THE IMPACT OF REGIONAL TOURISM DEVELOPMENT ON THE FOOD TOURISM INDUSTRY: CASE STUDY OF TOURISM VILLAGE ASSISTANCE POLICY IN INDONESIA AND THE INFLUENCE OF REGIONAL DISPARITY ON ITS EFFECTIVENESS

Uliannisa Rozdianda  
*Master Program in Economic Planning and Development Policy, Faculty of Economics and Business, Universitas Indonesia, ulianisa.rozdianda@gmail.com*

Yohanna M. L. Gultom  
*Master Program in Economic Planning and Development Policy, Faculty of Economics and Business, Universitas Indonesia, yohanna.magdalena@ui.ac.id*

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Uliannisa Rozdianda, Yohanna M.L Gultom
Master Program in Economic Planning and Development Policy, Faculty of Economics and Business, Universitas Indonesia
ulianisa.rozdianda@gmail.com

ABSTRACT
This study aims to identify the impact of the development of tourist areas on culinary businesses by taking the case of the program for the construction of facilities and infrastructure supporting tourism villages which was implemented starting in 2017 and looking at the influence of regional disparities on the effectiveness of assistance which is then compared between the regions of Java-Bali and outside Java-Bali. Using the Difference-In-Differences (DID), the study analyzed the impact of the support program on 115 tourism villages, comparing them to other tourism villages in the same sub-district that did not receive support. The results show that, on average, the number of culinary enterprises in the form of restaurants and food stalls in the Java-Bali region increased by 12 units after the implementation of the Tourism Village Programme, in contrast to Tourism Villages in the same sub-district that did not receive support. These findings are supported by the better condition of road infrastructure, street lighting, and telephone signals in Tourism Villages in Java and Bali. The results of this study explain that regional disparities have an impact on the growth of culinary enterprises in tourism villages.

KEYWORDS: village infrastructure, regional disparity, tourism village, Food Tourism, difference-in-differences

INTRODUCTION
Tourism enterprise development aunts to enhance local economic growth through the cultivation of tourist regions, encompassing all mutually reinforcing elements of tourism, including attractions (natural, cultural, man-made), amenities (facilities, infrastructure), and accessibility (Hsu et al., 2008). Infrastructure development stands as a pivotal component to augment the tourism sector. Within the realm of tourism infrastructure lie airports, highways, and various transportation facilities aimed at improving accessibility to diverse tourist destinations. Hence, the focus of the tourism sector extends beyond the development of tourist destinations alone, encompassing...
auxiliary infrastructure in their vicinity that facilitates access to these destination areas. As of 2018, Indonesia boasted 7,275 villages with the potential for transformation into competitive tourism villages, there by uplifting the welfare of local communities. Nevertheless, the development of tourism villages presents distinct challenges stemming from varying geographic, economic, and social conditions within each village. The geographical characteristics of rural locations, often marked by limited accessibility and inadequate road infrastructure, often impede the growth of businesses in rural areas. In such areas, substantial investment is required for the construction of facilities due to the extremely high costs associated with infrastructural development, including road construction and other public amenities, in hard-to-reach regions (Fan et al., 2011).

Indonesia is not exempt from regional disparities, evident when comparing the regions of Java and Bali with other areas of the country. This imbalance is primarily a result of the concentration of private sector investment in the Java-Bali region, which remains more favored for such endeavors. Additionally, financial management at the local level outside Java-Bali is relatively weak, and infrastructural development remains uneven in these regions. Furthermore, there exists a disparity in public service provision between the eastern and western parts of Indonesia. Most of the underdeveloped villages are situated in the eastern provinces, while the western regions predominantly host developing villages. (Juanda et al., 2017). These regional disparities also affect the tourism sector, as tourists tend to prefer areas with better supporting facilities over regions that still lack adequate and evenly distributed facilities.

This study reveals that, on average, in the Java and Bali regions, there is a notable increase in the number of culinary businesses receiving support from tourism village infrastructure development programs—12 units more—compared to villages without such support. This increase is statistically significant at the 10 percent level. In contrast, outside Java and Bali, the trend shows a marginal decrease in the number of culinary businesses receiving support from tourism village infrastructure development—3 units less, compared to villages without such support, but this difference is not statistically significant. These findings underscore that regional disparities can indeed influence the effectiveness of support for culinary businesses in tourism villages. Villages located outside Java and Bali, with limited basic infrastructure development and supporting facilities, face challenges in increasing the number of culinary businesses compared to their counterparts in Java and Bali, where better supporting facilities are in place. These results contribute to the existing literature on how regional disparities can affect the effectiveness of support for culinary businesses in tourism villages. They also provide a basis for formulating future policy strategies related to addressing the impact of regional disparities on the development of businesses in tourism villages.

LITERATURE REVIEW

Tourism

According to the World Tourism Organization (WTO), tourism is a social, cultural, and economic phenomenon that involves the movement of people to countries or places outside their usual environment for personal, business, or professional purposes. Tourism in rural areas represents a form of local tourism that is dedicated to, managed by, and developed by the local community, closely tied to the utilization of geographical and historical aspects (Barkauskas et al., 2015). Tourism villages is expected to utilize tourism as a source of income and economic empowerment. Tourism villages must be capable of preserving local wisdom and providing tourists with adequate facilities and services. In line with the research findings of Almeida Gracia, Vázquez, and Macías (2015), the development of the tourism sector can yield benefits with far-reaching impacts.
on the economic, socio-cultural, and environmental dimensions.

**Regional Disparity**

Research on regional disparities over the past few decades has focused on the relationship between development levels in specific geographic areas and the evolution of spatial disparities within those regions (Krebs, 1982; Terrasi, 1999; Petrakos et al., 2005). Regional development is influenced by both economic and non-economic factors. These factors include various regional production inputs, differences in economic structures and social capital, labor mobility levels, varying consumer habits, distinct geographical, historical, and environmental conditions, demographic characteristics, population education levels, and infrastructure facilities. These factors contribute to uneven development (Armstrong, 2000). According to Williamson (1965), as progress is made in the economic development process, regional income disparities tend to increase initially before systematically decreasing in subsequent development stages. Consequently, the regional disparities tend to follow an inverted U-shaped pattern.

The disparities observed between Java and Bali compared to regions outside Java and Bali are influenced by public and private investments. The choice of investment location is closely related to the availability of infrastructure in a given area (Kupke and Pearce, 2000; Sullivan et al., 1998). The lower level of investment outside Java and Bali is due to the limited capacity of these regions to provide infrastructure, natural resources, and human resources (Juanda et al., 2017). In 2015, the nominal GDP in Java and Bali accounted for 59.81 percent, Sumatra 22.21 percent, Kalimantan 8.15 percent, Sulawesi 5.92 percent, and the lowest in the eastern regions of Indonesia, including the Nusa Tenggara Islands, Maluku, and Papua, at 3.91 percent. It can be concluded that more than half of Indonesia's GDP is concentrated in the Java-Bali region, resulting in investment growth still being predominantly centered in regions with better accessibility and supporting infrastructure, leaving less-developed regions at a disadvantage in attracting investments.

**The Effect of Tourism Facility and Infrastructure Assistance Program**

The impact of tourism village development programs undoubtedly leads to an increase in the number of supporting facilities in the recipient tourism villages. Villages receiving assistance for infrastructure development have seen a direct increase in the number of streetlights, public toilets, homestays, and attraction centers. The provision of tourism services is greatly influenced by infrastructure development and tourism facilities (Dwyer & Forsyth, 2006). However, the response to development funded by assistance programs can vary across regions due to differing village conditions or characteristics. Therefore, the direct benefits of assistance may be more pronounced in regions with lower regional disparities, where advantages such as evenly distributed public facilities and basic infrastructure are already present throughout the area. As a result, the assistance provided to tourism villages in the Java and Bali regions is, on average, more often used for the development of tourism-supporting facilities rather than basic infrastructure such as roads and street lighting (Kemendes PDTT, 2020). This occurs because regions with lower disparities have a more evenly distributed basic infrastructure compared to regions with higher regional disparities, such as those outside Java and Bali. In conclusion, regions with more evenly distributed development tend to prioritize the addition of supporting facilities to enhance economic value due to the presence of evenly distributed basic infrastructure.

Tourism businesses are projected to have long-term economic growth through infrastructure investment that indirectly affects the local economy and job creation
(Beerli, Meneses, & Gil, 2007; Tasci & Gartner, 2007). Furthermore, according to the United Nations World Tourism Organization (UNWTO), the development of tourism in peripheral and remote areas is considered a vital avenue for poverty alleviation. Additionally, the development of infrastructure in underdeveloped villages leads to increased demand for various tourism businesses (Laing & Crouch, 2011). According to NS Robinson and Getz (2014), food and beverages can be a key factor influencing visitors' choice of tourism destinations, as places with exceptional culinary richness can attract tourists. However, there are negative consequences associated with an increase in the number of tourists, such as an increase in waste volume and air pollution (Wondirad et al., 2021; Sun and Liu, 2020). This can be detrimental to local tourism if not properly managed by communities and policymakers.

Challenges in Tourism Facility and Infrastructure Assistance Program

The effectiveness of tourism infrastructure development programs on culinary businesses can vary significantly depending on the conditions and characteristics of the recipient villages. The low level of investment in business units outside Java and Bali can be attributed to various factors such as the availability of regional infrastructure and energy, human resources, and more (Juanda et al., 2017). This is further supported by the determination of the Village Development Index (Indeks Desa Membangun or IDM), which indicates that the majority of rural areas outside Java and Bali are classified as underdeveloped villages, whereas villages in the Java and Bali regions are predominantly classified as developing villages (KemendesPDTT, 2018). This village status reflects the economic, social, and environmental resilience of these areas. Thus, it can be assumed that regions with lower disparities are more likely to be found in Java and Bali, which have relatively even accessibility and basic infrastructure, as indicated by their predominantly developing village status. In contrast, regions outside Java and Bali are more likely to have higher disparities and predominantly fall under the category of underdeveloped villages. When evaluating the effectiveness of government assistance programs in increasing the number of businesses, it is assumed that the impact will be more positive in regions with lower disparities compared to regions with higher disparities and uneven public service conditions.

The regional conditions significantly influence the level of investment, emphasizing the need for government intervention to address disparities, including through assistance programs. There are unique challenges wherein the effectiveness of the provided assistance programs is highly contingent upon the specific conditions of the recipient regions or villages. This study aims to elucidate the extent to which regional disparities affect the effectiveness of tourism village infrastructure development programs on culinary businesses within these villages.

TOURISM VILLAGE ASSISTANCE POLICY IN INDONESIA

Tourism Village Supporting Assistance Program Policy

The development of infrastructure and facilities in rural villages is a crucial means of enhancing the quality of life for rural residents. As their quality of life improves, it has a positive impact on overall national quality of life. This aligns with the goals set forth in Law Number 6 of 2014 concerning Villages (Village Law), which states that the objective of village development is to "improve the welfare of rural communities and the quality of human life, alleviate poverty through the provision of basic needs, the development of village infrastructure, the cultivation of local economic potential, and the sustainable utilization of natural resources and the environment." This law is in line with the implementation of Law Number 22 of 1999 on regional autonomy, which came into
effect in 2000 and emphasized a greater focus on rural areas in the development agenda. By promoting the development of tourism villages, it is expected that there will be a migration of economic activities to rural areas, leading to a more balanced distribution of development resources and opportunities.

The Government Regulation on the Master Plan for National Tourism Development for the period 2010-2025 serves as the foundation for the design of tourism villages. According to the Ministry of Villages, Development of Underdeveloped Regions, and Transmigration (KemendesPDTT), local communities play a crucial role in the development of tourism villages by actively participating in the planning, management, and development of tourism potential. Through the empowerment of the tourism sector, this effort aims to encourage villages with tourism potential to enhance the quality of tourism, thereby improving the welfare of the local population and subsequently increasing the Village Development Index (IDM).

One of the methods employed by the Indonesian government to improve tourism infrastructure and facilities is through the implementation of assistance programs for the development of tourism village infrastructure. These programs are part of the government's efforts to enhance the facilities and infrastructure in villages related to providing the necessary infrastructure that supports the tourism potential in these villages. The ultimate goal is to boost the local economy and reduce economic disparities between urban and rural areas. The government's assistance program for the development of tourism villages involves providing financial aid to villages with tourism potential that can be further developed. This funding is utilized to construct and enhance tourism infrastructure within the villages, including the development of local roads, homestays, gazebos, kiosks, street lighting, public toilets, and other tourism facilities (KemendesPDTT, 2017).

The implementation scheme for providing assistance for infrastructure development follows a Bottom-Up - Top-Down approach. According to the technical guidelines for program implementation, the regional government, through the Village Empowerment Agency of the District (Dinas Pemberdayaan Masyarakat Desa Kabupaten or Dinas PMD Kabupaten), proposes candidate locations for assistance. Subsequently, with the consensus of village officials and the local community, a proposal for assistance is submitted based on the specific needs of infrastructure development in that village. This proposal is accompanied by the necessary administrative requirements, which are then verified by the central government (KemendesPDTT). This verification process is followed by an on-site survey.

From 2017 to 2019, funding for the development of supporting infrastructure for tourism villages was disbursed to 115 tourism villages located across various regions in Indonesia.

Table 1
Recipient of Facility and Infrastructure Development Assistance Program from 2017-2019

<table>
<thead>
<tr>
<th>No.</th>
<th>Year</th>
<th>No. of Village</th>
<th>Total Assistance (Billion Rupiah)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2017</td>
<td>31 Villages</td>
<td>14.64</td>
</tr>
<tr>
<td>2</td>
<td>2018</td>
<td>49 Villages</td>
<td>19.78</td>
</tr>
<tr>
<td>3</td>
<td>2019</td>
<td>36 Villages</td>
<td>17.14</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>115 Villages</td>
<td>51.56</td>
</tr>
</tbody>
</table>

Source: LAKIP Dit.PSDP 2017-2019
As shown in Table 3.1, in 2017, assistance amounting to 14.64 billion Indonesian Rupiah was disbursed to 31 villages. Subsequently, the number of recipients and the total assistance increased in 2018, reaching 49 villages with a total of 19.78 billion Rupiah. However, the total budget for the year 2019 decreased compared to the previous year, totaling 17.14 billion Rupiah and distributed among 36 recipient villages. Over a span of three years, from 2017 to 2019, KemendesPDTT channeled more than 51 billion Rupiah to 115 tourism villages located across 25 provinces in Indonesia.

Tourism Village in Indonesia

According to the Ministry of Tourism and Creative Economy (Kemenparekraf), a tourism village serves as a platform for regional development and community empowerment by showcasing attractions, traditions, and local wisdom to visitors. Tourism villages represent a form of rural development that combines attractions, accommodation, and supporting facilities within the structure of community life (Artana and Irwanti, 2013; Sukariyanto, 2015). Rural tourism explores the tourism appeal through the natural potential, cultural richness, public tourism services, and adequate accessibility, while also incorporating the customs and traditions of village life (Barkauskas et al., 2015). Furthermore, the United Nations World Tourism Organization (UNWTO) asserts that well-developed tourism villages possess sectors that can stimulate economic diversification and provide opportunities for rural communities. UNWTO outlines the criteria for tourism villages as follows: (1) Natural and cultural resources; (2) Promotion and conservation of culture; (3) Economic, environmental, and social sustainability; (4) Tourism development; (5) Tourism governance and priorities; (6) Infrastructure and connectivity; (7) Health, safety, and security. The concept of tourism villages shares similarities with the Community-Based Tourism (CBT) approach, where tourism development can fulfill the social, environmental, and economic needs of local communities through the offered tourism products (Goodwin and Santilli, 2009; Vinay, 2014).

Every tourism village in Indonesia exhibits varying supply and demand conditions. On the supply side, factors influenced by tourism potential such as natural, cultural, and man-made attractions come into play. On the demand side, it is the perceptions and needs of tourists or visitors to these tourism locations that matter (Formica & Uysal, 2006). Currently, the conditions of tourism villages are primarily viewed from the supply side, considering the potential of natural, cultural, and man-made tourism attractions they possess. However, there is still a lack of attention given to planning and tourism governance. Additionally, the accessibility, institutional framework, and amenities in each tourism village vary due to geographical location, policy stakeholders, and the level of economic development in a region, all of which significantly influence the conditions in these villages. These diverse conditions pose challenges when it comes to planning for the management of tourism villages. It is essential to take into account the environmental, social, and economic conditions of the local communities, which are expected to boost tourism visits. The management of tourism villages in Indonesia involves multiple stakeholders, including the community, policy stakeholders, and the private sector. Achieving the goal of transforming these villages into places that can enhance the quality of life for local residents requires various efforts aimed at developing tourism potential through long-term investments, such as improving infrastructure and supporting facilities for tourism sites, along with full cooperation from the local community.

Recipient of assistance have varying village conditions. For instance, in the regions of Java and Bali, the PakseBali tourism village is situated in a mountainous area,
offering natural attractions such as waterfalls and cultural attractions like kain endek craft. This village has convenient access to a harbor within 20 km and is less than 50 km away from an international airport, reachable within an hour. This advantageous location attracted a significant number of tourists in 2019, with 20,679 domestic tourists and 1,784 international tourists visiting. Furthermore, PakseBali serves as a model for Village-Owned Enterprises (BUMDes) managing tourism in the village. It demonstrates how community-driven tourism management can enhance the well-being of local residents through the management of local tourism assets. It has also become a model village for BUMDes management in the Klungkung regency, achieved through human resource training that empowers the village community to engage in businesses that support tourism and increase their income (Sumiasih, 2018). In contrast, in areas outside Java and Bali, there is the Silalahi II tourism village, which boasts natural attractions along the shores of Lake Toba, including waterfalls, and cultural attractions like traditional Ulos weaving. However, this village faces challenges such as distant airports and harbors, located more than 150 km away and requiring a five-hour journey to reach. Moreover, its remote location, far from urban centers, and unpaved roads make it difficult for four-wheeled vehicles to traverse (Yunita, 2022). Nevertheless, the BUMDes Tourism of Silalahi II manages 40 homestays and has started using an online booking system through a third-party platform. The number of domestic tourists exceeds 15 thousand, while the number of international tourists is less than 100. The presence of the Silalahi II tourism village has brought about changes in livelihoods. Previously, the residents were primarily farmers, but they have now taken on additional roles as tour guides, transportation service providers, and parking attendants (Panggabean et al., 2022).

Each recipient village of assistance has different economic, social, and geographical conditions, which inevitably influence the planning and direction of development in that village. This includes priorities for basic infrastructure development and the provision of facilities and infrastructure for the tourism village. Moreover, variations in tourism potential and village status will impact policy decisions made during the development of the tourism village.

RESEARCH METHODOLOGY
Types and Sources of Data
Secondary data used in this research were obtained from panel data provided by the Ministry of Village Development and Transmigration (KemendesPDTT), including data on recipients of village tourism infrastructure development assistance for the years 2017–2019 and data on the distribution of Village-Owned Enterprises (BUMdes) in Indonesia, totaling 7,275 registered as tourism villages. Additionally, Village Potential (Podes) data was used to depict the regional conditions and characteristics at the village level. To determine the causal effect of the treatment, comparable data are needed to compare conditions before and after the treatment. This study selected tourism villages located in the same district as other tourism villages that received funding for tourism infrastructure development through the KemendesPDTT program. This selection was carried out to ensure that the characteristics between the treatment and control groups were not significantly different. Based on this premise, the sample consisted of 266 tourism villages as the control group and 115 tourism villages as the treatment group. Therefore, this research employed observational data at the village level, encompassing 381 villages from 20 provinces and 74 regencies. A panel dataset was constructed using data from 2011, 2014, 2018, 2019, and 2020. This resulted in a total of 1,905 tourism villages being observed. Table 3.2 below presents the characteristics of the sampled villages, i.e., those included in treatment and control groups.
This study utilized sample data at the village level, as previously explained, with 1,905 tourism villages being observed. The panel data used span five periods: 2011, 2014, 2018, 2019, and 2020. Table 4.1 below presents characteristics to examine the initial conditions in 2011 and the conditions in 2020. These characteristics include the presence of restaurants, micro-enterprises, main road lighting, paved or concrete main roads, transportation access, and mobile phone signal strength to assess changes in each tourism village characteristic.

### Table 4.1

<table>
<thead>
<tr>
<th>Variable</th>
<th>Definition</th>
<th>Unit</th>
<th>Source of Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dependent Variable</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Restaurant</td>
<td>Number of restaurants</td>
<td>Unit</td>
<td>Village Potential</td>
</tr>
<tr>
<td>Eatery</td>
<td>Number of eateries</td>
<td>Unit</td>
<td>Village Potential</td>
</tr>
<tr>
<td>Independent Variable</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unit</td>
<td>Dummy treatment</td>
<td>1 = recipient, 0 = non-recipient</td>
<td>KemendesPDTT</td>
</tr>
<tr>
<td>Budget year</td>
<td>Dummy budget year</td>
<td>1 = 2018, 2019, 2020, 0 = others</td>
<td>KemendesPDTT</td>
</tr>
<tr>
<td>Control variable</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Topography</td>
<td>Village topography</td>
<td>1 = plain, 0 = others</td>
<td>Village Potential</td>
</tr>
<tr>
<td>Population</td>
<td>Population</td>
<td>People</td>
<td>Village Potential</td>
</tr>
<tr>
<td>IKM</td>
<td>No. of IKM</td>
<td>Unit</td>
<td>Village Potential</td>
</tr>
<tr>
<td>Broadest road surface</td>
<td>Broadest inter-village road surface</td>
<td>1 = asphalt/concrete, 0 = others</td>
<td>Village Potential</td>
</tr>
<tr>
<td>Road lighting</td>
<td>Road lighting Condition</td>
<td>1 = exist, mostly, 0 = others</td>
<td>Village Potential</td>
</tr>
<tr>
<td>Crime</td>
<td>Number of recorded crimes</td>
<td>1 = exist 0 = others</td>
<td>Village Potential</td>
</tr>
<tr>
<td>Slum area</td>
<td>Number of slum</td>
<td>Unit</td>
<td>Village Potential</td>
</tr>
</tbody>
</table>

**Source:** KemendesPDTT and Potensi Desa, processed

### RESEARCH METHOD

Building upon the literature review outlined in the previous section, where the author attempts to identify the impact of regional infrastructure disparities between Java and Bali compared to areas outside of Java and Bali following policy intervention in support of culinary businesses in tourism villages, this study employed the Difference-in-Differences (DID) method. DID is a robust method for identifying the true impact when there is an intervention through statistical tests, enabling a comparison of conditions before and after the intervention between recipient and non-recipient groups. Consequently, the results obtained may reflect the impact of the policy intervention. DID is a commonly used method for evaluating the effects of a policy or program implemented over a specific period (Stuart et al., 2014). In addition to obtaining causal effects, the DID method can mitigate endogeneity issues, such as the Conditional Independence Assumption (CIA), which is challenging to satisfy using conventional regression techniques.

The tourism villages receiving assistance are classified as the treatment group, while those not receiving assistance are in the control group. Among the control group, only tourism villages located in the same district as the treatment group are chosen to ensure geographic similarity and similarity in the types of tourism offered. Thus, the differences that emerge between the treatment and control groups may yield effects...
genuinely influenced by the policy intervention for the development of tourism village infrastructure. The basic model for the DID method is as follows:

\[
\text{restaurant\_eater}_i = \beta_0 + \beta_1 \text{tourism\_village}_i + \beta_2 \text{year\_of\_assistance}_i + \
\beta_3 \text{tourism\_village}_i \times \text{year\_of\_assistance}_i + \beta_4 \text{control}_i + \gamma_i + \delta_t + \mu
\]

Here, \text{restaurant\_kedai}_i represents the variable indicating the number of restaurants and eateries in village \(i\) during year \(t\). This variable is used as a proxy to measure culinary businesses. The author assumes that restaurants and eateries have a direct relationship with the number of tourists visiting. This sector is a crucial component of the tourism industry related to tourist amenities. In line with other tourism-related research, it demonstrates that culinary aspects influence destination choices and account for a significant percentage of total tourist expenditures (Fox, 2007; López & Sánchez, 2012). The tourism village is the main independent variable in this study and also the variable of interest in the tourism village assistance program. It is represented as a dummy variable, taking the value 1 if the tourism village receives program assistance and 0 if it does not. The year of assistance is a dummy variable representing the years when the tourism village assistance program begins and the subsequent year, with a value of 1. It is 0 before the program starts. The interaction variable, \text{tourism\_village} \times \text{year\_of\_assistance}, is formed by the interaction of the tourism village variable and the year of assistance variable. In the use of the DID method, it is essential to examine the impact before and after the tourism village assistance program on tourism businesses in the area.

As for the control variables, they describe village characteristics that are hypothesized to influence the number of restaurants and eateries. These control variables are added to reduce the potential for Omitted Variable Bias (OVB) in the estimation model. Control variables include topography (De Freitas, 2003), population size (Cvijanović et al., 2021), small industry (Gunasekaran et al., 2011), transportation and infrastructure (Ghaderi et al., 2018), telecommunications (Buhalis & Law, 2008; Romanazzi et al., 2011), and slum conditions and crime rates, which can impact tourism industry growth (Almeida García et al., 2015). \(\gamma_i\) represents random effects, capturing various unobserved characteristics and policies at the tourism village level that affect the dependent variable, such as local income, village funds, political factors, and cultural factors in each village. \(\delta_t\) represents year effects and \(\mu_{it}\) is the error term for each restaurant and eatery in village \(i\) during year \(t\). Random effects are necessary to account for unobservable differences in characteristics and policies that occur at the tourism village level and have an impact on the dependent variable. Year effects are required to capture the average outcome for each tourism village in each year, ensuring that the coefficient on the main variable \(\beta_3\) can measure the variation in the impact of tourism village infrastructure development on the number of restaurants and eateries in each year. This study employed a standard cluster error method at the village level to address autocorrelation and heterogeneity issues. Therefore, the classical regression assumption tests are not necessary (Wooldridge et al., 2010).

To estimate the impact of tourism village infrastructure development on the number of restaurants and eateries, the first step before using the DID method is to pass the common pre-treatment trend assumption test or parallel trend assumption test. This assumption requires that before the tourism village infrastructure development program begins, there should be a similarity in the trends of the number of restaurants and eateries in both the control and treatment groups. With this assumption met, it can be stated that the differences in trends that occur after the implementation of the tourism village infrastructure development program are the result of the application of the program or
policy. In conducting the parallel trend assumption test, this study attempts to estimate based on the method used by Wirawan and Gultom (2021). The author adapts the basic equation as follows:

\[ Y_{it} = \beta_0 + \beta_1 \text{timerescale} + \beta_2 \text{timerescale} \times \text{tourism village}_{it} + \gamma_i + \delta_t + \mu_{it} \]

Where \( Y_{it} \) represents the number of restaurants and eateries in village \( i \) in year \( t \), \( \text{timerescale} \) is the rescaled time dummy variable for each village, where 0 denotes the first year of program implementation (this study uses 2018 and 2019 as the first years of the program because BPS did not conduct Podes surveys in 2017). The years marked with -1, -2, -3, -4, -5, -6, -7, -8 represent the years before the program implementation, while 1 and 2 denote the years of implementation and post-implementation of the program. The variable "tourism village" is a dummy variable indicating whether a tourism village was affected by the policy program. It takes the value of 1 if the tourism village received assistance and 0 if it did not.

The coefficient \( \beta_2 \) explains the difference in trends during the pre-treatment period and the post-treatment period in the treatment group and the control group. The value of the coefficient \( \beta_2 \) should not be significant (Ho: \( \beta_2 = 0 \)), indicating that there is a similarity in trends between the treatment and control groups before the policy program was implemented.

RESULT AND DISCUSSION
Parallel Trend Assumption

Before evaluating the impact of the policy program on the presence of restaurants and eateries in tourism villages, a parallel trend assumption test was conducted. This test aimed to determine whether there was a similarity in trends between the treatment group and the control group before the policy program was implemented.

If the parallel trend assumption test is passed, it indicates that the average outcome values after the implementation of the policy program can be attributed to the program’s impact. This assumption is crucial when using the DID method. The results of the parallel trend assumption test, conducted using regression equation (3), are presented in Table 5.1 below:

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Number of restaurants and eateries</th>
<th>Pre-treatment coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Independent Variable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>timerescale</td>
<td></td>
<td>0.192</td>
</tr>
<tr>
<td>timerescale \times tourism village</td>
<td></td>
<td>(0.164)</td>
</tr>
<tr>
<td>Observation</td>
<td></td>
<td>860</td>
</tr>
<tr>
<td>Number of Village</td>
<td></td>
<td>381</td>
</tr>
</tbody>
</table>

Note: Statistical Significance Level: *10% **5% ***1%

Source: Data processing, 2023

Based on the results in Table 5.1, it can be concluded that the interaction variable through timerescale and tourism village (\( \text{timerescale} \times \text{tourism village} \)), as indicated by
coefficient 2, is statistically not significantly different from zero (H0:2=0). Therefore, the test results do not reject the null hypothesis of the parallel trend assumption.

Thus, the results of the parallel trend assumption test indicate that there is no difference in trends between the number of restaurants and eateries in the treatment group and the control group before the implementation of the Village Tourism Infrastructure Development assistance program between 2011 and 2018. Therefore, it can be inferred that the difference in trends between the treatment group and the control group after the implementation of the Village Tourism Infrastructure Development assistance program represents the effect of the program.

The Effect of Tourism Village Development Assistance on Number of Culinary Business at village level

The research findings are presented in Table 5.2, columns (5) and (6), comparing the regions of Java and Bali with those outside of Java and Bali to examine the impact of the Village Tourism Infrastructure Development assistance program on culinary businesses in Indonesia. The effectiveness of the assistance program received by village tourism in the Java and Bali regions has a significant impact on increasing the trend in the culinary industry, with an increase of 12.93 units in the number of restaurants and eateries compared to villages that did not receive assistance. However, in the village tourism that received assistance outside of Java and Bali, the impact on culinary businesses is not significant.

Table 4
Impact of Village Tourism Infrastructure Development Assistance on the Number of Restaurants/Eateries at the Village Level

<table>
<thead>
<tr>
<th>Culinary Business Restaurant and Eatery</th>
<th>Basic Model</th>
<th>Model with control</th>
<th>Model with control</th>
<th>Model with control</th>
<th>Java - Bali</th>
<th>Outside Java - Bali</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Unit</strong></td>
<td>0.0248</td>
<td>-0.0827</td>
<td>-0.0886</td>
<td>-0.216</td>
<td>-1.603</td>
<td>0.632</td>
</tr>
<tr>
<td>(1 = recipient, 0 = non-recipient)</td>
<td>(1.574)</td>
<td>(1.494)</td>
<td>(1.487)</td>
<td>(1.509)</td>
<td>(2.725)</td>
<td>(1.468)</td>
</tr>
<tr>
<td><strong>Budget year</strong></td>
<td>-1.026</td>
<td>-0.804</td>
<td>-0.800</td>
<td>0.122</td>
<td>-1.996</td>
<td>1.775</td>
</tr>
<tr>
<td>(1 = after receiving assistance, 0=before)</td>
<td>(2.085)</td>
<td>(2.141)</td>
<td>(2.172)</td>
<td>(2.266)</td>
<td>(3.631)</td>
<td>(1.774)</td>
</tr>
<tr>
<td><strong>Village tourism X budget year</strong></td>
<td>2.297**</td>
<td>2.416</td>
<td>2.400</td>
<td>2.382</td>
<td>12.93*</td>
<td>-2.129</td>
</tr>
<tr>
<td>(2.477)</td>
<td>(2.475)</td>
<td>(2.454)</td>
<td>(2.406)</td>
<td>(5.673)</td>
<td>(2.141)</td>
<td></td>
</tr>
<tr>
<td><strong>Topography</strong></td>
<td>0.704</td>
<td>0.654</td>
<td>0.438</td>
<td>0.488</td>
<td>2.070*</td>
<td>1.124</td>
</tr>
<tr>
<td>(1 = plain 0 = others)</td>
<td>(1.167)</td>
<td>(1.196)</td>
<td>(1.190)</td>
<td>(2.291)</td>
<td>(1.124)</td>
<td></td>
</tr>
<tr>
<td><strong>Population (people)</strong></td>
<td>0.00184**</td>
<td>0.00181**</td>
<td>0.00169**</td>
<td>0.00112*</td>
<td>0.00131**</td>
<td>-0.00926*</td>
</tr>
<tr>
<td>(0.000311)</td>
<td>(0.000334)</td>
<td>(0.000301)</td>
<td>(0.000464)</td>
<td>(0.000422)</td>
<td>( (0.000428) )</td>
<td></td>
</tr>
<tr>
<td><strong>Micro and small-scale enterprises (unit)</strong></td>
<td>-0.00112</td>
<td>-0.000660</td>
<td>0.00113</td>
<td>-0.00926*</td>
<td>0.0009755</td>
<td>0.000428</td>
</tr>
<tr>
<td>(0.00440)</td>
<td>(0.00438)</td>
<td>(0.00755)</td>
<td>(0.000428)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Broadest road surface</strong></td>
<td>0.355</td>
<td>0.497</td>
<td>4.536</td>
<td>-1.733</td>
<td>1.249</td>
<td></td>
</tr>
<tr>
<td>(1 = asphalt/concrete 0 = others)</td>
<td>(1.976)</td>
<td>(1.992)</td>
<td>(3.730)</td>
<td>(2.249)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Road lighting</strong></td>
<td>0.861</td>
<td>0.719</td>
<td>-1.512</td>
<td>-0.678</td>
<td>1.248</td>
<td></td>
</tr>
<tr>
<td>(dummy)</td>
<td>(1.333)</td>
<td>(1.352)</td>
<td>(3.769)</td>
<td>(1.248)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Based on these results, it can be concluded that the impact of the assistance program is only evident in the Java and Bali regions, indicating that regional effects play a role in the effectiveness of the provided assistance program. Furthermore, the effects of regional infrastructure development significantly influence culinary businesses, where regions with better infrastructure conditions tend to experience an increase in the culinary industry. This finding aligns with previous research indicating that investments in tourism infrastructure positively affect business development in tourist destinations (Najat & Masoud, 2014; Yu, 2016).

On average, based on tourism visit statistics from the Ministry of Tourism and Creative Economy for the years 2016-2020, both domestic and international tourists visiting Java and Bali are more than double the number of tourists visiting regions outside of Java and Bali each year. This increase in the number of tourist visits can lead to an expansion of the restaurant and eatery sector since tourism is closely linked to the food and beverage industry. It indicates an increase in the number of restaurants and eateries to cater to the dining needs of tourists. Restaurants are one of the fastest-growing sectors in the context of the Spanish economy and are projected to continue growing (Soriano, 2002). This can create a multiplier effect within the tourism industry by increasing the demand for labor, thereby reducing unemployment rates. The role of culinary tourism development provides job opportunities to increase income and work-related skills (Purnomo, 2016). Furthermore, tourism businesses can enhance the well-being of communities, as food tourism offers entrepreneurial opportunities and generates employment, often requiring low-skilled labor (Slocum & Curtis, 2017). The various control variables utilized in this research model are employed to mitigate bias concerns by incorporating additional factors that can influence culinary businesses in villages, with the aim of addressing omitted variable bias.

One of the factors contributing to the increase in the number of restaurants is the tourists’ food preferences. Tourists tend to consume certain types of food based on their habits, seeking comfort and familiarity even while traveling, not just to fulfill their basic nutritional needs but also to recreate the comfort of being at home (Giddens, 1984). For instance, Chinese tourists often adhere to their home food habits during their travels (Chang et al., 2010), while Western tourists tend to opt for Western cuisines (Quan & Wang, 2004). Their daily dietary patterns help them manage their health and maintain stamina during their trips (Willett & Skerrett, 2017). This trend is particularly well-received in the Java and Bali regions, where various restaurants and eateries offer a wide range of options. The number of vegetarian, authentic Balinese, and Oriental restaurants has been steadily increasing (Ramstedt, 2012). Consequently, this has led to a growth in

<table>
<thead>
<tr>
<th>Telephone Signal (Dummy)</th>
<th>1,555 (1,885)</th>
<th>3,492 (2,654)</th>
<th>-0.0809 (1,115)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crime rate (dummy)</td>
<td>1,201 (1,396)</td>
<td>-0.701 (2,041)</td>
<td>3,487* (1,823)</td>
</tr>
<tr>
<td>Slum (unit)</td>
<td>4,456 (2,492)</td>
<td>10.53 (4,420)</td>
<td>-0.659* (0,257)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Observation</th>
<th>1904</th>
<th>1891</th>
<th>1890</th>
<th>1890</th>
<th>720</th>
<th>1170</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Village</td>
<td>381</td>
<td>381</td>
<td>381</td>
<td>381</td>
<td>144</td>
<td>327</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.00515</td>
<td>0.113</td>
<td>0.115</td>
<td>0.124</td>
<td>0.123</td>
<td>0.0756</td>
</tr>
</tbody>
</table>

Note: Statistical Significance Level: *10% **5% ***1%

Source: Data processing 2023
the quantity and variety of restaurants and food establishments in the Java and Bali regions. The rapid development of various types of restaurants and food establishments in these areas is attributed to the high influx of tourists and increased investment capacity, allowing them to offer a diverse selection of food and beverages to cater to tourists, as compared to regions outside Java and Bali.

Another challenge faced is the disparity in basic infrastructure among regions, which is still inadequate. For instance, the issue of limited clean water supply in the Kalimantan region hinders maritime tourism activities (Haryono et al., 2018). The scarcity of clean water, especially for rinsing and bathing, can disrupt visitors' activities due to the unavailability of clean water. Similar issues are found in other research. Accommodation facilities and restaurant options in tourist destinations in Maluku are extremely limited (Ricardianto et al., 2019). This situation is also observed in the Tanggo Rajo Ancol tourist area in Jambi, where culinary vendors operate on a daily and seasonal basis, utilizing semi-permanent and permanent structures (Pramayanti et al., 2023). These vendors provide culinary services, but traditional restaurants and eateries are not accounted for in secondary data sources because they lack permanent structures and are not operational every day. Therefore, there is a need for policy focus on improving amenities in tourism villages, especially in the culinary sector, with the hope of enhancing the satisfaction of tourists visiting these areas.

According to the Performance Report of the Ministry of Village Development and Transmigration (KemendesPDTT) for 2019, approximately 42 percent of the assistance provided in 2019 was used to develop local road infrastructure and street lighting. The remainder was allocated for the construction of homestays, gazebos, art halls, kiosks, and public toilets. It can be assumed that the majority of tourism villages utilized these funds to improve basic infrastructure that allows tourists to access the destinations, such as local roads and street lighting, thus enhancing safety and comfort for visitors when touring these villages. As a result, the allocation of village tourism assistance funds for the development of the tourism sector in tourism villages, especially for culinary businesses such as restaurants, eateries, and kiosks, has not been the primary focus in the use of these funds.

The estimation results indicate that village tourism assistance has a positive and significant association with culinary businesses in the regions of Java and Bali, as seen from the average increase in the number of restaurants and eateries. From the estimation results, it can be concluded that the assistance program has an impact on the increase in the number of restaurants and eateries in tourism villages that receive program assistance, compared to those that do not. However, this effect is only positive and significant in the Java and Bali regions. Therefore, the regional disparities between Java and Bali compared to regions outside of Java and Bali have an influence on the growth of culinary businesses in tourism villages.

CONCLUSION, POLICY RECOMMENDATION, AND RESEARCH LIMITATION

Conclusion

This study has found that the village tourism development assistance program, aimed at improving the infrastructure of tourism villages, has had a positive impact on the development of village infrastructure, which in turn affects the tourism sector. Using the Difference-In-Differences (DID) method, the authors estimated the impact before and after the implementation of the village tourism development assistance program on the tourism industry in villages.

The results of this research indicate that tourism villages that received assistance
overall had a positive relationship, with an increase of 2.382 units in the number of restaurants and eateries compared to villages that did not receive assistance. Furthermore, villages that received assistance after the policy program had the potential to have 12.93 units more restaurants and eateries in Java and Bali compared to those outside of Java and Bali, with a statistically significant level of 10 percent. To ensure that the effects of the assistance program are equitable across all village regions, there is a need for integration between various policy programs to complement each other, particularly in the development of basic infrastructure such as village roads, transportation modes, and supporting infrastructure like airports or ports.

While there has been an increase in the number of restaurants and eateries in villages, indicating a rise in the number of tourists visiting, these results may not yet be sufficient to convince external investors to invest in the restaurant and eatery sector in tourism villages, especially those located outside of Java and Bali. Therefore, it is crucial for the government to play a role in formulating policies that can facilitate the development of the potential of tourism villages.

**Policy Recommendation**

The positive outcomes observed from the assistance program for the development of tourism village infrastructure, particularly in enhancing culinary enterprises, suggest the continuation of such programs. These initiatives can be extended to provide support for the construction of essential tourist attraction infrastructure, including local roads and street lighting. Furthermore, there should be a deliberate focus on the development of facilities such as food stalls and eateries to cater to tourists’ needs. These infrastructure developments are aimed at promoting balanced development and accelerating economic growth for the communities residing in tourism villages.

It is necessary to engage in collaborative planning when allocating budgetary resources, aside from the funds allocated for the development of tourism village infrastructure. Other funding sources such as village funds, special allocation funds, and various grants share the common objective of enhancing basic infrastructure in villages. This coordinated approach ensures that all utilized funds complement one another and contribute to the improvement of accessibility in tourism villages, ultimately increasing the number of visitors. Furthermore, future assistance programs for the development of tourism village infrastructure can be targeted towards additional amenities that support tourist attractions, thus enhancing the added value within the tourism sector of these villages.

**Research Limitation**

Based on the report from the Ministry of Village Development and Transmigration (KemendesPDTT), the assistance program for the development of tourism villages has been implemented from 2017 to 2022. However, the available data still has limitations. Therefore, future research could extend the study period to encompass the entire duration of the assistance program. Subsequent studies could also investigate the comparative impact of the program before and after the onset of COVID-19, particularly concerning the types of assistance components disbursed. It is possible that there were variations in the types of components based on the policy changes in the respective years. Consequently, research on the impact of assistance can be further developed, incorporating additional variables in accordance with the latest policies.
REFERENCES


