

# IDENTIFICATION OF THE ECONOMIC CRISIS IN INDONESIA 2019-2022

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## IDENTIFICATION OF THE ECONOMIC CRISIS IN INDONESIA 2019-2022

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### ABSTRACT

This paper aims to identify when the economic crisis in Indonesia occurred by basing itself on the formulation of The National Bureau of Economic Research, as the economic research authority in the United States, which is used as a reference for many countries including the United Nations. The Holdrick-Prescot Expectation Model is use as model with a de-trending approach that describes the information contained in the data without involving other data that might contribute to the movement of the data. the results of identification using the Gordon model and the Hodrick-Prescott method, it can be seen that the identification of crises is more accurate when using the definition applied by the NBER. Through the definition of the NBER crisis, it can be seen that Indonesia has experienced a decline in actual GDP compared to its trend value since 2019, Q4, which of course indicates the onset of an economic crisis.

**Keywords:** Economic crisis in Indonesia; Holdrick-Prescot Expectation Model; Fluctuations; Growth

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### INTRODUCTION

The sentence "Why did nobody notice it?" by Queen Elizabeth II at the inauguration of the London School of Economics campus building in London had become headline news in many media. The question was directed at a group of British economists months after the collapse of Lehman Brothers and western economies, including Britain. These questions indicate that economists are unable to identify and anticipate economic crises.

Many experts say that the economic crisis is difficult to predict. Cole and Kehoe (2000) state that the economic crisis is a sunspot phenomenon, namely economic resources is highly dependent on several random economic variables, which are not related to economic fundamentals, making it difficult to predict. Gorton (2012) states that a crisis is an unexpected and sudden event. However, since the 2008 global crisis, many economists have begun to focus on identifying crises and looking for crisis indicators. The serious attention of these economists can also be seen from a series of news in the media related to the identification and indicators of the crisis (Abberger and Nierhaus, 2008; Babecky et al., 2012; Frankel and Saravelos, 2010; Greenwood et al., 2021). This article will only attempt to identify

In the case of the 2019-2022 global crisis, as a result of COVID-19 and the Russia-Ukraine war, there are many different opinions about whether Indonesia is experiencing a crisis. The Minister of Finance said that the crisis in Indonesia had only occurred in the second quarter of 2020. However, some observers stated that the crisis had actually started in the third quarter of 2019. This diversity of views indicates that even in crisis identification, there is still no similarity. This difference, of course, has consequences for policymaking. This arti-

cle will attempt to identify when the economic crisis in Indonesia occurred by basing itself on the formulation of The National Bureau of Economic Research (Rodeck, 2022) as the economic research authority in the United States, which is used as a reference for many countries including the United Nations.

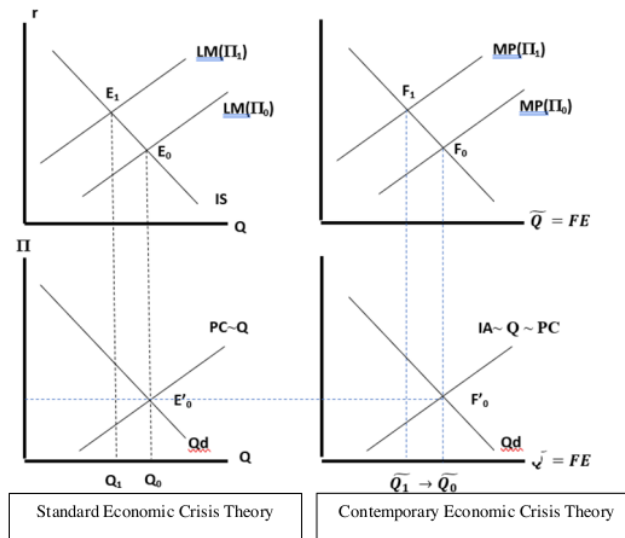
## LITERATURE REVIEW

An understanding of the crisis in general is a manifestation of various kinds of difficulties in people's lives that are prolonged, both in terms of economic, political, social, environmental and others. The crisis appears on the surface in the form of social tensions, difficulties in fulfilling economic life, environmental problems, security, and other social problems. The economic sector places more importance on the short term than the long term. Economic variables that describe long-term conditions are difficult to measure. For example, there is no definite method of measuring the natural rate of GDP or the natural rate of unemployment

Economically, an economic crisis is a period of economic recession that takes time to recover, if the recovery time is short it is called a recession if it is long it is called a depression (Gordon, 2014). A recession is characterized by a general slowdown in economic activity. In macroeconomics, an economic recession, according to the National Bureau of Economic Research's definition, is a significant decline in economic activity that is spread across the economy and lasts for several months (Abberger and Nierhaus, 2008; Rodeck, 2022). Economic crises are usually characterized by worsening real GDP, real per-capita income, employment, manufacturing sector production, and wholesale-retail sales.

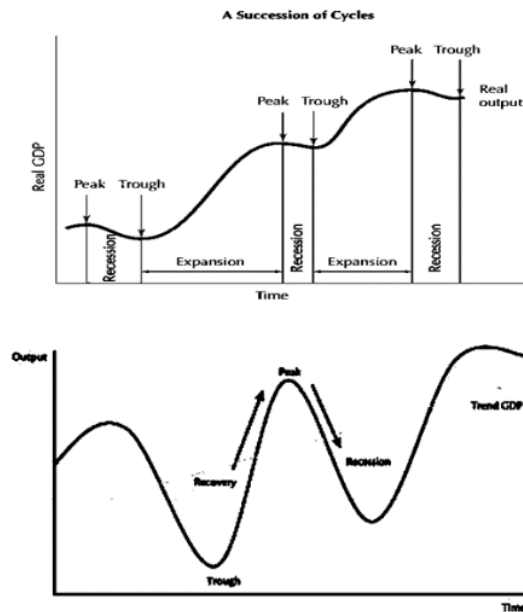
In the interpretation of NBER, the definition is based on 3 criteria, namely depth, diffusion, and duration. That is, each criterion needs to reach an adequate level. If there are extreme indications shown by one of the criteria, then the other criteria can be a counterbalance. For example, in the case of economic activity in February 2020, it can be concluded that if there is a decline in activity in the next period that is large and widespread throughout the economy, even if it is short-lived, the decline can be considered by NBER as a recession.

The definition of NBER is stricter than Shiskin's Rule, which puts the situation down but can rebound and does not fall into the crisis category (Abberger and Nierhaus, 2008; Rodeck, 2020). A pandemic case will have the potential to cause a W-Shape Recession, but if there is a period of improvement, the Shiskin's Rule does not include it in a recession. Unlike the NBER, which still includes it as a crisis. Thus, there is a shift in thinking about the crisis based on a macroeconomic approach (see Figure 1).



**Figure 1.** Standard versus Contemporary Economic Fluctuation Theory

There are two known approaches to identifying the occurrence of a crisis, namely the approach using Natural Real GDP (Gordon, 2014, p. 9) and Trend GDP (Mitchell et al., 2019). Mitchell's model is considered more practical in identifying crises because it uses the trend method, while the Gordon model is more complicated because there is no standard model for estimating the natural rate of GDP or real GDP (see Figure 2).



**Figure 2.** The Concept of Economic Crisis (Recession) version of Gordon and Mitchell, et.al. (Source: Gordon, 2014; Mitchell, et.al., 2019)

**METHODS**

The Holdrick-Prescot Expectation Model is a model with a de-trending approach that describes the information contained in the data without involving other data that might contribute to the movement of the data. So the Hodrick-Prescot model is included in the univariate analysis category. The expectation model with the Hodrick-Prescott filter involves extracting trend and cycle components from time series data. Empirically, most Hodrick-Prescott applications use a smoothness parameter ( $\lambda$ ) 100 for annual data; =1600, especially for quarter data, and =14,400, especially for monthly data (Flaig, 2015). The larger the value, the closer to the actual value. The Hodrick-Prescott Filter model attempts to minimize the smoothed series(s):

$$\sum_{t=1}^T (y_t - s_t)^2 + \lambda \sum_{t=2}^{T-1} ((s_{t+1} - s_t) - (s_t - s_{t-1}))^2 \dots\dots\dots (1)$$

**RESULT AND DISCUSSION**

The data that is used as the basis for estimating the time of the start of the crisis is Gross Domestic Product data by field of business for the period 2015.Q1 – 2022.Q2 on the basis of constant prices 2010=100 (Central Bureau of Statistics, 2020, 2016). The first step is to calculate the GDP trend using the Holdrick-Prescott method. The comparison between the calculation results of the Holdrick-Prescott trend with GDP 2010=100 is shown in Figure 3..

Based on Figure 3, it can be seen that in the period 2019.Q4 to 2020.Q2. this means that from 2019.Q4 to 2020.Q2 (about 6 months) there is a decline in GDP from the GDP trend condition. And the graphic of the cycle shows a sharp decline in the period.

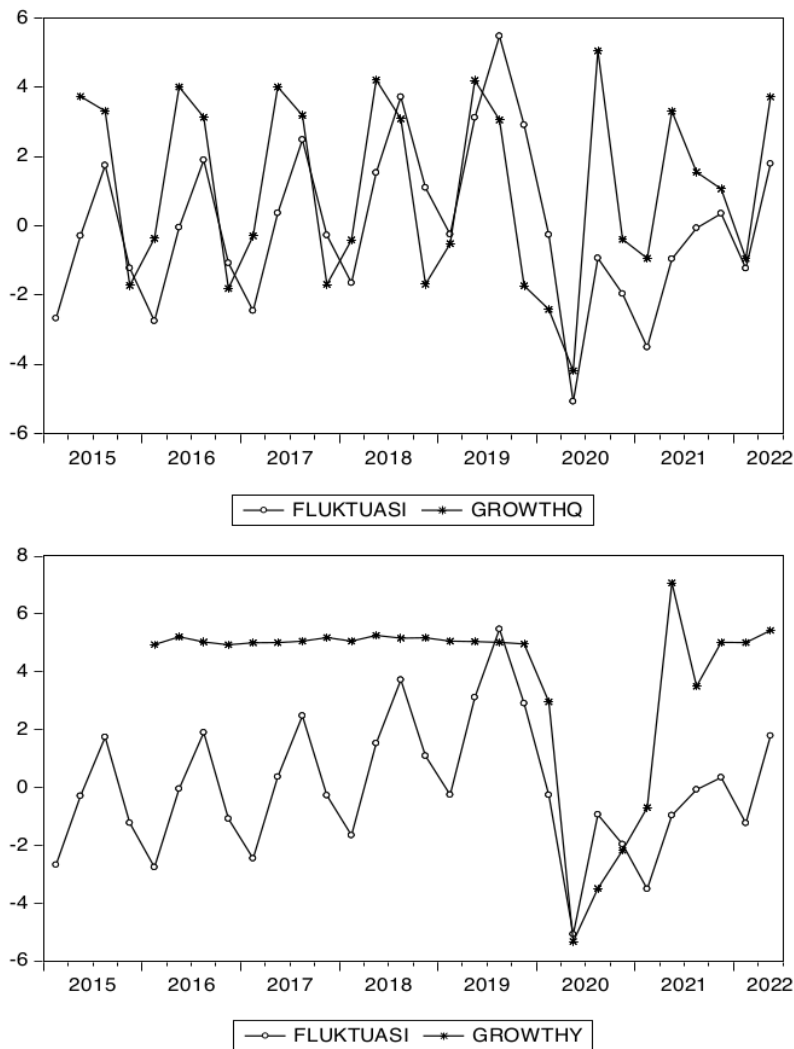
Furthermore, the calculation of GDP growth and fluctuations is carried out:

$$Growth = \frac{PDB - PDB(-1)}{PDB(-1)} \times 100 \dots\dots\dots (2)$$

The results of the next trend will be used as the basis for calculating fluctuations:

$$Fluctuation = \frac{PDB - Trend\ HP}{Trend\ HP} \times 100 \dots\dots\dots (3)$$

Identification efforts will be carried out in the form of year-on-year and quarter-on-quarter identification. Identification will be made based on the graphical fit between fluctuations and growth. The suitability of the graphic can be used as the basis for determining a better crisis estimate (Figure 3).



**Figure 3.** Comparison of Fluctuations with Quarterly and Annual Growth

The suitability of the graphic flow between the value of fluctuations and growth between the quarter-on-quarter calculation models is closer to that of year-on-year growth.

Furthermore, analysis can also be done on the residual value. The residual value which is the difference between the actual GDP and the trend result GDP can be analyzed as an interpretation of "news" or news. It can be seen that in 2020 news about the economy was at its lowest. However, the economy is slowly being able to improve itself until 2021. Q3 is starting to show improvement (Figure 4).

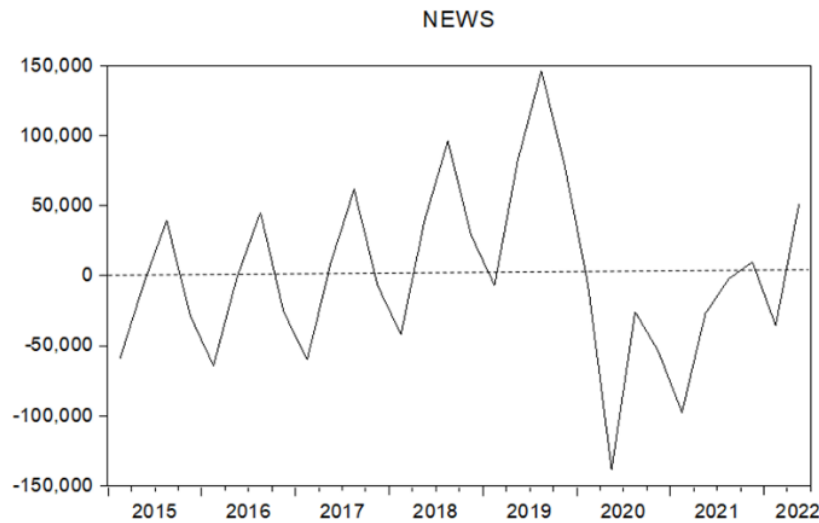


Figure 4. Comparison of Fluctuations with Quarterly and Annual Growth

## CONCLUSION AND RECOMMENDATION

Based on the results of identification using the Gordon model and the Hodrick-Prescott method, it can be seen that the identification of crises is more accurate when using the definition applied by the NBER. Through the definition of the NBER crisis, it can be seen that Indonesia has experienced a decline in actual GDP compared to its trend value since 2019.Q4. Which of course indicates the onset of an economic crisis.

However, the economic crisis that occurred in the 2019-2021 period was not only caused by economic fundamental factors but also other factors outside the economy, such as public health which was attacked by COVID-19 to paralyze the mobility of the population in economic activities.

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