Analysis of Economic Structural Transformation and Leading Sectors in Bali, Indonesia

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Abstract

This research aims to analyze the shifts in the economy's structure and the leading sectors used as economic prospects in the developmental sector other than tourism in Bali. The study of theories and concepts used includes the theory of economic growth. The data were analyzed using economic sector contribution techniques (Location Quotient), GRM (Growth Ratio Model), and Overlay Analysis. The results show a shift in the economy's structure from the primary to the tertiary sector. The leading sectors in Bali are transportation and warehousing; provision of accommodation and food and beverages; information and communication; financial and insurance services; real estate; education services; health services and social activities; and other services. The government needs to develop a base sector to encourage economic movements and create a multiplier effect. This research is expected to be an input for the government in the form of policy advice in preparing regional development plans and policies.

Introduction

Economic development is an ongoing process of economic growth. Growth will be directed by policies to increase economic growth and living standards. According to Arsyad (2010, p.10), economic development is a process that causes an increase in the real per capita income of a country's population, in the long run, accompanied by an improvement in the institutional system. While Todaro (1995) defines development as a multidimensional process involving significant changes in social structure, community attitudes, national institutions, and accelerated growth economy, reducing inequality and eliminating absolute poverty.

Sukirno states that economic development in developing countries relates to the term usually associated with (amongst other things) rising incomes and related increases in consumption, savings, and investment (Sukirno, 2010, p.4). From an incremental perspective, economic

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growth is observed at different levels, followed by output and economic structure distribution changes. The increased contribution of the industrial sector and services and an increase in education and labor force skills can be realized well. Structured economic development will increase per capita income, while an increase does not necessarily follow economic growth in per capita income. Mahesa states that increasing economic growth and optimal distribution are directed toward a systematic and structured development process. One indicator that can be used as a benchmark for the success of regional development is increased economic growth. Economic growth is a measuring tool of development because economic sector activities can also be measured through economic growth (Mahesa, 2013).

The processes of economic growth are influenced by two types of factors, namely economic factors and non-economic factors. Economic factors that influence economic growth include natural resources, human resources, business capital, and technology. Non-economic factors can support the process of economic growth, which consists of social institutions, cultural attitudes, moral values, political conditions, and institutional aspects. Economic development in the spatial context basically aims to overcome poverty, unemployment, inequality, and scarcity. These problems will be solved through economic development by determining specific targets.

Regional development is an inseparable part of national development. Regional economic development is the implementation of national development planning in an area adapted to the ability of Human Resources (HR), social conditions, economic levels, and applicable regulations (Purnomo & Istiqomah, 2008). Radianto (2013) and Nugraha (2007) mention that developmental regional economies aim to increase the rate of economic growth and changes in structure. Changes in the structure can be a transition from agriculture to non-agriculture, industry to services, changes in productive units, and changes in labor status. Before discussing regional development, as for the understanding of the area in terms of economic aspects, the region has three meanings, namely: i) Homogeneous area is an area where economic activities occur in various parts of the area, and there are similar characteristics, in terms of per capita income, social culture, and geography, ii) Nodal area is an area as a space economy controlled by one or several centers of economic activity, iii) Planning or regional areas administration is an area as a space economy which is under one particular administration such as one province, district, and sub-district (Arsyad, 2010).

Regional development is a manifestation of the implementation of a shift in the government system in Indonesia in the reform era from a centralized government system to decentralization known as regional autonomy, which implies the transfer of most decision-making processes in planning, implementing, and evaluating government administration from the center to the regions (Nudiatulhuda, 2007). The more complex issues concerning economic development and the size of Indonesia from district, provincial and national development raises the idea that with the implementation of the regional autonomy system, economic development can be carried out more optimally. With the implementation of the regional autonomy system, the regional government is demanded to be creative in developing the economy. The roles of private investment and regional-owned companies are significant as the main driver of economic growth and development. Pamuji (2011) viewed that the region has to develop the natural resource as capital to develop the region, whereas Arsyad believed that every development plan aims to increase job opportunities for the community (Arsyad, 2010, p.15).

Implementation of regional autonomy is not optimal in accordance with the central government's objectives to give local governments authority to manage their regions. The main problem in regional development lies in the emphasis on development policies based on the peculiarities of the region concerned by using the potential of human resources, institutions, and local physical resources. This orientation leads to taking initiatives from the region in the development process that aims to create new employment opportunities and stimulate increased economic activity. To realize the regional government's goals and the community's participation in using available resources, it must identify the potential resource available in the region as a force for regional economic development. The government is required to formulate sectoral and regional measures that are mutually synergistic (Prasetyantoko *et al*., 2012).

Economic growth has resulted in changes in the structure of the economy. According to Kusreni (2009), economic growth that occurs continuously will lead to a shift in the structure of the economy in an area. The structural transformation that occurs over a long time is a process of changing the economy's structure from the agricultural sector to the industrial sector and from the industrial sector to the trade and services sector, and each economy will undergo a different

transformation. In general, the transformation that occurs in developing countries is a transformation from the agricultural sector to the industrial sector (Guntara, 2017).

Indonesia implements a decentralized government system from the center of government to rural districts and municipalities. Decentralization is the most suitable institutional mechanism for increasing local participation in politics and the economy. The regional autonomy law as implementing a decentralized system gave authority to two regional government levels. Bali is an autonomous region that is given the authority to manage and develop its area in accordance with the policies of the Regional Government of the Province of Bali. The Province of Bali is divided into one municipality: the municipality of Denpasar, and eight regencies: Badung, Buleleng, Tabanan, Gianyar, Kelungkung, Karangasem, Jembrana, and Bangli. The differences in geographical conditions will cause different responses and treatments for the economy (Arisoy, 2015), and then analyzing the geographical condition of these regencies is important.

Table 1: Gross Regional Domestic Product of Bali According to the Business Field Based on the Constant Price of 2010 Period 2000-2017

Year	GRDP (Million IDR)
2000	58.332.112
2001	60.398.212
2002	62.236.816
2003	64.455.414
2004	67.435.812
2005	71.182.713
2006	74.939.812
2007	79.373.111
2008	84.114.132
2009	88.599.110
2010	93.749.349,70
2011	99.991.631,90
2012	106.951.465
2013	114.103.580,80

2014	121.787.574,70
2015	129.126.562,20
2016	137.286.328,10
2017	144.964.204,10

Source: BPS Bali Province on various publications (data processed)

Bali's economic structure 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 to encourage economic activity and the development of society's work ethic. The dimension is reflected in the improvement of employment opportunities, the high opportunity level of community income, a better working network. The tourism sector has made other directly related sectors, such as investment in hotels and restaurants, transportation, finance, and services, which cumulatively provide a substantial contribution to the Bali GRDP (Antara, 2007). Bali Province has made the tourism sector the primary support, but tourism activities will not always support the uncertain situation. With these conditions, it needs support from other sectors directly or indirectly related to the tourism sector.

The development of tourism in Bali has started in 1970 and reached its peak in the 1980s. Furthermore, it grew and developed from 1980 to 1992 (Wijaya, 2015). The rapid development of tourism has put pressure and threats on Bali. In 2001 and 2003, the Bali bombing event had a very significant impact on the development of tourism in Bali. The Bali bombing tragedy was an event carried out as a revenge plan due to the events that occurred in Ambon and Poso and its explode near crowded bars in Kuta, killing 202 people, including tourists and locals. Because of this tragedy, foreign visitors fell about 80%, devastatingly affecting the tourism industry (*Ibid*). Nevertheless, after the Bali bombing, the growth of the tourism industry experienced a recovery, and until now, it served as a sector that is expected to be the foundation of the economy in Bali. However, the rapid development of tourism as the leading sector in Bali has not guaranteed the development in Bali to run well.

Fachrurrazy (2009) argued from knowing the leading sectors that are able to provide indications for the economy nationally and regionally. Local governments that already know and utilize

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these leading sectors will be able to increase regional economic growth in a better direction. Development of the potential of leading sectors that provide the most outstanding contribution to regional economic progress is a priority policy that must be carried out (Rini, 2006). The research about the shift of structure and the leading sector is crucial for regional economic development planning. It needs publications and studies in the form of information about the region's economic potential to support regional economic development policies.

Prospects for the leading sectors must be analyzed regularly every year because of the possibility of a shift in sector contribution. The leading sector research in the Province of Bali last used the 2000 base year, so that research using the 2010 base year with a range of data from 2010 to 2017 is a renewal of information on prospects for the leading sector of Bali Province. Renewal of research information aimed at addressing the problems of inequality of information regarding the leading sectors so that the policies applied are not in line with regional potential. The development of Bali Province to realize economic growth from the base sectors will be better to develop and realize the Sustainable Development Goal which is a global agenda. It is very important to the Provincial Government of Bali to know about that condition to make regulations so that economy can run well.

Literature Review

The key to economic development success is quickly taken from the concept of development priorities in geographical advantages and regional characteristics and various economic policy strategies that spur increased investment activities (Steven *et al*., 2001). Nehen states that changes in economic structure begin with transition income from the primary sector to the secondary sector and then switch to the tertiary sector. Changes in the structure of an economy are usually characterized by the significant contribution of each sector to national income or GDP. Changes to the general economic structure are primary – secondary – tertiary (Nehen, 2012, p.258).

The structural shift of a sub-system economy was formulated by an economist named W. Arthur Lewis (Kuncoro, 2010, p.59), known as the theory of labor surplus of two sectors. The main problem studied by Lewis is to assume that a country's economy will basically be divided into two economic structures (Subandi, 2014, p.52). Arthur Lewis's theory explains that a country's economic growth and development can be done by increasing the industrial growth sector.

Excess labor in the agricultural sector causes labor productivity to be zero. The growth of the industrial sector will cause the movement of labor from the agricultural sector to the industrial sector, but this movement will not reduce output in the agricultural sector because workers in the agricultural sector are very abundant (Rahardja and Manurung, 2008, p.335). As a result, the economy's structural transformation will become a reality, and the economy will eventually shift from a rural economy cantered on the countryside to a modern industrial economy oriented to the pattern of urban life (Jhingan, 2010, p.62).

Figure 1: The Growth Model of the Modern Sector in the Economy of Two Sectors that Surplus Labor Results in the Lewis Formulation
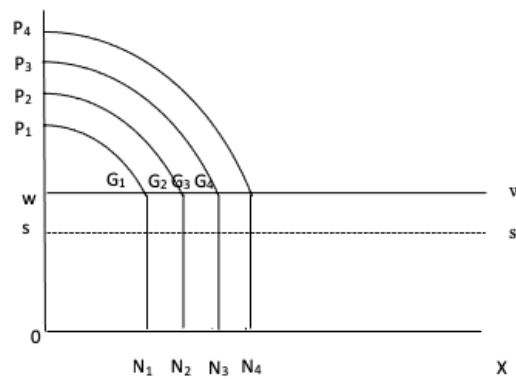
Source: Jhingan (2010, p.158)

Hollis B. Chenery's theory of shifting economic structures is known as the analysis of development patterns (Kuncoro, 2010, p.65). Chenery's theory, known as the pattern of development theory, focuses on changes in structure in the stages of the process of economic change in a developing country, which has undergone a transformation from traditional agriculture to the industrial sector as the main engine of economic growth (Kuncoro, 2010, p.66). Development pattern theory explains that structural changes in the process of economic change from developing countries that are experiencing a shift from traditional agriculture have shifted to the industrial sector as the main engine of economic growth. Increasing the role of the industrial and service sectors in the economy is in line with increased income per capita which is closely related to capital accumulation and improving the quality of human resources.

The base economic theory believes that the economic growth rate of a region is determined by the magnitude of the increase in exports from the region. Exports in the regional economic sense

are selling products or services outside to other regions within a country or abroad (Tarigan, 2012, p.28). Regional economic activity is divided into basic activities that produce goods and services for export outside the region and non-base activities that produce goods and services to meet local needs (Richard and David, 1996). The essence of the economic base model explains the relationship and regional economic growth that is influenced by regional exports (Fattah and Abdul, 2013). The economic base theory states that the primary determinant of economic growth in a region is directly related to the demand for goods and services outside the region (Arsyad, 2010, p. 35).

The growth of industries that use local resources, including labor and raw materials, to be exported out of the region will produce regional wealth and create new employment opportunities for the region concerned. The base economic model is divided into two sectors, namely the export sector that is able to meet the needs of external regions and local sectors that only meet internal needs (Isserman, 1977). Arsyad defines the base sector as an economic/industrial sector that serves the market in that area alone or outside the area concerned (Arsyad, 2010, p.43). Sjafrizal argued that the base sector is the sector that is the backbone of the region's economy because it has a high competitive advantage. Commodities that are classified as base commodities must be regulated in such a way by government policies, especially in the field of development, so that they are more focused on the specialization of production and development of these commodities which are produced using local materials to be more efficient and effective (Sjafrizal, 2012, p.55).

Research on the superior economic sector or base sector is carried out to determine the potential of the economic sector that can be developed in regional development planning. Base sector research conducted by Winda Savitri and Mahendra Yasa (2018) shows that the determination of the base sector as a sector to be developed can accelerate the rate of economic growth. This research was conducted in Karangasem Regency using LQ and Shift Share analysis. Research on the shift in economic structure and base sector analysis using the LQ and Shift Share analysis tools carried out by Wiwekananda (2016), as for the results of the study are four sectors that become the leading sectors in Buleleng Regency, namely the service sector, agricultural sector, industrial sector, and the mining sector.

Research Methodology

This research is explanatory research based on quantitative and qualitative data or findings that are achieved using statistical procedures or other ways of quantification (Sugiyono, 2013) along with qualitative data. This research is conducted by using a descriptive paradigm. The researcher analyzed the shift of economic structure during the period of 2000-2017 divided into two for analysis: structural transformation of 2000-2010 and 2010-2017, the potential and base sector of the regional economy to support the economy of Bali.

The type of data used in this study is quantitative and qualitative. Quantitative data is represented in numbers, whereas qualitative data is assumed for triangulation (Sugiyono, 2013, p.13). The data source used in this study is secondary data. Secondary data is data in the form of documents or records that have been collected and processed by relevant parties so that they can be used for the benefit of data analysis (Sugiyono, 2013, p.129). Secondary data used in this study was obtained from the publication of data that relevant agencies had collected from the BPS of Bali Province. The data used in this study was collected using documentation techniques.

Documentation techniques are data collection techniques by retrieving data from various documentation or publications from relevant agencies. The data analysis technique used to analyze the shift of economic structure and the potential of the regional economy in Bali Province is the following quantitative analysis techniques:

Location Quotient (LQ) Analysis

Location Quotient Analysis is an analysis that is easy to understand and has the proper accuracy in describing the economic conditions in an area (Davis, 1992). Identification of leading sectors in Bali Province uses location quotient (LQ) analysis techniques. LQ analysis is a mathematical technique that measures economic indices through regional output comparisons with a broader reference area output. LQ analysis is also often used to identify industrial areas in a region (Guimares *et al.*, 2008). The LQ formula used is:

$$LQ = \frac{Si/S}{Ni/N} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(1)$$

Note:

LQ   : *Location Quotient* Index

Si   : GRDP sector i Bali Province

S   : Total GRDP of Bali Province

Ni   : GDP sector i Indonesia

N   : GDP total of Indonesia

Growth Ratio Model (GRM) Analysis

The Growth Ratio model has a value greater, smaller, or equal to one. This model is a research instrument used to compare the internal growth of the sector in the study area and externally between the same sectors with the reference area. The data used is the Gross Regional Domestic Product (GRDP) in two time periods, namely the beginning and the end. This model is divided into two parts (Utama, 2010, p.63-64):

1) Reference Area Growth Ratio (RP_r)

$$RPr = \frac{\Delta Y_{in}/Y_{in(t)}}{\Delta Y_n/Y_n(t)} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(2)$$

Note:

ΔY_{in} : The changes of GDP sector i in the reference area (Indonesia)

$Y_{in(t)}$: GRDP sector i in the reference area at the beginning of the research (Indonesia)

ΔY_n : The changes of GDP in the reference area (Indonesia)

$Y_{n(t)}$: GDP in the reference area at the beginning of the research (Indonesia)

2) Growth Ratio of the Study Area (RP_s)

$$RPs = \frac{\Delta Y_{ij}/Y_{ij}}{\Delta Y_{in}/Y_{in(t)}} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(3)$$

Note:

ΔY_{ij} : The changes of GRDP sector i in the study area (Bali)

$Y_{ij(t)}$: GRDP sector i in the study area in the beginning of the research (Bali)

ΔY_{in} : The changes of GDP in reference area (Indonesia)

$Y_{in(t)}$: GDP sector i in the reference area at the beginning of the research (Indonesia)

RPs   : Comparison between the income growth rate of the i sector in the study area with the total growth rate (GRDP) activity i in the reference area

Overlay Analysis

Overlay analysis analyzes potential economic activities based on growth criteria and comparative advantages (Utama, 2010, p.67). Overlay analysis results have four possibilities:

1) RPs (+) and LQ (>1) indicate a very dominant activity both from growth and comparative advantage.

2) RPs (+) and LQ (≤1) indicate an activity that has dominant growth but does not have a comparative advantage.

3) RPs (-) and LQ (≥1) indicate an activity that has small growth but has a comparative advantage.

4) RPs (-) and LQ (<1) indicate an activity that is not potential both from growth and comparative advantage.

Results and Discussion

The shift or transformation of the structure of the economy is one of the phenomena that arise because of the ongoing economic growth as a result of increased economic activity at the regional or national level. The transformation of the economic structure must be examined every few years to show that there has been a shift in contributions from economic sectors so that the government can form policies that are appropriate in the economic field.

In Bali Province, data regarding the shift in the structure is very limited even though this data is important for the community and local government. The community needs this information to avoid any inequality of information regarding the proper business field to run, while the government needs it to design regional development programs and formulate development policies. Economic growth in Bali certainly indicates a shift in the economy's structure. The researcher analyzed the shift in the structure of the economy in aggregate from 2000 to 2017 and the shift in the sector or business sector based on 17 existing sectors.
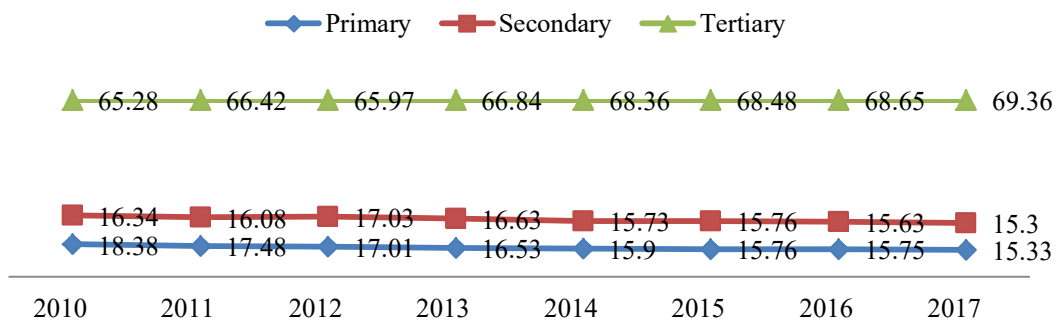
Based on data from the BPS of Bali Province, from 2000 to 2010, there were nine business sectors recorded for contributing to the GDRP, including i) Agriculture, Livestock, Forestry, and Fisheries, ii) Mining and Excavation, iii) Manufacturing Industry, iv) Electricity, Gas and Clean Water, v) Buildings, vi) Trade, Hotels, and Restaurants, vii) Transportation and Communication, viii) Finance, Leasing and Company Services, ix) Services. In 2010, these nine business fields were developed into seventeen sectors or business fields.

Sukirno states that based on the business field, the economic sector in Indonesia is grouped into three main groups, namely the primary sector, the secondary sector, and the tertiary sector. Primary sector consisting of agriculture, forestry, and fisheries; mining and excavation;

secondary sector consisting of manufacturing industries; electricity, gas and clean water; building; and tertiary sector consisting of trade, hotels, and restaurants; transportation and communication; finance, leasing and company services; and services (Sukirno, 2010, p.143). The condition of the economic structure of an area can be determined through calculation and analysis based on the output produced by these economic sectors (Imaningsih, 2011).

The shift of the contribution of the economic sector is according to the field of business based on constant prices in 2000 of 2000-2010 in Bali. The primary sectors, including agriculture, mining, and excavation, keep declining yearly. In 2000, the contribution of the primary sector to GDRP was 22.35 percent and continued to decline until 2010 by 19.08 percent. The secondary sector or manufacturing did not experience significant growth during the year of observation. However, it experienced fluctuations during 2000-2010 because the number of manufacturing companies in Bali is only a few firms and has no potential to develop this sector. The tertiary sector or service continues to experience a significant increase yearly because of the tourism sector related to the tertiary sector.

Figure 2: The Shift of Economic Structure based on Contributions Gross Domestic Regional Product of Bali Province on the Constant Price 2010 of 2010-2017 (in percent)

Source: BPS of Bali Province on Various Publication (data processed)

The shift in economic structure that occurs from the agricultural sector (primary) to the tertiary sector indicates that many workers move to the tertiary sector because of the opening of existing business opportunities in that particular sector. The agricultural sector has decreased from year to year, and this is not only the effect of the lack of agricultural land but also more unemployment in agriculture. The added value of labor in agriculture is relatively high, but the value of agricultural production is low. It indicates the amount of the existing unemployment or farmers who cannot produce agricultural products. According to Antara (2007), the decline in the

contribution of agriculture was also due to the low human resource management of agriculture in Bali and the low investment in this field. The rapid expansion of tourism infrastructure development (hotels, villas, bungalows, restaurants, shops, golf courses, and others) has resulted in a drastic narrowing of agricultural land area. BPS Bali estimates that over six years (1997-2003), rice fields in Bali have decreased from 87.85 hectares to 82.64 hectares. It means the conversion rate of paddy fields reaches 870 hectares (1.0%) per year.

Table 2: The Result of Location Quotient Analysis of Bali Province 2010 – 2017

Sectors	Year								Average
	2010	2011	2012	2013	2014	2015	2016	2017	
Agriculture, Forestry, and Fisheries	1.23	1.19	1.18	1.14	1.13	1.11	1.10	1.08	1.15
Water Supply, Waste and Recycling Management	3.00	2.86	2.83	2.86	2.87	2.70	2.74	2.68	2.82
Transportation and Warehousing	2.07	2.06	2.02	2.00	1.94	1.88	1.87	1.80	1.95
Provision of Accommodation and Food and Beverages	6.55	6.52	6.54	6.54	6.49	6.55	6.55	6.74	6.56
Information and Communication	1.68	1.66	1.58	1.50	1.44	1.42	1.40	1.37	1.51
Financial and Insurance Services	1.12	1.10	1.09	1.12	1.14	1.10	1.08	1.05	1.10
Real Estate	1.68	1.62	1.59	1.58	1.62	1.61	1.60	1.59	1.61
Government Administration, Defense, and Mandatory Social Security	1.47	1.73	1.69	1.63	1.74	1.78	1.80	1.72	1.69
Education services	1.63	1.69	1.56	1.63	1.68	1.68	1.75	1.79	1.67
Health Services and Social Activities	2.05	1.99	1.94	2.00	2.05	2.07	2.11	2.13	2.04
Other services	1.07	1.05	1.04	1.00	0.98	0.96	0.95	0.94	1.00

Source: Own Computations based on the Data of BPS of Bali Province on various publication

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There are eleven sectors which are the base sectors, namely the agriculture, forestry, and fisheries sector (1.15); water supply, waste management and recycling (2.82); transportation and warehousing (1.95); providing accommodation and food and beverages (6.56); information and communication (1.51); financial and insurance services (1.10); real estate (1.61); government administration, defense and mandatory social security (1.69); education services (1.67); health services and social activities (2.04); other services (1.00). Bali Province has eleven sectors, which are base sectors, meaning that eleven sectors have comparative advantages. The eleven outputs of this sector are able to meet the needs within the region and export outside the Bali Province. Eleven leading sectors or bases owned by Bali Province based on LQ analysis must be a priority for economic sector development plans in Bali Province.

Table 3: The Result of Growth Ratio Model Analysis of Bali Province 2010 – 2017

Sectors	Rpr	Rps	Rpr Code	Rps Code
Construction	1.30	1.50	(+)	(+)
Transportation and Warehousing	1.48	1.22	(+)	(+)
Provision of Accommodation and Food and Beverages	1.10	1.45	(+)	(+)
Information and Communication	2.18	1.63	(+)	(+)
Financial and Insurance Services	1.50	1.48	(+)	(+)
Real Estate	1.04	1.08	(+)	(+)
Company Services	1.67	1.16	(+)	(+)
Education services	1.15	1.76	(+)	(+)
Health Services and Social Activities	1.46	1.88	(+)	(+)
Other services	1.54	1.33	(+)	(+)

Source: Own Computations Based on the Data of BPS of Bali Province on Various Publication

Based on the results of the MRP analysis, the sector that has the potential to be developed is the construction sector; transportation and warehousing; accommodation and food and beverages; information and communication; financial and insurance services; real estate; company services; education services; health services and social activities; and other services. These sectors have dominant growth, which is able to grow well in Bali Province (study area) and Indonesia (reference area). It is in line with the discussion of the shift of the economic structure of Bali that the developing sector is currently the service sector or tertiary. The current problems of the primary sector have only been produced for its own needs, and this sector has not been produced for sale so that the contribution of business fields that fall into the non-base category is minimal in value and growth year after year.

Table 4: The Result of Overlay Analysis of Bali Province 2010 – 2017

Sectors	RPs	LQ	RPs Code	LQ Code
Transportation and Warehousing	1.22	1.95	(+)	(+)
Provision of Accommodation and Food and Beverages	1.45	6.56	(+)	(+)
Information and Communication	1.63	1.51	(+)	(+)
Financial and Insurance Services	1.48	1.10	(+)	(+)
Real Estate	1.08	1.61	(+)	(+)
Company Services	1.16	0.69	(+)	(-)
Government Administration, Defense, and Mandatory Social Security	1.31	1.69	(+)	(+)
Education services	1.76	1.67	(+)	(+)
Health Services and Social Activities	1.88	2.04	(+)	(+)
Other services	1.33	1.00	(+)	(+)

Source: Own Computations Based on the Data of BPS of Bali Province on Various Publication

The interpretation of the overlay results depends on the value of RPs and LQ analysis above. Based on the results of the Overlay analysis, the potential sectors to be developed are the transportation and warehousing sector; the sector of accommodation and food and beverages; information and communication sector; financial and insurance services sector; real estate sector; government administration, defense, and mandatory social security sectors; education services; health services and social activities; and other services.

Based on the analysis of LQ, GRM, and Overlay, it is known that the sector which is the base sector is based on the results of LQ analysis, which means that the sector has been able to meet the needs of the sector in Bali and is able to bring income to Bali, not necessarily a sector that has good growth and comparative advantage. Suppose agriculture, forestry, and management is one sector that is a base sector according to the LQ results but based on the GRM and Overlay analysis, this sector has a small growth but actually has a comparative advantage. The result of LQ, GRM, and Overlay analysis is resumed in Table 5 below to indicate which sector has dominant growth and comparative advantages.

Table 5: The Category of Economics Sector Based on the Result of Overlay Analysis of Bali Province 2010 – 2017

LQ RPₛ	(+)	(-)
(+)	(DOMINANT IN GROWTH AND COMPARATIVE ADVANTAGE) • Transportation and warehousing sector • Provision of accommodation, food and beverages sector • Information and communication sector • Financial service and insurance sector • Real Estate sector • Government Administration, defense, and mandatory social security • Education service sector • Health service sector and social activities • Other services sector	(DOMINANT IN GROWTH BUT NOT SUPERIOR) • Provision of electricity and gas sector • Construction sector • Wholesale and retail, car and motorbike reparation sector • Company service sector.
(-)	(SMALL GROWTH BUT HAS COMPARATIVE ADVANTAGE) • Agriculture, Forestry, and Fisheries sector • Provision of water, waste management, and recycling sector.	(NO POTENCY) • Mining and Excavation Sector • Manufacturing Sector.

Source*: The Result of Growth Ratio Model Analysis of Bali Province (2010-2017)

The agricultural sector in Bali tends to have a low growth rate because the level of value-added products in this sector is also minimal. Even though this sector absorbs much labor, agricultural productivity should increase. However, in reality, the production value of this sector is low, which indicates that many workers in the agricultural sector do not produce good production. According to Antara (2007), the decline in the contribution of agriculture was also due to the low

human resource management of agriculture in Bali and the low investment in this field. Japan International Cooperation Agency (JICA) (2005) estimates that over a period of 6 years (1997-2003), the area of rice fields in Bali has decreased from 87.850 hectares to 82.644 hectares. It means the conversion rate of paddy fields reaches 870 hectares (1,0%) per year. The rapid expansion of tourism infrastructure development (hotels, villas, bungalows, restaurants, shops, golf courses, and others) has resulted in a drastic narrowing of agricultural land area. Another study found that Bali's agricultural land is reduced to 1,000 hectares every year.

Sectors that are base sectors based on LQ results were re-analyzed to see their growth and comparative advantage in the study area and reference area. The analysis used is LQ, GRM, and Overlay to make sector conclusions about Bali Province's leading sectors. The result might be a new conclusion of the potential sector. After all, the base sector of LQ will not be potential because the sector's growth is not dominant and has comparative advantages. Several sectors are feasible to develop by the Bali Provincial Government, namely transportation and warehousing; accommodation, food, and beverages; information and communication; financial services and insurance; real estate; education service; health service and social activities, and other services. The priority sectors that can be developed to support the economic development in Bali are accommodation, food and beverages; transportation and warehousing; and real estate related to tourism as the leading sectors of Bali.

Conclusion

Economic Structure Shift occurred in Bali Province and was different in 2000 and 2010. The shift from 2000 to 2010 was very volatile because of economic shocks, such as the first and second bombing at the center of tourism besides the monetary crisis in 1997-1998 and the fuel crisis. In contrast, the results showed that those in 2010 to 2017 were comparatively stable. The Superior or Base Sectors according to the results of the comparison of LQ, MRP and Overlay analysis, which includes the leading sector categories in Bali Province that have dominant in growth and comparative advantage and the value of RPs and LQ ≥ 1 are transportation and warehousing (RPs: 1.22 and LQ: 1.95); provision of accommodation and food and beverages (RPs: 1.45 and LQ: 6.56); information and communication (RPs: 1.63 and LQ: 1.51); financial and insurance services (RPs: 1.48 and LQ: 1.10); real estate (RPs: 1.08 and LQ: 1.61); education services (RPs: 1.76 and LQ: 1.67); health services and social activities (RPs: 1.88 and LQ: 2.04;

and other services (RPs: 1.33 and LQ: 1.00). The two analyses on different base years conclude that the economic structure of Bali has shifted to the tertiary sector from the primary sector, while growth in the secondary sector is minimal below the primary sector.

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