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Strengthening Bali's Reserve Economic Base: The Identification Made Pre and During Pandemic

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Abstract

Bali is the province hardest struck by the Covid-19 pandemic. The drying up of tourist arrivals strikes accommodation and transportation businesses. Until now, the government has not heard any special actions to restore that's Indonesian tourism icon. Therefore, in a decentralized system, understanding the economic characteristics of a region is important to increase economic productivity to make it more optimal. In this regard, this analysis aims to provide an overview of the economic characteristics in the province of Bali before the pandemic and during the pandemic and identify potential sectors that need to be developed. This study uses the Location Quotient, Shift-Share, Klassen Typology, and Overlay analysis methods from 2010 to 2021. From the results of the research, Bali Province before the pandemic had five leading sectors, but during the pandemic, Bali Province did not move only one base sector can become a mainstay, further innovation strategies are needed to stimulate Bali's economy to rise to the way it was before the pandemic. It takes the right policies from the Central and Regional Governments to make innovations and strategies so that the Bali economy returns to what it was before the pandemic.

Keywords: *Pandemic Economy, Base Sector, Bali Province Economy, Leading Sector, Economic Structure, Regional Economy, Economic Development*

INTRODUCTION

After President Joko Widodo's official announcement about the entry of the corona virus, the government immediately responded with various policies, the bottom line: social restrictions. This is where the term work from home (WFH) has become popular. Along with that, community social activities slowed down. The level of demand for goods and services is sluggish. Household consumption, which is the main support for the national economy, grew by minus 5.5 percent in the second quarter of 2020, if calculated on an annual basis (BPS, 2020). And then, to minus 2.6 percent over the past year, pressure on the level of demand made the production sector look like it was boneless, factories began to reduce production, the service sector lost customers, data from the Central Statistics Agency (BPS) noted, from 52 business sectors, the air transportation sector was the hardest hit with a minus 53 percent growth during 2020 (BPS, 2021).

Bali today. The island targeted by tourists has become the province hardest hit by the corona pandemic. The economy is shrinking, growing by minus 9.4 percent, the deepest among other provinces in Indonesia (Lokadata, 2021).

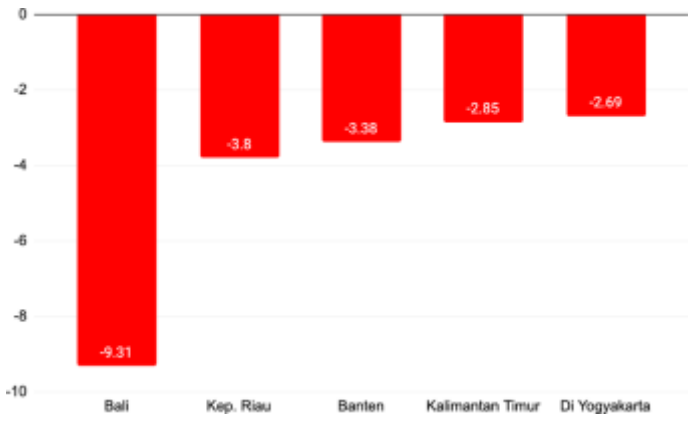

Figure 1
5 Provinces Hardest Hit

Bali became the hardest hit province, drying up tourist arrivals hit accommodation and transportation businesses. Until now, the government has not heard of any special steps to restore the Indonesian tourism icon, even though the Minister of Tourism and Creative Economy Sandiaga Uno has his office on the Island of the Gods (Lokadata, 2021). The 10 sectors hardest hit in Bali due to the pandemic. In 2020, BPS recorded a growth of minus 41.4 percent. The deepest decline in performance occurred in the air transport sector, as was the case at the national level. The business shrank, growing minus 49.8 percent (BPS, 2021).

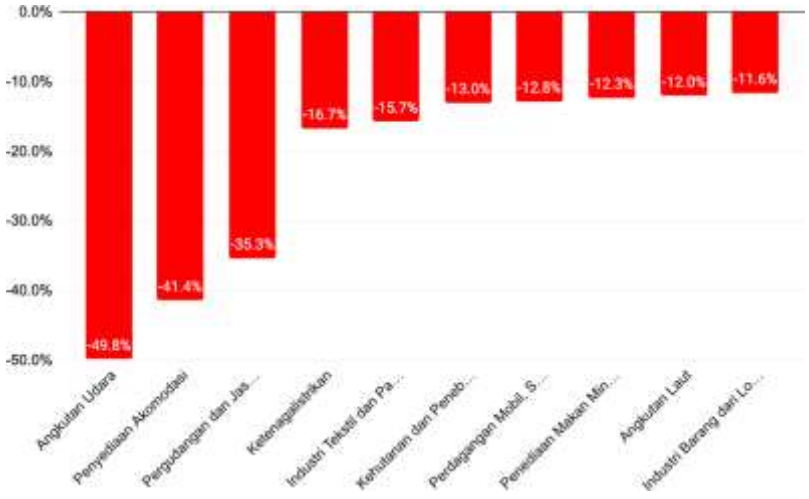

Figure 1
10 Bali's Most Beaten Business Sector

The crisis due to the pandemic this time is different from the 1998 economic crisis. 22 years ago, the crisis hit the business world (production side) due to the fall in the rupiah exchange rate. Meanwhile, during a pandemic, direct attacks suppress people's purchasing

power, so that the level of demand weakens (Lokadata, 2021). In the second quarter of 2020, when the national economic growth shrank by 5.32 percent for the first time, household consumption contracted even deeper, which was 5.52 percent (BPS, 2020). In the next three months, July-September, the pressure on consumption deepened. During that period, there was a rate of decline in prices, aka deflation. The law of the market applies: the level of demand is low, prices are falling. In line with data from the Central Statistics Agency (BPS), the results of a Bank Indonesia survey also show a similar signal: the consumer confidence index has reached its lowest point, at least in the last five years (BPS, 2021).

Almost all business fields in Indonesia are contracted. Business fields that are still able to grow positively are agriculture, communication information, health services, and water supply. Of course, a province whose economy relies on business fields that are still growing positively can withstand the depths of economic contraction. As an archipelagic country separated by the sea, of course, the economic characteristics of each province are different. Therefore, each province must develop an economic recovery strategy based on the economic characteristics of the region. This study aims to analyze the characteristics of the basic business field and economic growth conditions in each province in Indonesia during the Covid-19 pandemic (Mohammad Ammar Alwandi and Siti Muchlisoh, 2020). Each province in Indonesia has characteristics between different regions with their respective resources and potentials. One of the provinces in Indonesia that has abundant resources is Bali Province. Bali is one of the islands in Indonesia that has its own charm with its natural beauty and all the cultural tourism it has (Suartana, 2018). According to Arismayanti (2017), this attraction causes the tourism sector to become a mainstay sector to achieve optimal economic growth. Arsana, Susilawati, & Jayanegara (2013) explained that the island of Bali is not only famous for its tourism sector, but also for its agricultural sector, for example the *Subak System* which has become a world cultural heritage. Economic development is closely related to the economic base theory. This theory states that the main determinants of a region's economic growth are directly related to the demand for goods and services from outside the region or the magnitude of the increase in exports from the region (Muta'ali, 2015). This theory is used to identify development sectors that are included in the basic or non-base sectors in a region. Glasson (1997) in Muta'ali (2015) explains that the more basic sectors in a region, the more income flows to the region, thereby increasing demand for goods and services and causing an increase in the volume of the non-basic sector. According to Richardson (Tarigan, 2005) "an area or region must be able to make sectors interrelated and support each other by synergizing economic sectors. So that the growth of one sector can encourage the growth of other sectors. The sector referred to here is the basic and non-basic sectors. The theory of economic basis reveals that the rate of economic growth of a region is determined by the magnitude of the increase in exports from that region. Economic activities are grouped into basic activities and non-basic activities. Basic activities are all activities, both product producers and service providers, that bring in money from outside the region. Employment and income in the basic sector are functions of exogenous demand (not dependent on

internal strength/local demand. While non-based activities are to meet local consumption needs, therefore demand for this sector is strongly influenced by the level of increase in local people's income". According to Rustiadi, et al (2011) "The ability to spur the growth of a region or country is highly dependent on the superiority or competitiveness of the economic sectors in the region. Existing sectors include, potential sectors are sectors that have the potential to become the base sector in a region, further Rustiadi et al explained, the economic sector of a region can be divided into two groups, namely the basic sector where the advantages and disadvantages that occur in the process the fulfillment of these needs causes an inter-regional export and import mechanism, meaning that this basic sector will produce goods and services, both for the regional domestic market and for markets outside the region/region and the non-base sector is a sector with economic activity that only serves markets in the region. itself, and the regional export capacity has not yet developed." From the discussion above, it is interesting to re-analyze the basic sector in Bali which can become a reserve sector to prepare if this pandemic condition occurs again, Bali is ready with the reserve sector to determine policies as a step for economic recovery in Bali.

Based on the background and problems above, research questions will arise:

1. How is the influence of the basic sector on economic growth in Bali Province before and during the pandemic?
2. How is the influence of the non-basic sector on economic growth in Bali Province before and during the pandemic?
3. How is the influence of the basic sector and non-base sector on economic growth in the Province of Bali before and during the pandemic?
4. What is the economic policy of the Bali provincial government appropriate to support the basic and non-basic sectors for economic growth?

The aims of this research are as follows:

1. To analyze the influence of the basic sector on economic growth in the Province of Bali before and during the pandemic.
2. To analyze the influence of the non-base sector on economic growth in the Province of Bali before and during the pandemic.
3. To analyze the influence of the basic sector and non-base sector on economic growth in Bali before and during the pandemic.

RESEARCH METHODS

Research Design

The data used in this study are total GRDP data based on constant prices 2010-2019 (before the pandemic) and 2020-2021 (during the pandemic) quarterly or quarterly in all sectors in Bali Province in 2010-2021. The type of research that will be used is in the form of quantitative and qualitative descriptive analysis.

The analytical tools used to answer the existing research objectives use three analytical tools, namely:

Location Quotient (LQ) Analysis

The LQ method is used to identify the internal potential of an area, namely which sectors are the basic sector and the non-base sector by presenting a relative comparison between the capabilities of one sector between the investigated areas and the capabilities of the same sector in a wider area (Kartikaningdyah, 2013). The calculation of the LQ value is as follows.

LQij =

Information:

- LQij = Location Quotient index/coefficient of sector i in province j,
- Xij = GRDP of sector i in province j,
- Xi = GRDP sector i in the province (reference),
- RVj = Total GRDP in the province j, RV = Total National GRDP.

The measurement criteria for the resulting LQ value are as follows:

a. If LQ > 1 means that the level of specialization of sector, I in Bali Province is greater than the same sector in Bali Province. And it can also be concluded that this sector is a basic sector and has the potential to be developed as an economic driver in the Province of Bali.
b. If LQ < 1, it means that the specialization level of sector I in Bali Province is smaller than the same sector in Bali Province. And it can also be concluded that this sector is a non-basic sector and has no potential to be developed as an economic driver in the Province of Bali.
c. If LQ = 1, it means that the level of specialization of sector I in Bali Province is the same as the same sector in Bali Province.

Shift-Share (SS) Analysis

Shift-share analysis is a method used to see the development of a region's economic sector against other economic developments and the development of the economic sector when compared to other sectors relatively. The shift-share calculation method assumes that the economic growth or added value of a region (Dij) is influenced by three main components, namely regional share (Nij), sectoral growth (proportional shift), and regional competitiveness growth (differential shift). The calculation of shift share analysis is as follows.

Dij = Nij + Mij + Cij
Nij = Eij x rn
Mij = Eij (rin – rn)
Cij = Eij (rij – rin)

Information:

Dij = change in PDRB of i sector/sub-sector in the observed area (province)

Nij = change in PDRB of i sector/sub-sector in the observed area (province) caused by the influence of economic growth in the reference area (national)
Mij = change in i sector/sub-sector PDRB in the observed area (province) caused by the influence of i sector growth in the reference area (national)
Cij = change in PDRB of i sector/sub-sector in the observed area (province) caused by the comparative advantage of i sector in the observed area (province)

Klassen Typology

The principle of Klassen typology analysis is carried out to distinguish two types of grouping, namely the classification of the potential for regional economic development and the classification of economic sectors. The formulation of the Klassen typology of regional development potential is as follows (Muta'ali, 2015). Klassen typology is one of the regional economic analysis tools that can be used to determine the classification of economic sectors in the Bali Province. Klassen Typology Analysis is used with the aim of identifying the position of the economic sector of the Province of Bali by considering the national economic sector as a reference. This analysis is dynamic because it really depends on the development of development activities in the area concerned (Sjafrizal, 2008).

Tabel 1 Klassen Typology

Sectoral Contribution	**Sectoral Growth**	
	gi>=g	gi<g
si>=s	Advanced sector and fast growth sector	Advanced sector but squeezed
si<s	Potential sector or could be grow as fast sector	Relative missed sector

Source: Syafrizal (1997) in Muta'ali (2015)

Information:
gi = sector growth in the analysis area
g = growth in the reference area sector
si = contribution from the sector in the analysis area
s = contribution of the reference is sector

THEORETICAL BASIS

Theory of Regional Development and Development

The main objective of economic development efforts in addition to creating the highest growth, must also eliminate or reduce the level of poverty, income inequality and unemployment. Job opportunities for residents or the community will provide income to meet their daily needs (Todaro, 2000). The term development can be interpreted differently

by one person to another, from one region to another, even from one country to another. Traditionally, development has meant a continuous increase in the Gross Domestic Product (GNP) or Gross Domestic Product (GDP) of a country. For regions, the traditional meaning of development is focused on increasing the Gross Regional Domestic Product (GRDP) of a province, district or city. This traditional definition of development is often associated with a strategy to change the structure of a country into an industrialized country. The contribution of the agricultural sector began to be replaced by the contribution of industry. The modern development paradigm views a pattern that is different from traditional economic development. Some modern economists have begun to put forward the dethronement of GNP (decreased economic growth), alleviating the poverty line, reducing the increasingly unequal distribution of income, and decreasing the existing unemployment rate. Development must be seen as a multidimensional process (Mudrajat, 2003).

Regional economic development is a process that includes the formation of new institutions, development of alternative industries, improvement of the capacity of the existing workforce to produce good goods and services, identification of new markets, transfer of knowledge and development of new markets (Arsyad, 1999). Kuncoro (2000) further explained that regional development should pay more attention to the advantages and special characteristics of a region. Development must also be able to increase per income capita of the population and will increase the attractiveness of the region to attract new investors to invest in the region, which in turn will encourage higher economic activity.

Regional Economic Development

Economic growth is an important element in the regional development process which is still the main target in development plans in addition to social development. Economic growth is a process in which there is an increase in real gross national product or real national income. So the economy is said to be growing or developing if there is real output growth. Another definition of economic growth is that economic growth occurs when there is an increase in output per capita. Economic growth describes an increase in the standard of living measured by real output per person.

An economy is said to be experiencing growth or development if the level of economic activity increases or is higher than the previous year. In other words, development will only occur if the number of physical goods and services produced by the economy increases in the following years. An indicator of the success of a region's economic development can be shown by economic growth. Economic growth is the growth of people's income as a reflection of the increase in all value added created in an area.

Todaro (2008:16), defines economic development as a multidimensional process, which involves major changes, either to changes in economic structure, social changes, reducing or eliminating poverty, reducing inequality, and unemployment in the context of economic growth.

Regional economic growth theory analyzes a region as an open economic system that

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is related to other regions through the flow of production factors and commodity exchange. Development in one region will affect the growth of other regions in the form of sector demand for other regions which will encouraging the development of that region, or an economic development of another region will reduce the level of economic activity in a region and its interrelationships.

Economic growth can be assessed as the impact of government policies, especially in the economic sector. Economic growth is a growth rate formed from various kinds of economic sectors which indirectly describes the rate of growth that occurs and as an important indicator for regions to evaluate the success of development (Sirojuzilam, 2008: 18).

Leading Sector Development as a Regional Development Strategy

According to Arsyad (1999: 108) the main problem in regional development lies in the emphasis on development policies based on the peculiarities of the region concerned (endogenous development) by using the potential of human resources. This orientation leads to taking initiatives originating from the area in the development process to create new job opportunities and stimulate economic growth.

Prior to the implementation of regional autonomy, regional economic inequality in Indonesia was because the central government controlled and controlled most of the regional revenues which were designated as state revenues, including revenues from natural resources from the mining, plantation, forestry, and fisheries/marine sectors. As a result, areas rich in natural resources cannot enjoy the benefits properly.

According to classical economic thinking, economic development in areas rich in natural resources will be more advanced and the people more prosperous than in areas with poor natural resources. To a certain extent, this assumption can still be justified, in the sense that natural resources must be seen as initial capital for development which must be further developed. And for this, other factors are needed, of which the most important are technology and human resources (Tambunan, 2001:198).

Differences in the level of development based on the potential of a region, have an impact on sectoral differences in the formation of Gross Regional Domestic Product (GRDP). Hypothetically it can be formulated that the greater the potential role of the economic sector that has added value on the formation or growth of GRDP in an area, the higher the GRDP growth rate of the area.

Based on the experience of developed countries, rapid growth in the history of a nation's development usually begins with the development of several primary sectors. This rapid growth created a snowball effect on other sectors, particularly the secondary sector.

DISCUSSION

Location Quotient (LQ) Analysis

Location Quotient (LQ) analysis is used to determine the economic sectors in GRDP which can be classified into basic and non-basic sectors. Location Quotient (LQ) is a comparison of the magnitude of the role of the sector in Bali Province

against the role at the National level, by dividing the calculation before the pandemic and during the pandemic. Table 3.1 presents the results of data processing from the calculation of Location Quotient (LQ) before the pandemic and during the pandemic.

Table 2
(Results of Calculation of Location Quotient of Bali Province, 2010-2019 and 2020-2021)

Business Fields (17 Categories/Sectors)	Before Pandemic	During Pandemic
	2010-2019 LQ Average	2020-2021 Average LQ
A. Agriculture, Forestry, and Fisheries	1.1	1.1
B. Mining and Quarry	0.1	0.1
C. Processing Industry	0.3	0.3
D. Electricity and Gas Procurement	0.2	0.2
E. Water Supply, Waste Management, Waste and Recycling	2.7	2.5
F. Construction	1.0	1.1
G. Wholesale and Retail Trade; Car and Motorcycle Repair	0.6	0.7
H. Transportation and Warehousing	1.9	1.4
I. Provision of Accommodation and Drinks	6.4	5.4
J. Information and Communication	1.4	1.3
K. Financial Services and Insurance	1.1	1.0
L. Real Estate	1.6	1.6
M N. Company Services	0.7	0.6
O. Government Administration, Defense and Mandatory Social Security	1.6	1.8
P. Education Services	1.6	1.8
Q. Health Services and Social Activities	2.0	2.0
R, S, T, U. Other services	1.0	0.9

From the calculation of Location Quotient Table 3.1 in Bali Province from 2010 – 2019 (before the pandemic) on a quarterly basis before the pandemic, namely, (1). Provision of Accommodation and Food and Drink, Water Supply, (2). Waste Management, Waste and Recycling, (3). Health Services and Social Activities, (4). Transportation and Warehousing, (5). Education Services, (6). Government Administration, Defense and Mandatory Social Security, (7). Real Estate, (8). Information and Communication, (9). Agriculture, Forestry, and Fisheries, (10). Financial Services and Insurance.

While the base sector during the pandemic from 2020-2021 in the Province of Bali, namely, (1). Provision of Accommodation and Food and Drink, (2). Water Supply, Waste

Management, Waste and Recycling, (3). Health Services and Social Activities, (4). Education Services, (5). Government Administration, Defense and Mandatory Social Security, (6). Real Estate, (7). Transportation and Warehousing, (8). Information and Communication, (9). Agriculture, Forestry, and Fisheries, (10). Construction.

From the calculation of Location Quotient table 3.1, there are nine basic sectors in Bali Province that have remained the base sectors both before the pandemic and during the pandemic, namely, (1). Provision of Accommodation and Food and Drink, (2) Water Supply, Waste Management, Waste and Recycling, (3) Health Services and Social Activities, (4) Transportation and Warehousing, (5) Educational Services, (6) Government Administration, Defense and Mandatory Social Security, (7) Real Estate, (8) Information and Communication, (9) Agriculture, Forestry, and Fisheries. The basic sectors that did not survive the pandemic were Financial Services and Insurance LQ index during the pandemic 0.99.

The leading base sectors in Bali before and during the first pandemic were; Provision of Accommodation and Food and Drink, before the pandemic the LQ index was 6.39, while during the pandemic the LQ index was 5.43 the calculation used quarterly data for 2010-2019, both Water Supply, Waste Management, Waste and Recycling before the pandemic LQ index 2.68 while during the pandemic the LQ index was 2.45, the three sectors of Health Services and Social Activities before the pandemic the LQ index was 1.99 and during the pandemic the LQ index was 2.45.

Shift-Share (SS) Analysis

Shift-share analysis is a method used to see the development of a region's economic sector against other economic developments and the development of the economic sector when compared to other sectors relatively. Shift Share analysis in this study uses the income variable, namely GRDP to describe the economic growth of Bali Province before the pandemic (2010-2019) and during the pandemic (2010-2020).

Table 3
(Results of Shift-Share Calculation of Bali Province, 2010-2019/Before the Pandemic)

Business Fields (17 Categories/Sectors)	Before Pandemic (2010-2019)			
	NIJ	MIJ	CIJ	DIJ
A. Agriculture, Forestry, and Fisheries	9,185.80	3,826.42	-1,329.76	11,682.46
B. Mining and Quarry	647.24	79.38	150.75	877.38
C. Processing Industry	3,746.16	1,891.72	487.90	6,125.78
D. Electricity and Gas Procurement	109.65	58.77	43.57	212.00
E. Water Supply, Waste Management, Waste and Recycling	136.59	73.72	-30.29	180.02
F. Construction	4,749.67	3,648.17	1,625.62	10,023.45
G. Wholesale and Retail Trade; Car and Motorcycle Repair	4,653.73	2,600.76	2,612.51	9,867.00
H. Transportation and Warehousing	3,958.91	3,513.72	-1,211.41	6,261.23

I. Provision of Accommodation and Drinks	10,230.53	6,795.01	3,077.28	20,102.82
J. Information and Communication	3,356.13	4,371.17	-1,880.22	5,847.08
K. Financial Services and Insurance	2,102.20	1,783.32	-47.32	3,838.20
L. Real Estate	2,597.45	1,555.32	193.09	4,345.86
M N. Company Services	605.52	659.09	-405.03	859.57
O. Government Administration, Defense and Mandatory Social Security	2,971.73	1,211.92	1,626.19	5,809.84
P. Education Services	2,557.73	1,773.96	1,413.06	5,744.75
Q. Health Services and Social Activities	1,061.71	975.94	361.00	2,398.65
R, S, T, U. Other services	841.83	865.89	-257.72	1,450.00

DIJ: Describing the shift in value
CIJ: If negative has no competitive advantage, if positive has a competitive advantage
MIJ: Proportional growth if the positive value of the sector's growth is relatively fast, if negative it is relatively slow

Table 4
(Results of Shift-Share Calculation of Bali Province, 2010-2020/During the Pandemic)

Business Fields (17 Categories/Sectors)	During Pandemic (2010-2020)			
	NIJ	MIJ	CIJ	DIJ
A. Agriculture, Forestry, and Fisheries	-21,238.67	2,220.87	-2,582.20	-21,600.00
B. Mining and Quarry	-1,362.23	606.71	137.76	-617.76
C. Processing Industry	-9,661.66	822.17	110.01	-8,729.48
D. Electricity and Gas Procurement	-282.26	12.98	-7.87	-277.15
E. Water Supply, Waste Management, Waste and Recycling	-335.65	-23.44	-70.85	-429.94
F. Construction	-15,930.53	-2,621.89	3,250.59	-15,301.82
G. Wholesale and Retail Trade; Car and Motorcycle Repair	-14,256.64	642.54	3,533.53	-10,080.57
H. Transportation and Warehousing	-8,103.22	-467.16	-3,526.54	-12,096.92
I. Provision of Accommodation and Drinks	-23,850.26	1,235.69	-3,897.15	-26,511.72
J. Information and Communication	-12,374.50	-12,377.30	-5,462.34	-30,214.14
K. Financial Services and Insurance	-6,456.13	-2,339.84	-1,001.86	-9,797.84
L. Real Estate	-7,504.04	-675.16	99.56	-8,079.64
M N. Company Services	-1,736.08	-744.71	-586.48	-3,067.27
O. Government Administration, Defense and Mandatory Social Security	-8,901.44	1,232.80	2,692.15	-4,976.48

P. Education Services	-8,948.36	-1,719.55	2,317.95	-8,349.96
Q. Health Services and Social Activities	-4,041.72	-2,408.51	127.17	-6,323.05
R, S, T, U. Other services	-2,557.14	-1,021.80	-540.16	-4,119.10

DIJ : Describing the shift in value

CIJ : If negative has no competitive advantage, if positive has a competitive advantage

MIJ: Proportional growth if the positive value of the sector's growth is relatively fast, if negative it is relatively slow

From the shift-share analysis before the pandemic (2010-2019) Table 3.2 in the Bali Province sectors that are competitive and have a good growth rate, namely; (1) Provision of Accommodation and Food and Drink, (2) Wholesale and Retail Trade; Car and Motorcycle Repair, (3) Government Administration, Defense and Mandatory Social Security, (4) Construction, (5) Educational Services, (6) Manufacturing Industry, (7) Health Services and Social Activities, (8) Real Estate, (9) Mining and Quarrying, (10) Procurement of Electricity and Gas.

While it is competitive and has a good growth rate during the pandemic (2010-2020) table 3.3 of these sectors are; (1) Wholesale and Retail Trade; Repair of Cars and Motorcycles, (2) Government Administration, Defense and Mandatory Social Security, (3) Mining and Quarrying, (4) Manufacturing Industry.

Table 5
(PDRB Contribution by Business Sector in Bali Province, 2019 and 2020)

Business Fields (17 Categories/Sectors)	**Before the Pandemic**	**During the Pandemic**
	2019 Contribution (%)	**Contribution 2020 (%)**
A. Agriculture, Forestry, and Fisheries	13.2%	14.4%
B. Mining and Quarry	0.9%	0.9%
C. Processing Industry	6.4%	6.5%
D. Electricity and Gas Procurement	0.2%	0.2%
E. Water Supply, Waste Management, Waste and Recycling	0.2%	0.2%
F. Construction	10.0%	10.8%
G. Wholesale and Retail Trade; Car and Motorcycle Repair	9.4%	9.7%
H. Transportation and Warehousing	7.3%	5.5%
I. Provision of Accommodation and Drinks	20.2%	16.2%
J. Information and Communication	7.2%	8.4%
K. Financial Services and Insurance	4.2%	4.4%
L. Real Estate	4.6%	5.1%

M N. Company Services	1.1%	1.2%
O. Government Administration, Defense and Mandatory Social Security	5.5%	6.0%
P. Education Services	5.5%	6.1%
Q. Health Services and Social Activities	2.4%	2.7%
R, S, T, U. Other services	1.7%	1.7%

From the calculation of the GRDP contribution of the business sector, the five business sectors with the highest contribution both before the pandemic and during the pandemic, namely; (1) Provision of Accommodation and Food and Drink, (2) Agriculture, Forestry, and Fisheries, (3) Construction, (4) Wholesale and Retail Trade; Car and Motorcycle Repair, (5) Information and Communication. If founded with processed data shift-share sectors most likely to contribute to the economy of the Province of Bali are the wholesale and retail trade sector; Car and Motorcycle Repair.

Klassen Typology

The principle of Klassen Typology analysis is carried out to distinguish two types of grouping, namely the classification of the potential for regional economic development and the classification of economic sectors. Table 3.5 presents the results of processing Klassen Typology before the pandemic (years 2010-2019), while table 3.6 presents the results of processing Klassen Typology during the pandemic (years 2020-2021).

Table 6
(Results of Classification of Bali Province Typology, 2010-2019/Before the Pandemic)

Business Sector	National		Bali		Information	Quadrant
	Average growth	Average contribution	Average growth	Average contribution		
A. Agriculture, Forestry, and Fisheries	3.94 %	13.50 %	96.90 %	14.82%	Advance and Grow Fast	1
B. Mining and Quarry	1.33 %	9.21 %	97.78 %	1.15%	Potential or still growing rapidly	3
C. Processing Industry	4.65 %	22.22 %	95.11 %	6.60%	Potential or still	3

					growing rapidly	
D. Electricity and Gas Procurement	4.93 %	1.09 %	94.03 %	0.22%	Potential or still growing rapidly	3
E. Water Supply, Waste Management, Waste and Recycling	4.93 %	0.08 %	96.28 %	0.23%	Potential or still growing rapidly	3
F. Construction	6.54 %	9.99 %	92.89 %	9.52%	Potential or still growing rapidly	3
G. Wholesale and Retail Trade; Car and Motorcycle Repair	5.08 %	13.92 %	93.35 %	8.91%	Potential or still growing rapidly	3
H. Transportation and Warehousing	7.32 %	4.01 %	94.21 %	7.40%	Advance and Grow Fast	1
I. Provision of Accommodation and Drinks	5.83 %	3.08 %	93.49 %	19.68%		1
J. Information and Communication	9.73 %	4.71 %	92.68 %	6.67%	Advance and Grow Fast	1
K. Financial Services and Insurance	7.12 %	3.93 %	93.55 %	4.12%	Advance and Grow Fast	1
L. Real Estate	5.38 %	3.03 %	94.66 %	4.73%	Advance and Grow Fast	1
M N. Company Services	8.53 %	1.69 %	94.26 %	1.10%	Advance and Grow Fast	3
O. Government Administration, Defense and Mandatory Social Security	3.94 %	3.62 %	94.53 %	5.90%	Potential or still growing rapidly	1
P. Education Services	6.09 %	3.15 %	92.57 %	5.19%		1
Q. Health Services and Social Activities	7.53 %	1.10 %	92.06 %	2.19%	Advance and Grow Fast	1
R, S, T, U. Other services	8.18 %	1.67 %	93.39 %	1.58%	Advance and Grow	3

					Fast	

From the calculation of the class typology before the pandemic (2010-2019) table 3.5 there are nine sectors with advanced status and growing rapidly, namely; (1) Agriculture, Forestry, and Fisheries, (2) Transportation and Warehousing, (3) Provision of Accommodation and Food and Drink, (4) Information and Communication, (5) Financial and Insurance Services, (6) Real Estate, (7) Government Administration, Defense and Mandatory Social Security, (8) Education Services, (9) Health Services and Social Activities.

Table 7
(Class Typology of the Bali Province GRDP Sector, 2010-2019/Before the Pandemic)

Quadrant I (Gi >= G and Si > S)	**Quadrant II (Gi >= G and Si < S)**
A. Agriculture, Forestry, and Fisheries H. Transportation and Warehousing I. Provision of Accommodation and Drinks J. Information and Communication K. Financial Services and Insurance L. Real Estate O. Government Administration, Defense and Mandatory Social Security P. Education Services Q. Health Services and Social Activities	
Quadrant III (Gi =< G and Si > S)	**Quadrant VI (Gi =< G and Si < S)**
B. Mining and Quarry C. Processing Industry D. Electricity and Gas Procurement E. Water Supply, Waste Management, Waste and Recycling F. Construction G. Wholesale and Retail Trade; Car and Motorcycle Repair M N. Company Services R, S, T, U. Other services	

Table 3.7
(Results of the Calculation of the Klassen Typology of Bali Province, 2020-

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2021/During the Pandemic)

Business Sector	National		Bali		Information	Quadrant
	Average growth	Average contribution	Average growth	Average contribution		
A. Agriculture, Forestry, and Fisheries	1.72%	13.28%	100.61%	14.57 %	Advance and Grow Fast	1
B. Mining and Quarry	0.46%	7.67%	104.09%	0.93%	Potential or still growing rapidly	3
C. Processing Industry	-0.39%	21.49%	105.68%	6.53%	Advance and Grow Fast	1
D. Electricity and Gas Procurement	0.80%	1.06%	117.39%	0.19%	Potential or still growing rapidly	3
E. Water Supply, Waste Management, Waste and Recycling	5.08%	0.09%	103.41%	0.23%		1
F. Construction	-0.74%	10.40%	101.81%	10.92 %	Advance and Grow Fast	1
G. Wholesale and Retail Trade; Car and Motorcycle Repair	-0.19%	13.58%	105.55%	9.71%	Advance and Grow Fast	3
H. Transportation and Warehousing	-6.91%	3.99%	139.71%	5.15%	Potential or still growing rapidly	1
I. Provision of Accommodation and Drinks	-3.79%	2.99%	128.19%	15.66 %	Advance and Grow Fast	1
J. Information and Communication	9.06%	6.11%	95.44%	8.60%		1

Business Sector	National		Bali		Information	Quadrant
	Average growth	Average contribution	Average growth	Average contribution		
K. Financial Services and Insurance	3.25%	4.34%	104.48%	4.39%	Advance and Grow Fast	3
L. Real Estate	2.36%	3.09%	99.80%	5.16%	Advance and Grow Fast	3
M N. Company Services	-2.58%	1.91%	104.23%	1.17%	Potential or still can	3
O. Government Administration, Defense and Mandatory Social Security	-0.43%	3.46%	101.14%	6.11%	growing rapidly	1
P. Education Services	1.54%	3.29%	100.73%	6.11%	Potential or still growing rapidly	1
Q. Health Services and Social Activities	10.72%	1.33%	96.24%	2.84%	Potential or still growing rapidly	1
R, S, T, U. Other services	-1.34%	1.91%	105.16%	1.74%		3

While the calculation of the Klassen typology at the time of spread (2020-2021) table 3.6 there are ten sectors with advanced status and growing rapidly, namely; (1) Agriculture, Forestry, and Fisheries, (2) Processing Industry, (3) Water Supply, Waste Management, Waste and Recycling, (4) Construction, (5) Transportation and Warehousing, (6) Provision of Accommodation and Food and Drink , (7) Information and Communication, (8) Government Administration, Defense and Mandatory Social Security, (9) Education Services, (10) Health Services and Social Activities.

Table 3.8
(Class Typology of the Bali Province PDRB Sector, 2020-2021/During a Pandemic)

Quadrant I (Gi >= G and Si > S)	Quadrant II (Gi >= G and Si < S)

A. Agriculture, Forestry, and Fisheries C. Processing Industry E. Water Supply, Waste Management, Waste and Recycling F. Construction H. Transportation and Warehousing I. Provision of Accommodation and Drinks J. Information and Communication O. Government Administration, Defense and Mandatory Social Security P. Education Services Q. Health Services and Social Activities	
Quadrant III (Gi =< G and Si > S)	**Quadrant VI (Gi =< G and Si < S)**
B. Mining and Quarry D. Electricity and Gas Procurement G. Wholesale and Retail Trade; Car and Motorcycle Repair K. Financial Services and Insurance L. Real Estate M N. Services Company R, S, T, U. Other services	

Leading Sector of Bali Province

To see the leading sectors before the pandemic and during the pandemic by referring to the three analytical tools that have been carried out, namely the results of the calculation of LQ, Shift Share and Klassen Typology, it is necessary to overlay the three analyzes. The coefficients of the three components must be equated, namely by labeling positive (+) and negative (-), positive LQ means that the value is more than 1 and negative is less than 1, while the Shift-Share is positive meaning that it is proportional and the differential shift is both positive and negative if one of the two is negative, and for Klassen typology is positive if the sector is in quadrant 1 and negative if it is not quadrant 1.

Table 3.9
(LQ Data Overlay, Shift Share and Klassen Typology, Before and During the Pandemic)

Business Sector	Before Pandemic			During Pandemic		
	LQ	Shift-Share	Klassen Typology	LQ	Shift-Share	Klassens Typology
A. Agriculture, Forestry, and	+	-	+	+	-	+

Fisheries						
B. Mining and Quarry	-	+	-	-	+	-
C. Processing Industry	-	+	-	-	+	+
D. Electricity and Gas Procurement	-	+	-	-	-	-
E. Water Supply, Waste Management, Waste and Recycling	+	-	-	+	-	+
F. Construction	-	+	-	+	-	+
G. Wholesale and Retail Trade; Car and Motorcycle Repair	-	+	-	-	+	-
H. Transportation and Warehousing	+	-	+	+	-	+
I. Provision of Accommodation and Drinks	+	+	+	+	-	+
J. Information and Communication	+	-	+	+	-	+
K. Financial Services and Insurance	+	-	+	-	-	-
L. Real Estate	+	+	+	+	-	-
M N. Company Services	-	-	-	-	-	-
O. Government Administration, Defense and Mandatory Social Security	+	+	+	+	+	+
P. Education Services	+	+	+	+	-	+
Q. Health Services and Social Activities	+	+	+	+	-	+
R, S, T, U. Other services	-	-	-	-	-	-

From the data overlay of LQ, Shift-Share, and Klassen Typology before the pandemic and during the pandemic in Bali Province (table 3.9) it was found that the basic sector, the sector that developed and grew rapidly and the special sector grew faster than the national level.

Prior to the pandemic, Bali Province had five leading base sectors, namely; (1) Provision of Accommodation and Food and Drink, (2) Real Estate, (3) Government Administration, Defense and Mandatory Social Security, (4) Educational Services, (5) Health Services and Social Activities.

Meanwhile, during the pandemic, Bali Province only had one leading base sector, namely; Government Administration, Defense and Mandatory Social Security.

CONCLUSION

From the above calculations and analysis of the economy in the Province of Bali with the sector forming the Gross Regional Domestic Product (GRDP) there are several conclusions.

The results of the Location Quotient (LQ) analysis in Bali Province before the pandemic contained ten basic sectors, namely, (1). Provision of Accommodation and Food and Drink, Water Supply, (2). Waste Management, Waste and Recycling, (3). Health Services and Social Activities, (4). Transportation and Warehousing, (5). Education Services, (6). Government Administration, Defense and Mandatory Social Security, (7). Real Estate, (8). Information and Communication, (9). Agriculture, Forestry, and Fisheries, (10). Financial Services and Insurance.

During the pandemic there are also ten basic sectors, namely; (1). Provision of Accommodation and Food and Drink, (2). Water Supply, Waste Management, Waste and Recycling, (3). Health Services and Social Activities, (4). Education Services, (5). Government Administration, Defense and Mandatory Social Security, (6). Real Estate, (7). Transportation and Warehousing, (8). Information and Communication, (9). Agriculture, Forestry, and Fisheries, (10). Construction.

Meanwhile, there are three basic sectors with the highest Location Quotient (LQ) index before the pandemic and during the pandemic, namely, **(1) Provision of Accommodation and Food and Drink, (2) Water Supply, Waste Management, Waste and Recycling, (3) Health Services and Social Activities.**

The results of the Shift-Share analysis in Bali Province before the pandemic contained ten competitive sectors with good growth rates, namely; (1) Provision of Accommodation and Food and Drink, (2) Wholesale and Retail Trade; Car and Motorcycle Repair, (3) Government Administration, Defense and Mandatory Social Security, (4) Construction, (5) Educational Services, (6) Manufacturing Industry, (7) Health Services and Social Activities, (8) Real Estate, (9) Mining and Quarrying , (10) Electricity and Gas Procurement.

During the pandemic there were four competitive sectors with good growth rates, namely; (1) Wholesale and Retail Trade; Repair of Cars and Motorcycles, (2) Government Administration, Defense and Mandatory Social Security, (3) Mining and Quarrying, (4) Manufacturing Industry.

While the competitive sector at a rate of good growth in the pre-pandemic period and during the pandemic there were four sectors, namely; **(1) Wholesale and Retail Trade; Car and Motorcycle Repair, (2) Government Administration, Defense and Mandatory Social Security, (3) Mining and Quarrying, (4) Processing Industry**.

The results of the Klassen Typology analysis in the Province of Bali before the sector pandemic with the status of Quadrant I (advanced and fast growing) contained nine sectors, namely; (1) Agriculture, Forestry, and Fisheries, (2) Transportation and Warehousing, (3) Provision of Accommodation and Food and Drink, (4) Information and Communication, (5) Financial and Insurance Services, (6) Real Estate, (7) Government Administration,

Defense and Mandatory Social Security, (8) Education Services, (9) Health Services and Social Activities.

During a sector pandemic with Quadrant I status (advanced and growing fast) there were ten sectors, namely; (1) Agriculture, Forestry, and Fisheries, (2) Processing Industry, (3) Water Supply, Waste Management, Waste and Recycling, (4) Construction, (5) Transportation and Warehousing, (6) Provision of Accommodation and Food and Drink , (7) Information and Communication, (8) Government Administration, Defense and Mandatory Social Security, (9) Education Services, (10) Health Services and Social Activities. Meanwhile, from the analysis of Klessen's typology, there are seven sectors that are progressing and growing fast, namely; (1) Agriculture, Forestry, and Fisheries, (2) Transportation and Warehousing, (3) Provision of Accommodation and Food and Drink, (4) Information and Communication, (5) Government Administration, Defense and Mandatory Social Security, (6) Educational Services , (7) Health Services and Social Activities.

From the processed data using Location Quotient (LQ), Shift-Share, and Klessen Typology analysis overlays and overlaying the period before the pandemic and during the pandemic in Bali Province, there was only one sector, namely; **Government Administration, Defense and Mandatory Social Security**. Meanwhile, from the results of the overlay analysis of Location Quotient (LQ), Shift-Share, and Klessen Typology before the pandemic, there are five basic sectors, namely; **(1) Provision of Accommodation and Food and Drink, (2) Real Estate, (3) Government Administration, Defense and Mandatory Social Security, (4) Educational Services, (5) Health Services and Social Activities.**

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