TIGER: Tracking Indexes for the Global Economic Recovery
By Eswar Prasad and Caroline Smiltneks

Technical Appendix

April 2025 NOTE: Given the rapid pace of new developments and the lag in reporting inherent to many of the indicators used in TIGER, we continue to integrate real-time estimates of forthcoming data alongside the most recent figures from news accounts and data providers to ensure TIGER is up to date. This method has its limitations at a time of heightened economic uncertainty. Where possible, we have made conservative assumptions about the extent of changes in various indicators.

Methodology

In our analysis, we employ a statistical procedure called Principal Component Analysis (PCA) that is used widely in the physical and social sciences to extract indicators that capture common fluctuations among variables in large datasets. PCA is a transparent and straightforward procedure that can easily handle a large number of variables and enables one to construct indicators of comovement across all variables in a dataset or a subset of them. This procedure is ideal for creating the TIGER indexes as it allows us to combine information from different types of economic variables and multiple countries.

Each variable that enters into the PCA is a priori given an equal weight in the calculations. The procedure then assigns different weights to different variables depending on how important they turn out to be in capturing fluctuations in the entire set of variables. PCA is a special case of a more general technique called factor analysis that captures more complicated patterns of lead and lag correlations across the variables—it is important to note that PCA picks up only contemporaneous correlations.

Dataset

Our dataset covers most of the G-20 countries and contains a set of key real, financial and confidence variables. The main constraint in expanding our dataset to cover more variables is the lack of consistent data availability at a high frequency, especially among the emerging markets. For example, it is difficult to get good data on employment levels for the emerging markets. Nevertheless, we have assembled a set of variables on which we were able to get reasonably timely and high-quality data. The countries and variables in our dataset are listed below. Note that composite total indexes include only Advanced Economies and Emerging Market Economies groups.

Advanced Economies
- Australia
- Canada
- France
- Germany
- Italy
- Japan
- Korea
- Netherlands
- Spain
- United Kingdom
- United States

Emerging Market Economies
- Argentina
- Brazil
- China
- India
- Indonesia
- Mexico
- Russia
- South Africa
- Turkey

Euro Periphery
- Greece
- Ireland
- Portugal

Economic Indicators

Real Activity Indicators
- Employment
- Exports
- Industrial Production
- Imports

Financial Indicators
- Equity Market Index
- Stock Market Capitalization
- Credit Growth

Confidence Indicators
- Business Confidence
- Consumer Confidence

-GDP
-Unemployment Rate

By Country:
Composite Index – Business Confidence, Consumer Confidence, Employment, Exports, Imports, Industrial Production, GDP Growth, Equity Markets, Stock Market Capitalization, Credit Growth, Unemployment Rate
Real Activity Index – Employment, Exports, Imports, Industrial Production, GDP Growth, Unemployment Rate
Financial Index – Equity Markets, Stock Market Capitalization, Credit Growth
Confidence Index – Business Confidence, Consumer Confidence

By Indicator Variable:
Advanced Economies, Emerging Market Economies, and Total Indexes are found by aggregating directly across country data. We create composite indexes separately for the groups of advanced economies and emerging markets covering all of the above variables. We also create additional indexes for each of these groups based on each category of variables listed below (real, financial, confidence). Finally, we generate country-specific indicators that cover all the variables for a given country and also variable-specific indicators that cover all countries' data for a given variable.

Description of Data and Source Information:

Indicator Variable	Unit	Description	Source
Business Confidence	Index	National confidence indicator	OECD
Consumer Confidence	Index	National confidence indicator	OECD
Employment	Percent	12-month growth rate of total employment levels	IMF International Financial Statistics; CEIC Data Company, Ltd.; National sources
Exports	Percent	12-month growth rate of 3 month moving average. Goods. USD	IMF Direction of Trade Statistics
Imports	Percent	12-month growth rate of 3 month moving average. Goods. USD	IMF Direction of Trade Statistics
Industrial Production	Percent	12-month growth rate of 3 month moving average. Seasonally Adjusted Volumes	World Bank, Global Economic Monitor; National sources
GDP Growth	Percent	Quarterly, year-over-year real growth rate. Each month in quarter are equal to quarterly rate. Latest quarter uses estimates from source.	Economist Intelligence Unit
Equity Markets	Percent	12-month growth rate of share price index in national currency	CEIC Data Company, Ltd.; IMF International Financial Statistics; Bloomberg
Stock Market Capitalization	Percent	12-month growth rate in national currency	CEIC Data Company, Ltd.
Credit Growth	Percent	12-month growth rate in national currency. Banking claims on private sector	IMF International Financial Statistics; Federal Reserve; Bank of Japan
Unemployment Rate	Percent	OECD Harmonized Unemployment Rate	OECD via Federal Reserve (FRED)

Data Composition of TIGER Indexes
The matrix below shows which countries and variables are included across the aggregated TIGER indexes.

	Bus. Conf.	Cons. Conf.	Employment	Exports	Imports	Industrial Production	GDP	Equity Market	Market Cap.	Credit Growth	Unemp. Rate
Advanced:											
Australia	x	x	x	x	x	-	x	x	x	x	x
Canada	x	-	x	x	x	x	x	x	-	-	x
France	x	x	x	x	x	x	x	x	x	x	x
Germany	x	x	x	x	x	x	x	x	-	x	x
Italy	x	x	x	x	x	x	x	-	-	x	x
Japan	x	x	x	x	x	x	x	x	x	x	x
Korea	x	x	x	x	x	x	x	-	x	x	x
Netherlands	x	x	x	x	x	x	x	x	x	x	x
Spain	x	x	x	x	x	x	x	x	x	x	x
UK	x	x	x	x	x	x	x	x	x	x	x
US	x	x	x	x	x	x	x	x	x	x	x
Emerging Markets:											
Argentina	-	-	-	x	x	-	x	x	-	-	-
Brazil	x	x	-	x	x	x	x	x	x	x	-
China	x	x	-	x	x	x	x	x	x	x	-
India	x	-	-	x	x	x	x	x	x	-	-
Indonesia	x	x	-	x	x	x	x	x	x	x	-
Mexico	x	x	x	x	x	x	x	x	x	x	-
Russia	-	-	-	x	x	x	x	x	x	-	-
South Africa	x	x	-	x	x	x	x	x	-	x	-
Turkey	x	x	x	x	x	x	x	x	x	x	-

Data Availability

The table below describes the availability of each variable by country. All data are monthly, begin in January 2006, and end in the specified month of 2024 or 2025. There are no major data updates expected in the period between index construction and index publication.

	Bus. Conf.	Cons. Conf.	Employ ment	Exports	Imports	Industrial Production	GDP	Equity Market	Market Cap.	Credit Growth	Unemp. Rate
Advanced:											
Australia	Feb	Mar	Jan	Nov	Nov	-	Q1	Apr	Mar	Jan	Jan
Canada	Oct	-	Jan	Nov	Nov	Dec	Q1	Apr	-	-	Jan
France	Mar	Mar	Dec	Nov	Nov	Jan	Q1	Apr	Mar	Dec	Jan
Germany	Mar	Mar	Jan	Nov	Nov	Jan	Q1	Apr	-	Dec	Jan
Italy	Mar	Mar	Dec	Nov	Nov	Jan	Q1	-	-	Dec	Jan
Japan	Dec	Feb	Jan	Nov	Nov	Jan	Q1	Apr	Apr	Feb	Jan
Korea	Mar	Mar	Jan	Nov	Nov	Jan	Q1	-	Apr	Dec	Jan
Netherlands	Mar	Mar	Dec	Nov	Nov	Jan	Q1	Apr	Mar	Dec	Jan
Spain	Mar	Feb	Dec	Nov	Nov	Jan	Q1	Apr	Feb	Dec	Jan
UK	Mar	Mar	Dec	Nov	Nov	Jan	Q1	Apr	Mar	Jan	Dec
US	Mar	Mar	Jan	Nov	Nov	Jan	Q1	Apr	Apr	Mar	Jan
Emerging:											
Argentina	-	-	-	Nov	Nov	-	Q1	Apr	-	-	-
Brazil	Mar	Mar	-	Nov	Nov	Jan	Q1	Apr	Apr	Dec	-
China	Feb	Jan	-	Nov	Nov	Jan	Q1	Apr	Apr	Jan	-
India	Aug	-	-	Nov	Nov	Jan	Q1	Apr	Apr	-	-
Indonesia	Dec	Feb	-	Nov	Nov	Dec	Q1	Apr	Mar	Dec	-
Mexico	Mar	Mar	Dec	Nov	Nov	Jan	Q1	Apr	Mar	Jan	-
Russia	-	-	-	Nov	Nov	Jan	Q1	Mar	Apr	-	-
South Africa	Mar	Mar	-	Nov	Nov	Jan	Q1	Mar	-	Jan	-
Turkey	Mar	Mar	Jan	Nov	Nov	Jan	Q1	Mar	Apr	Feb	-

Data Composition of Euro Periphery Country Indexes

The matrix below shows which countries and variables are included in the country indexes for Greece, Ireland, and Portugal. Italy and Spain are included in the above Advanced Economy group.

	Bus. Conf.	Cons. Conf.	Employ ment	Exports	Imports	Industrial Production	GDP	Equity Market	Market Cap.	Credit Growth	Unemp. Rate
Greece	x	x	-	x	x	x	x	x	x	x	x
Ireland	-	-	-	x	x	x	x	x	-	x	x
Portugal	x	x	-	x	x	x	x	x	x	x	x

Data Availability for Euro Periphery

The table below describes the availability of each variable for Greece, Ireland, and Portugal. Availability for Italy and Spain are included in the above Advanced Economy group. All data are monthly, begin in January 2006, and end in the specified month of 2024 or 2025. There are no major data updates expected in the period between index construction and index publication.

	Bus Conf.	Cons. Conf.	Employ ment	Exports	Imports	Industrial Production	GDP	Equity Market	Market Cap.	Credit Growth	Unemp. Rate
Greece	Mar	Mar	-	Nov	Nov	Sept	Q1	Apr	Apr	Dec	Jan
Ireland	-	-	-	Nov	Nov	Jan	Q1	Apr	-	Dec	Jan
Portugal	Mar	Mar	-	Nov	Nov	Jan	Q1	Apr	Mar	Dec	Jan