

Economic Convergence Across The Toba Lake Region

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Abstract

Based on the economic sectors, seven districts across the Toba Lake Region (TLR) has similar patterns in economic development – agriculture, trade and construction are dominant economic sectors, however, there is an unconvergence economic growth across the TLR. It was found that the relationship between economic growth and unemployment in Toba and Dairi, and between economic growth and poverty in Toba, Dairi and Humbang can not be explained due to insignificant coefficient between economic growth to unemployment and poverty. Economic growth is not strong enough to reduce unemployment and poverty. It needs higher economic growth to influence of reducing both unemployment and poverty. In this case, dominant economic sectors in each district need a serious attention to promote higher growth that could significantly reduce unemployment and poverty. The highest strength of economic growth in reducing unemployment occurred in Simalungun which increasing economic growth by 1 per cent could reduce unemployment by 3,021 per cent, where in North Tapanuli, increase in economic growth by 1 per cent could reduce poverty by 4,534 per cent. Thus, the integration policies through prioritization of economic key drivers based on absolute advantage of each economic sector across the TLR is needed.

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INTRODUCTION

In recent years, the Government of the Republic of Indonesia has established Toba Lake as one of the ten national tourism destinations. As a tourism destination on the priority scale, the government launched development programs to achieve this goal. Although the priority of Toba Lake is as a national tourism destination, the ultimate goal of the declaration of this tourism destination is the achievement of social welfare across the Toba Lake Region (TLR).

The TLR is geographically located in North Sumatera Province, inhabited by seven districts which directly spatial borders, those are North Tapanuli District, Toba District, Simalungun District, Dairi District, Karo District, Humbang District and Samosir District. Two districts are new autonomous regions which are splitted

up from North Tapanuli District, those are Toba District and Humbang District, then a few years later, Samosir District is a new district splitted up from Toba District.

Based on economic growth in the period 2001–2017, the average real economic growth of North Sumatera Province was 5,52%. Across the TLR, only Humbang District has an equal economic growth as North Sumatera Province is, while the other districts are below the economic growth of North Sumatera Province. The average economic growth of each district are North Tapanuli District is 5,08%, Toba District is 4,04%, Simalungun District is 4,84%, Dairi District is 5,12%, Karo District is 5,13%, and Samosir District is 5,34%.

Even though that seven districts are directly spatial borders, it found disparity in economic growth that is quite striking across the TLR. This disparity in economic growth becomes a serious problem in economic development across the TLR. Moreover, while there is a district with economic growth tending to increase on the one hand while there is a district that tend to experience a decline in economic growth on the other hand, in general, the economic development across the TLR will experience a bad impact on the quality of development because there will be some migration of economic resources toward district with higher economic growth and leaving district that experiencing lower economic growth. In a situation like this, districts that have higher economic growth will experience a disruption in the form of poverty enclave due to the population migration from lower economic growth district, and at the same time, districts with lower economic growth will increasingly lose their economic potencies (Acemoglu & Robinson, 2012 ; Todaro & Smith, 2012).

In development process, especially the economic development across the TLR, the equality of economic growth in each of the seven districts that are directly adjacent is needed to achieve convergence on economic growth. The convergence of economic growth will avoid leakages of economic resources from one district to another and avoid the occurrence of negative externalities in districts that have higher economic growth in the form of growth of new enclave of both unemployment rate and poverty rate which reducing the quality of development that has been achieved.

Economic growth is a necessary condition for development and development is a result of economic growth. However, economic growth alone is not enough to assess the success of development. It needs equality as a sufficient condition for development. Therefore, economic development which is a process of sustainable management of economic resources must be carried out systematically and directed according to the vision of development to achieve prosperity (Sipahutar, 2018a; Sipahutar, Oktaviani, Siregar & Juanda, 2016; Acemoglu & Robinson, 2012). Thus, sustainable development across the TLR has become a fundamental to development that is directed to convergence on economic growth across the region. The convergence of economic growth across the TLR will create a balance state of development, economic and political stability, and has the ability to prevent negative externalities of the development carried out (Todaro & Smith, 2012).

In the context of economic magnitude, although the economic growth of Humbang District is the highest across the TLR and even it is equal to the average economic growth of North Sumatera Province, the average Regional Gross Domestic Product (RGDP) of Humbang District is the lowest across the TLR, that is only Rp. 880,4 billion.

In the context of economic productivity, Toba District experienced a unique economic condition. Although the economic growth of Toba District is the lowest compared to other districts across the TLR, Toba District has the second highest real

RGDP per capita level across the TLR after Samosir District and even higher than the real per capita of North Sumatera Province. As a characteristic of economic productivity, based on RGDP per capita, economic productivity of Toba District is the second highest across the TLR after Samosir District and higher than North Sumatera Province.

Economic Sectors on Economic Growth across the TLR

Economic development is carried out through the development of economic sectors. These economic sectors are the real economic activities for promoting economic growth, which then through the quality of growth of each economic sector, the level of both unemployment rate and poverty rate can directly be reduced.

Based on the economic sectors, each district across the TLR has a similar pattern of development. The agricultural, trade and construction sectors are the economic sectors that have a dominant contribution to the districts economy (RGDP). During the period of 2010–2017, the average contribution of the agricultural sector in the economy of Karo District was 56%, which was the highest contribution across the TLR, followed by 52% in Samosir District, 48,6% in North Tapanuli District, 47,2% in Humbang District, 46,5% in Dairi District, and 34,8% in Toba District.

For the trade sector, the average contribution of the trade sector in Toba District is 15,6% which is the highest contribution across the TLR, followed by 15,5% in Dairi District, 13,8% in Humbang District, 12,5% in North Tapanuli District, 10,7% in Samosir District, and 10,6% in Karo District.

Furthermore, for the construction sector, the average contribution of the construction sector in Humbang District is 13,2% which is the highest contribution across the TLR, followed by 12,7% in Dairi District, 12% in North Tapanuli District, 11,7% in Toba District, 10,4% in Samosir District, and 7,7% in Karo District.

The similarity of economic sectors contribution across the TLR is actually a strong reason for economic growth convergence across this region (Sipahutar, 2018a,b; Aghion, Angeletos, Banerjee & Manova, 2010; Aghion, Howitt & Foulkes, 2005; Barro & Sala-i-Martin, 2004). The non-convergence of regional economic growth that has been occurred during the period 2001–2017 could have occurred as a result of the inconsistency of the economic resources management between districts across the region or the presence of sectoral egos of each district's development policy makers that had an impact on sectoral egos at the level of economic actors in each district.

The inconsistency in the relationship between the economic resources management in each district will result an inter-district economic disparities across the region. Furthermore, the disparity that occurs will be disrupted for districts experiencing higher economic growth and eventually, disruption will spread out to all districts across the TLR and will eventually create setbacks in all aspects of the economy (Sipahutar, 2018a; Beck, Colciago & Pfajfar, 2014; Barro & Sala-i-Martin, 2004; Beck, Levine & Loayza, 2000; Levine, Loayza & Beck, 2000).

METHOD

The source of data used in this study are secondary data in the form of time series data across the TLR in the period of 2000–2017 regarding of real RGDP growth, economic sectors contribution to RGDP, unemployment rate and poverty rate. The source of data is gathered from *Badan Pusat Statistik* (BPS/Statistics

Indonesia) about real RGDP growth, unemployment rate and poverty rate [<http://www.bps.go.id/linkTabelStatis/view/id>].

The method used refers to the model developed by Sipahutar, Oktaviani, Siregar & Juanda (2016) through modification of the model based on Beck & Levine (2004); Levine, Loayza & Beck (2000) and King & Levine (1993a,b). In this study, the proposed model is the ECM (Error Correction Mechanism) where the effect of economic growth on unemployment rate and poverty rate in long run equilibrium is corrected in short run equilibrium relationships. The model used in each district across the TLR is formulated as:

$$u_{i(t)} = \rho_1 + \rho_i Y_{i(t)} + \epsilon_t \quad \dots \dots \dots (1)$$

$$pov_{i(t)} = \gamma_1 + \gamma_i Y_{i(t)} + \epsilon_t \quad \dots \dots \dots (2)$$

where $u_{i(t)}$ is unemployment rate in district i at period t ; $pov_{i(t)}$ is poverty rate at district i at period t ; $Y_{i(t)}$ is real economic growth in district i at period t ; ρ_1, γ_1 are intercepts; ρ_i, γ_i are coefficients of independent variables and ϵ_t is residual.

RESULTS AND DISCUSSION

Based on data from 2005–2015 (Table 1), there is considerable variance in the average of economic growth, average of unemployment rate and average of poverty rate of each district across the TLR against the average of economic growth, average of unemployment rate and average of poverty rate across the TLR. The average of economic growth in Toba District, Simalungun District, Dairi District and Samosir District are below the average economic growth rate across the TLR; the average of unemployment of Toba District and Simalungun District are above the average of unemployment rate across the TLR; and the average of poverty rate of North Tapanuli District, Humbang District and Samosir District are above the average poverty rate across the TLR.

North Tapanuli District and Karo District, which are the main districts before the districts splitted up, experienced an average economic growth above the economic growth rate across the TLR, and only Humbang District where splitted up from North Tapanuli District which just experienced an average of economic growth above the average of economic growth across the TLR. Humbang District is also experienced the highest average of economic growth across the TLR. On the other side, Toba District and Samosir District that are also the districts splitted up from North Tapanuli District are still below the average of economic growth across the TLR.

There are two districts, Toba District and Simalungun District which have an average of unemployment rate above the average of unemployment rate across the TLR. Toba District is the only one district that splitted up from North Tapanuli District which still faces the problem of unemployment rate above the average of unemployment rate across the TLR. Furthermore, the average of poverty rate that is above the average of poverty rate across the TLR are North Tapanuli District and Samosir District, while Toba District and Humbang District, the other two districts resulting from splitted up from North Tapanuli District have improved their poverty rate and experienced below the average of poverty rate across the TLR.

Tabel 1: Average economic growth, unemployment rate and poverty rate across the TLR in the period of 2000–2015

Districts	Average (%)		
	RGDP Growth	Unemployment	Poverty
North Tapanuli	5.48	2.86	14.39
Toba	5.17	5.13	12.00
Simalungun	4.98	7.99	12.84
Dairi	5.01	2.88	12.20
Karo	5.36	3.86	12.50
Humbang	5.66	2.42	13.22
Samosir	5.23	2.68	18.77
TLR	5.27	3.97	13.70

Source : bps.go.id (by processed)

Referring to the interrelationship of economic growth, unemployment rate and poverty rate across the TLR, there are long run and short run relationships on the three indicators (Table 2). There are two districts, Toba District and Dairi District where the relationship between economic growth and unemployment rate can not be explained due to the coefficient of economic growth towards unemployment is not significant. In addition, the relationship between economic growth and poverty rate was also found not significant in Toba District, Dairi District and Humbang District.

There is a lag period of economic growth in North Tapanuli District and Karo District where the effect of economic growth to decrease unemployment rate in the period t stems from economic growth at $t-3$ – while in other districts – Simalungun District and Samosir District, economic growth at period t can significantly reduce unemployment rate at period t . The strongest effect for economic growth to reduce unemployment rate occurred in Simalungun District where the increase in economic growth by 1 per cent was able to reduce unemployment rate by 3,021 per cent.

However, although it found cointegration between economic growth and unemployment rate in all districts across the TLR but short run corrections to long run equilibrium only occur in North Tapanuli District and Simalungun District. There are 95,5% and 82,6% of the short run equilibrium were corrected in the second period towards long run equilibrium in North Tapanuli District and Simalungun District, while in other districts, short run corrections were found statistically not significant.

Furthermore, in relation to economic growth and poverty rate, economic growth in the period t in North Tapanuli District, Simalungun District, Karo District and Samosir District were able to significantly reduce poverty rate in the period t , meanwhile, for other districts, the relationship between economic growth and poverty rate could not be explained statistically. The strongest economic growth in reducing poverty rate occurred in North Tapanuli District and Samosir District, where the increase in economic growth by 1 per cent were able to reduce poverty rate by 4,534 per cent and 4,012 per cent respectively.

Although it found cointegration between economic growth and poverty rate in all districts across the TLR, short run corrections to long run equilibrium can not be explained in Karo District because short run correction coefficients are not significant. Furthermore, 33,5%, 26,9% and 70,1% of the short run equilibrium

were corrected respectively in the second period in North Tapanuli District, Simalungun District and Samosir District toward long run equilibrium.

Table 2 : The effect of real economic growth on unemployment rate and poverty rate using the ECM model

Districts	OLS for Longrun Relationship			
	Unemployment to RGDP	<i>p</i> -value	Poverty to RGDP	<i>p</i> -value
North Tapanuli	-0.989 RGDP(-3)	0.075	-4.534	0.011
Toba	-0.172	0.367	-0.203	0.434
Simalungun	-3.021	0.001	-2.551	0.028
Dairi	-1.139	0.158	2.031	0.606
Karo	-1.465 RGDP(-3)	0.053	-2.922	0.038
Humbang	<i>not stationary</i>		-1.730 RDGP(-2)	0.771
Samosir	-1.555	0.008	-4.012	0.007

Districts	ECM for Shortrun Relationship			
	to Δ RGDP	<i>p</i> -value	Δ Unemployment Correction	<i>p</i> -value
North Tapanuli	0.774	0.244	-0.955	0.018
Toba	-0.118	0.202	-0.259	0.212
Simalungun	-2.079	0.007	-0.826	0.012
Dairi	0.037	0.949	-0.301	0.297
Karo	0.831	0.321	-0.432	0.174
Humbang		<i>not stationary</i>		
Samosir	-1.992	0.098	-1.336	0.008

Districts	Δ Poverty			
	to Δ RGDP	<i>p</i> -value	Correction	<i>p</i> -value
North Tapanuli	0.914	0.334	-0.335	0.051
Toba		<i>stationary at level</i>		
Simalungun	-0.202	0.654	-0.269	0.048
Dairi		<i>unlogic coefficient & not significant on RGDP</i>		
Karo	-0.433	0.642	-0.328	0.119
Humbang		<i>stationary at level</i>		
Hasundutan				
Samosir	-1.975	0.055	-0.701	0.018

Source : Author

The relationship that can not be explained between economic growth and unemployment rate in Toba District and Dairi District, and the relationship that can not be explained between economic growth and poverty rate in Toba District, Dairi District and Humbang District are resulting of insufficient economic growth in those districts to reduce both unemployment rate and poverty rate. Economic growth is not strong enough to reduce unemployment rate and poverty rate at those districts. It needs higher economic growth to influence of reducing both unemployment rate and poverty rate (Sipahutar, Oktaviani, Siregar & Juanda, 2016; Frenken, Van Oort &

Verburg, 2007; Fase & Abma, 2003). In this case, sectoral economic management that is dominant in each district needs to serious attention so that each of the dominant economic sectors can actually promote higher economic growth in such a way that it is also able to significantly reduce unemployment rate and poverty rate.

Based on sectoral economic (Table 3), the highest average of real economic growth in the period of 2010–2017 occurred in Samosir District and the lowest is in Toba District. All districts across the TLR have homogeneity in agricultural sector as a dominant economic sector contributing to the RGDP. Furthermore, the highest average contribution of each dominant economic sector to RGDP is the agricultural sector in Karo District, the industrial sector in Toba District, the construction sector in Humbang District, the trade sector in Toba District, and the transportation sector in North Tapanuli District.

Table 3: The average contribution of the dominant economic sectors to the RGDP across the TLR in the period of 2010–2017

Districts	Average Share to RGDP					
	Agricultural	Industrial	Construction	Trade	Transportation	Others
North Tapanuli	48.60	1.83	12.04	12.54	4.58	20.41
Toba	34.81	12.41	11.73	15.59	2.90	22.56
Dairi	46.50	0.35	12.67	15.47	3.69	21.33
Karo	56.00	2.83	7.70	10.63	4.39	18.45
Humbang	47.21	1.61	13.19	13.84	2.38	21.78
Samosir	51.99	0.59	10.43	10.70	3.23	23.06
TLR	47.52	3.27	11.29	13.13	3.53	21.27

Source : bps.go.id (by processed)

When comparing to the average contribution of each economic sector in each district to the average sectoral economic contribution across the TLR, the agricultural sector in Karo District, Samosir District and North Tapanuli District are above the average agricultural sector across the TLR. Toba District is the only district that has the contribution of the industrial sector above the average across the TLR. For the construction sector, Humbang District, Dairi District, North Tapanuli District and Toba District are above the average across the TLR. The trade sector that is above the average across the TLR are Toba District, Dairi District and Humbang District, while the transportation sector are in North Tapanuli District, Karo District and Dairi District.

Referring to the dominant economic sectors across the TLR, there are similarities of each district on the contribution of each economic sector to RGDP. These dominant economic sectors had actually been treated as the economic key driver in each district. The consequences are that those districts could not generate maximum contribution stem from their dominant economic sectors in their economic activities (Sipahutar, 2018a ; Porter, 2003). Due to the directly spatial

border of each district across the TLR has made that economic development tends to weakening the strength of the dominant economic sectors. Focusing the economic activities in each district based on the similarities in economic sectors will also tend to lose economic value chain (Fischer, 2018; Sipahutar, 2018a,b; Pede, 2013; Porter, 2003). In this case, the development of economy across the TLR is merely based on absolute advantage, ignoring economic value chain that has to be maintain to achieve higher economic growth. This is why economic growth tends to be fail to reduce both unemployment rate and poverty rate, or at least, that the economic growth is not strong enough to reduce both unemployment rate and poverty rate.

Sipahutar (2018b); Sipahutar, Oktavani, Siregar & Juanda (2016) explained that sectoral economic growth by higher support of credit depth would be able to create higher welfare through the impact of the credit depth to reduce both unemployment rate and poverty rate. Banks as monetary transmission channel and its role as the creator of money through the money multiplier to the real sectors will result an economic expansion (Sipahutar, 2018b; Sipahutar, Oktaviani, Siregar & Juanda, 2016; Beck, Colciago & Pfajfar, 2014). Therefore, the role of banks across the TLR needs to be further enhanced. Furthermore, the level of credit depth across the TLR has to be managed not by absolute advantage but has to be inline to the direction of economic key driver development.

Policy Implications

Due to to the geographical location of all districts across the TLR, the development policy can not be carried out partially. The TLR needs an inter-district policies integration to achieve convergence on economic development. Through economic convergence, each district across the TLR will be avoided from negative development externalities.

Table 4: The economic key drivers in the development across the TLR towards economic convergence

Districts	Prioritization of Economic Key Drivers		
	High	Medium	Low
North Tapanuli	Transportation	Agriculture ; Construction	---
Toba	Industrial ; Trade	---	Construction
Dairi	---	Trade ; Construction	Transportation
Karo	Agriculture	Transportation	---
Humbang	Construction	---	Trade
Samosir	---	Agriculture	---

Concentration of economic activities in certain districts which has higher economic growth will create new vulnerability, such as brain drain from lower to higher economic growth, reducing utilization of economic resources in abandoned districts, leaking of economic resources from lower to higher economic growth, and other negative externalities. Policy integration by economic prioritization as economic key driver (Table 4) are based on the comparative advantage in each district according to the range of the average contribution of each economic sector across the TLR.

CONCLUSION

The TLR as a national tourism destination can not be separated from the existence of seven districts which are geographically bordered. It is also can not be separated from the existence of the seven districts located on the shores of Toba Lake. Designing the TLR as a tourism destination does not mean that all seven districts have to develop tourism partially. Integration policy across the TLR development policies in a tourism perspective has to be thought through synchronization toward economic key driver as a priority of development in each district across the TLR.

Each economic sector that is as a development priority in each district needs to be compiled by all districts comprehensively in such a way that the integration of development leads to economic convergence. As the final destination, which is – a tourism destination – all economic sectors are directed to support the existence of tourism. Thus, the development value chain across the TLR will take place better off without any obstacles caused by partial constraints by partial policies.

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