



Training Program of AITRS for 2018-2019 within the Framework for Developing Statistics that Support the Sustainable Development Goals (SDGs) 2030 in the Arab Region

SDG Indicators under FAO Custodianship

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GOAL 2. END HUNGER, ACHIEVE FOOD SECURITY AND IMPROVED NUTRITION AND PROMOTE SUSTAINABLE AGRICULTURE



2.c Adopt measures to ensure the proper functioning of food commodity markets and their derivatives and facilitate timely access to market information, including on food reserves, in order to help limit extreme food price volatility

2.c.1 Indicator of food price anomalies



IMPORTANCE OF PRICE MONITORING

- The connection between food and national security was brought into sharp focus during the food price crisis of 2007/2008
- In a globalised world, keeping an eye on food commodity prices and a careful watch for price hikes has never been more important
- In many countries, market prices are sometimes the only source of information to assess the severity of a local shock to either access or availability of food
- The Indicator of Food Price Anomalies (IFPA) is an indirect indicator of Target 2.c, as it is a measure of food price volatility, detecting abnormal growth of prices in food markets

INDICATOR FORMULA: COMPOUND GROWTH RATE (CGR)

- The CGR is the growth in any random variable from the beginning of the period t_0 to the end of the period t_n , raised to the power of one over the length of the period of time being considered, as highlighted in the equation below:

$$CXGR_t = \left(\frac{P_{t_n}}{P_{t_0}} \right)^{\frac{1}{n}} - 1$$

Where:

- ✓ t is period
- ✓ P_{t_n} is price at the end of the period
- ✓ P_{t_0} is price at the beginning of the period
- ✓ $n - 1$: number of months in the period

INDICATOR FORMULA

- The indicator of food price anomalies is composed of two sub-indicators:

$$IFPA_t = \alpha \left(\frac{CQGR_{yt} - \overline{CQGR}_t}{\hat{\sigma}_{CQGR_t}} \right) + (1 - \alpha) \left(\frac{CAGR_{yt} - \overline{CAGR}_t}{\hat{\sigma}_{CAGR_t}} \right)$$

Where α is equal to 0.40

- ✓ $CQGR_{yt}$ and $CAGR_{yt}$ are the quarterly and annual compound growth rates in year y and month t respectively
- ✓ \overline{CQGR}_t and \overline{CAGR}_t are weighted means of the quarterly and annual compound growth rates in month t
- ✓ The weights are increasing time weights, so the more recent past has a higher weight in the calculation of the mean and standard deviation than the beginning of the price series.
- ✓ $\hat{\sigma}_{CQGR_t}$ and $\hat{\sigma}_{CAGR_t}$ are weighted standard deviations of the quarterly and annual compound growth rates in month t



DATA SOURCES

- The indicator monitors price anomalies in:
 - ✓ Commodity level price data is harvested from national market Information systems and national statistics agencies
 - ✓ Food CPI data originates from the IMF, and UNSD for countries not covered by the IMF. The FAO Food CPI dataset consists of a complete and consistent set of time series from January 2000 onwards.
 - ✓ For the commodity prices please visit FAOs Food Price Monitoring and Analysis (FPMA) Tool
<http://www.fao.org/giews/food-prices/tool/public/#/home>
 - ✓ For the Food Indices visit
<http://www.fao.org/faostat/en/#data/CP>



INDICATOR METHODOLOGY

- Three levels are defined for the indicator

$$\left\{ \begin{array}{ll} IFPA_t < 0.5. & \textit{Normal} \\ 0.5 \leq IFPA_t < 1 & \textit{Price Watch} \\ IFPA_t \geq 1 & \textit{Price Alert} \end{array} \right.$$

- “Price Anomaly” is defined as the recording of a difference between the monthly CGR and the historic average CGR, greater than one standard deviation



INDICATOR CALCULATION AND DISSEMINATION

- Adoption of this indicator will require countries to identify relevant, official monthly food price series and inform calculations, data collection and publication on a monthly basis
- The amount of years need to calculate the indicator with confidence is 4 years. We need 3 years to estimate the averages and standard deviations and then the data on the 4th year to make an analysis.
- We are only concerned with **upward** price movements. This is because all the price data used is consumer-focused. This is more true with the Food CPI, which also includes processed foods.
- While there may be a price transmission from consumer to producer prices this is not always strong or maybe negligible because of asymmetric market power or a small share of the cost of the commodity in the processed product. Clear example is flours, where the cost of the commodity is negligible and electricity, salaries, marketing costs are more important.



INDICATOR CALCULATION AND DISSEMINATION

Results for key commodities are calculated, disseminated and analysed through the FPMA website and bulletin on a monthly basis

<http://www.fao.org/giews/food-prices/tool/public/#/home>

d in September mostly because of weather-related concerns, those of maize fell further on crop harvest pressure **International** - Export prices of ric

DOMESTIC PRICE WARNINGS

Countries where prices of one or more basic food commodity are at abnormal high levels in main markets (identified by the Indicator of Price Anomalies), which could negatively impact access to food at national level



Price warning level: High Moderate [Based on GIEWS analysis]

INTERNATIONAL AND DOMESTIC PRICES



INDICATOR CALCULATION AND DISSEMINATION

- The FPMA database contains 1 26 price series for 47 commodities in 18 markets of 8 Arab countries (**Djibouti, Mauritania, Morocco, Palestine, Saudi Arabia, Sudan, Tunisia, Yemen**)

The SDG indicator 2.c.1 can only be calculated in certain cases however:

- ✓ for global comparability, it is only calculated for five commodities
- ✓ it is only calculated at national level (price is either nationally representative or of the key market/markets)
- ✓ price series is sufficiently long and consistent
- ✓ commodities with government controlled prices are not included yet

Country	2.c.1 Food CPI	2.c.1 Maize	2.c.1 Wheat	2.c.1 Rice
Algeria	-1.636			
Bahrain	-1.227			
Comoros				
Djibouti				
Egypt				
Iraq				
Jordan	-1.139			
Kuwait	-1.449			
Lebanon	-0.168			
Libya				
Mauritania	-0.247		0.48	0.03
Morocco	0.544	0.51	2.3	
Oman	-1.53			
Palestine				
Qatar	-1.966			
Saudi Arabia				
Somalia				
Sudan				
Syria				
Tunisia	-1.401			
UAE	-0.421			
Yemen				



INDICATOR INTERPRETATION

- The indicator of food price anomalies offers governments regular price information on a basket of goods.
- Provides early warning to countries where there is a potential impact on economic access to key food products as a result of abnormally high food prices. It helps countries ensure appropriate measures can be taken to soften the blow when consumer markets fluctuate.



INDICATOR LIMITATIONS

- The indicator of food price anomalies is an approximate guide of market dynamics. As such, one cannot rely on it as the sole element to consider when giving a food security alert or characterizing prices as abnormally high.
- Instead its results must be weighed with other available information on market fundamentals and possible short term policy shocks that can explain these price movements.
- This is especially important when evaluating whether or not the observed shocks in prices will persist or are transitory.
- Moreover, the indicator does not attempt to directly assign causality to the implementation of any given policy or market strategy, nor can it do so.



CAPACITY DEVELOPMENT INITIATIVES

- FAO calculates the indicator of food price anomalies using country level data, but no country calculates the indicator on its own yet. However, during 2018 FAO will facilitate the ability for any country to calculate the indicator
- FAO is now developing a **module** in the FPMA Tool, which would **allow countries to calculate the indicator** automatically.
- **E-learning** course on the indicator in English is already available, planned for translation into Spanish, French, and Russian
- Further implementation of the FPMA Tool at the country level will enable reporting on the indicator



Food and Agriculture
Organization of the
United Nations



THANK YOU

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For more detailed information please see:

■ <http://www.fao.org/sustainable-development-goals/indicators/2c1/en/>