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DEVELOPING COMPETITIVENESS INDEX FOR MALAYSIA STATES

Lim Chee Ann (a)*, Ku Azam Tuan Lonik (b), Radziah Adam (c)
*Corresponding author

(a) School of Distance Education, Universiti Sains Malaysia, Penang, Malaysia, lcann.usoc11@gmail.com
(b) School of Distance Education, Universiti Sains Malaysia, Penang, Malaysia, kuadzam@usm.my
(c) School of Distance Education, Universiti Sains Malaysia, Penang, Malaysia, radziah_adam@usm.my

Abstract

Urban competitiveness has become an important issue in the modern world. A competitive city has complex and multi-dimensional features. The concept of urban competitiveness referred to the ability of urban area to provide a suitable business environment. Due to problem of data availability for municipalities, this study will examine the concepts of urban competitiveness from the perspective of states in the context of Malaysia by applying the comprehensive States Competitiveness Index to rank the level of competitiveness for 14 states in Malaysia. This study investigates the dimensions of states competitiveness and the factors influencing states competitiveness using a three-level hierarchical indicator system covering economic, social and environmental dimensions to arrive at a competitiveness index. An equal weightage method was used to address the three dimensions. The index is based on 24 indicators across 6 dimensions namely Economic Performance, Economic Structure, Marketization and Openness, Quality of Life (QoL), Domestic Security and Environmental. The index of competitiveness refer to the total weighted of indicators. The result shows that in term of ranking Kuala Lumpur is the most competitive states for year 2016. In year 2016 the state with the top competitiveness in the dimension of Economics Performance, Quality of Life and Environmental was Kuala Lumpur. The top competitiveness for the dimension of Economics Structure was Selangor, while for Marketization and Openness was Johor and for Domestic Security was Sabah. A state may perform in different dimension particularly, not necessarily rank higher at the same component such as economic, social, and environmental competitiveness.

Keywords: Competitiveness, Economic Performance, Economic Structure, Marketization and Openness, Quality of Life, Domestic Security and Environmental.

1. Introduction

After independence until today, the economics of Malaysia has transformed from an agriculturally based economy to manufacturing and services economy. In progressing to be a developed country, Malaysia has put in a lot of effort on economic growth. To achieve this goal, the Malaysian government has set up various policies through the various Malaysia Plans. However, in order to ensure a quality and balanced development of the country, Malaysia is focusing more on a sustainable economic performance in order to make sure a continuously growth in economic, coupled with an increase in social prosperity and the stable of politic. Mokthsim and Salleh (2014) mentioned that sustainable development is locally and culturally relevant and it could include several common goals. This paper is intended to examine the State Competitiveness Index for Malaysia and the pattern of competitiveness among the states in Malaysia. Nevertheless, the trends that put an advantages on a couple of states in Malaysia need to be highlighted in order to help the state governments or federal government to project themselves at the international level in order to attract foreign investment. This study shall generate an indicator system to compute a state competitiveness index in Malaysia. Faced with the challenges inherent for many developing as well as developed country all over the world, countries have actively promulgated policies to enhance the competitiveness of their economies. Malaysia is exception to this. The concept of competitiveness can be examined from three different levels which is national, regional, and urban. Few studies has also examined the level of competitiveness in the large cities especially in the western country such as Unites Stets and Europe (Kresl & Singh, 1999; Huggins, 2000; Deas & Giordano, 2001). In Asia, this has been conducted recently in China (Yuebo & Lizhi, 2001; Jiang & Shen, 2013).

2. Problem Statement

After Malaysia achieved independence on 31 August 1957, the economy has experienced a drastic transformation which saw it to transformed from predominantly primary sector-oriented economy to a secondary and tertiary sector-oriented economy. Dependence on agricultural and commodities has changed to manufacturing export-oriented economy. This resulted in the increased export oriented economic activities fuelled by the expansion in secondary sector. This manufacturing based economic activities led to an expansion in the urban areas which play an important role in the economics of this country. It has become an important facet of Malaysia economic growth.

A competitive city must fulfil the need of the population with a balance socio-economic condition that not only serves the need of industrial sector. At the same time there is a need for the government to ensure this balance socio-economic conditions to attract expatriate that are the core workforce of the many multinational corporations and international investors. This means that the urbans areas in Malaysia must transformed to become a liveable city. Competition among cities to achieve the balance in the socio-economic conditions means that the cities must compete with each other. In order to serve this, a competitiveness index will serve to measure the urban development goals of the various cities. Due to the difficulty in getting the necessary data at the municipal level, this study will focus on formulating a competitiveness index for each state in Malaysia.

3.   Research Questions

The research questions for the study are: what are the indicators and components in creating the states competitiveness index in Malaysia? and what is the ranking of state based on the formulated States Competitiveness Index in Malaysia?

4.   Purpose of the Study

The purpose of the study is to determine the relevant indicators and component that can be used to explain the level of competitiveness for Malaysia states. Second objective is to formulate an indicator system that examine the ranking and level of states urban competitiveness in Malaysia.

5.   Research Methods

The raw database of this study was largely collected from Department of Statistics Malaysia and from the various ministry and agencies such as Ministry of Finance, Ministry of Health, Ministry of Education, Tourism Malaysia and so on. The data sorted out from these various departments and ministries covered the 14 states in Malaysia, which included Kuala Lumpur, Johor, Pulau Pinang, Melaka, Sarawak, Selangor, Negeri Sembilan, Perak, Terengganu, Pahang, Perlis, Kedah, Kelantan and Sabah. Due to the combination of raw data from the sources of data, the dataset for Sabah includes the Wilayah Persekutuan Labuan whereas the data set for Kuala Lumpur includes Putrajaya. The period used in the study covers the years 2005-2016.

The concept of urban competitiveness is multidimensional that cannot be capture by a single indicator (Ning & Tang, 2001; Jiang & Shen, 2013). From the view of Begg (1999) and Huggins (2000), building up a composite index with a set of indicator system is frequently desirable and is deemed helpful in relevant policy generating that help to understanding the relative performance of different cities. In addition, a single indicator is clearly not sufficient to represent the level of competitiveness because of the multi-dimensional nature of the concept of urban competitiveness such as income or productivity (Begg, 1999; Huggins, 2000). The index system can be used to measure the competitive performance, to make comparison and to analysis changes in the competitiveness of the different phases of the city development. Du et. al (2014) stated that competitiveness index can be explained from four main components perspectives namely economic, socio-cultural, locational and environmental. In this study, we focus mainly on the economic, socio-cultural and environmental components. This will be organised into Economic Performance (EP), Economic Structure (ES), Marketization and Openness (MO), Quality of Life (QoL), Public Security (PS) and Quality of Environmental (QoE).

Review of past literatures shown that one of the most common method to compute a composite index is through a multi-level indicator system. This means that the index of state competitiveness is set up as the total weighted of all selected indicators. This approach will be effective for researchers and policymakers to make comparison with regards to the structure and performance of all states in Malaysia and to devise suitable policy implications for each state. This study measured state competitiveness from the economic, social, and environmental perspectives. A total of 24 indicators have been selected to be combined into this comprehensive index of state competitiveness by using a weighting method. There are

two different concept of weighting approach that is the objective and the subjective methods. This study adopt a popular objective weighting method called the Equal Weighting (EW) to develope the competitiveness index for the states. However, Chakravarty (2001) did argued that EW is include redundant indicators. In this study, indicator are grouped into different subgroups and are used to build a three-level hierarchical indicator system. By doing so, it will largely reduce the problem of redundant indicators. Furthermore, equal weights are given to various components, various subgroups within a single component, and various indicators within a single subgroup (Jiang & Shen, 2013). Thus, the more indicators a single subgroup has, the less weight will each indicator carry.

According Greene, Tracey, and Cowling (2007), subjective weighting will generate bias especially on issues of social cohesion when cities are compared. The EW approach assigned the equal weight to components or indicators at the same level in a hierarchical indicator system (Huggins, 2000; IMD, 2003). The economic structure indicators in the second level has four indicators in third level. Each small group in the third level has a weight of one-four and the total weight of four indicators is one. The approach is simple and transparent. Most importantly is able to 'look behind the ranks' and the results can be analysed easier and are simplified.

In this study, the state competitiveness index (SCI) in Malaysia is based on the values of the 24 indicators. The model is derived as follows:

$$SCI_i = W_1 \cdot s_{i,1} + W_2 \cdot s_{i,2} + \cdots\cdots + W_{24} \cdot s_{i,24} + C = \sum_{j=1}^{24} W_j \cdot s_{i,j} + C$$

Where, $s_{(i,j)}$ represent indicator j for state I; W_j denotes the weight for indicator j; C is a constant value that does not affect the ranking. Equal weighting means a same weight is given to each element at the same level, with the compulsory that every element has the same range (0-100). It is relatively easier to compute the weight for each indicator since the calculation is linear. Among the general issues in developing an index is the weightage to be assigned to each component. It is technically difficult to decide the actual importance or weight of each indicator for each state by subjective judgement because the evaluation of urban competitiveness included various aspects of a single state. Table 1 shows a three-level hierarchical system of indicators used up to assess the competitiveness of states. Table 1 also shows all the indicators that are used in this study.

A total of 24 indicators are used in six subgroups to examine the competitiveness among the state. Generally, the first stage is referred to the state competitiveness index that consists of six components in the next stage. Second stage are the six key components that are categorized from the third stage. The third stage is based on the review of previous studies and by taking into consideration the available data of indicators for 14 states in Malaysia. The six components to assess the state competitiveness is therefore the Economic Performance (EP), Economic Structure (ES), Marketization and Openness (MO), Quality of Life (QoL), Public Security (PS) and Quality of Environment (QoE).

Table 01. Indicator system used to evaluate state competitiveness in Malaysia

Index (Stage 1)	Component (Stage 2)	Indicators (Stage 3)
State Competitiveness Index	Economic Performance (EP)	GDP per capita
	Economic Structure (ES)	Contribution of secondary sector in GDP, et al.
	Marketization and Openness (MO)	Domestic and foreign investment, et al.
	Quality of Life (QoL)	Number of secondary schools per millions student, et al.
	Public Security (PS)	Numbers of violent crime per million people, et al.
	Quality of environmental (QE)	Scheduled waste managed per thousand people, et al.

Note: A total of 6 components and 24 indicators.

6. Findings

A three-level hierarchical system of indicators has been applied in this study. As shown in table 1, the state competitiveness index will be in the first level of the system. This is followed by the second level which are computed from six main components. The third level comprised of twenty-four indicators from different dimension. This formulation and combination are based on a review of previous studies on the concept of city competitiveness and taking into account the consideration of the data availability for all state in Malaysia. This study will also provide a ranking for the level of competitiveness among states in Malaysia.

The component identified by this study to compute the state competitiveness has been divided into six major components that represent the economic, social and environment indicators. This study has selected twenty-four indicators from three key aspect into six components. By using the Equal Weighing System, the relative indicators have been used rather than absolute indicators to avoid the influence from the size and the different administrative of cities. Despite the fact that the size of a city is related to economies of scale such effects should be reflected in other performance indicators in the concept of city competitiveness.

Figure 1 represents the trend of state competitiveness score for 14 state in Malaysia in 2016. The score of state competitiveness index of the top states, such as Kuala Lumpur, Johor, Pulau Pinang are relatively high (above 60) while the score of state competitiveness index of the bottom (below 20), such as Kedah, Kelantan and Sabah are particularly low. Figure 1 demonstrates that the state competitiveness scores decreases dramatically by almost 35% from 100 to 64.26 for the top three cities and are stable for the number forth to eleven with the score between 49.13 to 25.33. While the three bottom states have the score from 0 to 18.5. The graph in figure 1 shows the states competitiveness scores of the 14 states was a fleet drop in the score at the top end and the bottom end. Nevertheless, the score diminished comparatively in the middle part among 14 states. This shows that the competitiveness of most states is rather close.
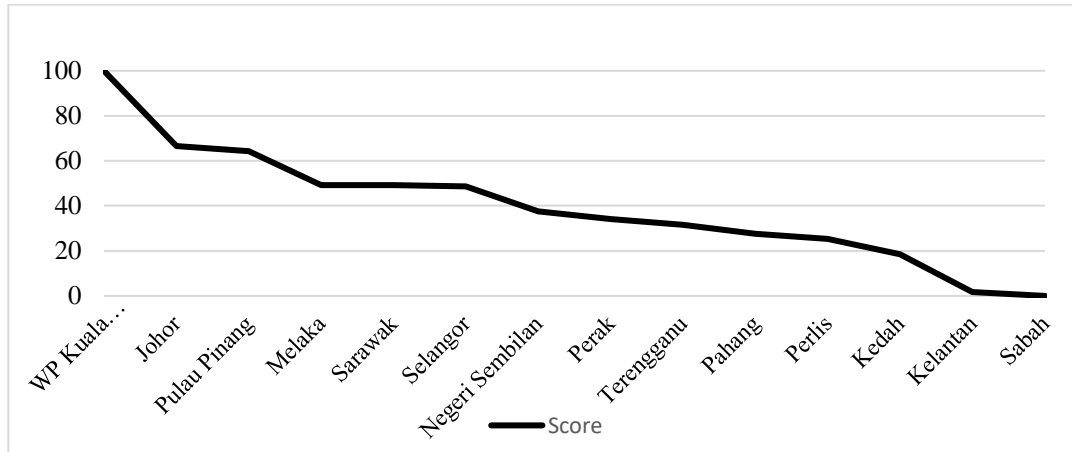
Figure 01. State Competitiveness Scores, 2016

From the result shown in table 2, Kuala Lumpur have led the pack and rank number one among other state in Malaysia by obtaining the 100% score for the state competitiveness index in year 2016. It is the top ranking and the highest score compared with other state in Malaysia. Kuala Lumpur, Johor Pulau Pinang are the top three most competitiveness state among the 14 state in Malaysia in year 2016. These states obtained the score of competitiveness above 60 which are 100, 66.71 and 64.26 respectively. While the ranking of others state are as follows: Melaka (49.18), Sarawak (49.13), Selangor (48.69), Negeri Sembilan (37.63), Perak (34.05), Terengganu (31.72), Pahang (27.48), Perlis (25.33), Kedah (18.5). Kelantan (1.85) and Sabah (0.00) are at the bottom of the competitiveness index in Malaysia. The differences between the first and last state in competitiveness score indicated that there is a phenomenon of imbalance among the state in the competitiveness index. There are a lot of reasons that caused such imbalances in competitiveness.

This paper will explore the factor that lead to the differences between the states that score higher and lower scores in the competitiveness index by comparing the top three and the bottom three states. The top three in the competitiveness index that is Kuala Lumpur, Johor, Pulau Pinang have a well and outstanding performance from the perspective of economics compared to other states in Malaysia. Kuala Lumpur with the highest score (100) for the component of economics performance is the capital of Malaysia. While, Johor is near to Singapore and has in one way or another benefitted from the increased in foreign investment. Johor also has the highest score for the component of Marketization and Openness (100).

Besides that, Pulau Pinang is in the north of Malaysia and has been the main port for trade in commodities since the colonial period. It has the oldest industrial area in the country and as such is one of the highest recepients of foreign investment into the country. Pulau Pinang achieved a top three score for all three economic components that is the economic performance, economic structure and marketization and openness. This result is shown in Table 2. As highlighted earlier, the concept of cities competitiveness is highly interrelated with the component of economic, social and environmental competitiveness and does not stand alone. This can be shown from the result in Table 3 which shows that the states with the top three highest score in competitiveness can be are described with strengthens in the component of economic (economic performance, economic structure and marketization and openness), social (quality of life) and

environmental (quality of environmental) compared with the three states at three lowest score. This shows that that the states with strong economic, social and environmental component are the most competitive states.

Table 02. Ranking of State Competitiveness Index and Six Main Components, 2016

State	Overall Rank	Rank of Sub-components					
		EP	ES	MO	QoL	PS	QoE
WP Kuala Lumpur	1	1	2	3	1	14	1
Johor	2	8	4	1	11	7	4
Pulau Pinang	3	2	3	4	7	13	2
Melaka	4	5	5	9	6	12	3
Sarawak	5	4	10	2	12	2	11
Selangor	6	3	1	6	13	11	8
Negeri Sembilan	7	6	7	10	5	10	7
Perak	8	9	6	11	4	5	9
Terengganu	9	10	9	13	8	3	5
Pahang	10	7	13	5	2	6	13
Perlis	11	11	12	14	3	9	6
Kedah	12	13	8	7	9	8	10
Kelantan	13	14	11	12	10	4	12
Sabah	14	12	14	8	14	1	14

From the point of economic component, the top competitive state are characterised with higher per capita income, higher contribution of secondary and tertiary sectors to GDP, extensive domestic and foreign investment, and has the highest tourism attraction. Besides that, the productivity of the top states is higher and the number of professionals and educated groups are highest. From the perspective of social components, the top cities, it was depending on various conditions of the society and local authority. Most of the indicators (subgroup) in the quality of life component are highly related education, health and infrastructure. The element of social competitiveness of top states is more conducive, modern and comfortable environment compared with others state. Those requirements are encouraged by better physical infrastructures, number of schools, numbers of hospitals, and numbers transportation. The lower unemployment rate increasing the competitiveness of states in Malaysia. From the analyse, it is evident that Kuala Lumpur, Johor and Penang are top cities on the competitiveness index in Malaysia. From the environmental domain, the state with the highest score in competitiveness index can manage and planned their environmental issues to manage the problem of pollution in air, water and land.

Table 03. Ranking and Score of State Competitiveness Index and Six Main Components, 2016

State	Overall		Economic Performance		Economic Structure		Marketization and Openness		Quality of Life		Public Security		Quality of Environment	
	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score
WP Kuala Lumpur	1	100.00	1	100.00	2	67.56	3	61.37	1	100.00	14	0.00	1	100.00
Johor	2	66.71	8	21.60	4	50.98	1	100.00	11	30.61	7	62.02	4	66.89
Pulau Pinang	3	64.26	2	39.67	3	54.18	4	50.43	7	50.98	13	34.22	2	95.49
Melaka	4	49.18	5	31.94	5	32.40	9	23.04	6	61.83	12	49.15	3	82.75
Sarawak	5	49.13	4	35.63	10	19.82	2	91.47	12	27.44	2	90.28	11	16.32
Selangor	6	48.69	3	35.97	1	100.00	6	36.68	13	4.22	11	49.68	8	53.16
Negeri Sembilan	7	37.63	6	30.09	7	26.78	10	18.45	5	62.96	10	50.61	7	58.64
Perak	8	34.05	9	16.21	6	27.52	11	12.00	4	66.28	5	71.46	9	43.66
Terengganu	9	31.72	10	16.00	9	21.31	13	5.54	8	44.37	3	76.97	5	66.14
Pahang	10	27.48	7	21.81	13	9.27	5	37.40	2	72.16	6	71.09	13	6.27
Perlis	11	25.33	11	11.17	12	11.48	14	0.00	3	66.66	9	59.13	6	63.31
Kedah	12	18.50	13	7.62	8	22.47	7	29.63	9	38.78	8	60.50	10	32.90
Kelantan	13	1.85	14	0.00	11	15.43	12	5.98	10	34.16	4	74.03	12	13.84
Sabah	14	0.00	12	11.15	14	0.00	8	26.92	14	0.00	1	100.00	14	0.00

7. Conclusion

Malaysia may have some common performance and explanatory indicators with other country in defining a competitive city. This study examined the concepts of urban competitiveness from the perspective of states in the context of Malaysia. The conceptual and empirical studies on the competitiveness of others country especially in China and United states provided a useful reference for this study in the context of Malaysia. The most competitive state can be used as a benchmark to help policymakers. The concept of competitiveness is wide ranging and is not only confined to economic competitiveness. When state competitiveness is understood mainly as economic performance, it will be narrow down the understanding and generates some problematic policy implementation. In Malaysia, there is a need to adopt a sustainable and competitive development paradigm which considers not only the economic condition but also the social, and environmental perspective. To sustain as a competitive state, a state should achieve not only good economic performance, but also satisfactory social and environmental development. Focusing on the level of competitive for each state in all three main dimensions that include economic, social and environmental can lead to accomplishing a balanced state development. This study emphasizes the need for a sustainable development perspective to the study of state competitiveness. This result may help to better monitor the dynamic changes within the Malaysia state development environment.

Acknowledgments

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