

## **A Longitudinal Study of the Tax Capacity and Tax Effort of the Malaysian State Government**

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*In Malaysia, the recently launched New Economic Model (NEM) has emphasized the need to review the state-federal fiscal arrangement. It is hoped that through this review, the state government will have a more efficient expenditure programme. However, the model failed to recognize the importance of enhancing the revenue collection system of the state government. Studies have shown that state governments face great difficulties in financing their expenditure needs. And this can be due to the differences in term of their fiscal capacity and fiscal effort. To what extent are the state governments differ in term of these two measures? And how do these measures evolved across time? The main objective of this paper is to measure the effort and capacity of the state governments in Peninsular Malaysia for their land tax for the period of 2000-2008 using the Representative Revenue System (RRS). Our findings show that state governments differ significantly in term of their capacity and their effort. The findings of this study also show that there is little movement in the ranking of the state governments with respect to the level of their tax effort. This implies that state governments especially the ones found to be exerting below average tax effort have shown little initiative to change their effort. This in turn may be due to the way the whole tax system is managed*

**JEL Codes:** E31, H5 H6 H7

### **1. Introduction**

The Malaysian government has recently rolled out a New Economic Model (NEM) that is aimed towards transforming the country into a developed economy by the year 2020. In order to achieve this objective, the model has outlined eight strategic reform initiatives (SRI) that need to be implemented by the government. One of the SRIs is the strengthening of the public sector. According to the model, this SRI can only be successfully executed if proper consideration is given to the issue of federal-state fiscal arrangement. The model has underlined the need to review the allocation of funds to states by the federal government through the use of more varied indicators such as poverty levels in the respective states. It is hoped that this measure will result in the improvements of the efficiency and effectiveness of state expenditure programmes.

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## **Jalil, Harun & Che Mat**

However, the model failed to recognize the importance of improving the revenue collection system of the state governments and therefore, no measure have been identified by the model as to how the state government could enhance their revenue collection. Several authors have highlighted the difficulties faced by the state government in collecting enough revenues to cover their expenditure needs (Umi Kalsom, 1987; Ahmad Zafarullah, 2008). On the other hand, it can be argued that a proper use of federal transfer can eventually lead to higher revenue collected by the state governments. State governments that have low tax capacity should be compensated accordingly in order to bring them at par with those which have higher tax capacity. Similarly, federal transfers can also be used by the federal government as a tool to encourage state governments to be more efficient in their revenue collection. State governments that are more efficient in their revenue collection should be rewarded while those who slack in their effort should be punished.

The question that ensues is to what extent are the state governments different in term of their tax capacity and tax effort? Do these differences remain the same over time or have they grown bigger or smaller? It is thus the objective of this paper is to provide a measure of fiscal capacity and fiscal effort of the Malaysian state government for the period of 2000-2008 through the use of the Representative Revenue System (RRS) approach.

The paper is organized as follows. Section two provides a brief review of the literature on the issue of fiscal capacity and fiscal effort. The methodology will be discussed in section three. In section four, we will present the preliminary findings of our research. Finally section five concludes.

## **2. Literature Review**

When the concept of fiscal capacity was first introduced, it was used in relation to the allocation of federal grants to state and local governments. And several measures have been proposed in order to calculate fiscal capacity. However, the most widely used measure was per capita personal income. In 1962, two economists (Selma Mushkin and Alice Rivlin) at the U.S. Advisory Commission on Intergovernmental Relations (ACIR) has introduced a new measure of fiscal capacity - the representative tax system (RTS). The measure was then expanded to include non-tax revenues and it was known as the representative revenue system (RRS). Based on this approach, the ACIR have produced 12 reports during the period of 1962-1993. After ACIR was disbanded, Robert Tannenwald at the Boston Federal Reserve took over the project and published reports approximately every two years in the remainder of the 1990s (Tannenwald 1998, 1999, 2002, 2004, 2006). Other than fiscal capacity, the report also provided a measure of fiscal need, fiscal comfort, and fiscal effort.

The same method was employed by other authors in different settings. Yilmaz et al. (2002) used the approach to measure the fiscal disparities across the 50 states in the US in fiscal year 2002. The authors find that Connecticut ranks first with the highest representative revenue capacity of \$6,272 per person. Alaska displays the highest representative revenue effort of all states, collecting \$8,537 compared with its capacity of \$5,496; and New York had the second highest, collecting \$6,376 compared with its capacity of \$5,240.

## Jalil, Harun & Che Mat

The author concluded that differences in state revenue capacity and expenditure need might justify federal intervention in terms of equalizing grants.

RRS approach has also been used to measure tax capacity of local and county governments. Hy et al. (1993) examined property taxes and "combined lesser discretionary revenues"(CLDR) which include a variety of fees and other charges. The results show that Arkansas counties (and the state as a whole) generally underutilize tax capacity. More recently, Chervin (2007) applied the RRS approach to measure fiscal capacity of the counties in Tennessee. Calculated tax effort ranged from a low of 56% in DeKalb County to a high of 133% in Morgan County. Using the same method, Sobarzo (2004) evaluated tax effort and tax potential of the Mexican state governments. The analysis of the results RTS reveals that with some exceptions, both the best and the worst tax performances occur in relatively rich states. The difference, however, is that the best positioned states are those whose capital cities are of medium size, such as Aguascalientes and Baja California Sur. The worst tax performances occur in states characterized by large capital cities such as Mexico City, Jalisco and Nuevo Leon.

### 3. Methodology

The fiscal capacity and the fiscal effort of the state governments in Peninsular Malaysia will be measured using the Representative Revenue System (RRS) methodology which was originally developed by the U.S. Advisory Commission on Intergovernmental Relations (ACIR). The calculation of fiscal capacity and fiscal effort can be summarized into the following step-by-step approach (ACIR, 1993):-

- *Step 1.* Collect data on revenues received by each state (and its localities) for each of the bases in the representative revenue system.
- *Step 2.* Construct the *standard base* for revenue source in each state, including all sources that could be potentially taxed (or incur charges/fees).
- *Step 3.* Compute the *representative rate* for each revenue base, by dividing total nationwide collections by the national total base for that revenue item. This creates the *representative revenue system*.
- *Step 4.* Apply each *representative rate* to the corresponding revenue item in every state. This determines the hypothetical revenue capacity if every state used the representative system as its revenue-raising system.
- *Step 5.* Add together the hypothetical revenue yields from each revenue source in each state to obtain the total *revenue capacity* in each state.
- *Step 6.* Divide total revenue capacity in each state by its population to determine per capita capacity.
- *Step 7.* Divide each state's per capita capacity by the national capacity collections and multiply by 100. The result is the revenue capacity index, with an index number of 100 corresponding to the national average.
- *Step 8.* Divide each state's actual revenue collections by the state's population to get collections per capita.
- *Step 9.* To calculate *revenue effort*, divide each state's per capita collections by its per capita capacity and multiply by 100.

## 4. Data Description

In this study, we have calculated the fiscal capacity and the fiscal effort for land tax. This tax together with the forest-based tax are the two major sources of revenues for the state government and constitute up to 60 percent of the total revenue net of federal transfers. In order to calculate the tax base for the land tax, we have used the non-forested land size. The data used for this study is obtained from the Yearly Financial Statement published by the state government's Financial Office.

## 5. Results

The amount of land tax collected is shown in Table 1. As can be seen, there is a huge disparity in term of the amount of land tax collected by the state governments. In 2000, Selangor collects the highest amount of land tax with RM311.77 while Perlis collects only RM6.15 million. Other states that have high land tax collection are Perak (RM125.13 million), Johor (RM112.25 million) and Kedah (RM107.21 million). On the other hand, Trengganu (RM21.78 million), Kelantan (RM17.59 million) and Melaka (RM41.60 million) are states that have low collection. In 2008, the amount of land tax collected varies from as low as RM7.18 million collected by Perlis to as high as RM366.53 million collected by Selangor. Other state governments that have a relatively high tax collection are Perak with RM187.76 million and Johor with RM176.22 collected. It is noteworthy that the amount of land tax collected is not solely determined by the size of land. The table shows that the amount of tax collected by states that are relatively big in term of land size such as Pahang (RM78.23 million), Trengganu (RM19.51 million) and Kelantan (RM31.67 million) are relatively low compared to the amounts collected by smaller states such as Kedah (RM79.20) and Negeri Sembilan (RM90.64).

**Table 1: Land tax collection (RM Million, Price 2000)**

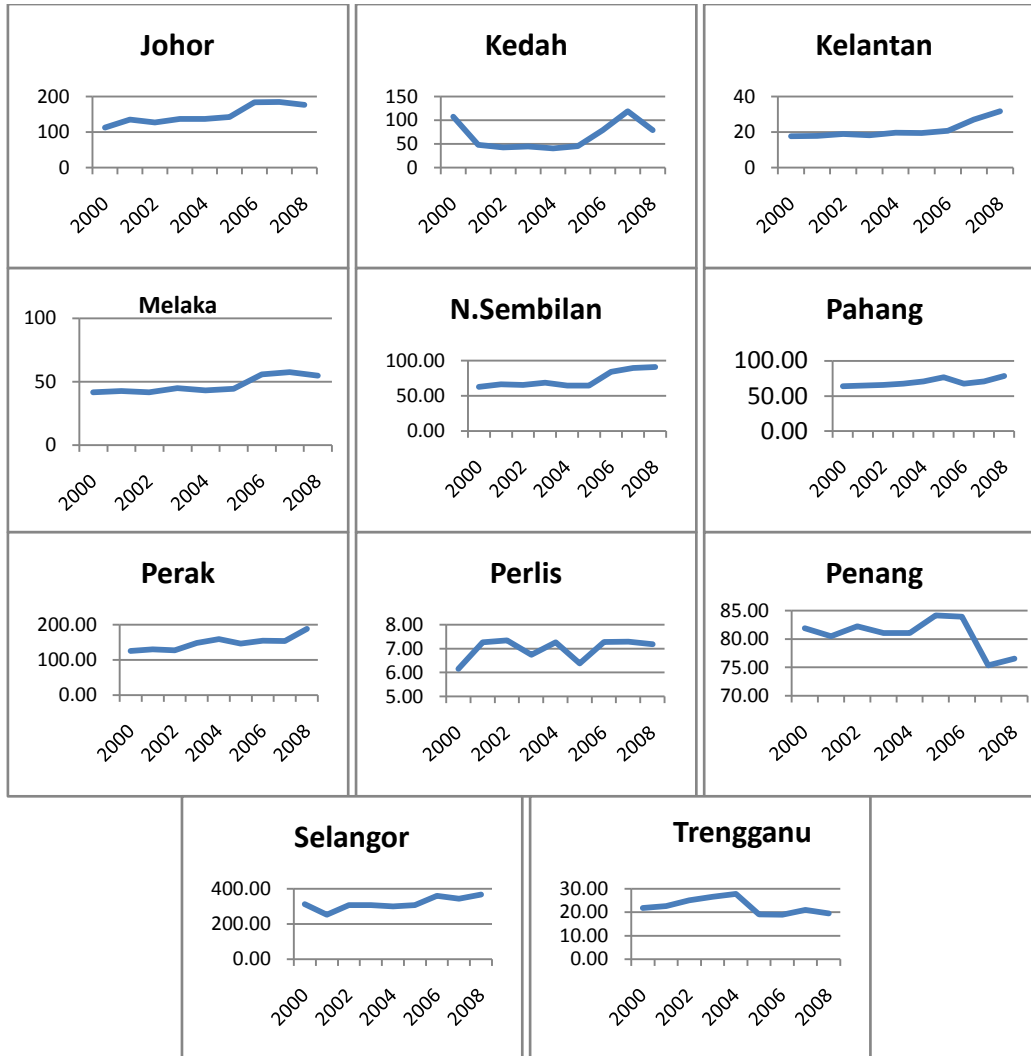
	2000	2001	2002	2003	2004	2005	2006	2007	2008
Johor	112.25	135.20	127.08	136.32	136.38	141.82	183.79	184.65	176.22
Kedah	107.21	47.69	42.33	44.58	40.36	45.17	78.71	119.07	79.20
Kelantan	17.59	17.78	18.85	18.17	19.55	19.31	20.72	27.06	31.67
Melaka	41.60	42.59	41.72	44.89	43.24	44.33	55.83	57.50	54.61
N.Sembilan	62.70	66.41	65.24	68.59	64.34	64.64	83.92	89.27	90.64
Pahang	63.73	64.81	65.67	67.38	70.60	76.25	67.13	70.75	78.23
Perak	125.13	129.82	127.28	148.27	158.30	146.23	154.46	153.60	187.76
Perlis	6.15	7.26	7.34	6.73	7.25	6.37	7.27	7.28	7.18
Penang	81.87	80.48	82.23	81.06	81.06	84.16	83.92	75.34	76.55
Selangor	311.77	252.58	306.83	306.69	299.14	306.54	358.60	342.92	366.53
Trengganu	21.78	22.69	25.07	26.57	27.85	19.05	18.97	20.98	19.51

The trend of land tax collection by state government from 2000 to 2008 is shown in Figure 1. As can be seen, most state governments have seen a steady increase in the amount of

## Jalil, Harun & Che Mat

land tax collection during the period. For example, the amount of land tax collected by the state government of Johor increases from RM112.25 million in 2000 to RM 176.22 million in 2008. As for Perak, it increases its land tax collection from RM125.13 million in 2000 to RM 187.86 million in 2008. Only Penang and Trengganu record a drop in their land tax collection.

**Figure 1: Evolution of land tax collection, 2000-2008**



The collection of land tax per capita is displayed in Table 2. The table shows that state that collects the highest amount of land tax per capita in 2000 Selangor with RM94.83 followed by Negeri Sembilan with RM73.48. Meanwhile, Kelantan and Trengganu have the lowest collection per capita with RM11.26 and RM20.47 collected respectively. In 2008, Negeri Sembilan becomes the state with the highest per capita collection with RM91.04 collected. This is followed by Perak with RM79.86 collected per capita. On the other hand, Kelantan and Trengganu continue to be the two states that have the lowest land tax collection per capita with RM19.85 and RM17.83 collected in 2008 respectively.

## Jalil, Harun & Che Mat

**Table 2: Land tax collection per capita (RM, Price 2000)**

	2000	2001	2002	2003	2004	2005	2006	2007	2008
Johor	41.09	48.57	43.94	46.06	45.02	45.73	57.97	56.98	53.20
Kedah	66.79	28.23	24.28	25.07	22.26	24.44	41.83	62.06	40.45
Kelantan	11.26	13.22	13.23	12.50	13.21	12.83	13.53	17.34	19.85
Melaka	69.45	65.68	61.91	65.33	61.76	62.18	76.97	77.83	72.47
N.Sembilan	73.78	75.59	72.70	75.10	69.21	68.31	87.25	91.26	91.04
Pahang	48.31	49.12	48.79	49.10	50.45	53.43	46.14	47.69	51.70
Perak	58.74	60.16	58.86	67.58	71.15	64.81	67.66	66.36	79.86
Perlis	26.64	34.70	34.22	30.89	32.79	28.36	31.88	31.41	30.41
Penang	65.01	60.18	59.14	57.21	56.18	57.30	56.23	49.61	49.49
Selangor	94.83	59.15	69.91	68.18	64.84	64.72	73.94	69.12	72.28
Trengganu	20.47	24.68	26.58	27.50	28.11	18.74	18.21	19.64	17.83

If we look at the trend of land tax collection per capita over the period of 2000-2008 (as shown in Figure 2), we can see that some states such as Perak, Negeri Sembilan and Kelantan witness a net increase in their collection while others such as Penang, Selangor and Trengganu see a decrease in their per capita collection.

Using the RRS approach we have calculated the capacity per capita of land tax for each state government. The results are presented in Table 3. In 2000, the average land tax capacity for Peninsular Malaysia is RM57.20 and it remains relatively stable until 2008 where it stands at RM57.18. The highest capacity is recorded in 2007 with RM57.38 while the lowest is recorded in 2001 with RM50.09.

As expected, states with bigger land size and relatively low population will be the ones with the highest capacity per capita such as Pahang and Trengganu. In Pahang, the tax capacity is RM155.40 in 2000 and it decreases during the next few years until 2005 before increasing again from 2006 to reach a level of RM161.59 in 2008. The states with the lowest land tax capacity per capita are Penang and Selangor. Even though Penang is bigger in term of land size than Perlis, it has much lower land tax capacity per capita because of its bigger population size. The same explanation holds for Selangor. In 2000, the land tax capacity for Selangor is RM22.36 while for Penang, it is only RM10.12. In 2008, the tax capacity for these two states decreases slightly and stands at RM17.28 and RM9.86 respectively.

Figure 2: Evolution of land tax collection per capita, 2000-2008

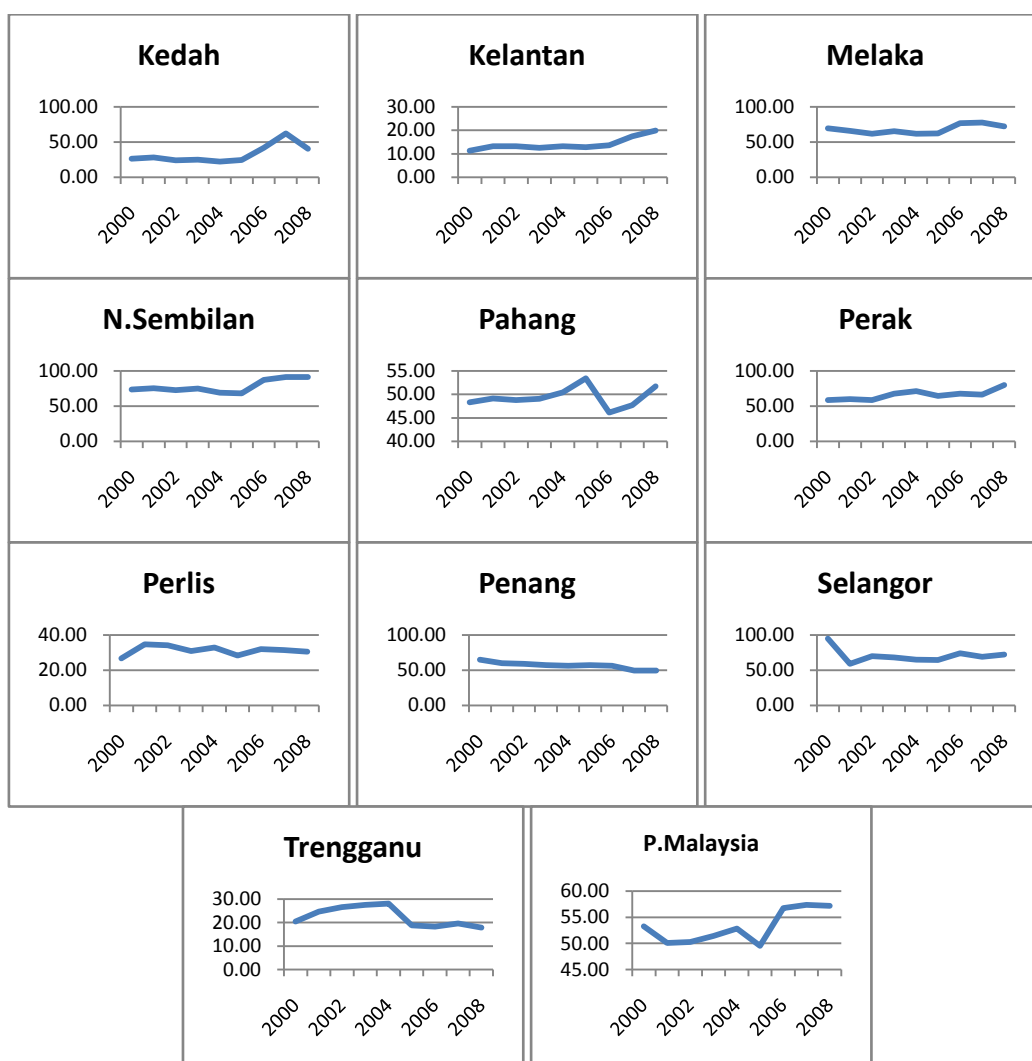


Table 3: Land tax capacity per capita

	2000	2001	2002	2003	2004	2005	2006	2007	2008
Johor	69.31	61.54	61.87	62.97	61.41	59.63	67.37	68.44	70.36
Kedah	49.14	42.26	42.91	43.81	42.98	42.52	48.76	49.02	48.79
Kelantan	51.00	53.58	52.82	53.94	52.81	52.31	60.09	61.20	63.62
Melaka	35.20	29.40	29.53	30.18	29.58	29.29	33.63	34.07	34.02
N.Sembilan	69.62	67.48	69.01	70.94	69.98	69.59	80.29	81.55	81.12
Pahang	155.40	140.91	146.15	149.39	146.07	144.88	165.94	171.49	161.59
Perak	65.66	58.65	61.21	62.74	61.69	61.34	70.80	71.58	72.56
Perlis	39.62	39.56	40.27	41.29	40.55	40.29	46.33	46.69	46.96
Penang	10.12	8.63	8.62	8.83	8.62	8.54	9.82	9.89	9.86
Selangor	22.36	15.46	15.59	15.99	15.54	15.41	18.11	17.23	17.28
Trengganu	78.40	82.55	85.60	87.93	86.26	83.74	94.26	94.28	93.70
P.Malaysia	57.20	50.09	50.32	51.43	52.84	49.57	56.74	57.38	57.18

## Jalil, Harun & Che Mat

The capacity per capita is then used to calculate the capacity index of each state government to see how each state fares as compared to the national average. And the results are presented in Table 4. As can be seen from the Table, in 2008 state government that have above average land tax capacity are Pahang with an index of 282.58 followed by Trengganu with an index of 163.86 and Negeri Sembilan with an index of 141.86. As for the state governments that have below average land tax capacity, the lowest is Penang with an index of 17.24 followed by Selangor with an index of 30.23. The rank of each state according to its capacity index is shown in Table 5. We can see that the position of each state government in term of its ranking remains relatively stable throughout the whole period.

**Table 4: Land tax capacity index**

	2000	2001	2002	2003	2004	2005	2006	2007	2008
Johor	121.17	124.59	122.94	122.44	122.06	120.30	118.73	119.29	123.04
Kedah	85.91	85.56	85.28	85.19	85.43	85.78	85.93	85.44	85.33
Kelantan	89.15	108.47	104.95	104.88	104.97	105.54	105.90	106.67	111.26
Melaka	61.54	59.51	58.69	58.67	58.80	59.09	59.26	59.37	59.49
N.Sembilan	121.70	136.60	137.13	137.93	139.09	140.40	141.50	142.13	141.86
Pahang	271.67	285.26	290.43	290.47	290.34	292.29	292.46	298.88	282.58
Perak	114.78	118.74	121.65	122.00	122.61	123.74	124.77	124.75	126.88
Perlis	69.26	80.08	80.02	80.28	80.60	81.28	81.65	81.37	82.11
Penang	17.70	17.47	17.12	17.17	17.14	17.23	17.30	17.23	17.24
Selangor	39.09	31.29	30.97	31.08	30.89	31.09	31.92	30.03	30.23
Trengganu	137.05	167.11	170.09	170.97	171.46	168.95	166.13	164.31	163.86
	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>

**Table 5: Rank of land tax capacity**

	2000	2001	2002	2003	2004	2005	2006	2007	2008
Johor	4	4	4	4	5	5	5	5	5
Kedah	7	7	7	7	7	7	7	7	7
Kelantan	6	6	6	6	6	6	8	6	6
Melaka	9	9	9	9	9	9	9	9	9
N.Sembilan	3	3	3	3	3	3	3	3	3
Pahang	1	1	1	1	1	1	1	1	1
Perak	5	5	5	5	4	4	4	4	4
Perlis	8	8	8	8	8	8	8	8	8
Penang	11	11	11	11	11	11	11	11	11
Selangor	10	10	10	10	10	10	10	10	10
Trengganu	2	2	2	2	2	2	2	2	2

We now compare the amount of land tax collected with the land tax capacity of each state in order to get the fiscal effort index. Tax effort is defined here as the extent to which state governments use the capacity available to them. If two states A and B have the same tax



## Jalil, Harun & Che Mat

capacity but state A is found to collect more taxes than state B, then it can be said that state A is exerting more effort compared to state B. The results are shown in Table 6.

In 2000, the highest effort is recorded by Penang with an index of 642.11. It signifies that out of a capacity of RM10.12 per capita, Penang manages to collect more than RM65 per capita or more than 600 times its capacity. However, the level of tax effort exerted by Penang decreases over the years to settle at an index of 501.91 in 2008. Selangor is another state that records a particularly high tax effort. In 2000, its fiscal effort index stands at 424.11. In contrary to Penang, Selangor manages to keep its tax effort relatively stable over the years. It decreases slightly in 2001 before starting to increase back in the following years. In 2008, Selangor has a level of tax effort of 418.16. Other state governments that record above average fiscal effort are Melaka (213.03), Negeri Sembilan (112.23) and Perak (110.06). On the other hand, state governments that record below average fiscal effort are Trengganu (19.03), Kelantan (31.21), Pahang (32.00), Perlis (64.76), Johor (75.61) and Kedah (82.90). The rank of the state governments in term of their fiscal effort index for the period of 2000-2008 is shown in Table 7. As can be seen, the rank of the states remains relatively stable throughout the period 2000-2008 with Penang, Selangor and Melaka ranked in top three position and Kelantan, Trengganu and Pahang in the bottom three.

**Table 6: Land tax effort**

	2000	2001	2002	2003	2004	2005	2006	2007	2008
Johor	59.29	78.91	71.03	73.15	73.32	76.69	86.04	83.25	75.61
Kedah	135.90	66.79	56.59	57.22	51.79	57.48	85.78	126.59	82.90
Kelantan	22.09	24.68	25.05	23.18	25.02	24.52	22.52	28.33	31.21
Melaka	197.29	223.44	209.60	216.48	208.79	212.29	228.89	228.48	213.03
N.Sembilan	105.98	112.03	105.36	105.87	98.91	98.15	108.68	111.90	112.23
Pahang	31.09	34.86	33.38	32.86	34.54	36.88	27.80	27.81	32.00
Perak	89.47	102.57	96.16	107.70	115.34	105.66	95.56	92.71	110.06
Perlis	67.24	87.73	84.97	74.82	80.85	70.39	68.80	67.27	64.76
Penang	642.11	697.57	686.47	647.68	651.58	670.89	572.84	501.72	501.91
Selangor	424.12	382.65	448.52	426.48	417.24	419.95	408.18	401.14	418.16
Trengganu	26.11	29.89	31.05	31.28	32.59	22.37	19.32	20.84	19.03
	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

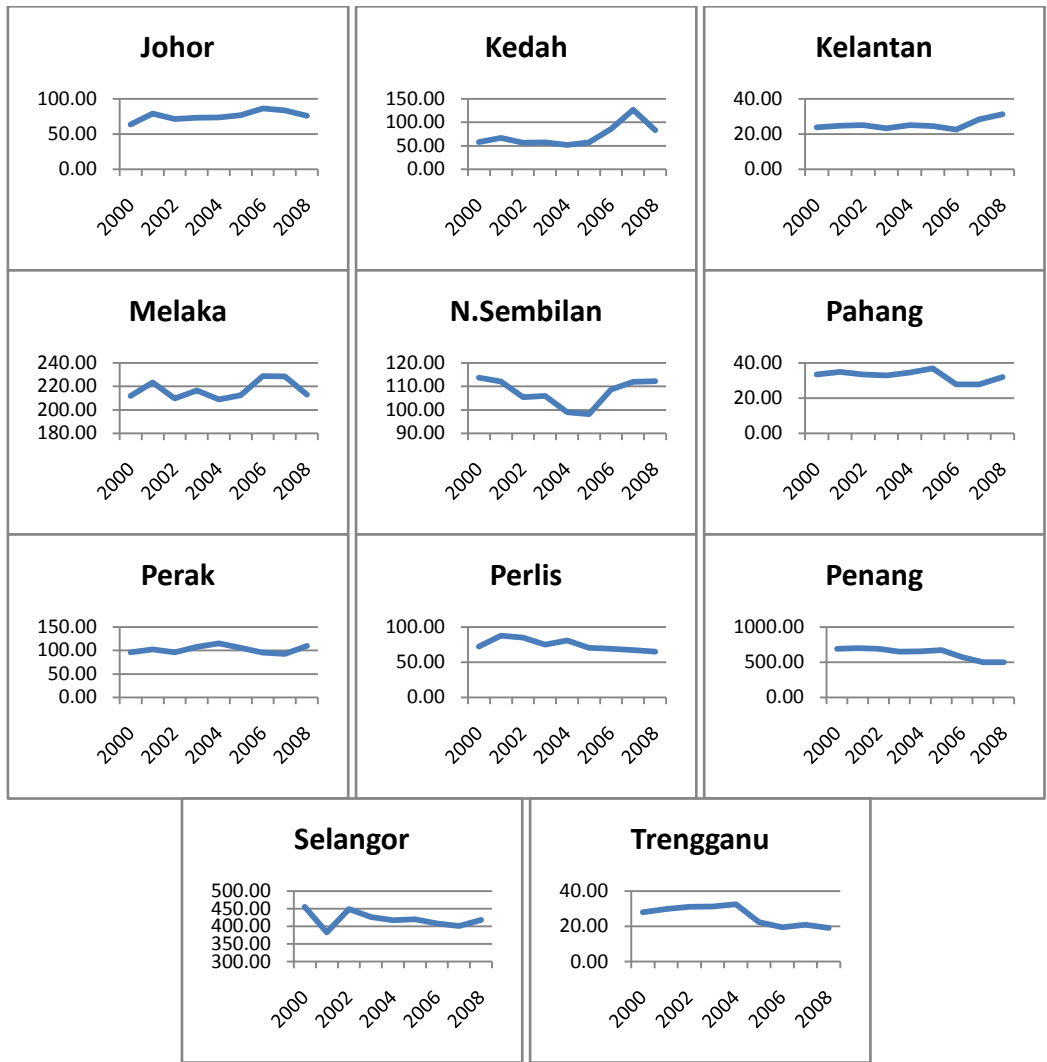
## Jalil, Harun & Che Mat

Table 7: Rank of land tax effort

	2000	2001	2002	2003	2004	2005	2006	2007	2008
Johor	9	7	6	7	7	6	6	7	7
Kedah	5	8	7	8	8	8	7	4	6
Kelantan	11	11	10	11	11	10	10	9	10
Melaka	4	3	3	3	3	3	3	3	3
N.Sembilan	6	4	11	5	5	5	4	5	4
Pahang	10	9	8	9	9	9	9	10	9
Perak	7	5	4	4	4	4	5	6	5
Perlis	8	6	5	6	6	7	8	8	8
Penang	1	1	1	1	1	1	1	1	1
Selangor	3	2	2	2	2	2	2	2	2
Trengganu	2	10	9	10	10	11	11	11	11

The trend of fiscal effort index for the period 2000-2008 is shown in Figure 3. As can be seen, the fiscal effort exerted by the state governments tends to either decrease or remain at the same level. In 2000, the highest fiscal effort stands at 642.11. However this figure decreases to only 501.11 in 2008. Perlis, Selangor, Trengganu, Penang and Perak all record a decrease in their fiscal effort index. For example, the fiscal effort index of Penang decreases by from 642.11 in 2000 to 501.91 in 2008. In the case of Trengganu, its fiscal effort index first increases from 26.11 in 2000 to 32.59 in 2005. However, from 2005 to 2008, the index decreases sharply to 19.03 in 2008. As for Kelantan, Johor and Pahang, their fiscal effort index remains relatively stable throughout the period.

Figure 3: Evolution of land tax effort, 2000-2008



#### 4. Conclusion

The objective of this paper is to provide a measure of tax capacity and tax effort of the state governments and their evolution across time. It is found that states that have above average land tax capacity are Pahang, Perak and Trengganu which are somehow expected as these states are naturally endowed with more land bank as compared to other smaller states such as Penang, Perlis or Melaka. However, these bigger states do not seem to be able to leverage on their capacity as shown by the level of their tax effort index.

The findings of this study also show that there is little movement in the ranking of the state governments with respect to the level of their tax effort. This implies that state governments especially the ones found to be exerting below average tax effort have shown little initiative to change their effort. This in turn may be due to the way the whole tax system is managed in which little or no rewards are given to the state governments

## Jalil, Harun & Che Mat

which have shown that they have made tremendous effort in collecting their taxes. In other words, there is neither incentive nor disincentive embedded in the system that would push the state governments to continuously improve their tax collection system.

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## **Jalil, Harun & Che Mat**

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