Strengthening Local Potential for Sustainable Economic Development in Bengkulu City

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Abstract. Number of poor population in Bengkulu City is the highest among other regencies in Bengkulu Province. Development in Bengkulu City looks forward internally, but not changing the image as lagging region in Indonesia. Although the Human Development Index (HDI) of Bengkulu City is the highest in Bengkulu Province and more than the national average, it has not been beneficial for the Bengkulu City progress. Research objectives are: (1) to know the leading sector in Bengkulu City, (2) to know the chain of regional economic issues of Bengkulu City, and (3) to formulate a strategy of sustainable economic development in Bengkulu City. Method which is used in this research is literature study and descriptive analysis towards calculation results of location quotient (LQ), specialization index (SI), Theil entropy index (TEI), shift-share analysis, and Klassen typology based on gross domestic product (GDP) data. The results show that the most leading sector in Bengkulu City is company service, with LQ of 2.97 (2011); 3.02 (2012); and 2.96 (2013). The regional economic issues in Bengkulu City can not be separated by disparity of the leading sector, unspecialized of the leading sector, low competitiveness and lagged of the leading sector, coupled with increasing of poor population, not optimized of HDI utilization, and low function of regional development key. Development strategy in Bengkulu City formulated through local potential empowerment, such as developing company service sector, increasing the company sector service competitiveness, and creating generative city relations.

1. Introduction

Bengkulu City is the capital of Bengkulu Province, Indonesia. Bengkulu City had a high Human Development Index (HDI) (Graph 1) compared to the average in the province and country [1]. Based on [2], infrastructure development in Bengkulu City has exceeded targets, but Bengkulu Province included a quite poor in western part of Indonesia [3] and the poorest in Sumatra Island [4]. The number of poor population, according to BPS year 2010-2015 showed it tends to has increased (Graph 2), especially in Bengkulu City [5]. Development in the city has not given positive impact yet to the province.

Regional development should pay attention to three keys [6], i.e.: (1) intraregion factor, reflected in the regional potential, (2) interregion factor, reflected by the geographical position against the wider or national scope, and (3) supra region factor, related to law, legal, or bureaucratic. One of the problems arising in the regional development is about regional economic development strategy so that scale of
priority is required. The priority sector in regional development is the leading sector [7]. Strengthening and expanding of the leading sector in each region is strategic answer towards economic and social problems lagged region [8].

It is important to solve the Bengkulu Province issues, started by regional development of the provincial capital or Bengkulu City. Research objectives are: (1) to know the leading sector in Bengkulu City, (2) to know the chain of regional economic issues of Bengkulu City, and (3) to formulate a strategy of sustainable economic development in Bengkulu City.
2. Methodology
The research method which is used in this research is literature study. Regional economics, the chain of regional economic issues, and the strategy formulation of sustainable economic development of Bengkulu City were descriptively analyzed through calculation of location quotient (LQ), specialization index (SI), entropy Theil index (TI), shift-share analysis, and Klassen typology based on gross domestic product (GDP) data of Bengkulu City and Bengkulu Province.

LQ is calculated with the formula (i). GDPir is sectoral GDRP in the city, TGDPr is total GDP in the province, GDPin is sectoral GDP in the city, and TGDPn is total GDP in the province.

\[
LQ = \frac{\text{GDPir}}{\text{TGDPr}} \times \frac{\text{GDPin}}{\text{TGDPn}}
\]

(i)

SI is calculated with the formula (ii). SI is specialization index in region 1 (city) and 2 (province), Ei1 is sectoral GDP in region 1, E1 is total GDP in region 1, Ei2 is sectoral GDP in region 2, and E2 is total GDP in region 2.

\[
SI = \frac{\sum_{j=1}^{n} |\left(\frac{E_{i1}}{E_1}\right) - \left(\frac{E_{i2}}{E_2}\right)|}{n}
\]

(ii)

TI is calculated with the formula (iii). Yi is GDP per capita of the city, Y is GDP per capita of the province, Xi is number of city population, and X is number of province population (Table 1).

\[
TI = \sum \frac{Y_i}{Y} x \log\left(\frac{\frac{Y_i}{Y}}{\frac{X_i}{X}}\right)
\]

(iii)

| Year | Total GDP of Bengkulu City | Total GDP of Bengkulu Province | Xi | X | Yi | Y |
|------|---------------------------|-------------------------------|----|---|----|---|
| 2011 | 9,657,223.1               | 30,295,100                    | 313,324 | 1,742,080 | 30,822 | 17,390 |
| 2012 | 10,327,320.5              | 32,363,000                    | 326,219 | 1,783,725 | 31,658 | 18,143 |
| 2013 | 10,956,459.1              | 34,326,400                    | 334,529 | 1,814,357 | 32,752 | 18,919 |

Source: [9], [10], [11], [12], [13] and [14]

Shift-share analysis is calculated based on regional share (regional growth component, Nj), sectoral growth (proportional shifts, Pj), and the growth of regional competitiveness (differential shift, Dj) as outlined in Table 2.

| YiJo | Micro region sectoral GDP of year x+1 | Gj | Yj-Yjo |
|------|----------------------------------------|----|--------|
| YiJo | Micro region total GDP of year x       | Nj | (Yjo(Yt/Yo)-Yjo) |
| YiJo | Micro region total GDP of year (x+1)   | (P+D)j | Yjt-(Yt/Yo)Yijo |
| YiJo | Macro region sectoral GDP of year x    | (P+D)j | Gj-Nj |
| YiJo | Macro region sectoral GDP of year (x+1)| Pj | ((Yit/Yo)-(Yt/Yo))Yijo |
| Yo   | Macro region total GDP of year x       | Dj | ((Yij-(Yt/Yo)Yijo) |
| Yo   | Macro region total GDP of year (x+1)   | (P+D)j | Gij |
| Yt   | Macro region sectoral GDP of year x    | Gij | Yij-Yijo |
| Yt   | Macro region sectoral GDP of year (x+1)| (P+D)j | Yjt-(Yt/Yo)Yijo |

Source: Sjafrizal, 2012 after [15]

Klassen typology (Table 3) compares the sector growth rate of the city (ri) to the province (r) and the sector contribution of the city (si) to the province (s).
### Table 3. Classification of Sector Potential at City

| Growth Rate (r) | ri > r | ri < r |
|-----------------|--------|--------|
| s_i > s         | rapidly developed progressive | depressed progressive |
| s_i < s         | potential rapidly developing   | Relatively lagged      |

Source: [15]

### 3. Result and Discussions

Measuring of economic resources or potential in Bengkulu City is done by calculation based on GDP (Table 4 and Table 5). LQ value equal to or greater than 1 is the leading sectors, generally in Bengkulu City is tertiary or services sector. Company service has the highest LQ, i.e. 2.98 (2011); 3.02 (2012); and 2.96 (2013). The leading sectors are expected to meet the demand from other regions from the city, stimulate to add income, and become the main driver in the regional economy.

#### Table 4. GDP of Bengkulu City and Bengkulu Province according to Business Field on the basis of Constant Prices 2010 (million rupiah)

| Business Field                      | Bengkulu City | Bengkulu Province |
|-------------------------------------|---------------|------------------|
|                                     | 2011          | 2012            | 2013            | 2011          | 2012            | 2013            |
| Agriculture, Forestry, Fisheries    | 977,084.4     | 1,007,621.6     | 1,034,104.6     | 9,734,700     | 10,272,900     | 10,687,200      |
| Mining and excavation              | 19,480.4      | 20,461.9        | 20,707.4        | 1,245,600     | 1,330,700      | 1,357,900       |
| Processing industry                | 377,217.0     | 400,572.6       | 422,609.9       | 1,841,500     | 1,989,900      | 2,137,700       |
| Procurement electricity and gas    | 8,046.4       | 8,724.6         | 9,336.8         | 23,300        | 25,600         | 27,300          |
| Water supply, waste management, waste, and recycling | 34,720.6 | 35,753.9 | 35,850.0 | 81,900 | 83,000 | 83,800 |
| Construction                       | 445,074.7     | 484,152.3       | 499,682.1       | 1,332,200     | 1,451,000      | 1,521,000       |
| Wholesale and retail trade; car and motorcycle repairs | 1,908,210.1 | 2,056,926.7 | 2,185,574.6 | 4,191,400 | 4,479,700 | 4,840,500 |
| Transportation and warehousing     | 1,536,440.6   | 1,636,637.4     | 1,741,274.1     | 2,312,600     | 2,467,300      | 2,630,200       |
| Provision of accommodation and drinking | 152,527.2 | 164,061.3 | 177,115.8 | 413,600 | 446,700 | 481,600 |
| Information and communication      | 791,552.9     | 860,611.6       | 926,877.6       | 1,212,000     | 1,301,900      | 1,411,200       |
| Financial service and insurance    | 470,992.2     | 535,181.2       | 574,697.8       | 1,000,800     | 1,133,700      | 1,214,000       |
| Real estate                        | 521,295.5     | 585,089.2       | 632,358.5       | 1,291,800     | 1,408,600      | 1,517,800       |
| Company Service                    | 598,470.4     | 657,217.0       | 697,112.1       | 632,000       | 682,900        | 738,800         |
| Government administration, defense, and mandatory social security | 681,316.8 | 695,958.4 | 750,129.4 | 2,511,800 | 2,664,700 | 2,882,500 |
| Education Service                  | 821,783.8     | 845,692.9       | 901,816.2       | 1,829,700     | 1,946,500      | 2,079,200       |
| Health services and social activities | 209,744.9 | 224,343.1 | 235,878.6 | 425,600 | 455,200 | 484,300 |
| Other services                     | 103,265.2     | 108,314.9       | 111,333.7       | 214,700       | 222,900        | 231,500         |
| Total                              | 9,657,223.1   | 10,327,320.5    | 10,956,459.1    | 30,295,100    | 32,363,000     | 34,326,400      |

Source: [9], [10], [11], [16], [12], [13], [14], and [17] (processed)

All sectors in Bengkulu City are not specialized because value index tends to be close to 0, while a specialized sector has value index approaching or equal to 1. Company service sector which is the highest LQ has the SI of 0.0411 (2011), 0.0425 (2012), and 0.0421 (2015). Low of SI of all sectors in
Bengkulu City pointed out that the leading sectors based on LQ has not become development concentrations yet and not as a major tool in increasing regional economic growth. Bengkulu City is still lagging or has not been able to compete with other cities in Indonesia.

Table 5. LQ and SI in Bengkulu City

| Business Field                                      | 2011  | 2012  | 2013  | note | 2011   | 2012   | 2013   | note |
|----------------------------------------------------|-------|-------|-------|------|--------|--------|--------|------|
| Agriculture, Forestry, Fisheries                   | 0.3149| 0.3074| 0.3032| not   | 0.2202 | 0.2199 | 0.2170 | not  |
| Mining and excavation                              | 0.0491| 0.0482| 0.0478| not   | 0.0391 | 0.0391 | 0.0377 | not  |
| Processing industry                                | 0.6426| 0.6308| 0.6194| not   | 0.0217 | 0.0227 | 0.0237 | not  |
| Procurement                                        | 1.0833| 1.0680| 1.0715| leading| 0.0001 | 0.0001 | 0.0001 | not  |
| Water supply, waste management, waste, and recycling| 1.3299| 1.3499| 1.3403| leading| 0.0009 | 0.0009 | 0.0008 | not  |
| Construction                                       | 1.0481| 1.0456| 1.0293| leading| 0.0021 | 0.0020 | 0.0013 | not  |
| Wholesale and retail trade; car and motorcycle repairs| 1.4282| 1.4389| 1.4146| leading| 0.0592 | 0.0608 | 0.0585 | not  |
| Transportation and warehousing                     | 2.0842| 2.0787| 2.0741| leading| 0.0828 | 0.0822 | 0.0823 | not  |
| Provision of accommodation and drinking            | 1.1569| 1.1509| 1.1522| leading| 0.0021 | 0.0021 | 0.0021 | not  |
| Information and communication                      | 2.0488| 2.0715| 2.0577| leading| 0.0420 | 0.0431 | 0.0435 | not  |
| Financial service and insurance                     | 1.4763| 1.4793| 1.4831| leading| 0.0157 | 0.0168 | 0.0171 | not  |
| Real estate                                        | 1.2659| 1.3017| 1.3053| leading| 0.0113 | 0.0131 | 0.0135 | not  |
| Company Service                                    | 2.9706| 3.0159| 2.9562| leading| 0.0411 | 0.0425 | 0.0421 | not  |
| Government administration, defense, and mandatory social security | 0.8509| 0.8185| 0.8153| not leading| 0.0124 | 0.0149 | 0.0155 | not specialized |
| Education Service                                  | 1.4090| 1.3615| 1.3589| leading| 0.0247 | 0.0217 | 0.0217 | not specialized |
| Health services and social activities               | 1.5460| 1.5444| 1.5259| leading| 0.0077 | 0.0077 | 0.0074 | not specialized |
| Other services                                     | 1.5088| 1.5228| 1.5067| leading| 0.0036 | 0.0036 | 0.0034 | not specialized |

Source: [9], [10], [11], [16], [12], [13], [14], and [17] (processed)

Table 6. Entropy Theil Index in Bengkulu City

| Business Field                  | 2011  | 2012  | 2013  |
|--------------------------------|-------|-------|-------|
| Agriculture, Forestry, Fisheries| 0.274 | 0.251 | 0.238 |
| Mining and excavation           | -0.027| -0.028| -0.029|
| Processing industry             | 0.913 | 0.858 | 0.820 |
| Procurement electricity and gas | 1.975 | 1.879 | 1.860 |
Table 6. (Continued)

| Business Field                                      | 2011  | 2012  | 2013  |
|-----------------------------------------------------|-------|-------|-------|
| Construction                                        | 1.884 | 1.823 | 1.755 |
| Business Field                                      | 2011  | 2012  | 2013  |
| Water supply, waste management, waste, and recycling| 2.634 | 2.614 | 2.552 |
| Wholesale and retail trade; car and motorcycle repairs| 2.907 | 2.856 | 2.751 |
| Transportation and warehousing                      | 4.849 | 4.706 | 4.630 |
| Provision of accommodation and drinking             | 2.167 | 2.090 | 2.063 |
| Information and communication                       | 4.739 | 4.684 | 4.581 |
| Financial service and insurance                     | 3.043 | 2.967 | 2.937 |
| Real estate                                         | 2.459 | 2.485 | 2.459 |
| Company Service                                     | 7.721 | 7.678 | 7.386 |
| Government administration, defense, and mandatory social security | 1.393 | 1.275 | 1.248 |

Source: [9], [10], [11], [16], [12], [13], [14], and [17] (processed)

Table 7. Klassen Typology of Bengkulu City

| Business Field                                      | Bengkulu City (2011-2013) | Bengkulu Province (2011-2013) | Category                        |
|-----------------------------------------------------|---------------------------|------------------------------|---------------------------------|
|                                                     | ri (%)                    | si (%)                       | r (%)                          | s (%)                          |                                      |
| Agriculture, Forestry, Fisheries                    | 2.8765                    | 9.757                        | 4.7781                         | 31.602                         | relatively underdeveloped            |
| Mining and excavation                               | 3.1012                    | 0.195                        | 4.4106                         | 4.029                          | relatively underdeveloped            |
| Processing industry                                 | 5.8459                    | 3.880                        | 7.7426                         | 6.158                          | relatively underdeveloped            |
| Procurement electricity and gas                     | 7.7205                    | 0.084                        | 8.2439                         | 0.078                          | advanced but pressured               |
| Water supply, waste management, waste, and recycling| 1.6134                    | 0.342                        | 1.1533                         | 0.256                          | advanced and fast-growing            |
| Construction                                        | 5.9572                    | 4.583                        | 6.8513                         | 4.415                          | advanced but pressured               |
| Wholesale and retail trade; car and motorcycle repairs| 7.0212                   | 19.860                       | 7.4646                         | 13.977                         | advanced but pressured               |
| Transportation and warehousing                      | 6.4574                    | 15.901                       | 6.6459                         | 7.649                          | advanced but pressured               |
| Provision of accommodation and drinking             | 7.7594                    | 1.599                        | 7.9078                         | 1.385                          | advanced but pressured               |
| Information and communication                       | 8.2110                    | 8.336                        | 7.9053                         | 4.059                          | advanced and fast-growing            |
| Financial service and insurance                     | 10.4620                   | 5.073                        | 10.1376                        | 3.427                          | advanced and fast-growing            |
| Real estate                                         | 10.1386                   | 5.597                        | 8.3951                         | 4.348                          | advanced and fast-growing            |
| Company Service                                     | 7.9270                    | 6.285                        | 8.1197                         | 2.121                          | advanced but pressured               |
| Government administration, defense, and mandatory social security | 4.9285                   | 6.944                        | 7.1253                         | 8.348                          | relatively underdeveloped            |
| Education Service                                   | 4.7563                    | 8.361                        | 6.6002                         | 6.049                          | advanced but pressured               |
| Health services and social activities                | 6.0470                    | 2.162                        | 6.6735                         | 1.408                          | advanced but pressured               |
| Other services                                      | 3.8332                    | 1.041                        | 3.8388                         | 0.690                          | advanced but pressured               |

Source: [9], [10], [11], [16], [12], [13], [14], and [17] (processed)

Shift share analysis results in Table 8 show that the company service as seen from the components of the regional economic growth (Nj) is positive (Nj > 0) so that the company could be a sector which can specialize with faster growth in Bengkulu Province. Sectoral growth (Pj) has positive value (Pj >
0), so the company can grow faster and are able to specialize. The growth of regional competitiveness (Dj) is negative (Dj < 0), so that the company service sector has a weakness of low competitiveness compared to other regions. Bengkulu City will always be a city which can not compete with other cities if this condition remains exist.

Company service based on LQ analysis included the most leading sector. Although it is not specialized and has a huge disparity, shift-share analysis (Table 8) shows that the company service is growing progressively with low competitiveness. Low competitiveness shows that competitive advantage which belonged to the company service is low, though comparative advantages is high. Low competitiveness is caused by GDP growth rate of the company service in the city is slightly lower than in the province, although the contribution in the city is greater than in the province.

The relationship between Bengkulu City and it’s hinterland is presented in Figure 1. The city seemed to be separated from the surrounding region [7]. Regencies in Bengkulu Province can be easily leaks or pulled to other provinces, including the resource within them. Bengkulu Province has the shape of an elongated region (long and narrow shape) so it is difficult to develop a land transportation, while sea transportation (Indian Ocean) is less functional. The shape of region such as elongated complicates the relation of transportation and communication so it inhibit the growth of the region [18].

Bengkulu city geographically—intraregion factor—is coastal area and lowlands, supported by a new small regency (Central Bengkulu). Bengkulu City is also supported by some rather large regencies, but tend to pulled to neighbor provinces. For example, Mukomuko can be pulled to West Sumatra and Jambi; North Bengkulu may be pulled to Jambi; Rejang Lebong, Lebong, Kepahiang, South Bengkulu, and Seluma can be pulled to South Sumatra; and Kaur can be pulled to Lampung. It is the issue of the regional development key—intraregion, caused by the easy accessibility and better marketing from the regencies to neighbor provinces than in the capital of Bengkulu Province. The main road of Sumatra Island crosses the regencies close to border province border or neighbor province, not to the Bengkulu City. This condition let the Bengkulu City tends to grow in less profitable direction.

Development strategy in Bengkulu City formulated through empowerment of local potential, i.e.: (1) developing company service sector, (2) increasing the company sector service competitiveness, and (3) creating generative city relations.

The regional development key—intraregion—will work better through the development of company service sector in Bengkulu City. The city can still be stable if it obtains input or support from the hinterland or surrounding regencies. This is supported by the document of Rencana Pola Ruang (Spatial Planning of the Region) year 2012-2032 [19] that Bengkulu City is not optimally geared to agricultural areas, but directed to industries and services. Company service sector is advanced but pressured (Table 7), so it has to be supported by an advanced and fast-growing sector, such as the information and communication sector. Cities in the future developing world will be the cyber city. Cyber city is a city concept of information technology-based city [20], so the information and communication sector can support the company sector and develop other sectors.

| Component | 2011-2012 (thousand rupiah) | 2012-2013 (thousand rupiah) |
|-----------|-----------------------------|-----------------------------|
| Gi        | 670,097,400                 | 629,138,600                 |
| Gj        | 670,097,400                 | 629,138,600                 |
| Nj        | 659,188,174                 | 626,538,364                 |
| (P+D)j    | 10,909,226                  | 2,600,236                   |
| (P+D)j    | 10,909,226                  | 2,600,236                   |
| Pj        | 7,348,864                   | 13,925,600                  |
| Dj        | 10,547,006                  | -13,902,572                 |
| Dj        | 10,547,006                  | -13,902,572                 |
| Gij       | 58,746,600                  | 39,895,100                  |
| (P+D)ij   | 17,893,870                 | 23,028                      |

Source: [9], [10], [11], [16], [12], [13], [14], and [17] (processed)
The competitiveness of company service sector can be increased with an increase in quality value, i.e. optimization of high HDI through labor experts in the field of employment, particularly in the company service sector. An alternative to increase the competitiveness of the company service sector is increasing investment to the company service sector.

The generative city relation can be realized through improving managerial capability in city development, harmonizing economic and physical aspect. Managerial capability in city development is based on the law and regional development planning, in order to enable the function of regional development key—supra region. Physical development is directed to regional connectivity system for improvement of the provincial transportation system, in order to facilitate the exchange of goods and services. The enclave relationship which is not profitable to the city will be transformed into a generative relationship. Sustainable development then can be realized. The regional development key—interregion—then can function well.

4. Conclusion and Recommendation
The most leading sector in Bengkulu City is company service. The regional economic issues in Bengkulu City can not be separated by disparity of the leading sector, not specialized leading sector, low competitive and depressed progressive of leading sector, coupled with the increasing poor population, not optimized utilization of HDI yet, and weak function of the regional development key. Development strategy in Bengkulu City formulated through empowerment of local potential, i.e. developing company...
service sector, increasing the company sector service competitiveness, and creating generative city relations.

Acknowledgments
The authors would like to thank the Department of Environmental Geography, Faculty of Geography, Universitas Gadjah Mada which has facilitated the research activities through excellent research grants.

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