691,762	1,260,605	2,296,202	2,511,707	1,775,271
	Q3	342,976	700,724	1,270,246	2,313,946	2,517,813	1,783,709
	Q4	337,503	714,342	1,307,783	2,359,627	2,583,395	1,797,522
2007	Q1	349,750	728,938	1,331,773	2,410,461	2,631,913	1,817,076
	Q2	355,347	737,971	1,347,137	2,440,454	2,669,498	1,856,028
	Q3	360,547	728,544	1,375,767	2,464,858	2,710,017	1,873,514
	Q4	363,987	739,804	1,411,206	2,514,997	2,731,504	1,895,743
2008	Q1	366,849	742,306	1,401,735	2,510,890	2,731,655	1,911,552
	Q2	370,110	771,205	1,416,369	2,557,685	2,802,779	1,910,423
	Q3	376,721	803,530	1,421,927	2,602,178	2,846,151	1,953,236
	Q4	367,981	785,827	1,444,131	2,597,938	2,871,782	1,955,489
2009	Q1	372,329	733,131	1,431,239	2,536,699	2,820,060	1,947,588
	Q2	377,950	760,775	1,460,601	2,599,326	2,916,845	1,991,074
	Q3	373,514	774,490	1,485,882	2,633,886	2,956,574	1,980,927
	Q4	357,627	792,854	1,499,399	2,649,880	2,972,960	2,004,951
2010	Q1	371,115	807,111	1,559,564	2,737,790	3,071,282	2,023,777
	Q2	363,290	856,223	1,572,134	2,791,648	3,120,225	2,037,584
	Q3	372,356	844,301	1,595,618	2,812,275	3,135,170	2,041,482
	Q4	382,640	849,329	1,596,763	2,828,732	3,148,913	2,103,682
2011	Q1	389,732	854,693	1,614,717	2,859,142	3,185,629	2,113,806
	Q2	394,934	845,574	1,653,345	2,893,853	3,202,952	2,143,063
	Q3	386,655	837,034	1,675,976	2,899,665	3,213,523	2,181,831
	Q4	373,016	868,607	1,704,830	2,946,453	3,285,755	2,224,866
2012	Q1	391,056	892,236	1,746,776	3,030,069	3,357,211	2,262,259
	Q2	399,009	899,009	1,768,012	3,066,030	3,420,339	2,295,553
	Q3	405,446	918,123	1,798,394	3,121,962	3,476,056	2,333,046
	Q4	406,258	960,213	1,825,975	3,192,446	3,559,259	2,364,784
2013	Q1	408,463	992,355	1,863,271	3,264,089	3,634,585	2,387,107
	Q2	404,868	975,339	1,904,475	3,284,682	3,665,802	2,420,013
	Q3	416,903	977,821	1,941,798	3,336,522	3,760,975	2,482,211

Year	Qtr	AFF	Industry	Services	GDP	GNI	HFCE
	Q4	418,437	978,693	1,969,024	3,366,154	3,775,179	2,505,451
2014	Q1	416,055	1,028,213	2,008,242	3,452,510	3,865,682	2,539,524
	Q2	417,505	1,050,152	2,035,780	3,503,437	3,916,538	2,563,336
	Q3	412,189	1,059,632	2,068,698	3,540,519	3,956,603	2,613,018
	Q4	432,269	1,074,279	2,086,827	3,593,376	4,015,122	2,642,683
2015	Q1	424,601	1,089,440	2,134,147	3,648,188	4,067,893	2,692,171
	Q2	418,835	1,118,714	2,178,932	3,716,480	4,136,307	2,730,232
	Q3	411,317	1,118,153	2,231,075	3,760,545	4,188,263	2,780,893
	Q4	431,787	1,153,737	2,259,474	3,844,998	4,313,313	2,821,432
2016	Q1	408,417	1,184,500	2,320,170	3,913,086	4,357,954	2,883,924
	Q2	413,897	1,207,279	2,364,863	3,986,040	4,436,400	2,932,540
	Q3	420,473	1,230,263	2,391,363	4,042,098	4,484,021	2,988,642
	Q4	424,456	1,230,305	2,447,164	4,101,925	4,565,710	3,011,699
2017	Q1	431,209	1,262,294	2,483,440	4,176,944	4,652,189	3,054,476
	Q2	440,518	1,291,841	2,545,231	4,277,590	4,752,854	3,108,771
	Q3	434,997	1,337,179	2,576,632	4,348,808	4,828,882	3,157,045
	Q4	436,632	1,314,284	2,613,714	4,364,630	4,842,551	3,198,382
2018	Q1	443,852	1,356,867	2,661,706	4,462,425	4,943,859	3,229,047
	Q2	440,162	1,390,023	2,720,799	4,550,984	5,027,337	3,306,242
	Q3	436,779	1,417,323	2,754,665	4,608,767	5,113,518	3,332,426
	Q4	445,049	1,404,037	2,773,834	4,622,920	5,107,162	3,369,262
2019	Q1	446,405	1,438,537	2,850,298	4,735,240	5,236,962	3,424,250
	Q2	442,374	1,442,913	2,939,196	4,824,483	5,292,259	3,504,595
	Q3	442,413	1,508,682	2,947,430	4,898,525	5,381,858	3,530,370
	Q4	449,042	1,479,716	2,964,603	4,893,361	5,348,811	3,561,113
2020	Q1	445,975	1,408,961	2,857,513	4,712,449	5,171,922	3,429,327
	Q2	447,085	1,130,296	2,453,612	4,030,994	4,381,621	2,992,710
	Q3	446,191	1,266,997	2,628,855	4,342,043	4,666,371	3,211,757
	Q4	438,004	1,311,046	2,715,621	4,464,670	4,655,742	3,264,304
2021	Q1	442,022	1,333,762	2,748,452	4,524,236	4,626,590	3,275,445
	Q2	446,181	1,385,234	2,697,765	4,529,180	4,685,631	3,220,999
	Q3	443,057	1,382,060	2,833,203	4,658,320	4,822,259	3,429,029
	Q4	445,341	1,439,245	2,926,613	4,811,199	5,031,354	3,522,915
2022	Q1	443,619	1,472,903	2,965,844	4,882,367	5,102,582	3,596,243
	Q2	447,562	1,475,517	2,953,723	4,876,802	5,132,915	3,499,070

Summary Table 2 **Seasonally Adjusted National Accounts Series**
Quarter-on Quarter Growth Rates at Constant 2018 Prices, In Million Pesos
(First Quarter 2000 to Second Quarter 2022)

Year	Qtr	AFF	Industry	Services	GDP	GNI	HFCE
2000	Q1						
	Q2	2.3	-1.9	0.9	0.2	-0.8	2.3
	Q3	1.2	3.8	0.7	1.8	2.1	-0.6
	Q4	-4.2	-0.3	0.6	-0.4	0.9	0.5
2001	Q1	2.6	-0.6	1.2	0.8	0.0	2.1

Year	Qtr	AFF	Industry	Services	GDP	GNI	HFCE
	Q2	5.5	-1.0	1.0	1.1	1.9	-0.3
	Q3	0.0	3.2	1.2	1.6	1.3	2.1
	Q4	-3.0	-0.7	0.7	-0.3	-1.7	1.6
	Q1	1.7	1.8	0.7	1.2	2.9	-0.1
2002	Q2	2.0	0.3	0.8	0.8	-0.4	2.7
	Q3	0.0	0.3	1.3	0.8	0.7	1.7
	Q4	3.5	1.6	1.6	1.9	3.1	0.0
	Q1	0.0	1.9	0.4	0.8	0.2	1.8
2003	Q2	-0.5	0.5	1.3	0.8	0.6	1.4
	Q3	0.5	3.7	2.0	2.3	2.7	1.3
	Q4	5.4	-1.3	3.2	2.1	1.4	1.2
	Q1	1.1	2.5	1.5	1.8	2.5	2.4
2004	Q2	-1.7	-0.6	2.2	0.8	0.3	-0.5
	Q3	1.9	0.8	2.1	1.7	1.6	2.9
	Q4	1.0	3.6	0.2	1.3	0.7	1.8
	Q1	-1.0	0.6	2.4	1.3	2.2	0.7
2005	Q2	1.1	1.4	0.1	0.7	0.2	0.3
	Q3	2.5	0.0	2.0	1.5	2.2	1.3
	Q4	4.0	1.4	-0.2	0.9	1.3	0.9
	Q1	-0.9	1.2	2.7	1.7	1.1	1.1
2006	Q2	2.3	-0.2	2.1	1.4	0.8	1.7
	Q3	-0.2	1.3	0.8	0.8	0.2	0.5
	Q4	-1.6	1.9	3.0	2.0	2.6	0.8
	Q1	3.6	2.0	1.8	2.2	1.9	1.1
2007	Q2	1.6	1.2	1.2	1.2	1.4	2.1
	Q3	1.5	-1.3	2.1	1.0	1.5	0.9
	Q4	1.0	1.5	2.6	2.0	0.8	1.2
	Q1	0.8	0.3	-0.7	-0.2	0.0	0.8
2008	Q2	0.9	3.9	1.0	1.9	2.6	-0.1
	Q3	1.8	4.2	0.4	1.7	1.5	2.2
	Q4	-2.3	-2.2	1.6	-0.2	0.9	0.1
	Q1	1.2	-6.7	-0.9	-2.4	-1.8	-0.4
2009	Q2	1.5	3.8	2.1	2.5	3.4	2.2
	Q3	-1.2	1.8	1.7	1.3	1.4	-0.5
	Q4	-4.3	2.4	0.9	0.6	0.6	1.2
	Q1	3.8	1.8	4.0	3.3	3.3	0.9
2010	Q2	-2.1	6.1	0.8	2.0	1.6	0.7
	Q3	2.5	-1.4	1.5	0.7	0.5	0.2
	Q4	2.8	0.6	0.1	0.6	0.4	3.0
	Q1	1.9	0.6	1.1	1.1	1.2	0.5
2011	Q2	1.3	-1.1	2.4	1.2	0.5	1.4
	Q3	-2.1	-1.0	1.4	0.2	0.3	1.8
	Q4	-3.5	3.8	1.7	1.6	2.2	2.0
	Q1	4.8	2.7	2.5	2.8	2.2	1.7
2012	Q2	2.0	0.8	1.2	1.2	1.9	1.5
	Q3	1.6	2.1	1.7	1.8	1.6	1.6
	Q4	0.2	4.6	1.5	2.3	2.4	1.4

Year	Qtr	AFF	Industry	Services	GDP	GNI	HFCE
2013	Q1	0.5	3.3	2.0	2.2	2.1	0.9
	Q2	-0.9	-1.7	2.2	0.6	0.9	1.4
	Q3	3.0	0.3	2.0	1.6	2.6	2.6
	Q4	0.4	0.1	1.4	0.9	0.4	0.9
2014	Q1	-0.6	5.1	2.0	2.6	2.4	1.4
	Q2	0.3	2.1	1.4	1.5	1.3	0.9
	Q3	-1.3	0.9	1.6	1.1	1.0	1.9
	Q4	4.9	1.4	0.9	1.5	1.5	1.1
2015	Q1	-1.8	1.4	2.3	1.5	1.3	1.9
	Q2	-1.4	2.7	2.1	1.9	1.7	1.4
	Q3	-1.8	-0.1	2.4	1.2	1.3	1.9
	Q4	5.0	3.2	1.3	2.2	3.0	1.5
2016	Q1	-5.4	2.7	2.7	1.8	1.0	2.2
	Q2	1.3	1.9	1.9	1.9	1.8	1.7
	Q3	1.6	1.9	1.1	1.4	1.1	1.9
	Q4	0.9	0.0	2.3	1.5	1.8	0.8
2017	Q1	1.6	2.6	1.5	1.8	1.9	1.4
	Q2	2.2	2.3	2.5	2.4	2.2	1.8
	Q3	-1.3	3.5	1.2	1.7	1.6	1.6
	Q4	0.4	-1.7	1.4	0.4	0.3	1.3
2018	Q1	1.7	3.2	1.8	2.2	2.1	1.0
	Q2	-0.8	2.4	2.2	2.0	1.7	2.4
	Q3	-0.8	2.0	1.2	1.3	1.7	0.8
	Q4	1.9	-0.9	0.7	0.3	-0.1	1.1
2019	Q1	0.3	2.5	2.8	2.4	2.5	1.6
	Q2	-0.9	0.3	3.1	1.9	1.1	2.3
	Q3	0.0	4.6	0.3	1.5	1.7	0.7
	Q4	1.5	-1.9	0.6	-0.1	-0.6	0.9
2020	Q1	-0.7	-4.8	-3.6	-3.7	-3.3	-3.7
	Q2	0.2	-19.8	-14.1	-14.5	-15.3	-12.7
	Q3	-0.2	12.1	7.1	7.7	6.5	7.3
	Q4	-1.8	3.5	3.3	2.8	-0.2	1.6
2021	Q1	0.9	1.7	1.2	1.3	-0.6	0.3
	Q2	0.9	3.9	-1.8	0.1	1.3	-1.7
	Q3	-0.7	-0.2	5.0	2.9	2.9	6.5
	Q4	0.5	4.1	3.3	3.3	4.3	2.7
2022	Q1	-0.4	2.3	1.3	1.5	1.4	2.1
	Q2	0.9	0.2	-0.4	-0.1	0.6	-2.7

**Summary Table 3 Seasonal Index
(First Quarter 2017 to Second Quarter 2022)**

		AFF	IND	SER	GDP	GNI	HFCE
2017	Q1	0.9916	0.9670	0.9309	0.9481	0.9533	0.9637
	Q2	0.9230	1.0495	1.0510	1.0373	1.0345	0.9886
	Q3	0.8929	0.8936	0.9933	0.9526	0.9570	0.9450
	Q4	1.1922	1.0890	1.0270	1.0622	1.0556	1.1029
2018	Q1	0.9880	0.9624	0.9284	0.9447	0.9512	0.9646
	Q2	0.9242	1.0481	1.0500	1.0372	1.0331	0.9872
	Q3	0.8896	0.8990	0.9927	0.9541	0.9585	0.9449
	Q4	1.1880	1.1009	1.0302	1.0669	1.0601	1.1049
2019	Q1	0.9876	0.9535	0.9300	0.9425	0.9473	0.9663
	Q2	0.9264	1.0460	1.0434	1.0335	1.0317	0.9832
	Q3	0.9044	0.8956	0.9921	0.9545	0.9593	0.9453
	Q4	1.1871	1.1190	1.0353	1.0745	1.0683	1.1052
2020	Q1	0.9860	0.9501	0.9293	0.9409	0.9446	0.9665
	Q2	0.9305	1.0452	1.0375	1.0278	1.0261	0.9749
	Q3	0.9074	0.8796	0.9952	0.9524	0.9564	0.9434
	Q4	1.1867	1.1295	1.0403	1.0808	1.0765	1.1178
2021	Q1	0.9819	0.9618	0.9272	0.9428	0.9455	0.9637
	Q2	0.9325	1.0345	1.0366	1.0257	1.0240	0.9721
	Q3	0.8986	0.8762	0.9941	0.9501	0.9521	0.9463
	Q4	1.1836	1.1275	1.0427	1.0811	1.0764	1.1138
2022	Q1	0.9801	0.9622	0.9310	0.9449	0.9488	0.9658
	Q2	0.9315	1.0320	1.0328	1.0232	1.0209	0.9721

**Summary Table 4 Forecasted Seasonal Index
(First Quarter 2020 to Fourth Quarter 2020)**

		AFF	IND	SER	GDP	GNI	HFCE
2020	Q1	0.9953	0.9565	0.9375	0.9485	0.9546	0.9685
	Q2	0.9218	1.0452	1.0535	1.0392	1.0324	0.9912
	Q3	0.8917	0.9165	0.9879	0.9577	0.9631	0.9447
	Q4	1.1932	1.0854	1.0206	1.0555	1.0519	1.0926