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Monitoring business cycles: Malaysian experiences

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¹ The views expressed herein are those of the author and does not necessarily reflect the views of Department of Statistics Malaysia.

1.0 Background

- The first set of economic indicators for Malaysia was developed in the mid 1980s by the Faculty of Economics and Administration (FEA) University of Malaya that comprises of composite Leading (LI), Coincident (CI) and Lagging (LG) Indexes. The Coincident Index is constructed by using six production related indicators, employment in manufacturing and import quantum. In computing the Leading Index, five indicators related to export, share of price index and two components related to finance and fiscal policy were used. The lagging components were related to domestic demand, labour market and financial aggregates (IDE, 1988). The indicators were released in the name of FEA Monthly Index².
- In 1993, Department of Statistics Malaysia (DOSM) started to work on the economic indicators as the official statistics that can be used to monitor the economy on a monthly basis. The project was funded by the UNSD with technical assistance and expertise from Center for International Business Cycles Research (CIBCR), Columbia University, New York.
- The project in principle was completed in 1996, comprises of only two composite indexes: the LI and the CI. These indicators were used internally especially by the Economic Planning Unit (EPU) until it was made public in 2000 and known as Malaysia Economic Indicators.
- Slight revisions were made to the indicators of the components especially for the CI and the LI plus developing a new set of lagging indicators³.

1.1 Business Cycles Reference Dates in Malaysia Inferred from the Current Coincident Index

The current Malaysia CI comprises of six components that represent the production, external trade, income, employment, sales and salaries and wages. The initial study shows that the relationship between the growth of CI

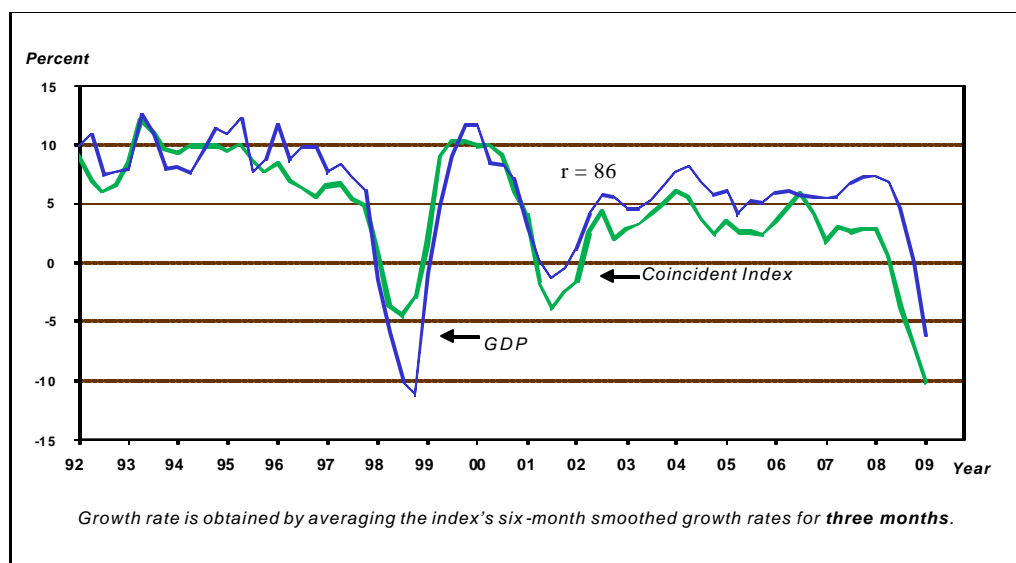
² Earlier works on indicators development for Malaysia were published in Business Cycles in Five ASEAN Countries, India and Korea, Institute of Developing Economies, 1988 and Business Cycles in Asia, Institute of Developing Economies, 1991.

³ The earlier set of CI developed by the Department of Statistics consist of only five components and seven components for LI. With the revision there are six components of CI and eight components for LI and a new set of LG with five components.

and real GDP are very close ($r=86$). The CI was capable to track the downturn and the upturn of the Quarterly Real GDP as shown in Chart 1.

Based on the chart, it seems like the GDP and the CI are moving in the same direction and magnitude. Since Malaysia does not compile monthly GDP, thus the CI is used as a proxy to monthly GDP and to determine the business cycles recession dates.

Chart 1: Quarterly Growth of Real Quarterly GDP and Quarterly Coincident Malaysia, 1 1992-2009



The chronology of Malaysia business cycles were shown in Table 1. There were five business cycles recorded from 1970 to date. The first, second and the fifth business cycles recession were generated by the global economic recessions while the third and the fourth were iterated by the external shocks (Asian Financial Crisis) and September 11, 2001.

Table 1: Partial Chronology of Malaysia Business Cycles*

Reference Cycles	Reference Dates			Duration (Months)		
	Peak	Trough	Peak	Contraction	Expansion	Full Cycles
1 st Cycle	July 74	Feb 75	Jan 85	7	119	126
2 nd Cycle	Jan 85	Jan 86	Dec 97	12	143	155
3 rd Cycle	Dec 97	Nov 98	Feb 01	11	27	38
4 th Cycle	Feb 01	Feb 02	Feb 08	12	72	84
5 th Cycle	Feb 08	Mar 09		13		
Average				11	90	101

* The dates given are subject to revision. The component used in the composite coincident index is currently under review .

The average month of contraction phases since 1970s is eleven months and almost eight years were estimated for expansion phases (90 months). The full business cycles were estimated to be 101 months or almost nine years. In general, the economic recession in Malaysia does not spent more than a year.

2.0 Sequential Signals Approach in Monitoring Business Cycles Recession in Malaysia

The capability of Malaysia economic indicators was first tested for the 1997/98 during the Asian Financial Crisis which leads to business cycle recession in Malaysia. In principle the analyses of sequential signals had applied the principles suggested by Zarnowitz and Moore (1983)⁴.

At business cycle peak, first signal (P1): The leading index rate falls below 5.0⁵ percent, while the coincident index rate is positive ($L < 5.0$; $C > 0$).

Second signal (P2): The leading index rate becomes negative, and the coincident index rate falls below 5.0 percent ($L < 0$; $C < 5.0$).

Third signal (P3): Both the leading index rate and the coincident are rate become negative ($L < 0$; $C < 0$).

At business cycle troughs, the signals we have selected are slightly different, occurred when each of the following conditions is first observed:

First signal (T1): The leading index rate rises above zero, while the coincident index rate is negative ($L > 0$; $C < 0$). It explains that the first signal of a trough must follow the third signal of a peak.

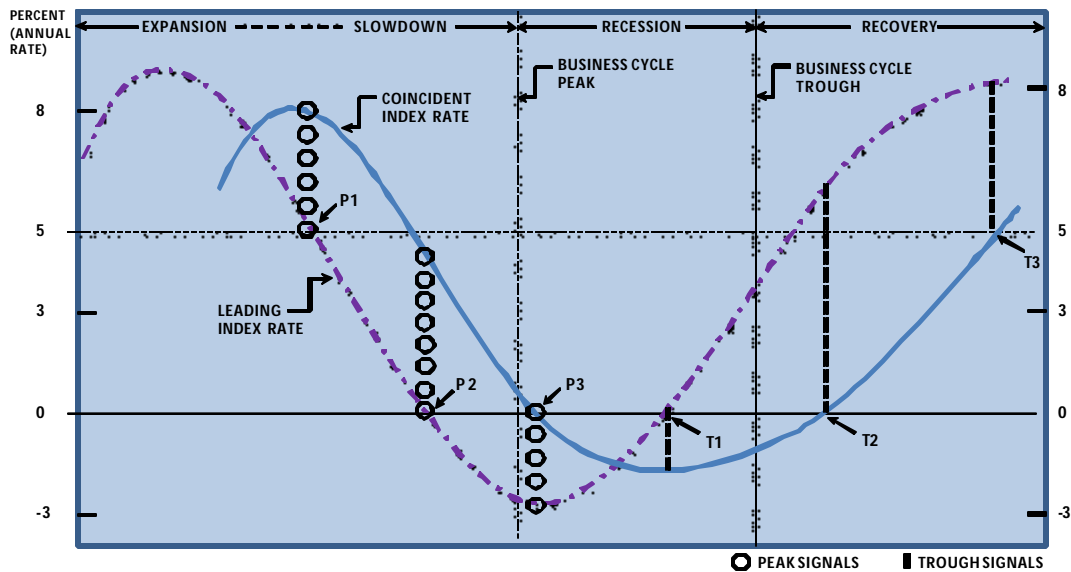
Second signal (T2): The leading index rate rises above 5.0 percent, and the coincident index rate rises above zero ($L > 5.0$; $C > 0$).

Third signal (T3): Both the leading index rate and the coincident index rate exceed 5.0 percent ($L > 5.0$; $C > 5.0$).

⁴ Business Cycles, Inflation, and Forecasting, 2nd ed, NBER, 1980

⁵ Calculated based on real GDP growth prior to 1996

Chart 2: Sequential Signals of Recession and Recovery: A Schematic Diagram



2.1 Sequential Signals of Recession and Recovery for the 1997/98 Recession

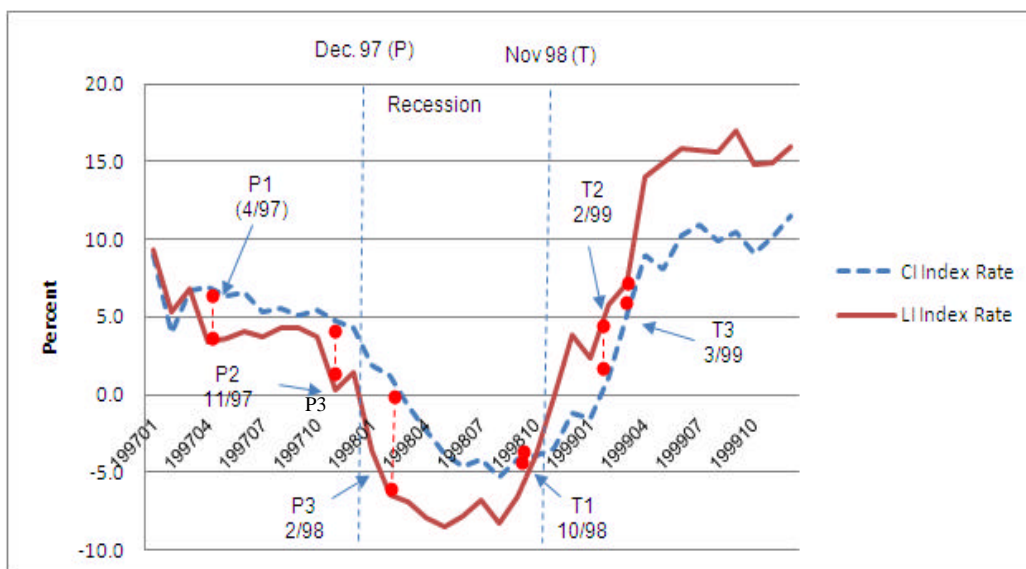
a. Recession Phase

The first signal of 1997/98 recession (P1) was in April 1997 where the LI growth rate was below 5.0%. This was followed by the second signal (P2) in November 1997 and confirmed the recession dates in February 1998 (P3) as shown in Chart 3. The duration from first signal (P1) to the third signal (P3) was about nine months.

b. Recovery Phase

The first signal (T1) was in September 1998 where the LI growth rate touches -5.0% (two months before the recovery). This was followed by the second signal (T2) in February 1999 and confirmed the recovery dates in March 1999 (T3). Duration from T1 to T3 was about five months as in Chart 3.

Chart 3: Sequential Signals of Recession and Recovery in Malaysia During the Asian Financial Crisis 1997/98



2.2 Sequential Signals of Recession and Recovery for the 2001/02 Recession

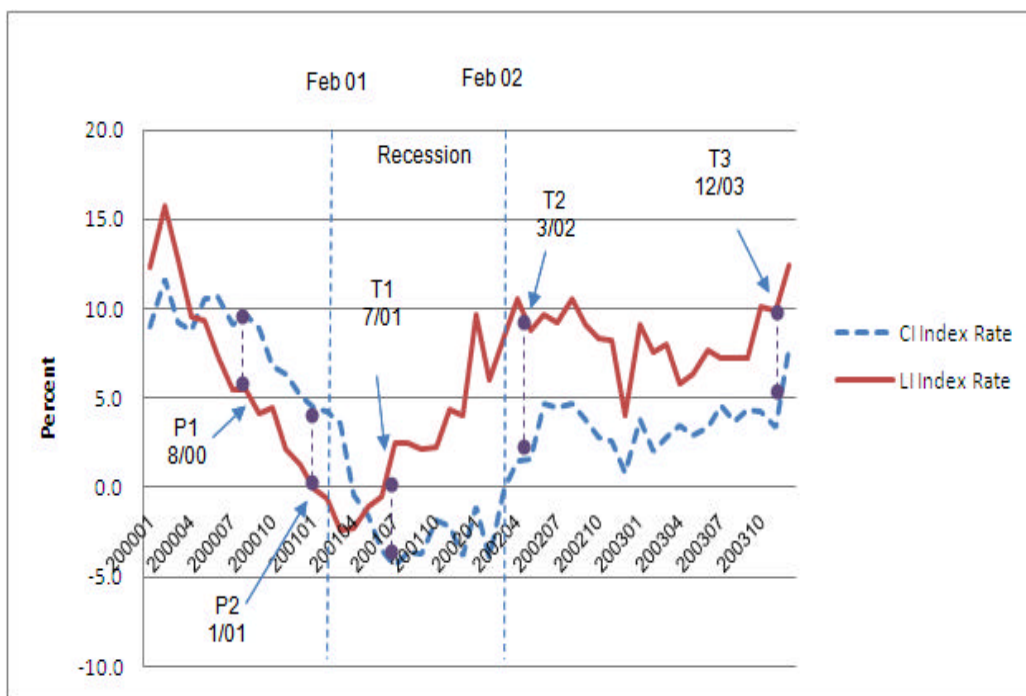
a. Recession Phase

The first signal of 2001/02 recession (P1) was in August 2000 where the LI growth rate below 5.0%. This was followed by second signal (P2) in January 2001 and there is no signal of (T3) to confirm the recession date.

b. Recovery Phase

The first signal (T1) was in July 2001 followed by second signal (T2) in March 2001 and confirmed the date of recession after 22 months (T3) as shown in Chart 4. The duration from T1 to T3 was about 29 months as in chart 4.

Chart 4: Sequential Signals of Recession and Recovery in Malaysia During the Asian Financial Crisis 2001/02



2.3 Sequential Signals of Recession and Recovery for the 2008/09 Recession

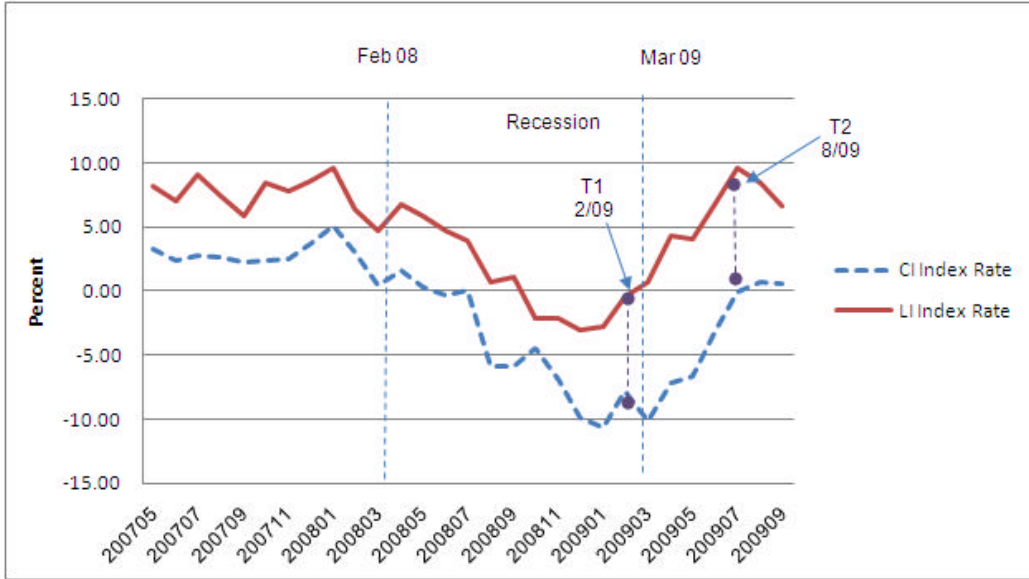
a. Recession Phase

There is no clear signal for the 2008/09 recession as the CI growth dropped faster than the LI. For example in January 2008 the CI growth was below 5 percent while the LI growth above 5 percent.

b. Recovery Phase

The first signal (T1) was in February 2009 where the LI growth rate above 0.0% followed by second signal (T2) in August 2009. The recovery date for 2008/09 recession has yet to be confirmed.

Chart 5: Sequential Signals of Recession and Recovery in Malaysia During the Global Economic Recessions 2008/09



3.0 Current Review the Early Warning Signals in Malaysia

We realized our System is not capable to track signals of business cycle lately. Thus, DOSM currently undertake necessary measures to overcome the weaknesses in the system.

3.1 Review the Existing Components

Currently the existing components of all indexes are being reviewed. Some of the potential components are suggested to be dropped from the existing system. The suggested components are sales and employment in the manufacturing sectors and CPI for services.

3.2 Adding New Potential Components

Meanwhile the new potential variables will be added in the new system which is unemployment rate, volume index of retail sales, capacity utilisation and expected sales value in manufacturing sector.

3.3 Revised the Methodology

The current method uses the National Bureau of Economic Research (NBER) approach which was spearheaded by Prof G. H. Moore and Prof. Julius Shiskin, 1976. The adaptation of trend adjustment in this method is to keep the slope of each indexes to ensure that it did not cross between each other. The new methodology closely follows the manual of Business Cyclical Indicator (BCI) Handbook⁶ which excludes the trend adjustment in the indexes.

3.4 Create the Supplementary Indexes

In addition, the Diffusion Indexes (DI) are being constructed by DOSM as a supplementary index. Thus, we hope that the DI can help us in monitoring business cycle turning points as well as to make a decision on the reference cycle dates.

3.5 Review the border limit (five percent) for Sequential Signals Analyses.

DOSM is in the midst of reviewing the border limit for the sequential signals. This is to test the performance of the system. The initial study shows that the border limits of +5.0 and -5.0 percent were no longer be applicable especially in the millennium years.

3.6 Made to Public

Subject to the approval by DOSM management, the new early warning system for Malaysia is expected to be made public as early as April 2010.

Conclusion

The development of Malaysia economic indicators can be divided into three phases: i.e. in the mid 1980s, 1990s and end of 2000s. The components used and the methodology adopted also differ from the phase to other phase. DOSM being the agency responsible to the economic indicators as official statistics will continuously review the indicators performance.

DOSM noticed that the performance of Malaysia economic indicators has weakened. In early 2009, DOSM undertake the necessary measures to overcome the weaknesses by reviewing the existing components, adding new potential components, methodology review and create the supplementary indexes (diffusion indexes). The revised system of economic indicators is expected to be made public by April 2010.

⁶ Business Cycle Indicators Handbook (The Conference Board) by Robert H. Mc Guckin, December 2000.