

## The Optimization of Leading Sectors in Alleviating Poverty and Inequality in the Special Region of Yogyakarta Province

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### Abstract

This study aims to identify and analyze the leading economic sectors in the Special Region of Yogyakarta with the goal of reducing high levels of poverty and inequality compared to other provinces in Indonesia. The methods employed include Location Quotient (LQ), Dynamic Location Quotient (DLQ), Shift-Share Analysis, and Klassen Typology, using ADHK GDP data from 2018 to 2022 across 61 sectors and sub-sectors. The analysis revealed varying results: LQ and DLQ identified 8 leading sectors; Shift-Share Analysis identified 6; and Klassen Typology identified 15. The intersecting sectors revealed that there were only three leading economic sectors including: the horticultural subsector, the information and communication sector, and other service sectors. Policy implications suggest utilizing Sultan Ground and BUMKAL for horticultural production, enhancing financial literacy within the information and communication sector, and promoting locally-based sustainable tourism in other service sectors to drive equitable and sustainable regional development.

**Keywords:** Poverty, Inequality, Leading Sector

## Optimalisasi Sektor Unggulan dalam Pengentasan Kemiskinan dan Ketimpangan di Provinsi Daerah Istimewa Yogyakarta

### Abstrak

Penelitian ini bertujuan untuk mengidentifikasi dan menganalisis sektor-sektor ekonomi unggulan di Daerah Istimewa Yogyakarta untuk mengurangi tingkat kemiskinan dan ketimpangan yang tinggi dibandingkan dengan provinsi lain di Indonesia. Metode yang digunakan meliputi Location Quotient (LQ), Dynamic Location Quotient (DLQ), Shift-Share Analysis, dan Klassen Typology, menggunakan data PDB ADHK dari 2018 hingga 2022 di 61 sektor dan subsektor. Analisis mengungkapkan hasil yang bervariasi: LQ dan DLQ mengidentifikasi 8 sektor unggulan, analisis Shift-Share mengidentifikasi 6 sektor, serta Tipologi Klassen mengidentifikasi 15 sektor. Sektor-sektor yang bersinggungan menunjukkan bahwa hanya ada tiga sektor ekonomi unggulan antara lain subsektor hortikultura, sektor informasi dan komunikasi, dan sektor jasa lainnya. Kebijakan yang disarankan berupa pemanfaatan Sultan Ground dan BUMKAL untuk produksi hortikultura, peningkatan literasi keuangan di sektor informasi dan komunikasi, dan promosi pariwisata berkelanjutan berbasis lokal di sektor jasa lainnya untuk mendorong pembangunan daerah yang adil dan berkelanjutan.

**Kata Kunci:** Kemiskinan, Ketimpangan, Sektor Unggulan

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## INTRODUCTION

The Special Region of Yogyakarta (DIY) is a province in Indonesia with a different system of government from other provinces. Since the implementation of regional autonomy, the DIY government has had greater responsibility in managing the economic potential of its region. Moreover, this province has gained legitimacy through the Special Status Law to receive special funds (Kamim, 2021). However, the implementation of regional autonomy, such as fiscal decentralization, has not been optimal in accelerating community welfare. Research by Suharto & Aini (2024) found that Special Funds (Danais), General Allocation Funds (DAU), and Revenue Sharing Funds (DBH) did not have a significant effect on poverty alleviation. Rachmawatie (2021) also found that the growth of Regional Original Income actually increased income inequality in the province. Social assistance spending channeled by the government has no significant effect on inequality (Nabila & Laut, 2021). This indicated that the problem of DIY is not the availability of budget, but rather the suboptimal management of the budget in improving the regional economy.

In fact, DIY's macroeconomic indicators reinforce the existence of these problems. In 2022, 463,630 residents, or 11.49% of the total population, were living below the poverty line. This number decreased slightly from 2021. Despite this decline, the poverty rate in DI Yogyakarta is still higher than in other provinces on the island of Java and even higher than the national rate. Moreover, Yogyakarta Province is recorded as the the highest inequality province in Indonesia. This is indicated by the Gini ratio in 2022, which was recorded at 0.459, a sharp increase from the previous year. This Gini ratio is also higher than in other regions on the island of Java, including the national average Central Bureau of Statistics, 2024a).

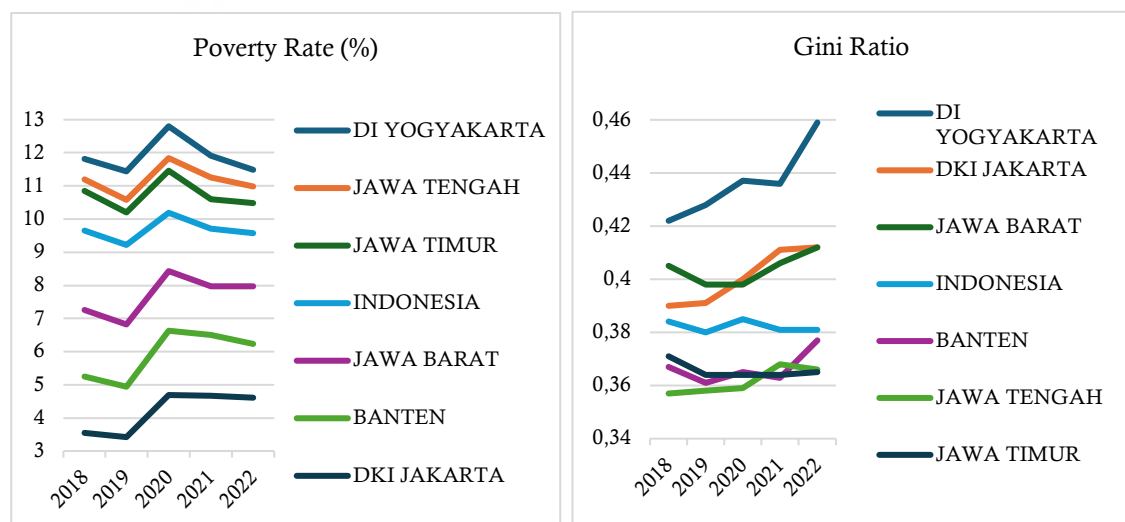


Figure 1. Poverty Rate and Gini Rasio in DIY (data processed by the author from Central Bureau of Statistics, 2024a)

The figures in Graph 1 illustrate that poverty and inequality in DIY remain high. This is also supported by the results of the development target evaluation in DIY Governor Regulation Number 2 of 2023 concerning the 2022–2027 Regional Medium-Term Development Plan (RPJMD). In the explanatory section, for the period of 2018–2022, the poverty rate and Gini ratio in the Province of DIY were never achieved. In 2018, the poverty

rate target of 11.23% was missed. It is because the actual rate reached 11.81%, and the targeted Gini ratio of 0.3917 was realized at 0.4220. The gap between the target and the actual results even tended to widen from year to year. In 2022, the difference between the target and the actual poverty rate reached 4.49%. On the other hand, the difference between the target and the actual Gini ratio was almost 0.1.

Table 1. *Targets and Realization of DIY Development Performance 2018 – 2022*  
(Regional Development Planning Agency of DIY, 2023)

Year	Poverty Rate (%)		Gini Ratio		Description
	RPJMD Target	Realization	RPJMD Target	Realization	
2018	11,23	11,81	0,3917	0,4220	Not achieved
2019	10,29	11,44	0,3846	0,4280	Not achieved
2020	9,11	12,80	0,3776	0,437	Not achieved
2021	8,07	11,91	0,3702	0,436	Not achieved
2022	7,00	11,49	0,3635	0,459	Not achieved

To overcome the problems of poverty and high inequality, the government needs to take policies in the economic sector. Economic growth will increase per capita output value, thereby affecting people's income. The output of a region can be described through Gross Regional Domestic Product or GRDP (Suwarno & Sishadiyati, 2022). However, in fact, a study conducted by Noermanisa & Muttaqin (2023) found that economic growth (GRDP) in DIY did not have a significant effect on poverty alleviation. In addition, economic growth (GRDP) also increases income inequality in DIY (Cendani, 2022). Thus, economic growth in DIY has not been optimal in alleviating poverty and inequality.

The above issue is one of the important studies in the concept of regional economics. Regional economics is a branch of economics discussing the differences in the potential of one region from another. In regional economics, one important theory is the economic base theory. In this theory, economic activities are divided into two groups, namely base and non-base. The economic growth rate of a region is determined by the base sector, which produces goods and services for markets outside the region. On the other hand, the non-base sector cannot grow beyond the economic growth in the region, so it only meets local needs (Tarigan, 2024).

Regional economic studies are also inseparable from Keynes' theory of growth. Keynes' theory explains that economic failures in society are related to job creation and the distribution of wealth and income. This creates income inequality and poverty (Anita & Udjiyanto, 2024). Poverty and inequality are related to economic growth, as illustrated by the Kuznets curve. The Kuznets curve shows that income inequality tends to increase in the early stages of economic development. However, as the economy progresses, this inequality will decrease and will form an inverted U-shaped curve (Kuźmar, 2023).

Previous research by Retnasih (2022) analyzed efforts to reduce poverty in Kulon Progo through leading sectors. In this study, the strategies used were optimizing the multiplier effect of the development of Yogyakarta International Airport, implementing the *Semangat Bela-Beli Kulon Progo* (Spirit of Supporting Kulon Progo) program to absorb the

potential of local products, and utilizing 84 community-based waste banks. Furthermore, Ningsih & Prabowo (2023) analyzed the efforts of leading sectors in reducing inequality in regencies and cities in the Special Region of Yogyakarta. Development in the Province of DIY can be carried out more evenly in buffer areas such as Gunungkidul, Bantul, and Kulon Progo. Thus, it is not only concentrated in growth centers. For example, optimizing *Jalur Jalan Lintas Selatan / South Java Road Route (JJLS)* and improving transportation infrastructure can drive economic development in coastal areas such as Gunungkidul, Kulon Progo, and parts of Bantul. However, there is still little previous research that directly links leading sectors with the main problems in the Special Region of Yogyakarta, such as poverty and inequality, discussed in this study.

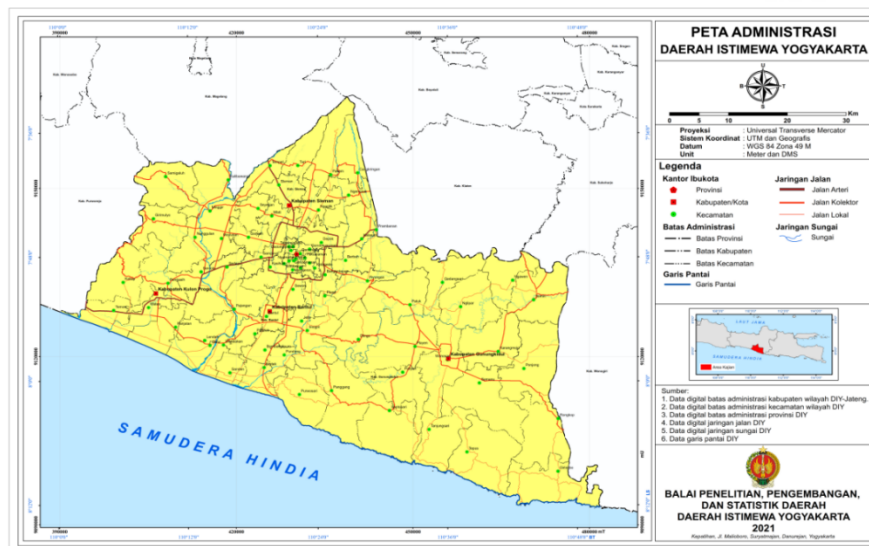


Figure 2. Administrative Map of the Special Region of Yogyakarta by BPPS DIY

Most previous studies still used a more macro sectoral perspective, and there have not been many studies analyzing deeply the structural root causes of non-inclusive growth. Therefore, this study has a major innovation in terms of depth of analysis in a more detailed perspective based on data from 52 sectors and sub-sectors of business fields. Thus, generally, it can be more comprehensive than similar studies. Through analysis and mathematical calculations using various methods, this study determined the leading sectors that boost the economy in the Special Region of Yogyakarta over a 5-year period, namely 2018-2022. This period corresponds to the DIY RPJMD period and proportionally represents the pre-pandemic and pandemic periods. In addition, the leading sectors and subsectors identified in this study are used to address the problems of poverty and inequality, which remain high. Thus, this study can serve as a recommendation in the preparation of future development plans. As a result, the economic growth of DIY in the future can be expected to be more inclusive.

## METHOD

This study used a descriptive quantitative approach. According to Sugiyono (2019), descriptive research focuses on observing independent variables, either one variable or more, without comparing variables. Descriptive research aims to describe the characteristics

of the population factually, carefully, and systematically. This descriptive research uses statistical, mathematical, and computational methods (Rustamana et al., 2024). This study used the *Location Quotient (LQ)* and *Dynamic Location Quotient (DLQ)*, *Shift Share*, and *Klassen Typology* as the analysis methods to determine the leading sectors in the Province of DIY. The secondary data used was sourced from the Central Bureau of Statistics in the form of DIY Province GRDP data for 52 business field subsectors (ADHK 2010) in 2018–2022 as the analysis area and Indonesia's GDP for 52 business field subsectors (ADHK 2010) in 2018–2022 as the reference area. The following is an explanation of each method.

**a. Location Quotient (LQ) Analysis**

Basuki & Mujiharjo (2017) state that LQ analysis is used to identify the economic base of a region. An LQ calculation result > 1 indicates that the sector is a base sector that can be exported to other regions. On the other hand, an LQ calculation result < 1 means that the sector is not a base sector and therefore cannot be exported outside the region or can only be consumed within the region. The formula for calculating LQ is as follows:

$$SLQ = \frac{Si}{S} / \frac{Ni}{N}$$

Description:

*SLQ* : Location Quotient Value

*Si* : DIY Province GRDP sector

*S* : DIY Province GRDP

*Ni* : Indonesia GDP Sector

*N* : Indonesia GDP

**b. Dynamic Location Quotient Analysis**

Basuki & Mujiharjo (2017) state that DLQ analysis is a modification of SLQ that takes into account the variable of sector growth rate over time. A DLQ calculation result > 1 indicates that the sector in the Province of DIY is growing faster than in Indonesia. On the other hand, a DLQ calculation result < 1 means that the sector in the Province of DIY is growing more slowly than in Indonesia. The DLQ calculation formula is as follows:

$$DLQ_{ij} = \left( \frac{1 + g_{ij}}{1 + g_j} / \frac{1 + G_i}{1 + G} \right)^t$$

Description:

*DLQ<sub>ij</sub>* : Dinamic Location Quotient Value

*g<sub>ij</sub>* : Sector growth rate in DIY Province

*g<sub>j</sub>* : Growth rate of GRDP in DIY Province

*G<sub>i</sub>* : Sector growth rate in Indonesia

*G* : GDP growth rate in Indonesia

*t* : Annual change

**c. Shift Share Analysis**

Basuki & Mujiharjo (2017) state that *Shift Share* analysis is used to observe growth and shifts in sectors in regional and national economies. In this analysis, there are three components, namely National Growth (PN), Proportional Growth (PP), and Regional Share Growth (PPW). The stages in calculating *Shift Share* are as follows.

1. Economic Activity Indicator Ratio

This ratio is used to see the comparison of production/employment opportunities in the economic sector in a particular region. The production/employment opportunity ratio consists of  $r_i$ ,  $R_i$ , and  $R_a$ .

$$r_i = \frac{Y'_{ij} - Y_{ij}}{Y_{ij}}$$

Description:

$Y_{ij}$  : Production from sector  $i$  in the DIY region in the base year of analysis

$Y'_{ij}$  : Production from sector  $i$  in the DIY region at the end of the analysis period

$$R_i = \frac{Y'_{i.} - Y_{i.}}{Y_{i.}}$$

Description:

$Y'_{i.}$  : Production from sector  $i$  in Indonesia in the final year of analysis

$Y_{i.}$  : Production from sector  $i$  in Indonesia in the base year of analysis

$$R_a = \frac{Y'_{..} - Y_{..}}{Y_{..}}$$

Description:

$Y'_{..}$  : Indonesia production in the final year of analysis

$Y_{..}$  : Indonesia production in the base year of analysis

2. Regional Growth Components

This component consists of the national growth component (PN), the proportional growth component (PP), and the regional share growth component (PPW).

$$PN_{ij} = (R_a)Y_{ij}$$

Description:

$PN_{ij}$  : National growth component of sector  $i$  in DIY

$Y_{ij}$  : Production/employment opportunities from sector  $i$  in DIY in the base year of analysis

$R_a$  : Indonesia production ratio

$$PP_{ij} = (R_i - R_a)Y_{ij}$$

Description:

$PP_{ij}$  : Proportional growth component of sector  $i$  in DIY

$Y_{ij}$  : Production from sector  $i$  in DIY in the base year of analysis

$R_i$  : Indonesia's production ratio from sector  $i$

$R_a$  : Indonesia's production ratio

$PP_{ij} < 0$ , means that sector  $i$  in DIY is growing slowly

$PPij > 0$ , means that sector i in DIY is growing rapidly

$$PPWij = (ri - Ri)Yij$$

Description:

$PPWij$  : Component of regional share growth of sector i in DIY

$Yij$  : Production from sector i in DIY in the base year of analysis

$Ri$  : Production ratio of sector i in DIY

$Ri$  : Indonesia's production ratio of sector i

$PPWij < 0$ , means that sector i in DIY is relatively uncompetitive compared to the same sector in the comparison region

$PPWij > 0$ , means that sector i in DIY is relatively competitive compared to the same sector in the comparison region

3. Net Shift (PB)

Net shift is used to identify the growth of an economic sector.

$$PBij = PPij + PPWij$$

Description:

$PBij$  : Net shift of sector i in DIY

$PPij$  : Proportional growth component of sector i in DIY

$PPWij$  : Regional share growth component of sector i in DIY

d. Klassen Typology

According to Sjafrizal (2008), Klassen Typology is one of the analytical tools used to determine the pattern and structure of economic growth in a region. Klassen Typology is calculated by comparing regional economic growth with benchmark or national economic growth and comparing regional contributions with national contributions.

Table 2. Klassen Typology Matrix (Sjafrizal, 2008)

Average Rate Growth of Sector	Average Sector Contribution	
	$yi > Yi$	$yi < Yi$
$(ri > Ri)$	Quadrant I Advanced and developing sectors	Quadrant II Developing but Under Pressure Sector
$(ri < Ri)$	Quadrant III Potential Sector	Quadrant IV Underdeveloped Sector

Description:

$yi$  : contribution of sector i in DIY

$Yi$  : contribution of sector i in Indonesia

$ri$  : growth rate of sector i in DIY

$Ri$  : growth rate of sector i in Indonesia

After being analyzed using the above methods, the leading sectors that were identified were then discussed further to explore their potential, including their role in overcoming inequality and poverty in DIY, based on various sources of literature. Figure 3 illustrates the stages of this research.

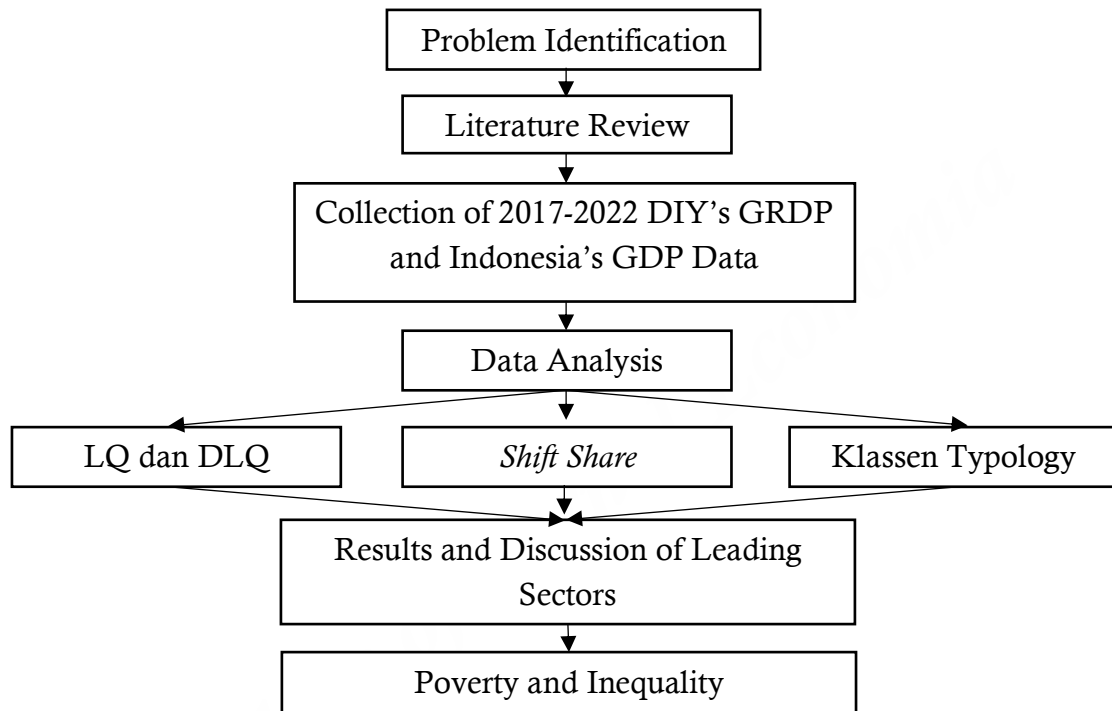


Figure 3. Research Stages Diagram (Compiled by the Author)

## FINDING AND DISCUSSION

### LQ and DLQ Analysis

Based on LQ calculations, the DIY Province had 26 base sectors and subsectors, 28 non-base sectors and subsectors, and 7 others with no output value. The 7 subsectors that did not have output values include coal and lignite mining; coal and oil refining industries; oil, gas, and geothermal mining; basic metal industries; metal ore mining; sea transportation; and river, lake, and ferry transportation. Of the 26 basic sectors and subsectors, the food and beverage sector had the highest average LQ value of 3,14, which was more than 1. This means that these 26 basic sectors and subsectors can be exported to other regions.

Based on DLQ calculations, the Province of DIY had 15 prospective sectors and subsectors and 39 non-prospective sectors and subsectors. Of the 15 prospective sectors and subsectors, the air transportation subsector was the sector with the highest DLQ value of 1707131889.49, which was more than 1. This shows that the 15 prospective sectors and subsectors in the Province of DIY are developing faster than in Indonesia. However, the determination of leading sectors is not based on the magnitude of the LQ and DLQ values, but rather on sectors with LQ and DLQ values exceeding 1. The leading sectors identified from this analysis are presented in Table 3.

Table 3. *LQ and DLQ Values in Leading Sectors/ Sub-sectors*

No	Sector/Sub-sector	Average LQ	DLQ Value
1	Food Crops	1.09	74.16
2	Horticultural Crops	1.48	2.55
3	Forestry and Logging	1.03	4767.37
4	Construction	1.02	3.73
5	Information and Communication	2.25	1.68
6	Other Financial Services	1.15	3.10
7	Education Services	2.89	3.06
8	Other services	1.50	2.23

### **Shifts Share Analysis**

Based on Shift Share calculations, the DIY Province had 22 sectors and subsectors that were relatively competitive and 32 sectors and subsectors that were relatively uncompetitive. In addition, there were 18 sectors and subsectors growing rapidly and 36 sectors and subsectors growing slowly. The leading sectors in this analysis were determined by *Ppij* and *Ppwij* results that were greater than 0. The leading sectors identified from this analysis are presented in Table 4.

Table 4. *Shift Share Values in Leading Sectors/ Sub-sectors*

No	Sector/Sub-sector	<i>PPij</i> Value	<i>PPwij</i> Value	<i>PBij</i> value
1	Horticultural Crops	57.72	202.33	306.72
2	Livestock	37.49	29.79	248.82
3	Information and Communication	2933.13	1748.82	4274.04
4	Financial Services and Insurance	57.38	22.77	489.37
5	Health and Social Services	654.76	12.12	974.23
6	Other services	169.02	191.60	503.78

### **Klassen Typology Analysis**

Based on Klassen Typology analysis, the DIY Province had 15 sectors and subsectors in quadrant 1. The sectors and subsectors in this quadrant were leading sectors that were advanced and continued to develop in the future. The number of leading sectors and subsectors found using this method was greater than that found using other methods. Table 5 summarizes the Klassen Typology calculations for leading sectors.

Table 5. *Klassen Typology Calculation in Leading Sectors/ Sub-sectors*

No	Sector/Sub-sector	<i>yi</i>	<i>Yi</i>	<i>ri</i>	<i>Ri</i>
1	Food Crops	2.97%	2.72%	2.91%	0.14%
2	Horticultural Crops	2.12%	1.43%	5.81%	3.61%
3	Livestock	1.74%	1.52%	3.86%	3.50%
4	Textile and Apparel Industry	1.37%	1.22%	3.18%	2.93%

No	Sector/Sub-sector	<i>yi</i>	<i>Yi</i>	<i>ri</i>	<i>Ri</i>
5	Furniture Industry	0.54%	0.25%	2.92%	2.79%
6	Construction	10.09%	9.94%	3.60%	1.83%
7	Rail Transport	0.07%	0.03%	7.99%	7.13%
8	Land Transportation	3.18%	2.35%	4.51%	4.47%
9	Accommodation and Food Services	9.06%	2.92%	2.98%	2.84%
10	Food and Beverage Provision	7.50%	2.39%	4.39%	2.93%
11	Information and Communication	13.25%	5.86%	11.83%	8.64%
12	Other Financial Services	0.70%	0.60%	5.27%	3.04%
13	Education Services	9.04%	3.13%	4.25%	2.40%
14	Health Services and Social Activities	2.98%	1.28%	8.56%	8.35%
15	Other services	2.74%	1.83%	6.87%	4.52%

### **Analysis of Leading Sectors**

Based on the LQ and DLQ analysis, Shift Share, and Klassen Typology above, there were three leading sectors and subsectors overlapping and appearing in all methods used. The three sectors and subsectors included the horticultural crop subsector, the information and communication sector, and other services sectors. The potential and role of these three sectors and subsectors were discussed further in addressing poverty and inequality in the Special Region of Yogyakarta Province.

### **Horticulture**

Based on Minister of Agriculture Regulation No. 46 of 2019, horticulture is everything related to fruits, vegetables, herbal medicines, and floriculture, including mushrooms, mosses, and aquatic plants that function as vegetables, herbal medicines, and/or aesthetic materials. This commodity is one of the leading commodities in the agricultural sector that plays a role in increasing foreign exchange earnings and even directly affects inflation (Central Bureau of Statistics, 2024a). Horticulture also provides added value with the second largest contribution to the agricultural sector after food crops (Central Bureau of Statistics, 2024b). The important horticultural commodities in DIY are described in Table 6.

Table 6. *DIY Horticultural Crop Production in 2022 (Statistik DIY,2022)*

Type	Crop	Production	Production Center
Seasonal Vegetables	Large chili peppers	253.845 quintals	Kulon Progo
	Red onions	223.066 quintals	Bantul
	Bird's eye chili	62.104 quintals	Kulon Progo
	Chinese cabbage	47.126 quintals	Kulon Progo
Seasonal fruits	Melon	70.014 quintals	Kulon Progo
	Watermelon	82.984 quintals	Kulon Progo
Annual fruits	Bananas	780.453 quintals	Kulon Progo

	<i>Salak</i>	544.980 quintals	Sleman
	Mango	270.661 quintals	Kulon Progo
	<i>Papaya</i>	160.840 quintals	Kulon Progo
	<i>Rambutan</i>	159.990 quintals	Kulon Progo
Annual vegetables	<i>Melinjo</i>	188.263 quintals	Kulon Progo
	<i>Petai</i>	61.641 quintals	Kulon Progo
	<i>Jengkol</i>	3.244 quintals	Sleman
Biopharmaceuticals	Ginger	4.970 quintals	Kulon Progo
	Turmeric	3.288 quintals	Kulon Progo
	Galangal	2.675 quintals	Kulon Progo
	<i>Temulawak</i>	1.453 quintals	Kulon Progo
	Laos	1.223 quintals	Kulon Progo
Ornamental plants	Chrysanthemums	1.162.666 stems	Sleman
	Orchids	42.457 trees	Sleman

The strength of the horticultural crop sector in DIY was supported by a supply chain originating from horticultural seed producers. Based on the data from the DIY BP3MBTP UPTD in 2020, there were 66 certified seed producers. These producers included farmer groups, individuals, and companies, such as CVs and PTs. The government, through its agencies, also acted as a seed producer, such as the Kulon Progo TPH Nursery UPTD, the DIY Province BPPTPH UPTD, the Wonocatur BPPTH Unit UPTD, and the Tambak BPPTPH Unit UPTD.

The Provincial Government of Yogyakarta had also issued Regional Regulation Number 10 of 2011, which was amended by Regional Regulation Number 6 of 2021 concerning the Protection of Sustainable Agricultural Land. This regulation was then revoked by Regional Regulation Number 10 of 2023 on the 2023-2043 DIY Spatial Plan. In the Spatial Plan, agricultural cultivation areas can be used for food crop farming, livestock farming, horticulture, plantations, and green open spaces. However, horticultural farming was also permitted in areas adjacent to tourism, transportation, and river boundaries if it did not cause waste. The government also supported this sector through the allocation of subsidized fertilizers and farming assistance. Based on BPS data, subsidized fertilizers and farming assistance in the form of equipment and seeds were allocated mostly to Gunung Kidul Regency. On the other hand, the government also distributed KUR (People's Business Credit) to farmers, with the largest realization in Kulon Progo Regency. The above government support can increase the productivity of farming businesses in the area.

The horticultural sub-sector, as part of the agricultural sector, was also not immune to challenges. In the 2023 Agricultural Census, farmers in DIY were dominated by older age groups. This means that farming is less attractive to the younger generation, indicating a lack of regeneration in agriculture. Nevertheless, there has been a drastic change in land use of 26.18% since 2013. There are also gender issues, with female farmers being less prosperous than male farmers (Central Bureau of Statistics, 2024b).

To overcome this, the government needs to develop training and mentoring programs for the younger generation, including introducing more efficient and profitable modern

agricultural technologies. The integration of digital technology can attract the interest of younger generations who are more familiar with technology (Central Bureau of Statistics, 2024b). Sustainable food crop land protection (LP2B) policies need to be implemented more strictly by providing incentives to farmers who maintain their agricultural land (Hudaya et al., 2023). Empowerment programs such as affirmative action quotas for training activities and mainstreaming credit provision for women farmers also needs to improve welfare and reduce inequality (Ningrum et al., 2023).

The agricultural sector in DIY has proven to be an important sector in the economy. The agricultural sector is able to create jobs, thereby increasing the income of rural communities. By providing wider access to existing resources, the agricultural sector can play a broader role in efforts to reduce poverty and inequality (Syahputri et al., 2024). In this case, efforts that can be made include protecting agricultural land from land conversion. Control over land conversion itself needs to be implemented so as not to create new poverty. One form of control is in the form of food reserve areas (Wibisono & Widowaty, 2023). This can be seen through the utilization of Sultan Ground, which is widely spread across various rural areas in DIY for horticultural agriculture, as has been done in Bantul for the cultivation of red chili peppers (Setyawan, 2024). The utilization of Sultan Ground is a form of local agrarian reform that can increase the capabilities of smallholder farmers without burdening them with high land rental costs and should be prioritized in poverty pockets, such as Gunungkidul and Kulon Progo.

The government also needs to encourage the role of *Badan Usaha Milik Kalurahan / Village-Owned Enterprises (BUMKAl)* or BUMDes in the horticultural crop supply chain. Based on the data from the UPTD BP3MBTP, there were no BUMKals that have been certified as horticultural seed producers. BUMKals can play a role in seed production, absorption, processing, and marketing of agricultural products. Not only that, BUMKals can also provide access to low-interest credit. Thus, poor farmers can obtain capital for their businesses to increase their productivity (Karim, 2019). The horticultural crops that need to be the focus as business units in BUMKAl or those utilizing Sultan Ground land are crops categorized as premium. Based on an overlay analysis conducted by BPS in the 2023 DIY Agricultural Census, premium horticultural crops include *papaya*, *petai*, *sukun*, red onion, and large chili.

### **Information and Communication**

Based on the Standard Industrial Classification published by BPS in 2020, the information and communication sector included publishing activities, including software, film, and sound recording; radio and TV programming and broadcasting; telecommunications; information technology; and other information services. In 2022, this sector contributed 10.30% to the DIY economy, making it the second largest contributor after the manufacturing industry. In addition, the contribution of this sector has also increased rapidly from only 7.25% in 2019 (Central Bureau of Statistics, 2024c).

The growth of the communication and information sector in DIY was influenced by the COVID-19 pandemic, which required the use of information technology to meet household needs. Average household consumption expenditure on communication in 2020 increased by IDR 11,736.87 to IDR 159,705.87. However, there was an increase in mobile

phone ownership of 1.52% and computer ownership of 1.04% in that year. It was recorded that 91.06% of households in DIY owned mobile phones. This was due to an increase in the need for communication devices as a result of the social restriction policies. These restrictions changed office, school, and trade activities to be carried out online (Regional Office of the Directorate General of Treasury of DIY, 2022).

In addition, the communication and information sector was supported by the film industry. Yogyakarta is a center for the film industry with many talented directors. Yogyakarta is also the venue for annual film festivals, such as the Documentary Film Festival, the Jogja-NETPAC Asian Film Festival, and the Jogja Student Film Festival. This was also supported by various film schools, such as the Yogyakarta Film Academy, the College of Communication Sciences, the Indonesian Institute of Arts, and the College of Multimedia. Various film production houses also support the film industry in this region, such as the Yogyakarta Cinema Production House, the Omah Casting Ibnu Gundul Studio Production House, and the Gamplong Nature Studio, which is integrated with tourism.

The DIY Cultural Office supported the development of the film industry in Yogyakarta through special funds. These special funds were distributed to residents who have a Yogyakarta ID card by submitting a proposal in advance. One of the famous films financed by special funds is *Tilik*. Directed by Wahyu Agung Prasetyo, this film has won awards both domestically and internationally. The central government, through the cultural endowment fund (*Dana Indonesia*) also supports the organization of various film festivals and workshops, such as the Indonesia Documentary Lab (IDOC LAB) held in Yogyakarta (Gandhawangi & Ibrahim, 2023). Additionally, the Paniradya Kaistimewan YouTube channel frequently uploads documentaries and short films themed around Yogyakarta, rich in specific values and messages. In its explanation, this channel served as a medium for disseminating information about the Special Region of Yogyakarta.

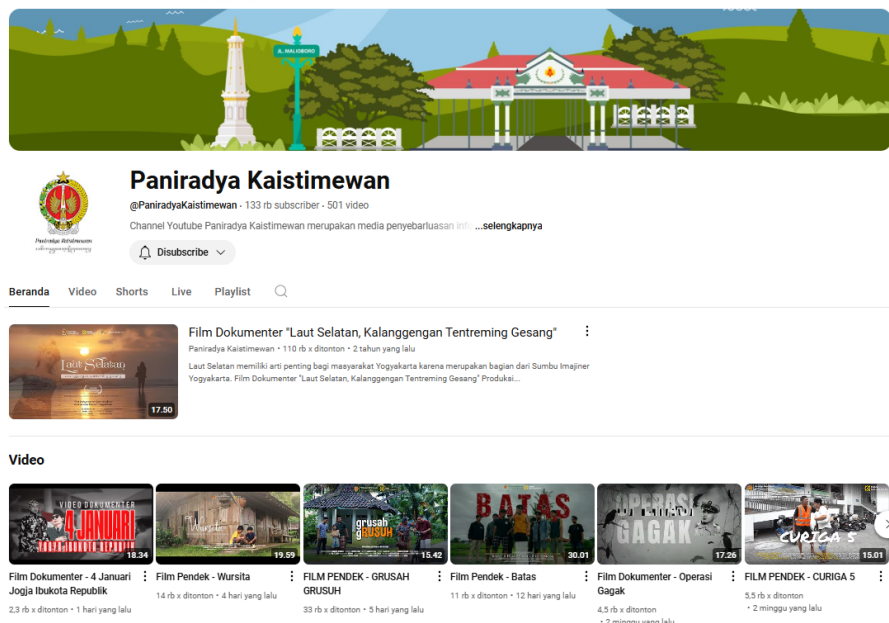


Figure 4. Paniradya Kaistimewan YouTube channel

The information and communication sector in the digital era also had negative impacts, such as the rise of online gambling and illegal online loans. As of August 2024, the

DIY Financial Services Authority had received more than 700 consumer complaints, most of which were related to these two issues. This may be due to a decline in financial literacy and an increase in financial inclusion. The financial literacy in DIY decreased from 58.53% in 2019 to 54.55% in 2022. On the other hand, the financial inclusion in DIY increased from 76.12% in 2019 to 82.08% in 2022 (Financial Services Authority, 2022). The increased financial accessibility that was not accompanied by good financial understanding can lead to the proliferation of online gambling and illegal online loans.

In relation to the above, the information and communication sector needs to play a role in reducing poverty and inequality, which are still high in DIY. The government needs to improve financial literacy by conducting various training and socialization programs, including online trading in the digital era. By increasing public understanding of financial management and digital business, the government can avoid the traps of online loans and online gambling while providing opportunities to escape poverty (Rossa et al., 2024). In addition, the large potential of the film industry in DIY is also expected to be more inclusive in empowering poor rural communities. These communities can play a role in the film industry chain by providing food and beverage accommodation, lodging, and even acting. Data from Gadjah Mada University shows that the production costs for a film lasting 1–2 weeks can reach IDR 800 million to IDR 1.5 billion for venue rental, food, accommodation, transportation, and other expenses (Galih & Weadcaksana, 2024).

### **Other Services**

Based on the Standard Industrial Classification published by BPS in 2020, the other services sector was a combination of four activities, namely arts, entertainment, and recreation (R); other services (S); personal services for households (T); and other international and extra-international activities (U). In 2022, this sector contributed 2.85% to the Yogyakarta economy. The contribution of this sector increased from only 2.59% in 2019 and had slightly decreased to 2.27% in 2020 due to the Covid-19 pandemic Covid-19 (Central Bureau of Statistics, 2024c).

Looking at the components of the activities above, arts, entertainment, and recreation activities are dominant in Yogyakarta. As one of Indonesia's main tourist destinations, Yogyakarta attracts millions of domestic and foreign tourists every year, contributing significantly to regional income through the hospitality, culinary, and handicraft sectors. Tourism also has a large multiplier effect on related sectors such as transportation, trade, and services. Based on Tourism Statistics, the following are some of the leading tourist attractions that draw many tourists to DIY.

The government's role in developing tourism in Yogyakarta can be seen through the allocation of special funds to improve the three pillars of tourism, namely accessibility, cultural attractions, and supporting facilities (Tourism Office of DIY Province, 2024). The government has also launched the "Visiting Jogja" application to make it easier for tourists to access information about destinations, events, and services available in Yogyakarta. This application also serves as a promotional platform for local businesses, helping them reach more visitors (Mali, 2021). In addition, to increase tourist visits, the government organizes art performances at tourist attractions, such as Goa Selarong. This has been proven to

increase tourist visits (Prayudi, 2021). The following is a table of performing arts presented in tourist areas.

Table 7. *Distribution of Leading Tourism Destinations in DIY DIY Tourism Statistics*

City/Regency	Type of Tourist Attraction	Tourist Attraction
Kota Yogyakarta	Museum	Vredeburg Fortress Museum Sonobudoyo Museum
	Tourist Park	Tamansari Taman Pintar Yogyakarta Palace
Sleman	Nature Tourism	Kaliurang Breksi Cliff Volcano Tour
	Tourism Village	Blue Lagoon Pulesari
Bantul	Tourist Village	Giriloyo Wukirsari
	Cave	Selarong Cave
	Tourist Park	Mangunan Fruit Garden
	Beach	Parangtritis Beach
Kulon Progo	Beach	Glagah Beach
	Reservoir	Sermo Reservoir
Gunung Kidul	Waterfall	Srigetuk
	Tourist Village	Nglanggeran
	Beach	Baron Beach Area

Table 8. *Tourism-Based Performing Arts in DIY (Prayudi, 2021)*

Performing Arts	Tourist Location	District/City
Ramayana Dance Drama	Purawisata	Yogyakarta
<i>Wayang Kulit</i> on Friday Kliwon	Parangkusumo Beach	Bantul
<i>Ketoprak</i>	Depok Beach	Bantul
<i>Campursari</i>	Samas Beach	Bantul
Karaoke Art Performance	Parangkusumo Beach	Bantul
Selarong Cave Art Performance	Selarong Cave	Bantul

The current strength of the tourism sector was threatened by waste problems. Due to the increasing amount of unmanaged waste, especially after the closure of the Piyungan Final Disposal Site (TPA), many areas in the city were littered with waste, which not only created unpleasant odors but also damaged the landscape. This has the potential to reduce tourist interest in visiting, especially foreign tourists who prefer destinations that implement green tourism principles and have a clean and comfortable environment (Priatmojo, 2024). According to the Ministry of Tourism and Creative Economy, comfort is the essence of tourism, and poor environmental conditions due to waste can make tourists hesitate to visit

Yogyakarta (Putra, 2024). In addition, this issue is also an aspect of *Cleanliness, Health, Safety, and Environmental Sustainability* (CHSE) that needs to be certified in the world of tourism.

As a solution to poverty and inequality, the development of local and sustainable tourism can be a strategic step. This approach not only increase the involvement of local communities in the tourism sector but also encourages environmental conservation. For example, the concept of ecotourism, which emphasizes sustainability, can help reduce the negative impacts of mass tourism, such as waste accumulation and pollution. By empowering local communities through training and providing facilities that support community-based tourism, Yogyakarta can create more equitable economic opportunities and reduce inequality and poverty (Putranto et al., 2024).

## **CONCLUSION**

Based on LQ and DLQ analysis, *Shift Share* analysis, and Klassen Typology analysis, there were three leading sectors in the DIY economy. These leading sectors included the horticultural sub-sector, the information and communication sector, and other service sectors. These three sectors can be optimized to reduce poverty and inequality in DIY in several ways. One of the priority recommendations that can be applied is the development of other service sectors, especially tourism. DIY has the most prominent comparative advantage in this field. To optimize tourism as an instrument of economic equality, the local government must prioritize the allocation of Special Funds for the development of connectivity infrastructure in supporting destinations that are also pockets of poverty, namely Kulon Progo and Gunungkidul, and issue trade regulations that require star-rated hotels to absorb local products. This step needs to be supported by academics through CHSE certification assistance, marketing digitalization, and cultural storytelling to increase selling value. Meanwhile, tourism industry players need to integrate village tourism packages (*Live-in/Experience*) and local arts into the regional tourism supply chain. Thus, local communities are transformed from objects to active managers through professional BUMKAL or Pokdarwis institutions to ensure that *the multiplier effect* of tourist spending circulates fully at the village level, effectively reducing poverty and narrowing income disparities.

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