LEADING INDICATORS OF UNEMPLOYMENT RATE

Policy-Relevant and Methodology

Henny Abigailwillyen Sinjus, Heizlyn Amyneina Hamzah, Muhammad Khalid Ahmad Kamal, Mohd Yusof Saari, Muzafar Shah Habibullah and Muhammad Daaniyall Abd Rahman

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FOREWORD

YBhg. Dato' Sri Dr Mohammed Azman bin Dato' Aziz Mohammed
Chief Executive
Social Security Organisation (SOCSO), Malaysia

Managing (un)employment during a large-scale pandemic that we are facing today is very challenging due to the rapid change in the number of jobs and the unemployed, subject to the movement control restrictions to curb the transmission of COVID-19. The dynamic movement of the unemployment rate makes it hard for labour market conditions to be managed during the crisis and post-crisis. This calls for the labour market leading indicator (LMLI) approach to anticipate the unemployment rate and provide early signals of labour market conditions. An outlook of the unemployment situation is an essential tool for labour market monitoring in Malaysia.

The COVID-19 pandemic has triggered a labour market crisis, leading to thousands of job losses. A slow recovery of the labour market will disrupt the nation's development and increase economic losses. Therefore, there is an urgent need to adopt the labour market policy monitoring for the country to weather the impact of the crisis on the labour market. This book is an excellent initiative by EU-ERA, addressing the importance of having accurate, relevant, timely and accessible indicators, which are essential for labour market policy monitoring and evaluation.

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Henny is currently pursuing a Master of Science degree in Economics at Universiti Putra Malaysia. She works at EU-ERA as a Junior Economist and is particularly interested in quantitative forecasting techniques, big data analytics (BDA), and systems applications for labour policy analyses assessment and forecasting.

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We want to express our thanks to our colleagues from the Office of Employment Insurance System, particularly the Division of Employment Information Analysis Services, for generously giving their support for providing labour market information (LMI) database, advice, and their time to review the analyses provided in this the analyses provided in this book.

Several core agencies have contributed to the completion of this book. We are grateful for the advice and encouragement provided by the International Labour Organization (ILO), and all the government and private agencies in Malaysia. The advice and feedback from Roger Gomis, representative of the ILO, is deeply appreciated. We are incredibly grateful to the representatives from Bank Negara Malaysia (BNM), Economic Planning Unit (EPU), Ministry of Human Resources (MOHR), International Centre for Education in Islamic Finance (INCEIF), Institute of Labour Market Information and Analysis (ILMIA), Malaysian Industrial Development Finance Berhad (MIDF), Malaysian Institute of Economic Research (MIER), Permodalan Nasional Berhad (PNB), and Ministry of Finance (MOF) for their invaluable insights and helpful information.

We must also acknowledge the statistics providers, whose published data contributed to the completion of this research. All the data used in this research are published by SOCSO, the Department of Statistics Malaysia (DOSM) and BNM.

Many thanks to our colleagues at EU-ERA for their consistent support in providing direct and indirect contributions from the beginning, in the completion of this book. We are all sailors in one ship heading for the same destination.

Finally, we would like to extend our sincere thanks to our family and friends for their unceasing support and encouragement throughout the writing of this book.

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ABOUT THIS BOOK

This book is the product of EIS-UPMCS Centre for Future Labour Market Studies (EU-ERA), on Monitoring and Evaluation Programme research with specific application to the labour leading market indicators. One of the field's research goals is to observe a set of leading indicators that offer analysts with an early warning system for short-term changes in unemployment rates in Malaysia.

The "leading indicators" technique for tracking or forecasting the direction of changes in economic activities rely on the signals from other variables, whose turning points have historically always preceded the economic cycle's turning points. Thus, it is based on the signals of variables that have empirically "driven" the economic cycle, such as output, sales, investment, inflation, and money supply. By adding labour market factors to the "leading" indicators of economic activity, the approach has been expanded to predict changes in the employment cycle.

It is commonly acknowledged that using leading indicators for short-term forecasting is not intended to be, and cannot be, a substitute for forecasting models. It is, however, widely acknowledged as a useful, convenient, and quick tool for optimising the information provided by a set of data, with applications for "forecasting" purposes, such as anticipating the direction of change of the economic cycle; the employment cycle in our case; but without providing a precise quantification of the changes. When analysing and judging the technique's prospective use, it is crucial to keep in mind the clear distinction between it and typical forecasting models.

This book addresses the importance of having accurate, relevant, timely and accessible indicators, which are essential for labour market policy monitoring and evaluation. Managing an economic crisis during the recovery periods from the COVID-19 pandemic is challenging, because economic and labour market variables associated with a high degree of fluctuation are influenced by non-pharmaceutical measures of movement control order restrictions and stimulus packages. Non-pandemic crises, such as financial and commodity crises, also lead to fluctuations. This contrasts with the normal periods in which the economic and labour market variables are stabilised.

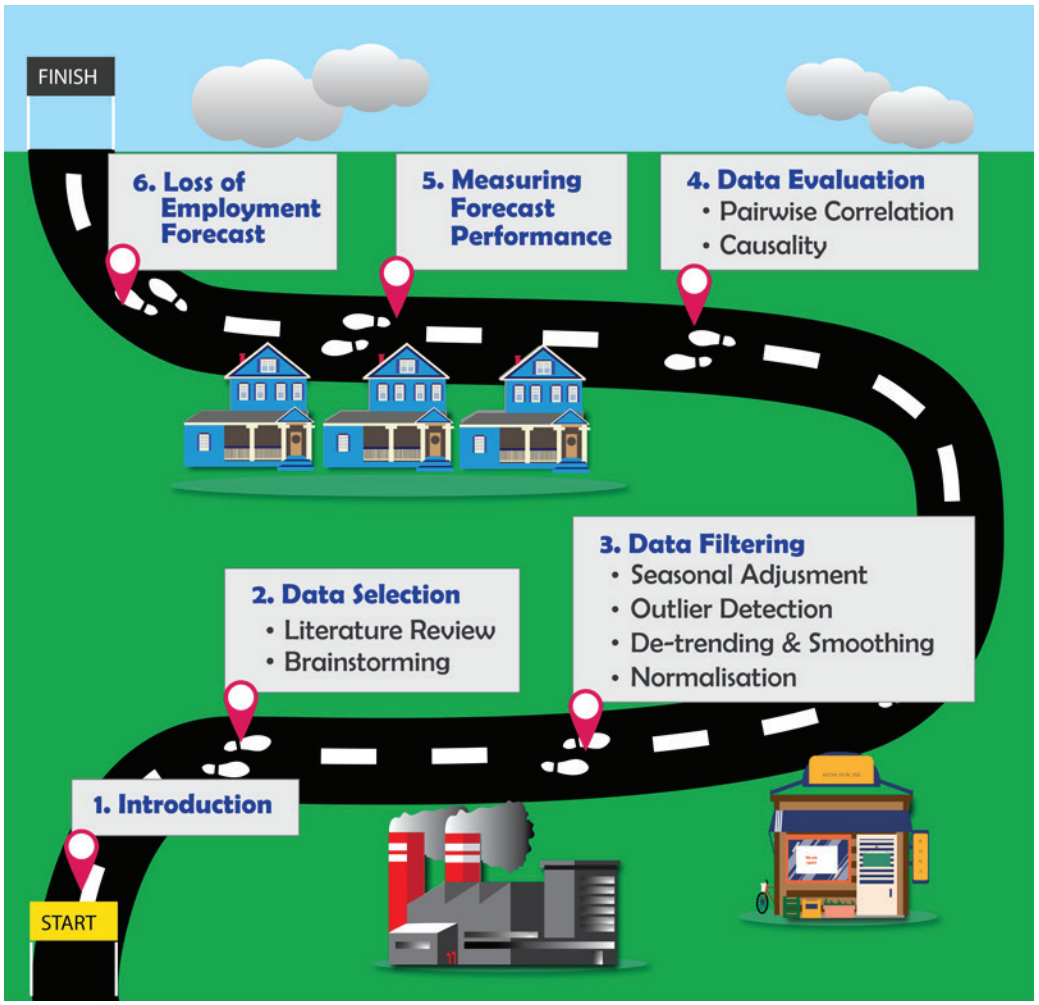
This book also complements the readers with a guided methodology for the development of leading indicators. It offers a guided learning on how to develop leading indicators through applications of EViews (version 10) screenshots. This will help readers to learn applications of EViews independently and develop skills for empirical research. Uniquely, the methodology developed and documented in this book can be expanded and applied for other targeted variables with different sets of leading indicators. In a simple analogy, we have provided the vehicle for the drivers and passengers, and now it depends on where they want to go.

This is just the beginning of a long journey in labour market leading indicator research in Malaysia. More efforts addressing the extension and expansion of labour market leading indicators will be performed and published in the future.

PLAN OF THE BOOK

This book is structured into six chapters. Along the journey, readers can observe the position of each chapter by referring to Figure A. For the policymakers and non-technical readers, reading Chapter 1 provides enough information on the concept and policy relevant for the labour market leading indicators, with specific applications to unemployment rates.

Figure A: Journey of this book



Chapters 2 to 6 provide a roadmap for readers who are interested in learning methods for the development of leading indicators. These chapters are highly relevant for postgraduate students, researchers, and academicians. The chapters can also be grouped into two parts: **data processing procedures (Chapters 2 to 4) and forecast performance (Chapters 5 to 6).**

Data Processing Procedures

Chapter 2 deals with the data selection procedures. Before beginning to develop leading indicators, readers need to know what the target variable is. Then, list all of the possible leading indicators for the target variable through reviewing literature and brainstorming on "what might be the factors?" The first step is a logic check, and the second is a gut check. Both are complementary steps for searching leading indicators and ensuring that they are relevant for the target variable.

Chapter 3 explains a series of processes in filtering the candidate series. Filtering the data series is needed as a pre-step for producing a relevant leading indicator. It is to remove other components, such as seasonal components, outliers, and trends that may obstruct the true underlying cyclical patterns in the candidate series. Given that the leading indicators are expressed in different units and scales, the series will be normalised to some common denominator.

Chapter 4 provides a short analysis to evaluate the conformity of leading indicator candidates to a target variable. Evaluating the indicators is the last stage of the leading indicator development process. It is to choose suitable leading indicators through two analyses, pairwise correlation and causality. The indicators will be chosen only if they lead, have a higher correlation, and Granger-cause the target variable.

Forecast Performance

Chapter 5 evaluates the forecast performance with a specific application to the unemployment rates. Once the leading indicators have been finalised in Chapter 4, Chapter 5 explains how the forecast accuracy and sensitivity is measured. This step is crucial in facilitating the decision-making process and developing strategies to support and mitigate an upcoming impact.

Chapter 6 repeats methodologies in Chapters 2 to 5 with specific application to the loss of employment as the target variable. The loss of employment data is captured and monitored daily by the Office of Employment Insurance System (EIS), under the Social Security Organisation (SOCSO), and is one of the crucial lagging labour market indicators. In assessing loss of employment forecast performance, this study undertakes different seasonal adjustment techniques.