

MONITORING INDICATOR TO ECONOMY (ISE)

Administrative National Department of Statistic - DANE

National Accounts Bureau
Bogotá, Colombia



DANE
Departamento Administrativo
de Estadística



MONITORING INDICATOR TO ECONOMY DANE



- 1 ABSTRACT
- 2 PREVIOUS STUDIES
- 3 METHODOLOGY
- 4 LAST RESULTS
- 5 EVIDENCE OF APPLICATION
- 6 CONCLUSIONS
- 7 REFERENCE

ISE is a *synthetic index of production*. It is built from many monthly indicators which give an important signal of Colombian economy behaviour in short term. Also it allows to represent all the information in an aggregated way with opportunity.

The expectation of this article is to show how strong ISE works on so that it can be inputs for new data and alternative economic reports for many entities. Likewise, this work finds out the performance of ISE as a synthetic indicator which anticipates the trend of economic activity.

- ↓

- Checking many international experiences (Chile, Canadá, Nicaragua, etc.).
- Choosing bibliography about indicators which measures the trend of whole economy.
- Getting a research with a diagnostic about the opportunity and the availability of information.

- **Pilot scheme: June 2012 (IMAECO)**



- It was possible to create the first monthly indicator from Output approach. Its analysis and structure were similar to the methodology of Quarterly Accounts. The complication of obtaining information in short term made change the way of computing the indicator and the way to report its results.

-

- Published data with 62 days of delay.
- Policy of Publication¹: for the first second months of the benchmark quarter, DANE publishes just a total index of ISE. For the third month, DANE publishes a total index of ISE and all economic activities which are adjusted to **Quarterly National Accounts**.
- First month of publication: April 2014.

- Checking and making synthesis of information.
- Products are assigned to built every brand of activity.
- Those brand of activities are aggregated to get the total Brand for each value add of economic activity.
- Every total brand of economic activity is aggregated through the *weighted arithmetic sum*² to get the total index of Value added.
- Adjusting series by Benchmarking method to Quarterly National Accounts .
- When ISE is obtained, index is adjusted by seasonality process.

²We use weights for each economic activity which are calculated from Annual National Accounts.

Analysis of Time Series

- **Benchmarking:** The indicator is adjusted to harmonize with quarterly National Account keeping monthly frequency and enhancing information through Benchmarking Method (Denton Chollette).
- **Seasonality Process:** Having adjusted series, indicator is adjusted to remove seasonal and calendar effects. X-12 ARIMA is the method to homogenize all data.

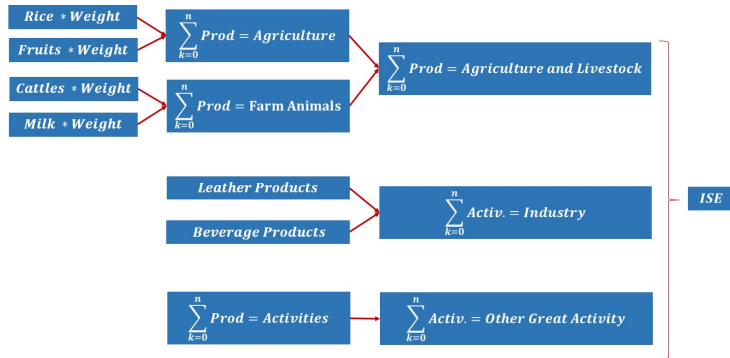


FIGURE: Diagram of the process.

Example

TOTAL BRAND	BRAND OF ACTIVITIES	SOURCES
Wholesale and retail trade, repairs, Hotels and restaurants	Wholesale and retail trade	- Total Margins of Trade
	Services Repairs	- Stock of vehicles - Constant incomes for Repairs
	Services of Hotels and Restaurants	- Nominal Incomes for Hotels - Projection of Nominal Incomes for Restaurant.

Cuadro 1: Composition of one activity

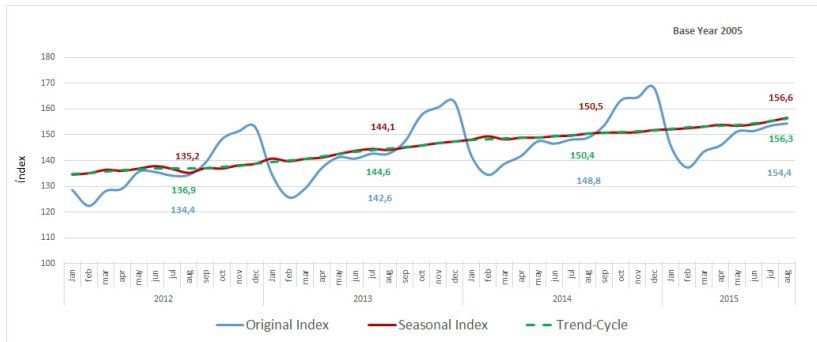


FIGURE: ISE: August results

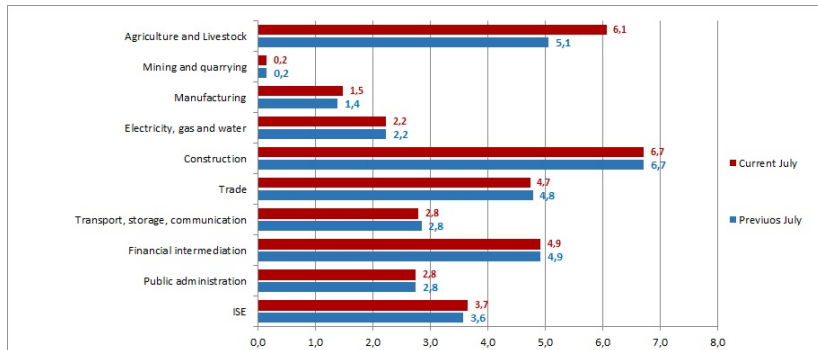


FIGURE: Comparison of Results

First case: DANE

- ISE is an index which anticipates the TREND of GDP.
- ISE is a good tool which helps to analyse each month for every brand activity before of consolidating the growth of economy in quarter frequency.
- ISE make a follow to Trend-Cycle.

Second case: Ministry of Finance and Public Credit-Government

→ They have a similar tool to analyse the trend of the economy: ISAAC. It is based on a Google-Trend tool. However it is not generated by observed data.

→ Then they use ISE which lets anticipate the TREND of GDP.

Third case: Central Bank

- They also have a tool to analyse the trend of the economy: IMACO. It is based on estimation by econometric models.
- Nevertheless, they obtain data from ISE which allows to anticipate the forecast of GDP because of its high correlation.
- ISE supports monthly report of inflation.

Fourth case: Corficolombiana

- ISE anticipates the forecast of GDP.
- ISE is used as benchmark for getting reports about price levels and economic activities.
- ISE makes also easier the likely decisions about fiscal and monetary policy.

We can consider ISE is an appropriate and complete *synthetic indicator* for analysis of the economy in short term. In comparison to others index, ISE is the only synthetic index with the structure of accounting support, economic consistency and strength from Direction of National Account.

According to the experience for DANE and many entities in Colombia, ISE has become in a powerful tool in order to forecast more accurate what decision maker will decide about economic policies.

Anyway we have many challenges to overcome for the future:

- Improving information and update all sources.
- Less models of estimation
- To design a methodology of a synthetic index for different regions in Colombia.

- BANCO CENTRAL DE NICARAGUA (2011). Metodología para el Cálculo del Índice Mensual de Actividad Económica (IMAE).
- Bee E. and Cholette Pierre A. (2006), " Benchmarking, Temporal Distribution, and Reconciliation Methods for Time Series", Lecture Notes in Statistic, Springer, 2006.
- Denton, F.T. (1971) " Adjustment of monthly or quarterly series to annual totals: an approach based on quadratic minimization", Journal of the American Statistical Society, vol. 66, n. 333, p. 99-102.

- Escandon A., Gajardo P., Y Vanegas J. (2005). Indicador Mensual de Actividad Económica (IMACEC) Base 1996 Nota Metodológica. Serie de Estudios Económicos: Documentos de Investigación, Banco Central de Chile.
- Fernández, R.B. (1981) "Methodological note on the estimation of time series", Review of Economic and Statistics, vol. 63, n. 3, p. 471-478.
- Lisman, J.H.C. Sandee, J. (1964). Derivation of quaterly figures from annual data. Applied Statistics, n: 2, vol: 13, pp: 87-90.

- Vanegas, J. (1987). Indicador de Actividad Económica (IMACEC) Metodología y Serie 1982-1986. Serie de Estudios Económicos: Documentos de Investigación, Banco Central de Chile.
- Vanegas, J. Y Zambrano, C. (2000). Indicador Mensual de Actividad Económica (IMACEC) Base 1986 Nota Metodológica. Serie de Estudios Económicos: Documentos de Investigación, Banco Central de Chile.