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Regional Specialization And Regional Leakages As An Impact of Center-Hinterland Interaction (Case: Kupang City And Regencies In West Timor)

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ABSTRACT: The research aims to analyze: (1) the basic sector and regional specialization of regencies/cities in West Timor, (2) the impact of center and hinterland interactions on regional leakage in regencies/cities in West Timor. The research was carried out in 5 regencies and 1 city in West Timor. The research uses secondary data and primary data (obtained using the snowball technique). The research results state that interactions occur due to the existence of basic commodities, but not necessarily regional specialization. The research results also found that there was a leak from the Hinterland area to the center in West Timor of IDR 757,606,232,- because the benefit center was IDR 1,164,004,961,- while the hinterland benefit was IDR 406,398,729,-. Belu Regency is the regency that received a surplus (IDR 44,746,514). Therefore, each district/city is obliged to determine base commodities and strive for specialization so as to obtain a surplus from center-hinterland interactions

Keywords: Regional Specialization, Spatial Interaction, Center, Hinterland, Regional Leakages.

***ABSTRAK**: Penelitian bertujuan untuk: (1) menganalisis sektor basis dan regional specialization kabupaten/kota di Timor Barat, (2) menganalisis dampak interaksi spatial center dan hinterland terhadap kebocoran wilayah kabupaten/kota di Timor Barat. Penelitian dilaksanakan di 6 Kabupaten dan Kota di Timor Barat. Penelitian menggunakan data sekunder dan data primer(menggunakan teknik snowball). Hasil penelitian menyatakan bahwa interaksi terjadi karena adanya komoditas basis, tetapi bukan bermakna spesialisasi komoditas wilayah. Hasil penelitian juga menemukan bahwa terjadi kebocoran wilayah Hinterland ke center di Timor Barat sebesar Rp 757.606.232,- karena benefit center sebesar Rp 1.164.004.961,- sedangkan benefit hinterland sebesar Rp 406.398.729,-. Kabupaten Belu merupakan kabupaten yang memperoleh surplus (Rp 44.746.514,-). Oleh karena itu, setiap kabupaten/kota wajib menetapkan komoditas basis dan mengupayakan spesialisasi sehingga memperoleh surplus dari interaksi center-hinterland*

***Kata Kunci:** SPesialisasi Wilayah Interaksi Spasial, Pusat, Belakang, Kebocoran wilayah*

INTRODUCTION

In principle, regional development planning is an effort to apply economic development concepts to the spatial dimension, so that regional development planning is an uninterrupted accumulation of economic development based on the potential of the region to be developed according to demand as a marketing opportunity (demand side-market opportunity) for development. (Harun, 2015). According to (Susanto, 2014), efforts made to carry out sustainable regional development include managing natural resources according to regional potential and advantages (basic economic sectors).

Various efforts have been implemented by the government to increase economic growth and social welfare. The economic growth of a region increases by identifying basic sectors. Determining basic commodities makes it easier for local governments to formulate development policies and improve the economic level in their region. Determination of base commodities is adjusted to the existing resources in each region. This is intended so that the development of basic commodities can be carried out effectively and efficiently so that they can provide added value and have a positive impact on increasing people's income in the region. Research by (Klau & Hidayah, 2021) states that through identifying leading sectors, economic activity planning prioritizes sectors or commodities that are regional specialties and subsequently has wider implications for the economy in East Nusa Tenggara (NTT) Province.

Agriculture is the main activity and the largest livelihood of the population in NTT Province. East Nusa Tenggara (NTT) Province has great potential in the agricultural sector. The contribution of the agricultural sector to Gross Regional Domestic Product (GRDP) in 2022 is 30.32% and is the largest among other economic sectors, and has also experienced a positive trend over the last two year (Statistic of Indonesia, 2022). Agricultural activities are very influential in reducing the number or level of unemployment in a region and play a role in regional economic development and growth (Hayati , 2015). However, there are obstacles in developing the agricultural sector, such as less fertile land, lack of production and productivity of commodities.

The economic growth of a region has an impact on other regions around it, so that the potential income of a region increases (Runtunuwu et al., 2023). This condition means that the growth of the agricultural sector, especially basic commodities in districts/cities in West Timor, not only has an impact on the economy of the district/city (intraregional multiplier) but also has an impact on the economy of the surrounding region (spillover effect). Therefore, it is necessary to analyze regional specialization and the interaction of spatial centers and hinterlands in West Timor, NTT Province, as well as their impact on regional leakage.

One effort to develop the agricultural sector is through increasing spatial interaction between regions according to the base commodities in each region. Previous research (Daraputri et. al 2015) ; (Caraka, 2016); (Purwaningsih et.al 2017) found that the economic conditions of a region are influenced spatially by other regions. However, interactions between regions can sometimes lead to an asymmetric relationship where developed regions overexploit the resources of underdeveloped regions (backwash). The hinderland region becomes weak due to excessive depletion of resources which results in a massive and excessive net flow and accumulation of added value in development centers. Therefore, the expected spatial interaction is a form of linkage that is synergistic or mutually reinforcing. Linkages that weaken each other can lead to regional leakage as discovered by (Rustiadi et.al 2011). This regional leakage could have a negative impact on regional growth. Research by (Kwangmoon et.al 2011) explains that economic linkages between regions with agricultural characteristics are still very weak, the flow of added value, business and labor will have more influence in industrial countries, resulting in economic leakage.

Previous studies conducted separate studies for the base sector (Hutapea et al., 2020; Setiawan, 2020), spatial interactions (Danastri & Hendarto, 2011; Habib, 2016) and regional leakage (Jaya, 2009). The novelty of this research is to study the base sector and regional specialization as the reason for the interaction of the center and hinterland in West Timor, as well as its impact on regional leakage. The research aims to: (1) analyze basic commodities and regional specialization for each

district/city in West Timor, (2) analyze regional leakage from spatial interactions of hinterland and center in West Timor.

METHODS

Research Location

The research was conducted in West Timor, Nusa Tenggara Province (NTT), which consists of 5 regencies as hinterland, namely Kupang Regency, Timor Tengah Selatan Regency (TTS) , Timor Tengah Utara Regency (TTU), Belu Regency, and Malaka Regency. Apart from that, 1 city as a center is Kupang City as the capital of NTT Province. This research uses secondary data sourced from the BPS-Statistic Indoenesia and the Indonesian Geospatial Information Agency.

Consisting of commodity production data in the agricultural sector and GRDP in the agricultural sector in 2022 and the administrative map of West Timor, NTT Province. A map of the research location is shown in Figure 1.

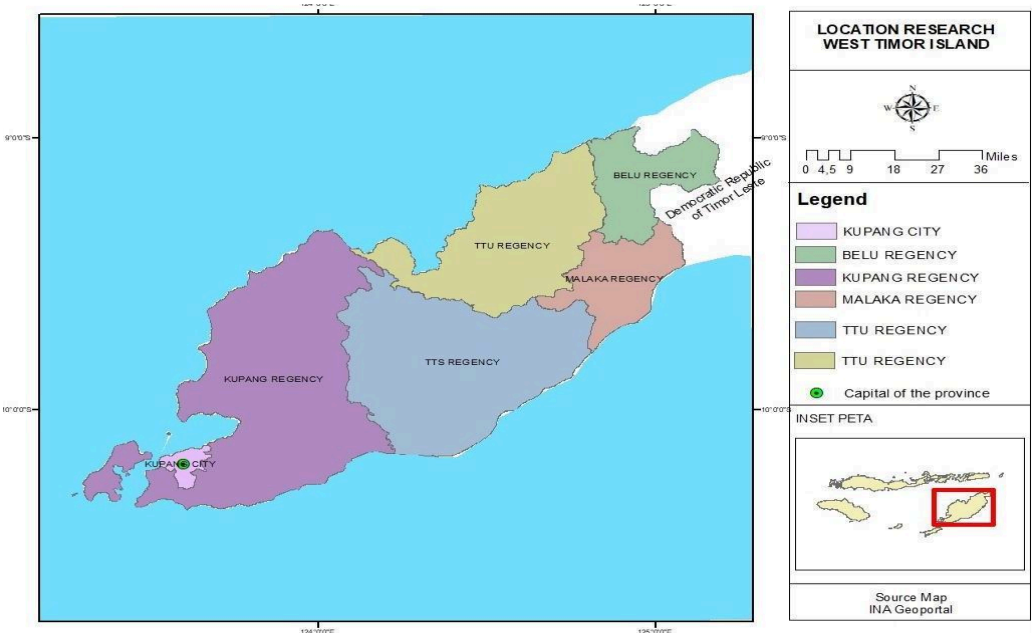

Figure 1. Locations of Research in West Timor

Data Analysis

Location Quotient Analysis

The analytical tool used to identify the base sector is Location Quotient (LQ) analysis. The formula for calculating LQ is as follows:

$$LQ = \frac{vi/vt}{Vi/Vt}$$

Information:

LQ: LQ value of agricultural commodities

vi: Regency i-th commodity production

vt : Total production of all agricultural commodities in the t-th regency/city

Vi: Production of commodity i in West Timor

Vt: Total production of all agricultural commodities in West Timor

There are three possibilities from the results of the LQ analysis, namely:

If LQ > 1 then it indicates a base commodity, meaning that the commodity has met the needs of its own region and is able to meet the needs of other regions or can be marketed to other regions (exports)

If the LQ value = 1, it indicates that the commodity is in balance with the total share or is non-exported. The commodity only able to meet the needs of its own region, not yet able to be exported. If LQ < 1 then it indicates a non-basic commodity, meaning it does not meet the needs of its own region and must be imported from another region.

Specialization Index

Specialization Index (SI) analysis to identify the uniqueness of a particular subregion. The calculation formula is as follows

$$SI_i = \frac{1}{2}\sum_{j=1}^{P}\left\{\left|\frac{X_{ij}}{X_{i.}} - \frac{X_{.j}}{X_{..}}\right|\right\}$$

A Specialization Index (SI) value close to 0 means there is no distinctiveness, and if the SI value is close to 1 it means there is a distinctiveness. Filip L and Jaroslav R (2016) state that SI values can be categorized as follows:

1) < 0.01 means the economic structure is spread;
2) ≥ SI < 0.1 means poor economic concentration;
3) ≥ SI ≤ 0.25 means medium concentration;
4) 0.25 means the economy is highly concentrated.

Regional Leakage Analysis

Spatial interaction value analysis can also be used to measure economic leakage in a region due to the flow of resources outside the region without first going through the process of creating added value (Nurjihadi & Dharmawan, 2016). Based on this view, regional leakages are measured by the difference between the value of horticultural commodities from the hinterland and the value of fisheries commodities from the center. The occurrence of leaks can have an impact on the small multiplier resulting from economic development in a region, or in other words, the greater the leak that occurs, the greater the multiplier of lost income for a region. Analysis of the benefits of spatial interaction is based on horticultural commodities from the hinterland and fisheries from the center, where the commodities in question have the same characteristics, namely that they are easily damaged, so that spatial interactions are carried out more often. Regional leakage is obtained from the difference in the value of the hinterland-to-center interaction and the center-to-hinterland interaction. In summary, the stages of data analysis are shown in Figure 2.

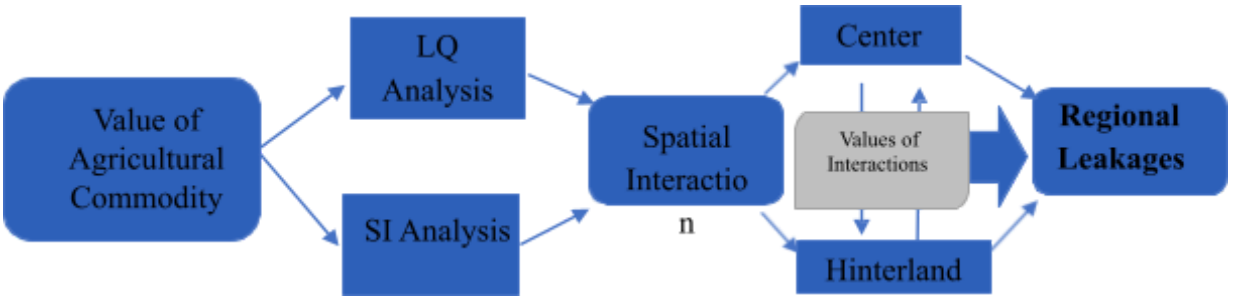

Figure 2. Data Analysis Framework

RESULTS AND DISCUSSIONS

Results of Analysis of Basic Commodities and Regional Specialization

Analysis of basic commodities in regencies and city in West Timor

The location quotient (LQ) method is used to identify base and non-base commodities in a region. The base commodity is if the LQ value is > 1, while the non-base sector is if the LQ value is < 1. The base commodity also indicates that the commodity has a comparative advantage (Taena et al., 2023). Based on the results of the LQ analysis in the district and city agricultural sector in West Timor in 2022, the LQ value of district/city agricultural commodities is shown in Table 1.

Table 1. Results of LQ Analysis of Regency/City Agricultural Commodities in West Timor, Indonesia

Commodity	Location Quotient (LQ)					
	Kupang City	Kupang Regency	TTS Regency	TTU Regency	Belu Regency	Malaka Regency
Banana	0,02	-	-	0,01	0,03	**19,62***
Beans	0,97	0,7	-	**11,06***	0,04	0,3
Big Chili	**3,07***	0,14	0,63	**1,09***	0,18	**11,85***
Cabbage	0,81	0,13	**16,81***	**15,58***	**4,8***	-
Cayenne pepper	**2,18***	0,01	**1,36***	**5,05***	0,39	**2,33***
Cauliflower	0,94	0,98	**28,72***	0,38	**8,21***	-
Carrot	0	**3,14***	**35,78***	**4,11***	0,62	0
Chayote	0,64	0,32	**1,04***	**1,97***	0,3	-
Cucumber	0,54	0,11	**1,65***	0,76	0,47	-
Eggplant	**1,72***	0	**1,27***	0,94	0,36	**-**
Fishery	**3,1***	0,01	0,01	0,99	0,9	**3,1***
Garlic	0,05	0,14	**26,3***	**11,41***	**7,52***	0,14
Long beans	**1,06***	0,15	0,5	0,6	0,14	**1,6***
Melon	**-**	**2,68***	-	0,49	0,58	-
Potato	**2,13***	**2,54***	**14,77***	**6,55***	**4,22***	**-**
Pitsai	0,99	0,01	**10,45***	**2,53***	**2,99***	-
Red onion	**3,09***	0,03	**5,5***	0,98	**1,57***	-
Spinach	**1,24***	0,85	**2,13***	**2,01***	0,61	**1,38***
Spring onion	0,86	0,02	**29,49***	**2,92***	**8,43***	0,06
Sweet corn	**-**	**2,34***	-	-	-	-
Tomato	0,17	**2***	**2,15***	**6,67***	**10,23***	-
Watermelon	-	0,07	**2,43***	0,29	0,7	**-**

Agricultural commodities in Kupang City which are classified as basic commodities are Red onion, big chilies, cayenne peppers, long beans, kale, potatoes, eggplant and fishery commodities. Kupang City, as the growth center of NTT Province, has a relatively smaller agricultural land area because economic development is more in the service and industrial sectors, however, due to the geographical conditions of the region, it is located in the coastal area so it has good fisheries potential and Kupang City is one of the areas that classified as potential and a basis for marine fisheries commodities in NTT Province (Dhardiri et al., 2022). Due to its perishable nature, fishery commodities are commodities with the highest frequency of interaction in the hinterland region compared to other base commodities.

Basic commodities in Kupang Regency include potatoes, melons, carrots and sweet corn, while other commodities are still classified as non-basic. Previous research (M Basri et.al 2019) found that the horticulture subsector is a basic subsector in Kupang Regency because it has fertile land and is close to Kupang city as the center.

The results of the LQ analysis in TTS Regency found that the majority of horticultural agricultural commodities are base commodities because the climate is supportive. The basic commodities referred to are spring onions, shallots, garlic, cayenne pepper, kangkong, cauliflower, potatoes, cucumbers, cabbage, chayote, pitsai, watermelon, eggplant, tomatoes, carrots; while non-basics include spinach, large chilies and fish. TTS Regency has good prospects in the agricultural sector, especially the horticulture sub-sector due to natural and socio-economic factors. Most communities have developed horticultural farming businesses with a semi-commercial or commercial orientation to increase income. Several types of commodities such as cauliflower, carrots, spring

onions, garlic not only dominate the Soe market (the capital of TTS Regency), but have also dominated the supply for several markets in neighboring regencies including Kupang City due to high demand; (Lay et al., 2018), stated that demand for horticultural commodities from TTS district is influenced by price, amount of consumption and income.

The results of the LQ analysis show that the basic commodities in TTU Regency are spring onions, garlic, green beans, large chilies, cayenne peppers, kangkong, potatoes, cabbage, chayote, pitcai, tomatoes, carrots; while non-basic commodities are shallots, spinach, long beans, cauliflower, melons, watermelon, eggplant and fisheries. This is in line with research (Nalle & Giri, 2020) that the basic sub- sector of the agricultural sector is horticulture, and is included in quadrant I, which means that horticulture in TTU Regency is growing rapidly.

The results of the LQ analysis in Belu Regency show that the basic commodities include spring onions, shallots, garlic, cauliflower, potatoes, cabbage, pitsai and tomatoes. Commodities that are classified as non-basic are spinach, green beans, large chilies, cayenne peppers, long beans, kangkong, cucumbers, chayote, melons, watermelon, eggplant, carrots and fisheries. This shows that one of the agricultural subsectors that contributes to increase economic growth in Belu Regency is horticultural crops. Data (Badan Pusat Statistik, 2022) for Belu Regency also shows that the commodities tomatoes, shallots, Chinese cabbage, garlic, cabbage and chilies have good prospects due to high production and productivity. Previous research from (Klau et al., 2023) shows that tomato commodities in Belu Regency are marketed throughout all regions on Timor Island, NTT Province.

Based on the results of the LQ analysis, it is known that the basic commodities in Malacca Regency include large chilies, cayenne peppers, long beans, kale and bananas; while non-basic commodities are onions, garlic, spinach, beans and fisheries. Agricultural development in Malaka Regency is more focused on food crops because it has the potential to develop food crop-based agropolitan (Klau et al., 2019). Malaka Regency is one of the banana production centers in NTT Province, so it is used as a food substitute (especially for morning consumption). Banana production is relatively high so the marketing reach is wider to all districts/cities in West Timor, including Kupang City as the center. Therefore, banana cultivation by the community in Malacca Regency can increase income and economic growth (Kethik et al., 2022).

Analysis of district and city specialization in West Timor

Specialization Index (SI) analysis is used to show the tendency of a region to have diversified or specialized activities. A region that has diversified activities means that the region does not have a particular base activity, whereas a specialized region means that the region tends to have a particular base activity (Marinda et al., 2020).

SI analysis is important in a region so that regional specialization can be identified which of course has an impact on increasing community and regional income (Budiarto et.al 2018) . The results of the specialization index analysis in Kupang City (center) and regencies in West Timor as a hinterland which includes Kupang, TTS, TTU, Belu and Malaka Regencies are shown in Table 2.

Table 2. Specialization Index (SI) in City and Regencies in West Timor, NTT Province

	Specialization Index (SI)					
Commodity	Kupang City	Kupang Regency	TTS Regency	TTU Regency	Belu Regency	Malaka Regency
Banana	0,019	-	-	-	-	0,138
Beans	0,001	0,003	-	0,007	0,035	0,005
Big Chili	0,048	0,010	0,004	0,000	0,030	0,081
Cabbage	0,011	0,010	0,146	0,010	0,141	-
Cauliflower	0,002	0,000	0,005	0,000	0,267*	-
Carrot	0,017	0,367*	0,368*	0,002	-	-
Cayenne pepper	0,027	0,011	-	0,003	0,023	0,010
Chayote	-	0,008	0,007	0,001	0,026	-

Cucumber	0,026	0,010	0,293*	0,000	0,020	-
Eggplant	0,008	0,011	0,003	0,000	0,024	-
Fishery	0,023	0,011	0,011	0,000	0,341*	0,007
Garlic	0,022	0,010	0,268*	0,007	0,241	0,006
Melon	-	0,019	0,000	0,000	0,016	-
Pitsai	0,004	0,011	0,100	0,001	0,074	-
Red onion	0,049	0,011	0,048	0,000	0,021	-
Spinach	0,021	0,010	0,010	0,000	0,037	0,006
Spring onion	0,003	0,011	0,301*	0,001	0,275*	0,007
Tomato	0,000	0,011	0,012	0,004	0,014	-
Turnip	-	0,002	0,167	-	0,158	-
Watermelon	-	0,011	0,015	0,000	0,011	-

The results of SI's analysis found that Kupang City and TTU Regency are areas that do not specialize in agricultural products; while other districts in West Timor specialize in agricultural commodities. Carrot commodities are specialized in Kupang Regency and TTS Regency with a high SI category. TTS Regency also specializes in spring onions, garlic and cucumbers with a relatively high SI category. Belu Regency specializes in the high SI category in green onions, cauliflower and fisheries commodities; while intermediate specialized in garlic, potatoes, cabbage, and turnips. Malacca Regency specializes in banana commodities with a medium SI category. (Zuhdi, (2021) explains that the NTT Provincial government needs to pay more attention to developing agricultural potential.

Center and Hinterland Interaction Analysis and Area Leakage

Analysis of Center and Hinterland Interactions in West Timor

The interaction between the center and hinterland regions is due to the different base commodities and specializations of each regency/city in West Timor. The research results show that the number of trips (interaction frequency) of the center to the hinterland is 3,568 times per year through trade in fisheries commodities. The number of trips between the hinterland and the center is 7,399 times per year. The commodities traded in the hinterland to the center vary by regency (details per regency are shown in Table 3). Previous research from (Taena et al., 2024) using a gravity model found that interactions between regions in West Timor were influenced by distance, population, commodity prices and income.

Table 3. Frequency of Center and Hinterland Interaction in West Timor

	Center to Hinterland		Hinterland to Center	
Regency	Commodity	∑ Trip	Commodity	∑ Trip
Kupang	Fish	550	Potatoes, melons, tomatoes, sweet corn, carrots	3.600
TTS	Fish	491	Carrots, cucumbers, chayote, garlic, cabbage, cauliflower	549
TTU	Fish	480	Garlic, beans, cabbage, carrots, tomatoes, cayenne pepper	472
Belu	Fish	1.584	Cauliflower, potatoes, cabbage, tomatoes	1.800
Malaka	Fish	463	Bananas, large chilies, cayenne peppers, long beans	978
Total		3.568		7.399

The highest interaction between the center and hinterland is Kupang City and Belu Regency, while interaction with other regions is lower. Interaction between the hinterland and the center is

highest in Kupang Regency because it is close to Kupang City. (Husen, 2021) stated that central regions interact with certain hinterlands at a higher rate than other hinterland regions due to distance, demand or other factors.

Analysis of Leaks in the Center and Hinterland Regions in West Timor

Regional leakage is a type of regional expenditure or revenue activity that does not increase additional income in the region. Regional leakage is also interpreted as a condition where added value flows to other regions because there is potential added value that cannot be utilized optimally in a region, resulting in a small multiplier that can be generated from a region's economic activities. Spatial interaction between regions, including center-hinterland, continues if each interacting region benefits. Every product traded outside a region has an impact on increasing the flow of funds (cash inflow) in a region. (Bendavid, 1991) stated that the benefits of interaction in a region also have an impact on the occurrence of leakages because of the small multiplier of income generated by a commodity in a region; or in other words, the greater the income leakage, the greater the multiplier of lost income for a region. The interaction between Kupang City and the regencies as hinterland provides economic benefits to the center and hinterland.

The results of the analysis of the benefits of center-hinterland interactions in West Timor, namely Kupang City and the regencies (Kupang, TTS, TTU, Belu, and Malaka) found that the hinterland obtained a total profit of IDR 406,398,729.-. Belu Regency received the greatest benefit compared to other districts, total IDR 135,694,800,- and the least profit was IDR 44,668,469,- which was obtained from Malaka Regency because Malaka bananas were marketed more to other districts (fellow hinterland) in West Timor. Belu Regency gets the highest benefits because it is the center of national strategic activities; in line with (Agustina et al., 2021) who stated that areas with a better hierarchy of facilities will get more benefits from their interaction with the center. The highest total interaction value was in August at IDR 41,362,200,- and the lowest interaction value was in February at IDR 23,061,120,-. Complete results are shown in Table 4 and Figure 3.

Table 4. Hinterland to Center Interaction Values

	Regency				
Month	Kupang	TTS	TTU	Belu	Malaka
1	6.520.000	2.730.600	9.686.600	2.301.600	3.217.120
2	7.160.000	3.312.000	6.859.300	3.241.200	2.488.620
3	4.400.000	8.090.050	14.433.025	7.312.800	1.704.000
4	5.400.000	8.080.800	6.080.000	13.684.800	2.939.740
5	4.630.000	7.008.000	7.093.000	14.160.000	4.564.320
6	4.420.000	4.512.850	6.501.300	17.011.200	2.296.704
7	6.310.000	5.315.200	6.232.000	10.358.400	3.764.340
8	7.360.000	5.084.000	7.713.300	17.486.400	3.718.500
9	4.840.000	6.899.200	1.675.875	18.436.800	3.579.975
10	7.570.000	4.979.450	1.570.650	17.011.200	2.562.150
11	5.550.000	6.685.200	11.190.000	9.883.200	7.009.000
12	7.620.000	2.815.060	9.708.000	4.807.200	6.824.000
Total	71.780.000	65.512.410	88.743.050	135.694.800	44.668.469

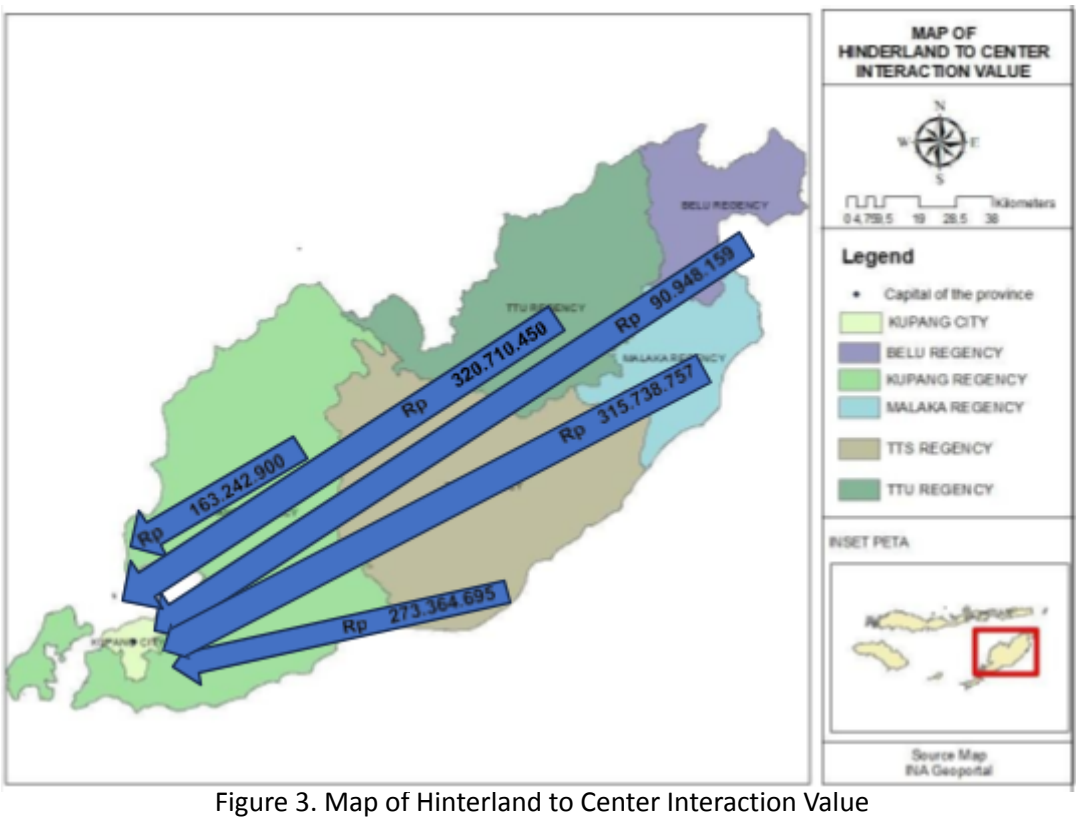

Figure 3. Map of Hinterland to Center Interaction Value

Kupang City is the main fish producer in West Timor. Fish production data in Kupang City in 2022 is 26,308.17 tons (Badan Pusat Statistik Provinsi NTT, 2023) so that Kupang City is the main supplier of fish to all districts in West Timor. The results of the analysis state that the interaction value between the center and the hinterland is IDR 1,164,004,961 with the highest interaction value being IDR 320,710,450 for TTU Regency and the lowest for Belu Regency at IDR 90,948,159,- because fish production in Belu Regency is sufficient to meet partial needs. residents in Belu Regency. The highest interaction value was in July (IDR 122,000,000), while the lowest was in April and September, namely IDR 70,000,000,- because in April and September fish production was less than in other months.

Table 5. Center to Hinterland Interaction Value (IDR)

	Regency				
Month	Kupang	TTS	TTU	Belu	Malaka
1	13.528.800	28.320.540	43.439.480	4.897.280	5.808.490
2	9.144.000	34.478.820	42.791.240	6.822.720	2.678.940
3	6.962.400	32.034.415	45.816.360	3.624.640	13.785.225
4	12.699.000	12.779.800	18.899.600	9.106.410	16.883.328
5	19.348.500	19.528.600	24.804.800	6.692.899	20.459.502
6	14.512.500	16.997.800	12.150.800	9.642.746	19.146.960
7	12.699.000	39.097.530	44.330.810	7.497.402	19.146.960
8	15.721.500	26.780.970	19.697.690	8.033.738	27.298.656
9	12.094.500	12.779.800	13.838.000	10.983.585	20.694.744
10	21.162.000	10.249.000	23.117.600	10.447.249	44.530.902
11	13.303.500	11.322.000	10.397.000	7.765.570	48.911.850
12	12.067.200	28.995.420	21.427.070	5.433.920	76.393.200
Total	163.242.900	273.364.695	320.710.450	90.948.159	315.738.757

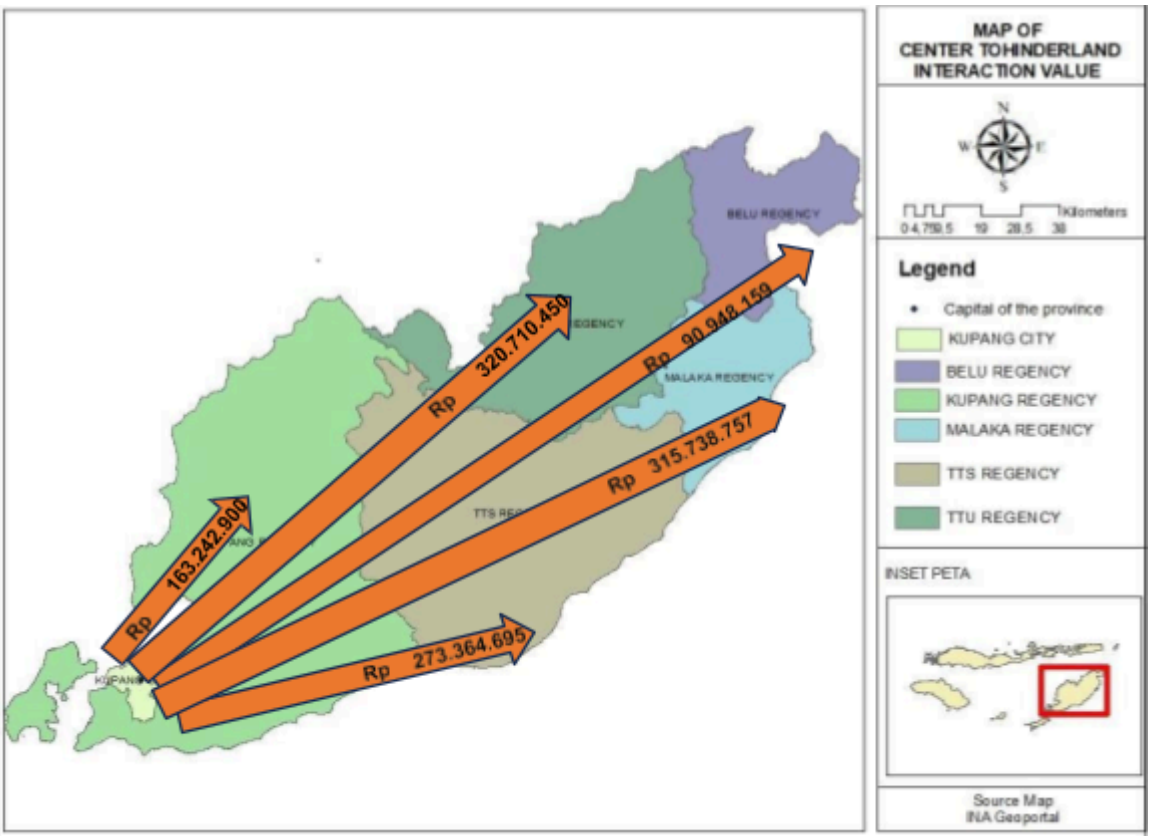

Figure 4. Map of Center to Hinterland Interaction Value

The results of the analysis of the benefits of hinterland to center interactions in West Timor based on agricultural products amounted to IDR 406,398,729.-. On the other hand, the center to hinterland interaction is IDR 1,164,004,961,- or there is a difference of IDR 757,606,232. This means that the interaction of the spatial center and hinterland in West Timor causes a leak from the hinterland area to the center amounting to IDR 757,606,232.- or (Crews et.al 2007) stated that interactions are exploitative or also known as the backwash effect, namely interactions that lead to unsustainable regional system development performance because they drain the resources of the hinterland region. Regional leakage has an impact on the sustainability or unsustainability of a region's economy (Pratt et.al 2018).

The results of the spatial interaction analysis of each regency in West Timor with the City of Kupang show that 4 regencies experienced regional leaks, while 1 regency experienced profits as a result of interaction with the center. The regencies that experienced regional leaks include Kupang Regency (amounting to IDR 91,462,900), TTS Regency (amounting to IDR 207,852,258,-), TTU Regency (amounting to IDR 231,967,400), Malacca Regency (amounting to IDR 271,070 .181,-). The regency that received benefits as a result of interaction with the center was Belu District amounting to IDR 44,746. 641,-. This can mean that Belu Regency has increased the economic added value of the agricultural products produced. In line with (Rylance & Spenceley, 2017) who stated that increasing economic added value can reduce regional economic leakage.

Efforts to reduce leakage from hinterland areas to the center by increasing commodity specialization and economic added value so that interactions between regions are more synergistic. (He et.al 2017) stated that spatial interaction patterns have an influence on regional development; Synergistic spatial interactions will strengthen the performance of the regional system as a whole, because there is an accumulation of added value that is distributed fairly to all regions involved.

CONCLUSIONS

The interaction between spatial hinterland and center in West Timor is because it has basic commodities, even though some of the basic commodities are not specialized. The interaction value between center to hinterland is IDR 406,398,729,- and center to hinterland is IDR 1,164,004,961,- or there is an area leak of IDR 757,606,232. Four regencies (namely: Kupang, TTS, TTU, and Malaka) experienced regional leaks; while Belu Regency obtained a surplus of IDR 44,746,514 as a result of interaction with the center (Kupang City).

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