



Structure Analysis and Growth Trends the Economy of Bali Province-Indonesia Post COVID-19 Pandemic

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Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

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ABSTRACT

The 2020-2021 world economic downturn due to the Covid-19 pandemic has reduced tourist visits to Bali. The G-20 conference in 2022, which followed by foreign tourist visits to Bali, have a positive influence on Bali's economic growth. The research objectives are to Analyze Bali's economic structure post-COVID-19 pandemic and make a trend for Bali's economic growth post-COVID-19 pandemic. Research location in Bali Province. The type of data collected is quarterly secondary data for the 2018-2023 period (21 points) where Y=quarterly Bali economic growth, and X=quarterly foreign tourist visits. The main data source is the Bali Province Central Statistics Agency and several other related agencies in Bali. Data analysis methods are descriptive statistics, qualitative descriptive, and linear trend analysis. The research results show that, although in 2020-2021 Bali's economy experienced a significant contraction due to the impact of the Covid-19 pandemic, post the pandemic, tourist visits to Bali began to recover in 2022-2023, Bali's economic structure remains the same as before the pandemic, which was dominated by the tourism sector. The results of the linear trend analysis show that tourist visits have a significant effect on Bali's

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economic growth. This means that the increase in tourist visits after the COVID-19 pandemic has had a significant impact on Bali's economic growth. If in the first quarter of 2024, tourist visits reach 1,500,000 people, then Bali's economic growth will be 6.59%. However, if in the second quarter of 2024, tourist visits reach 1,600,000 people, then Bali's economic growth will be 7.03%. The novelty of the research is that after COVID-19, Bali's economy continues to be driven by tourism, and tourist visits have a significant influence on Bali's economic growth.

Keywords: *Bali economy; COVID-19 pandemic; tourist visits.*

1. INTRODUCTION

Bali's economic structure pre-Covid-19 pandemic has unique characteristics compared to other provinces in Indonesia. The economic pillars built through the excellence of the tourism industry as a leading sector have opened up various opportunities that can encourage economic activity and develop the community's work ethic. This dimension is reflected in the expansion of employment opportunities, the high level of income of the community, and the breadth of work networks that cover local boundaries up to the national level, even at the international level. The enormous support of the tourism industry has caused sectors that have a direct connection, such as trade, hotels and restaurants, transportation, finance, and services to make a significant contribution to the formation of the GRDP of Bali Province. Based on Anonymous [1,2] in 1999 the contribution of the tertiary sector group had reached 65.49%, then in 2003 it decreased to 65.49%, which was due to the decline in the performance of the trade, hotel, and restaurant sectors during the economic crisis, the WTC tragedy and finally the tragedy. Legian Kuta 12 October 2002. On the other hand, the development of the primary sector during this period was largely contributed by the fairly high increase in the agricultural sector in 1999 amounting to 20.26%, and in 2003 to 20.08%. Twenty years later in 2019 before the Covid-19 pandemic, according to *BPS Bali* [3], the contribution of the tertiary sector was 69.72%, which was contributed by the Accommodation and Food and Drink sectors by 23.25%, the Transportation and Warehousing sector by 9.79% and the Wholesale and Retail Trade, Car and Motorcycle Repair sector of 8.57%. Meanwhile, in 2019 the contribution from the primary sector was only 14.32%, the contribution from the Agriculture sector was 13.45% and the Mining and Quarrying sector was 0.87%. So the economic structure of Bali Province before the Covid-19 pandemic was dominated by service sectors related to tourism, such as the Accommodation and Food and Drink sectors, the Transportation and Warehousing

sectors, and the Wholesale and Retail Trade sectors.

Bali's economic growth which is higher than national economic growth continues until 2019 in parallel with the very rapid development of Bali tourism, indicated by an increase in foreign tourist arrivals to Bali, according to *BPS Bali* [4] reaching 6,275,210 people in 2019. This means that tourism, especially visits by foreign tourists, is the engine driving the Balinese economy. In other words, the progress of tourism affects the progress of the Balinese economy. Therefore Bali tourism must be sustainable if Bali's economy is to continue to progress and develop.

However, the outbreak of the Covid-19 pandemic that hit the world and Indonesia which reached its peak in 2020 continued until early 2021, which was followed by the lockdown policies of several countries and the policy of Imposing Restrictions on Community Activities (PPKM) for Indonesia which had reduced foreign tourist visits to Bali, so that in 2020 Bali's economy contracted by -9.33%, while for Indonesia in the same year the contraction was milder, only reaching -2.1% [5]. UNWTO in November 2021 report [6], The COVID-19 pandemic cut tourism direct GDP by more than half in 2020, reducing it by USD 2.0 trillion, to 1.8% of world GDP. On a macro level, the Bali economic crisis in 2020 will continue until early 2021 which is affected by the Covid-19 pandemic, which will affect the pattern and structure of the Bali Province economy, whose economy is largely supported by the tourism sector and related sectors. This condition gave rise to discourse from the number one person in Bali and several economic observers to transform the Balinese economy from tourism to agriculture, or in other words the Balinese economy no longer relies on tourism. The problem is, that to transform Bali's economy from tourism to agriculture, agricultural production must be increased 2-3 times the normal production before COVID-19, and to increase agricultural production 2-3 times, super-sophisticated production technology is needed, so that the added value generated by the

agricultural sector can replace the added value generated by tourism. Is there currently super-sophisticated agricultural technology found and available? As long as there are no observations. In addition, natural resources, especially available land in Bali, are limited. Has this discourse been realized in the form of programs and activities by the relevant technical offices?

The world economic downturn in 2020-2021, the impact of the Covid-19 pandemic, and the Russian-Ukrainian war in 2021-2022 have more or less become a consideration for the world's population to travel, including traveling to Bali, thereby slowing down the economic recovery of Bali, where most of its economic activity depends on visits tourist. However, the implementation of the Conference of countries that are members of the G-20 in 2022 injects fresh funds into the Bali economy, both by the central government and conference delegates, and is followed by the start of visits by foreign tourists to Bali, so that economic activity related to tourist visits, thus having a positive effect on Bali's economic growth. This means that there is a relationship between foreign tourist visits to Bali and Bali's economic growth. In 2021 and 2022, perhaps until 2023, Bali tourism will not appear as normal as before the Covid-19 pandemic. However, whether Bali's economic structure in the future will transform to agriculture or continue to rely on tourism, this research asks whether there is a change in the economic structure of Bali Province after the Covid-19 pandemic and whether there is a trend of economic growth in Bali Province along with an increase in foreign tourist visits to Bali, even though it has not reached the same level as before. before the Covid-19 pandemic.

Based on the problem formulation, research objectives can be formulated, namely:

- 1) Analyze the economic structure of Bali Province after the Covid-19 pandemic which collapsed at the peak of the Covid-19 pandemic in 2020.
- 2) Creating a trend in the economic growth of Bali Province after the Covid-19 pandemic which collapsed at the peak of the Covid-19 pandemic in 2020.

2. METHODS

2.1 Research Location and Time

The research location in Bali Province, which was determined purposively, was based on

several considerations, including (1) Bali is one of the favorite tourist destinations in the world; (2) The Covid-19 pandemic that hit the world in 2020 continued in 2021 followed by a decline in visits to Bali; (3) The downturn in Bali tourism during the Covid-19 period of 2020-2021 also had an impact on the development of the agricultural sector and small-to-medium industry, and ultimately had an impact on the performance (growth, employment or increased unemployment) of the Bali Province economy. The research time is February-October 2023.

2.2 Data Types and Sources

The types of data collected are quantitative data and qualitative data [7]. The types of quantitative data in the form of numbers are as follows; (1) Bali Province GRDP at current and constant prices (2010-2022/2023); (2) Bali Province's economic growth per quarter 2015-2022/2023; (3) Foreign tourist visits to Bali Province per quarter 2010-2022/2023; (4) Other quantitative and qualitative data related to the structure and economic growth trends of Bali Province after the Covid-19 pandemic.

2.3 Data Sources and Data Collection Methods

Research data can come from primary sources and/or secondary sources [8-10]. Secondary sources that produce secondary data, namely data in the form of documents/publications/other reports sourced from second parties or government agencies related to this research, namely: Bali Province Statistical Agency, Bali Province Planning Agency, and other agencies within the Bali Provincial Government. Data collection methods are documentation, interviews, and observation.

2.4 Research Procedures

The stages or procedures for research activities are: (1) Preparation includes outreach to several Bali Provincial government agencies; (2) Implementation, including preparation for data collection, and collection of data and information to several government agencies related to data and information after the Covid-19 pandemic, such as BPS Bali Province, Tourism Office, Cooperatives and MSMEs Service and other agencies within the Bali Province; (3) Compilation of various kinds of data; (4) Tabulation, analysis, interpretation and discussion of analysis results; (5) Preparation of

research reports; (6) Dissemination of research results at Senastek or other international seminars.

2.5 Data Analysis Method

The data analysis methods used in the research are descriptive statistics, linear trend regression method, and qualitative descriptive [11]. To achieve goal two, namely creating a trend in Bali's economic growth after the Covid-19 pandemic, which had slumped at the peak of the Covid-19 pandemic in 2020, the linear trend analysis method using simple regression was used, namely the influence of the development of tourist visits on Bali's quarterly economic growth.

$$Y = f(X), \text{ or specifically } Y = b_0 + b_1 X + e$$

[12]

Where

Y = Quarterly Bali economic growth for the 2018-2023 period (21 points), and

X = Tourist visits to Bali quarterly for the 2018-2023 period (21 points),

e = Random variable

Using the SPSS application with the least squares method, the regression coefficients b_0 and b_1 can be estimated which can be used to forecast or trend the development of future economic growth which is influenced by tourist visits to Bali.

From the previous linear trend equation a hypothesis can be formulated, namely:

H_0 : Post-Covid-19 tourist visits do not affect economic growth, Bali Province, Indonesia
(p -value < p -0.05).

H_a : Post-Covid-19 tourist visits have an impact on economic growth Bali Province (p -value
 $> p$ -0.05).

Hypothesis testing uses the results of data processing using the SPSS 20 application, which is indicated by the b_1 coefficient.

If b_1 is non-significant at $p=5\%$ it means H_0 is accepted (H_a is rejected).

If b_1 is significant at $p=5\%$, it means that H_a is accepted (or H_0 is rejected).

Rejection and acceptance of a hypothesis are associated with the previous hypothesis statement.

3. RESULTS AND DISCUSSION

3.1 Economic Structure Analysys of Bali Province Post-Covid-19 Pandemic

Economic structure is used to show the composition or arrangement of economic sectors in an economy. Sectors that have a large contribution (%) to GDP or GRDP are called dominant sectors, which can be relied upon as the driving force of the economy of a region or country. The economic structure of a region or country continues to develop and change, its development begins with an agricultural structure, whose economic activity is dominated by agriculture in the broadest sense. In the next stage, agricultural-based manufacturing developed. Furthermore, industry developed which was not only an agricultural-based industry, but also a manufacturing industry. Furthermore, the service sector developed, which shifted and complemented the role of the manufacturing industry. Changes in economic structure present challenges in terms of reallocating production factors. However, in the case of the Balinese economy, economic development began with an agrarian economic structure (also commonly called the primary sector) around 1945-1980, and continued without going through the process of manufacturing industrialization development, as Bali tourism continued to develop after the 1980s, Bali's economic structure jumped. to the service industry related to tourist visits (usually called the tertiary sector) where the combination of these sectors is usually called the tourism sector. The tourism sector is so dominant that Bali's economy can be said to be driven by the tourism sector.

The economic structure of a region or country is usually classified into four general groups, namely: (1) Primary sector, which consists of agriculture, fisheries, and activities such as mining and oil extraction. Natural resource processing is key in this sector; (2) The secondary sector includes various manufacturing activities. Examples are food processing, beverage production, textiles and clothing, iron and steel production, vehicle manufacturing, and electronics; (3) The tertiary sector includes service sectors such as trade, restaurants, transportation, logistics, banking, insurance, and education; and (4) Quaternary sector. This group is relatively new and is used to distinguish knowledge-based service sectors from those that are not. This sector includes the knowledge-

based part of the economy, especially the provision of information. Examples are scientific research and product development, computing, and information and communication technology.

Using time series data on the contribution of seventeen sectors/business fields to the Balinese economy (Bali's GRDP) according to current prices 2010-2022 (Table 1), it appears that pre-Covid-19 pandemic (2010-2019), Bali's economic structure was dominated by the tourism sector (service sectors related to tourist visits, namely Transportation and Warehousing, Provision of accommodation and food and drink, Information and Communication, Financial Services and Insurance, Real Estate, and Other services). For example, in 2019 before the Covid-19 pandemic, the contribution of the tourism sector was 47.85%, while the contribution of the agricultural sector was only 13.45%. This shows that Bali's economy is driven by the tourism sector.

Like most regions throughout the world, Bali's economy was also significantly impacted by the Covid-19 pandemic in 2020. Several economic sectors that are important to Bali, such as tourism and the creative industry, experienced a drastic decline due to travel restrictions and lockdowns. Therefore, the impact of the 2020 Covid-19 pandemic which limited travel and reduced tourist visits to Bali greatly affected Bali's economy as a whole, even though Bali's economy is very dependent on the tourism and hospitality sectors.

To date, Bali's economy has collapsed three times due to disasters, namely during the Bali Bombing I in 2002, the Bali Bombing II in 2005, and the Covid-19 Pandemic in 2020. During the Covid-19 pandemic in 2020, Bali tourism indeed slumped due to tourist visits to Bali. decreased drastically to only 1,068,711 people in the first quarter of 2020, decreased to 460 people in the second quarter, 36 people in the third quarter, and increased to 266 people in the fourth quarter (see data in Table 1), so the contribution of the tourism sector to the Bali economy decreased to 42.06%, while the agricultural sector increased to 15.09%.

Post the Covid-19 pandemic in 2022-2023-etc, a conference of G-20 countries was held in 2022 which injected fresh funds into the Balinese economy, both by the central government and conference delegates, and was followed by the start of visits by foreign tourists to Bali. So, economic activities related to tourist visits are

beginning to emerge, thus having a positive influence on Bali's economy. This means that there is a relationship between foreign tourist visits to Bali and Bali's economic growth, which will ultimately increase the contribution of the tourism sector (sectors related to tourist services). In 2022, tourist visits to Bali will begin to increase, although it does not appear to be as normal as before the Covid-19 pandemic, so that the contribution of the tourism sector increases to 42.6%, while the contribution of the agricultural sector decreases to 14.68%. As tourist visits increase in the coming years, the contribution of the tourism sector will increase, which means that Bali's economic structure will remain dominated by tourism.

The research results show that, although in 2020 the Bali economy experienced a significant contraction due to the impact of the Covid-19 pandemic, post the pandemic, tourist visits to Bali began to recover in 2022-2023-etc., The province's economic structure remains the same as before the pandemic, which is dominated by the tourism sector (sectors related to tourist visiting services). So the results of this research refute the opinion of economic experts and officials that the COVID-19 pandemic can transform Bali's economic structure from tourism to agriculture. Even though the decline in Bali's economy as a result of the COVID-19 pandemic in 2020-2021 was only temporary, and after tourist visits recovered in 2022-2023-etc, Bali's economy was once again dominated by various economic activities related to tourism services. The temporary downturn in Bali tourism was also proven when the Bali Bombing I in 2002 and the Bali Bombing II in 2005, Six to one year after the bomb disaster, tourist visits began to return to normal and Bali's economy also revived, driven by the tourism sector.

The facts and results of this research analysis, as stated previously, are supported by the opinion and belief of Nugroho [13] that Bali tourism after the Covid-19 pandemic will still be the locomotive of Bali's economic growth, while other sectors such as the agricultural sector need a longer time to replace tourism. However, Nugroho said three types of strategies are needed to encourage tourism to grow again after the COVID-19 pandemic, namely accessibility, attractions, and promotions. First, in terms of accessibility, Bali can be developed as a "Super Hub Tourism". which includes Bali, NTB (Mandalika), and NTT (Labuhan Bajo), both by air and sea. Changes in tourism trends that are

Table 1. Economic structure of Bali province, before, during and post the Covid-19 pandemic (%)

| Business Field (2010-2022 Series) | Distribution of Annual GRDP of Bali Province Based on Current Prices by Business Field (Percent) | | | | | | | | | | | | |
|---|--|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-----------------|---------------|
| | Pre-Covid-19 Pandemic | | | | | | | | | | | During Covid-19 | Post Covid-19 |
| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | | |
| A. Agriculture, Forestry and Fisheries | 17.17 | 16.23 | 15.70 | 15.22 | 14.65 | 14.65 | 14.50 | 13.98 | 13.75 | 13.45 | 15.09 | 15.77 | 14.68 |
| B. mining and Quarrying | 1.21 | 1.25 | 1.31 | 1.31 | 1.25 | 1.11 | 1.08 | 0.99 | 0.94 | 0.87 | 0.95 | 0.97 | 0.94 |
| C. Processing Industry | 7.00 | 6.69 | 6.53 | 6.44 | 6.38 | 6.53 | 6.39 | 6.06 | 6.01 | 6.04 | 6.44 | 6.68 | 6.59 |
| D. Procurement of Electricity and Gas | 0.20 | 0.18 | 0.15 | 0.13 | 0.15 | 0.19 | 0.22 | 0.24 | 0.24 | 0.23 | 0.22 | 0.21 | 0.23 |
| E. Water Procurement, Waste Management, Waste and Recycling | 0.26 | 0.23 | 0.21 | 0.20 | 0.18 | 0.18 | 0.18 | 0.18 | 0.17 | 0.17 | 0.19 | 0.19 | 0.17 |
| F. Construction | 8.88 | 8.98 | 10.14 | 9.86 | 9.02 | 8.86 | 8.87 | 8.94 | 9.35 | 9.53 | 10.52 | 10.97 | 10.66 |
| G. Wholesale and Retail Trade; Car and Motorcycle Repair | 8.70 | 8.88 | 8.51 | 8.31 | 8.27 | 8.34 | 8.29 | 8.44 | 8.48 | 8.57 | 9.04 | 9.22 | 9.20 |
| H. Transportation and Warehousing | 7.40 | 7.75 | 7.94 | 8.42 | 9.08 | 9.29 | 9.57 | 9.64 | 9.75 | 9.79 | 6.95 | 5.64 | 7.70 |
| I. Provision of accommodation and food and drink | 19.12 | 19.37 | 20.32 | 21.53 | 23.10 | 23.01 | 22.87 | 23.49 | 23.38 | 23.25 | 18.33 | 16.60 | 17.93 |
| J. Information and Communication | 6.27 | 6.13 | 5.88 | 5.44 | 5.14 | 5.17 | 5.18 | 5.25 | 5.28 | 5.31 | 6.36 | 6.73 | 6.13 |
| K. Financial Services and Insurance | 3.93 | 3.89 | 4.12 | 4.30 | 4.19 | 4.12 | 4.15 | 4.03 | 3.88 | 3.99 | 4.25 | 4.39 | 4.68 |
| L. Real Estate | 4.85 | 4.70 | 4.52 | 4.44 | 4.36 | 4.19 | 4.05 | 3.99 | 3.88 | 3.89 | 4.43 | 4.58 | 4.36 |
| M, N. Corporate Services | 1.13 | 1.06 | 1.02 | 1.00 | 0.98 | 1.02 | 1.04 | 1.05 | 1.05 | 1.04 | 1.15 | 1.15 | 1.17 |
| O. Government Administration, Defense and Mandatory Social Security | 5.55 | 6.35 | 5.73 | 5.09 | 5.01 | 4.95 | 4.93 | 4.93 | 4.95 | 4.93 | 5.89 | 6.21 | 5.58 |
| P. Education Services | 4.78 | 4.78 | 4.51 | 4.82 | 4.77 | 4.85 | 5.03 | 5.08 | 5.13 | 5.15 | 5.88 | 6.11 | 5.55 |
| O. Health Services and Social Activities | 1.98 | 1.96 | 1.92 | 1.99 | 1.98 | 2.05 | 2.11 | 2.14 | 2.17 | 2.18 | 2.58 | 2.83 | 2.64 |
| R, S,T,U Other services | 1.57 | 1.55 | 1.50 | 1.50 | 1.48 | 1.49 | 1.53 | 1.57 | 1.59 | 1.62 | 1.74 | 1.76 | 1.80 |
| Gross Regional Domestic Product of Bali Province | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Agriculture Contribution (A)(%) | 17.17 | 16.23 | 15.70 | 15.22 | 14.65 | 14.65 | 14.50 | 13.98 | 13.75 | 13.45 | 15.09 | 15.77 | 14.68 |
| Tourism Contribution (H+I+J+K+L+R, S, T, U)(%) | 43.14 | 43.39 | 44.28 | 45.63 | 47.35 | 47.27 | 47.35 | 47.97 | 47.76 | 47.85 | 42.06 | 39.7 | 42.6 |

Source Url: <https://bali.bps.go.id/indicator/52/368/7/distribusi-pdrb-tahunan-provinsi-bali-atas-dasar-harga-berlaku-menurut-lapangan-usaha.html>

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Notes: The red mark is the tourism sector

closer to nature and local experiences, as well as the addition of tourist attractions in West Nusa Tenggara (*NTB*) and East Nusa Tenggara (*NTT*) will increase tourists' interest in visiting Bali. Second, in terms of attractions, namely developing natural attractions, developing Bali as medical and wellness tourism, as well as a favorite place for digital nomads, is still very large. Third, from a promotional perspective, Bali is well known, but more European and American foreign tourists come to tourist destinations in neighboring countries, namely Thailand. Therefore, it is necessary to increase promotions to countries that are pockets of foreign tourists.

Based on the results of this research and reinforced by the opinion of Nugroho [13], it is certain that the tourism sector will remain an important part of Bali's economy. So the results of this study refute the opinion of economic experts and officials that the COVID-19 pandemic will transform Bali's economic structure from tourism to agriculture. Even though the decline in Bali's economy due to the COVID-19 pandemic in 2020 was only temporary, and after tourist visits recovered in 2021-2023, Bali's economy was once again dominated by various economic activities related to tourism services. Therefore, efforts to develop sustainable and responsible tourism must be the main focus. This includes developing diverse destinations and improving the quality of tourism through improving accessibility and services, as well as promoting tourism in a more sustainable and environmentally friendly way.

Even though Bali's economy experienced difficulties during the pandemic, several sectors show potential for growth after the COVID-19 pandemic, namely:

- 1) Tourism and hospitality: The tourism and hospitality industry remains the main sector in Bali. However, the Covid-19 pandemic has caused a sharp decline in tourist visits to Bali. Several efforts have been made to increase tourist visits, such as strengthening promotions, providing discounts and incentives, and introducing alternative tourism programs. As time goes by, it is hoped that the tourism and hospitality sector can recover and become a driving force for Bali's economy.
- 2) Agriculture: Bali is also famous for its rapidly developing agriculture. Most of Bali's agricultural products are rice, vegetables, fruit, and spices. During the

Covid-19 pandemic, agricultural production in Bali remained stable, even increasing in certain sectors. This is mainly due to increased demand for healthier and fresher food ingredients during the Covid-19 pandemic.

- 3) Trade: Bali has many traditional shops and markets, as well as fast-growing modern shopping centers. However, the Covid-19 pandemic has caused a sharp decline in sales in the trade sector. Several efforts have been made to promote local shopping, including discount and incentive programs for local buyers.
- 4) Financial services and insurance: Bali has a growing financial services and insurance sector. Even though this sector has not been significantly affected by the COVID-19 pandemic, it still requires efforts and innovation to continue to develop and make a positive contribution to Bali's economy.
- 5) Creative Industries: Bali has many creative and skilled local artists and craftsmen. The creative industry sector can become a new source of income for the Balinese economy after the pandemic, especially by increasing the promotion and marketing of local products on the global market.
- 6) Technology and Innovation: Bali has also begun to develop its technology and innovation sector in recent years. The Bali government has established several policies to encourage technological development and innovation in this area, such as opening innovation centers and holding various events to promote this industry.
- 7) Education: The education sector can also become a new source of income for the Balinese economy in the future. Bali already has several well-known universities and educational institutions, and with the increasing demand for quality education, this sector can become a promising business opportunity.

Bali's economy is very dependent on tourism, so the Covid-19 pandemic has had a very negative impact on the economic sector in Bali. However, several efforts need to be made to restore Bali's economy after the pandemic, including:

- 1) Economic diversification: Bali is trying to develop economic sectors other than tourism, such as agriculture, fisheries, and creative industries.

- 2) Increased investment: Bali seeks to attract investment in various sectors to help strengthen the economy.
- 3) Providing financial assistance: The Indonesian government has provided financial assistance to help Balinese people and entrepreneurs affected by the pandemic.
- 4) Tourism promotion: Bali strives to promote local tourism and make Bali a safe and healthy tourist destination.
- 5) Providing infrastructure: The Bali government is trying to improve infrastructure such as roads, bridges, and airports to support economic activities.

According to a statement by the head of the delegation of the United Nations World Travel Organization (UNWTO) Sandra Carvao at the 2nd Tourism Working Group G20 in Nusa Dua Bali [14], 2022 is the recovery phase global tourism. At the end of 2021, international tourist arrivals will still be less than one billion compared to 2019. Based on data compiled by UNWTO, the recovery of tourism in the European region is quite significant and is almost close to the pre-pandemic figure, namely 74%. For the United States, it is 65%, and the Middle East reaches 76%. Asia-Pacific is still quite behind, namely 14% in this recovery phase. However, UNWTO is confident that in the next few years, tourist visits will increase significantly. As quoted by Chairunnisa [15], UNWTO dares to predict that world tourism will rise in 2024.

3.2 Economic Growth Trends of Bali Province Post COVID-19 Pandemic

In general, Bali relies heavily on the tourism industry for its economic growth. Therefore, increasing the number of tourist visits to Bali after the COVID-19 pandemic could have a positive impact on economic growth in Bali. However, several factors could influence Bali's economic growth during this period, such as international travel regulations, health and safety policies, and the overall global pandemic situation. However, with the improvement in the pandemic situation, Bali's economic growth trend could improve. Tourist visits to Bali are expected to increase in 2021 and beyond. This is likely to increase tourism's contribution to Bali's economy, where before the pandemic, around 80% of Bali's GDP came from the tourism sector. Therefore, while increased tourist visits to Bali post the Covid-19 pandemic may provide a boost to economic growth, it is important to consider that the impact

depends on several factors that can change rapidly.

In the last ten years (2010-2019), tourist visits to Indonesia and Bali tend to increase. For example, in 2018 (pre-Covid-19 pandemic) tourist visits to Bali were 6,070,473 people, increasing in 2019 (pre-Covid-19 pandemic) to 6,275,210 people. However, the COVID-19 pandemic in 2020 spread throughout the world, and the governments of countries around the world imposed lockdowns and travel restrictions for their citizens abroad, so the world's population traveling to Bali in 2020 (COVID-19 pandemic) decreased. to 1,069,473 people, even in 2021 the impact of the pandemic continues, only 48 tourist visits to Bali. The recovery of Bali tourism will begin to appear to be growing in 2022 (after the COVID-19 pandemic) to coincide with the holding of the G-7 conference in Bali, as shown by an increase in tourist visits to Bali of 2,155,747 people. The recovery of Bali tourism will continue in 2023 as shown by tourist visits in the first quarter of 1,026,230 people (Table 2).

Tourism is the driving force of Bali's economy. Tourism stakeholders, including tourism actors, entrepreneurs, and the government, really hope for an increase in tourist visits. An increase in tourist visits will automatically increase tourist spending or in other words increase the money spent in Bali. Furthermore, this tourist expenditure is captured by various community groups, where this catch is used to create various economic activities to produce various goods and services, which will then be able to encourage increased economic growth in Bali.

The trend is the tendency for Bali's economic growth in the future along with the increase in foreign tourist visits to Bali after the Covid-19 pandemic, approached by a simple linear regression equation: $Y=b_0+b_1X+e$, where X=tourist visits and Y=Bali's economic growth. By using quarterly time series data for the 2018-2023 period as presented in Table 2 (quarters 1-21), processed using the SPSS version 2020 application, results were obtained as presented in Appendix 1. The results of the Analysis of Variance (ANOVA) show that the F test results are significant at an error of 5% ($F_{hit}=10.884$ and $P=0.004 < 0.005$). This means that this simple linear regression model is good and reliable for making future predictions.

The results of the regression coefficient tested with the t-test ($t-cal=3.299$ and $P-$

value=0.004=4%<0.05=5%) are significant at an error of 5%, meaning the H₀ hypothesis is rejected and the H_a hypothesis is accepted, meaning tourist visits post-Covid-19 (X) has a significant effect on economic growth (Y) at an error of 5%. This means that as tourist visits increase after the COVID-19 pandemic, will follow by Bali's economic growth. If the results of the statistical analysis in Appendix 1 are formulated in equation form they are as follows:

$$Y = -1.081 + 0.000004447X \quad (p=0.004, t=3,299)$$

Based on the previous equation, quarterly trends or predictions can be made post the COVID-19 pandemic. Assuming that data on tourist visits in a quarter is continuously entered into the previous equation (column 4 quarterly 2 in 2023), information on Bali's economic growth will be obtained (Table 2, column 3 quarterly 2 in 2023).

Based on the previous equation, quarterly trends or predictions can be made post the COVID-19 pandemic. Assuming that data on tourist visits in a quarter is continuously entered into the previous equation (column 4 quarterly 2 in 2023), information on Bali's economic growth will be obtained (Table 2, column 3 quarterly 2 in 2023).

Based on the prediction results as presented in Table 2, if in the first quarter of 2023, tourist visits reach 1,100,000 people, then Bali's economic growth could reach 3.81%. If in the second quarter of 2023, foreign tourist visits to Bali reach 1,200,000 people, then Bali's economic growth could reach 4.26%. If in the third quarter of 2023, tourist visits can reach 1,300,000 people, then Bali's economic growth can reach 4.70%. However, if in the first quarter of 2024, tourist visits reach 1,400,000 people, then Bali's economic growth could reach 5.14% in the same

Table 2. Economic growth trends influenced by foreign tourist visits to Bali province post the Covid-19 Pandemic

| Year | Quarterly | Bali Economic Growth (yoY) (Y) | Foreign Tourist Visits (People) (X) | Bali Economic Growth Trends Estimated by the equation: $Y = b_0 + b_1X + e$ |
|------|-----------|--------------------------------|-------------------------------------|--|
| 1 | 2 | 3 | 4 | 5 |
| 2018 | 1 | 5.55 | 1303166 | Pre Covid-19 Pandemic |
| | 2 | 5.99 | 1589839 | Pre Covid-19 Pandemic |
| | 3 | 6.10 | 1754035 | Pre Covid-19 Pandemic |
| | 4 | 7.54 | 1423433 | Pre Covid-19 Pandemic |
| 2019 | 1 | 6.01 | 1342595 | Pre Covid-19 Pandemic |
| | 2 | 5.65 | 1513187 | Pre Covid-19 Pandemic |
| | 3 | 5.29 | 1801133 | Pre Covid-19 Pandemic |
| | 4 | 5.46 | 1618295 | Pre Covid-19 Pandemic |
| 2020 | 1 | -7.68 | 1068711 | Covid-19 pandemic |
| | 2 | -7.25 | 460 | Covid-19 pandemic |
| | 3 | 1.55 | 36 | Covid-19 pandemic |
| | 4 | 0.94 | 266 | Covid-19 pandemic |
| 2021 | 1 | -9.84 | 25 | Post Covid-19 Pandemic |
| | 2 | 2.83 | 18 | Post Covid-19 Pandemic |
| | 3 | -2.91 | 0 | Post Covid-19 Pandemic |
| | 4 | 0.57 | 8 | Post Covid-19 Pandemic |
| 2022 | 1 | 1.48 | 15933 | Post Covid-19 Pandemic |
| | 2 | 3.09 | 355571 | Post Covid-19 Pandemic |
| | 3 | 8.10 | 814325 | Post Covid-19 Pandemic |
| | 4 | 6.61 | 969918 | Post Covid-19 Pandemic |
| 2023 | 1 | 6.04 Trend=Prediction | 1026230 | $Y = 1.081 + 0.000004447 X$ |
| | 2 | 3.81 | 1100000 | $Y = -1.081 + 0.000004447 \times 1100000$ |
| | 3 | 4.26 | 1200000 | $Y = -1.081 + 0.000004447 \times 1200000$ |
| | 4 | 4.70 | 1300000 | $Y = -1.081 + 0.000004447 \times 1300000$ |
| 2024 | 1 | 5.14 | 1400000 | $Y = -1.081 + 0.000004447 \times 1400000$ |
| | 2 | 5.59 | 1500000 | $Y = -1.081 + 0.000004447 \times 1500000$ |
| | 3 | 6.03 | 1600000 | $Y = -1.081 + 0.000004447 \times 1600000$ |
| | 4 | 6.48 | 1700000 | $Y = -1.081 + 0.000004447 \times 1700000$ |
| 2025 | 1 | 6.92 | 1800000 | $Y = -1.081 + 0.000004447 \times 1800000$ |
| | 2 | 7.81 | 2000000 | $Y = -1.081 + 0.000004447 \times 2000000$ |
| | 3 | 10.04 | 2500000 | $Y = -1.081 + 0.000004447 \times 2500000$ |
| | 4 | 12.26 | 3000000 | $Y = -1.081 + 0.000004447 \times 3000000$ |

Note: Y = Bali's economic growth per quarter

X = Tourist visits per quarter

Determining the amount of X to estimate Y in the next quarter is based on a random, round value intended for simplicity

quarter. However, if in the second quarter of 2024, tourist visits reach 1,500,000 people, then Bali's economic growth could reach 5.59% in the same quarter. If in the fourth quarter of 2024, tourist visits reach 1,600,000 people, then Bali's economic growth could reach 6.489%. If the first quarter of 2025, tourist visit to Bali reach 1,800,000 people, then Bali's economic growth could reach 6.92% in the same quarter. However, if in the second quarter of 2025, tourist visit reach 2,000,000 people, the Bali's economic growth reach 6.92% in the same quarter. However, if in the third and fourth quarters of 2025, tourist visits respectively reach 2,500,000 people and 3,000,000 people, then Bali's economic growth will reach 10.04% and 12.26% respectively in the same quarter. The complete quarterly trend of Bali's economic growth is presented in Table 2.

If the data in columns 2 and 3 in Table 2 is drawn on a graph, as in Fig. 1. So it can be seen in Fig.

1 that there are parallel fluctuations in tourist visits and Bali's economic growth caused by the COVID-19 pandemic. However, when tourist visits increase after COVID-19, Bali's economic growth also increases.

The question may arise among readers, How can tourist visits affect economic growth? This can be explained using macroeconomic theory. Tourist visits influence economic growth through the process of producing goods and services. Tourists (foreign tourists and foreign tourists) while in Bali tourist destinations make various expenditures (consumption), such as for accommodation, food and drinks, travel, seeing cultural attractions, purchasing souvenirs, etc. This expenditure is "captured" by local economic actors through the purchase of various goods and services in various sectors so that it becomes income for these economic sectors. This is called the direct effect of tourist expenditure. However, increasing the income of

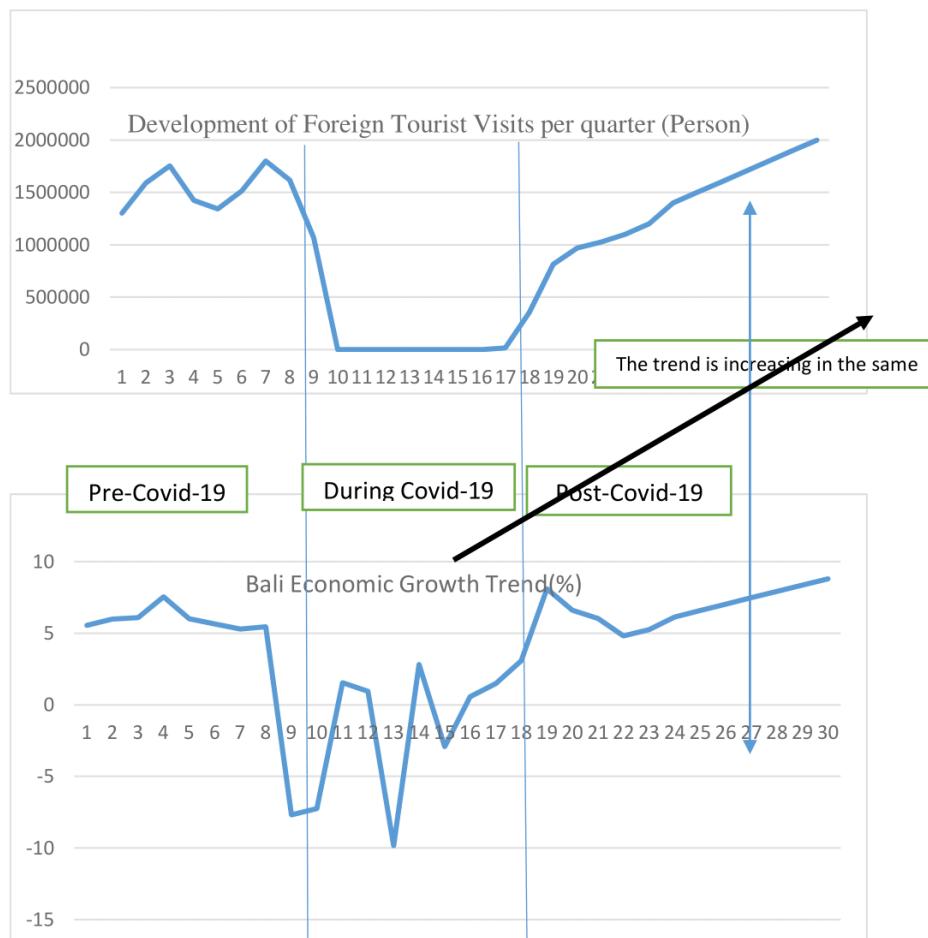


Fig. 1. Graph of Development of Tourist Visits and Quarterly Bali Economic Growth, 2018-2025
(Source: Drawn from Table 1, columns 2 and 3)

economic actors in these economic sectors will increase demand for inputs originating from the output of other economic sectors, such as agriculture, industry, crafts industry, transportation services, etc. So, increasing the income of one economic sector will encourage an increase in the productivity of other economic sectors. Increasing the output of production economic sectors will then increase the compensation for production factors used in the production process, thereby increasing the income of owners of production factors. Furthermore, increasing the income of owners of production factors will encourage an increase in the income of owners of production factors, namely households and companies. This is called the indirect effect of tourist spending. An increase in household or community income will encourage increased public consumption, in turn encouraging an increase in other community income and expanding employment opportunities. This is called the induced effect of tourist spending.

Before the Covid-19 pandemic, Bali relied heavily on the tourism industry to support its economic growth. However, when the COVID-19 pandemic took place in 2020, which was marked by a decrease in tourist visits to Bali, it hurt Bali's economic growth. Conversely, increasing tourist visits to Bali can increase demand for tourism services such as accommodation, restaurants, and transportation, which can make a positive contribution to Bali's economic growth. Therefore, an increase in tourist visits to Bali after the COVID-19 pandemic could provide a boost to economic growth. It is important to consider that the impact depends on several factors that can change quickly.

However, with the improvement in the pandemic situation, tourist visits to Bali are expected to increase in 2023-2024 and beyond. This will increase the contribution of tourism to the Balinese economy, which before the pandemic around 80% of Bali's GDP came from the tourism sector, which is ultimately the trend for Bali's economic growth can improve. However, several factors could influence Bali's economic growth during this period, such as international travel regulations, health and safety policies, and the overall global pandemic situation.

Tourism observer Rutha Ady [16] believes that after the COVID-19 pandemic, Bali still relies on tourism. On the other hand, the agricultural sector, which was designed to be able to become

a substitute force for the tourism sector to encourage economic growth in the Bali region, has yet to make a significant contribution to the Balinese economy. Various scientific and technical strategies that were prepared to encourage the agricultural sector to grow and become stronger have not yet been realized and are even being abandoned by the increasingly rapid growth rate of the tourism sector. From an economic perspective, the growth of the two sectors is like an arithmetical series and a geometric series, which cannot possibly meet at the same point. He added that for this reason, the Bali Provincial Government (executive and legislative) as the conception and executor of various development programs, should remain focused on developing the tourism sector. On the other hand, natural resources of rice fields which have irrigation systems and organizations also need to continue to be maintained to increase the quality and quantity of agricultural products by changing market dynamics. Tourism and agriculture do not need to be dichotomized in formulating Bali's development concept because both have been proven to have significant value in encouraging economic growth in the Bali region. Tourism and agriculture need to be formulated with the slogan two for one which means 'two leading sectors synergized to become one main force to improve the economy and welfare of the Balinese people'. If Rutha Ady thinks of synergizing the two sectors of tourism and agriculture, researchers even argue for synergizing three sectors, namely tourism, agriculture, and industry (micro, small, and medium), because these three sectors are the cornerstones of the Balinese economy, each of which has an important role. If we consider tourism as the engine that drives Bali's economy, then agriculture and industry (micro, small, and medium) are the fuel and lubricant (input) of the engine itself. In other words, agriculture and industry supply various needs such as raw products, semi-finished products, or products for the production process of tourism services. In this way, the slogan can be expanded to three in one, namely synergizing the three cornerstone sectors of the Balinese economy, tourism, agriculture, and industry into one force, so that it becomes the driving force of the Balinese economy which can improve the prosperity of the people in Bali.

As a comparison, this section will review the research results of several researchers in several countries whose economies have also been affected by the COVID-19 pandemic. Xiang et al.

[17] explore the long-term impact of the pandemic in China on economic growth by combining economic theory with epidemiological models to build an interdisciplinary model. The simulation results show that government policies regarding public health can increase the role of health capital in driving economic growth. However, the marginal effect of a particular policy is diminishing. Therefore, governments need to balance the costs of preventing and controlling pandemics and marginal benefits when formulating public health policies. When the pandemic is under control, production activities can be carried out and economic stimulus packages can lead to economic recovery.

Some changes due to the Covid-19 pandemic cannot be predicted. However, Gwartney [18] predicts six areas that will experience major changes in the United States whose long-term effects can be anticipated, namely: (1) The structure of the economy will change; (2) Government debt will affect growth; (3) The American Central Bank (The Fed) is likely to make monetary policy mistakes; (4) Government regulations will be reviewed; (5) International trade and travel will be increasingly restricted; and (6) A ratchet effect is possible on government spending and intervention.

The pandemic, now in its third year, has reshaped the U.S. economic landscape, overhauled the workforce, and updated the tools available to policymakers. All of those shifts are likely to outlast the health crisis that sparked them. American workers are on the move, they are more likely to be found at home during work hours, following the remote work revolution. Companies are scrambling to hire, but they are also investing in machines, with automation and e-commerce gaining ground. Entrepreneurship is on the rise. Politicians have discovered the power of direct payments, which have shored up household and business finances during the pandemic and may return if a downturn occurs. Consumers are grappling with the biggest spike in the cost of living in generations. What all this means for the already sharp divisions of income and wealth is a key question for the post-pandemic era. The richest have stepped further forward. The advantages of working from home lean towards educated professionals. Low-income workers win wage increases in a tight labor market, but inflation eats away at their profits [19],

According to Jiang et al. [20], the Covid-19 pandemic has had a major impact on economies around the world. The experience of post-Covid-19 economic recovery is very important to achieve sustainable and quality economic development. Taking China's economic development as an example, based on economic resilience theory and related measurement methods, Jiang in this article selects five major indicators that are generally recognized as being closely related to economic resilience to construct a system of economic resilience indicators. Additionally, an autoregressive integrated moving average (ARIMA) model is used to predict gross domestic product (GDP) under a no-epidemic scenario. The results of Jiang and Friends' research analysis found that the economic resilience index only showed negative values in the first two quarters of 2020, while the resilience index showed relatively strong values. The growth momentum in the third and fourth quarters fully highlighted China's strong economic resilience. Thus, the Chinese economy can achieve recovery and growth in a relatively short time. The ARIMA model was also used to forecast GDP and found that the actual value of China's GDP in 2020 was not much different from the predicted value (in the absence of the epidemic), which further confirmed the above assessment. In short, it can be concluded that COVID-19 has indeed had an impact on China's economy, but strong economic resilience has promoted China's rapid economic recovery after the epidemic, with a higher recovery rate. It further said that learning from China's post-epidemic recovery, there is no doubt that strengthening economic resilience is an effective way to overcome and mitigate such external shocks and beneficial support for the economic recovery of all countries. On the one hand, COVID-19 and natural disasters are external shocks that affect the economic operating environment and damage economic development. The establishment of a more complete risk emergency mechanism and social governance system can ensure the stability of the economic operating environment and improve economic resilience, thereby creating conditions for economic recovery. On the other hand, scientific and sound macroeconomic policies are an important aspect in increasing economic resilience. The government should enhance dynamic adjustment capabilities, fully mobilize the vigor and vitality of the supply and demand sides through policy guidance, and enhance each economy's ability to cope with risks.

Ngila [21] reports on economic recovery and transformation in Kenya after Covid-19. Kenya is showing a new pattern of economic transformation, with growth driven by services. Before the pandemic, the largest job creation occurred in the service sector, surpassing the contribution of the manufacturing sector. The pandemic has had a major impact on the labor market, with the share of jobs in the service sector declining by 7 percentage points in 2020 at the peak of the pandemic. With the services sector leading the growth recovery in 2021, it is likely that, with the right steps, Kenya can recover and surpass these losses. A resilient recovery from the pandemic and restarting economic transformation will require policies that support a thriving private sector and further enable the implementation of the "3Ts": Trade, Technology, and Training.

The application of the second T (Technology) in the context of economic recovery by Ngila [21] is supported by Mehrotra [22] that technology adoption is the way forward towards business recovery. Surveys have proven that businesses that have adopted digital technology can survive for a long time. Whether it is a temporary or permanent solution, companies are stepping up to equip their employees with technology skills according to need. It is easier for small businesses to implement the latest technologies into their daily business, while large companies find it difficult to implement them as quickly as possible given the time required to test them and ensure that they deliver the desired results.

According to Barnes et al. [23], with (United States) government fiscal support, pent-up demand from consumers for face-to-face services, and strength in the labor market and asset prices, economic growth is poised to be strong for the remainder of 2021. Indeed, the Congressional Budget Office (CBO) projects that real GDP will grow 7.4% from the fourth quarter of 2020 to the fourth quarter of 2021. Additionally, the CBO predicts that, by mid-2022, real GDP will exceed its sustainable reach of 2.5%. The sustainable level of GDP is also known as potential output. Given current legislation and underlying structural factors, what the economy can achieve by exerting upward pressure on inflation Real GDP growth is expected to slow significantly. The CBO's projections are subject to many uncertainties, looming over a resurgence of the pandemic stemming from the Delta variant, vaccine hesitancy, and lags in vaccines. However,

McGahey [24] states that more than a year after the COVID-19 pandemic, there are signs of a stronger economic recovery, which has caused some real changes in the American economy, the biggest impact of which is the acceleration and deepening of pre-pandemic trends, especially inequality. Estimated GDP figures confirm overall economic recovery. In the first quarter of 2021, GDP grew at an annual rate of 6.4%, continuing 4.3% growth in the final quarter of 2020. Some analysts now expect 2021 annual growth to reach 7.5%, which would be the highest annual level since 1951. Growth was driven by consumer spending, especially for durable goods, where spending grew at a staggering annual rate of 41.4%. That spending was in turn driven by government stimulus, unemployment insurance, and the return of jobs created in part by fiscal stimulus.

4. CONCLUSIONS AND RECOMMENDATIONS

4.1 Conclusion

1. Even though 2020 Bali's economy experienced a significant contraction due to the impact of the COVID-19 pandemic, after the pandemic, tourist visits to Bali began to recover in 2021-2023. The economic structure of Bali Province remained the same as before the pandemic, which is dominated by the tourism sector (sectors related to tourist visiting services). This shows that the COVID-19 pandemic was temporary in 2020 and was unable to transform the economic structure of Bali Province from tourism to agriculture.
2. Results of linear trend analysis of quarterly time series data for the period 2018-2023 (21 points), tourist visits (X) on Bali's economic growth (Y) obtained $Y = -1.081 + 0.000004447X$ ($p=0.004=0.4\%$; $t = 3.299$) is significant at 5%. This means that the increase in tourist visits after the COVID-19 pandemic has had a significant impact on Bali's economic growth. If in the third quarter of 2023, tourist visits can reach 1,300,000 people, then Bali's economic growth can reach 4.70%. However, if in the first quarter of 2024, tourist visits reach 1,400,000 people, then Bali's economic growth could reach 5.14% in the same quarter. However, if in the second quarter of 2024, tourist visits reach 1,500,000 people, then Bali's economic

growth could reach 5.59% in the same quarter. If in the fourth quarter of 2024, tourist visits reach 1,600,000 people, then Bali's economic growth could reach 6.489%. If the first quarter of 2025, tourist visit to Bali reach 1,800,000 people, then Bali's economic growth could reach 6.92% in the same quarter. However, if in the second quarter of 2025, tourist visit reach 2,000,000 people, the Bali's economic growth reach 6.92% in the same quarter. However, if in the third and fourth quarters of 2025, tourist visits respectively reach 2,500,000 people and 3,000,000 people, then Bali's economic growth will reach 10.04% and 12.26% respectively in the same quarter. The complete quarterly trend of Bali's economic growth is presented in Table 2 below.

3. The novelty of this research is that "after the COVID-19 pandemic, Bali's economy continues to be driven by tourism, and tourist visits have a significant influence on Bali's economic growth."

4.2 Recommendations

1. Bali's economic structure which is dominated by the tourism sector needs to be maintained, because tourism as the driving force of Bali's economy is capable of creating a large multiplier effect, both in increasing people's income, increasing demand for output from various sectors, and creating job opportunities.
2. Increasing tourist visits to Bali after the COVID-19 pandemic needs to continue to be pursued by developing accessibility, increasing the diversity of attractions, and expanding promotions, to make Bali a safe, comfortable, and healthy tourist destination.
3. Tourism, agriculture and industry (micro, small, and medium) need to be synergized in Bali's development planning with the slogan three in one, which means that Bali's three leading sectors are integrated into one main force to improve the economy and welfare of the Balinese people.
4. It is necessary to pay attention to the carrying capacity of Bali's natural resources and environment for tourism so that tourism can be avoided from destroying tourism itself (tourism destroys tourism or tourism kills tourists).

5. Research needs to be continued by designing a complete simultaneous econometric model so that it can be used to predict Bali's macroeconomic conditions in the next few years, which are influenced by various external and internal fluctuations in Bali.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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Appendix 1. Results of Trend Analysis of the Influence of Tourist Visits on the Economic Growth of Bali Province

ANOVA^a

| Model | | Sum of squares | df | Mean square | F | Sig. |
|-------|------------|----------------|----|-------------|--------|-------------------|
| 1 | Regression | 199.625 | 1 | 199.625 | 10.884 | .004 ^b |
| | Residual | 348.497 | 19 | 18.342 | | |
| | Total | 548.123 | 20 | | | |

a. Dependent Variable: Y

b. Predictors: (Constant), X

Coefficients

| Model | | Unstandardized coefficients | | Standardized coefficients | t | Sig. |
|-------|------------|-----------------------------|------------|---------------------------|-------|------|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | -1.081 | 1.417 | | -.763 | .455 |
| | X | 4.447E-006 | .000 | .603 | 3.299 | .004 |

a. Dependent Variable: Y

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