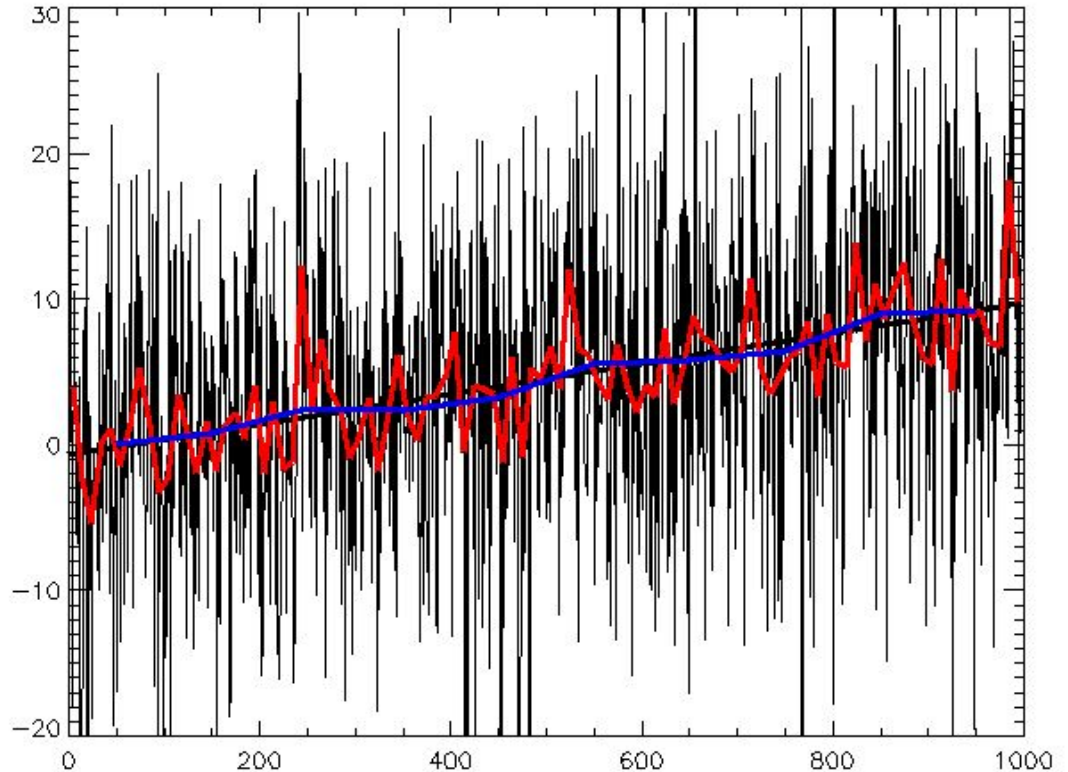

Predicción Series Temporales 1

Iván G. Torre

Qué son las series temporales

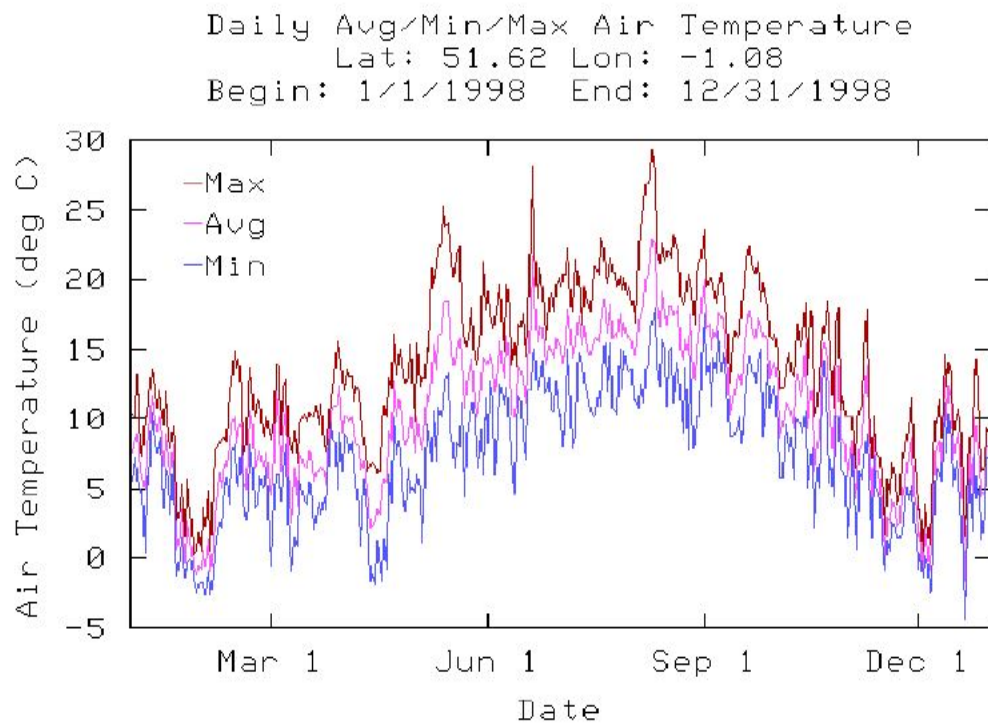
- Secuencia de datos ordenada cronológicamente



Series temporales: ejemplos

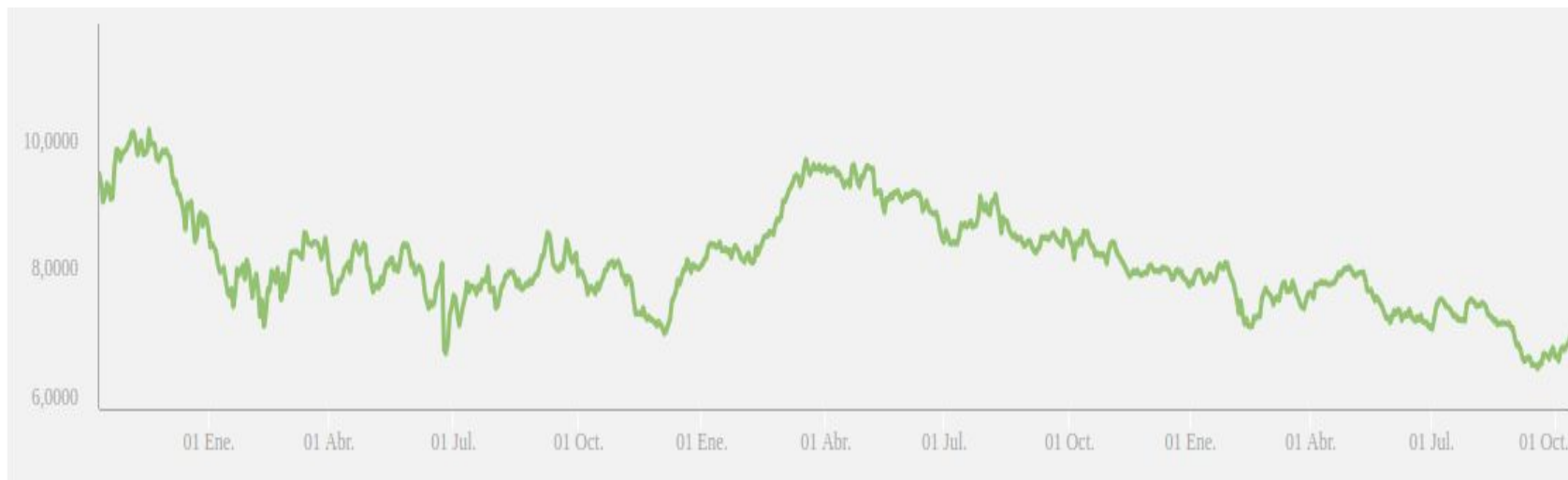
Series temporales: ejemplos

- Metereológicas



Series temporales: ejemplos

- Bolsa de valores

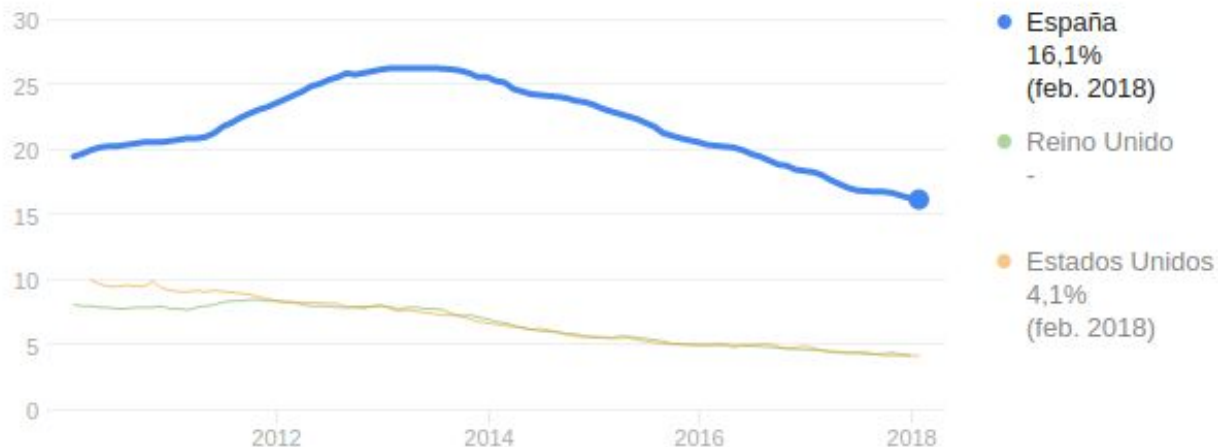


Series temporales: ejemplos

- Desempleo

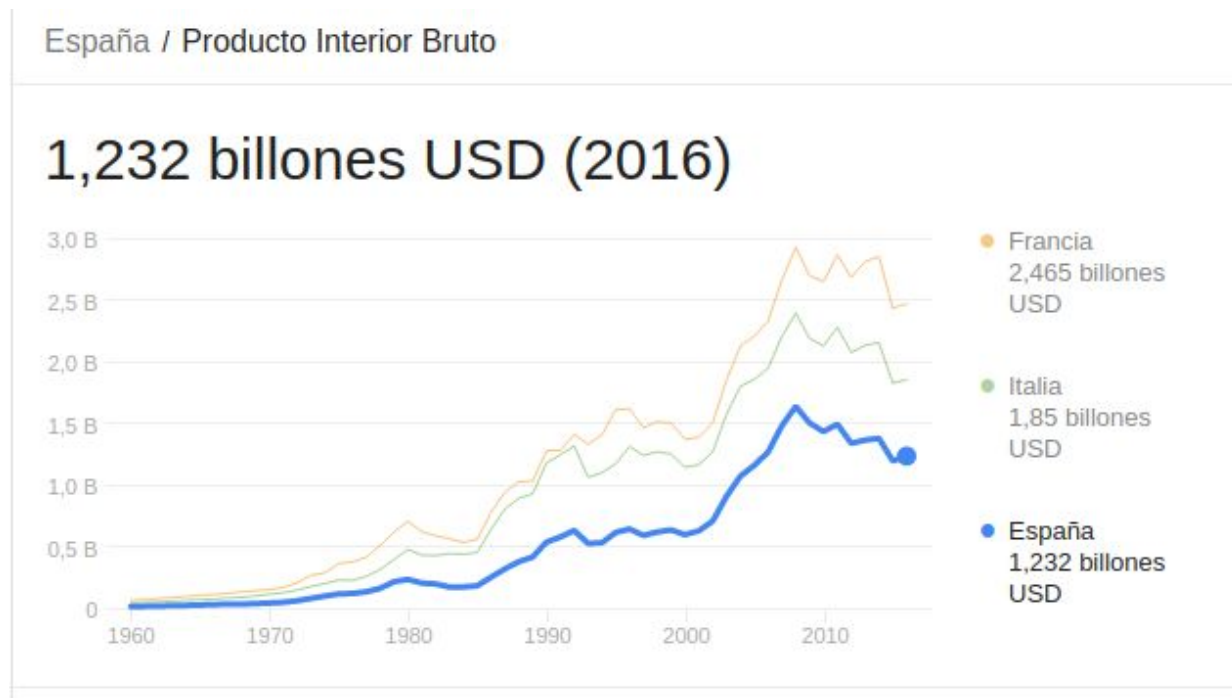
España / Tasa de desempleo

16,1% (feb. 2018)



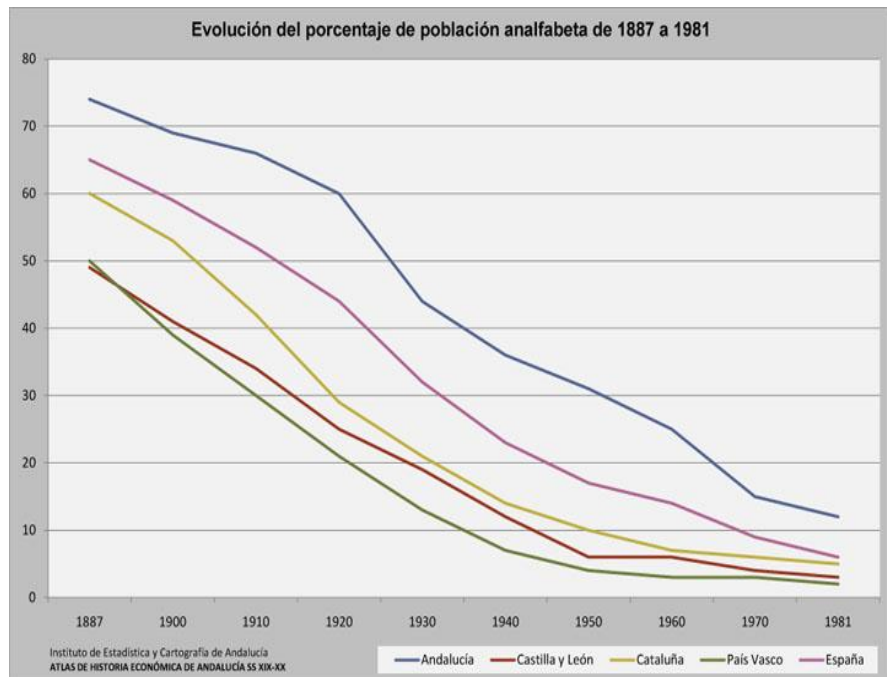
Series temporales: ejemplos

- Datos Macroeconómicos



Series temporales: ejemplos

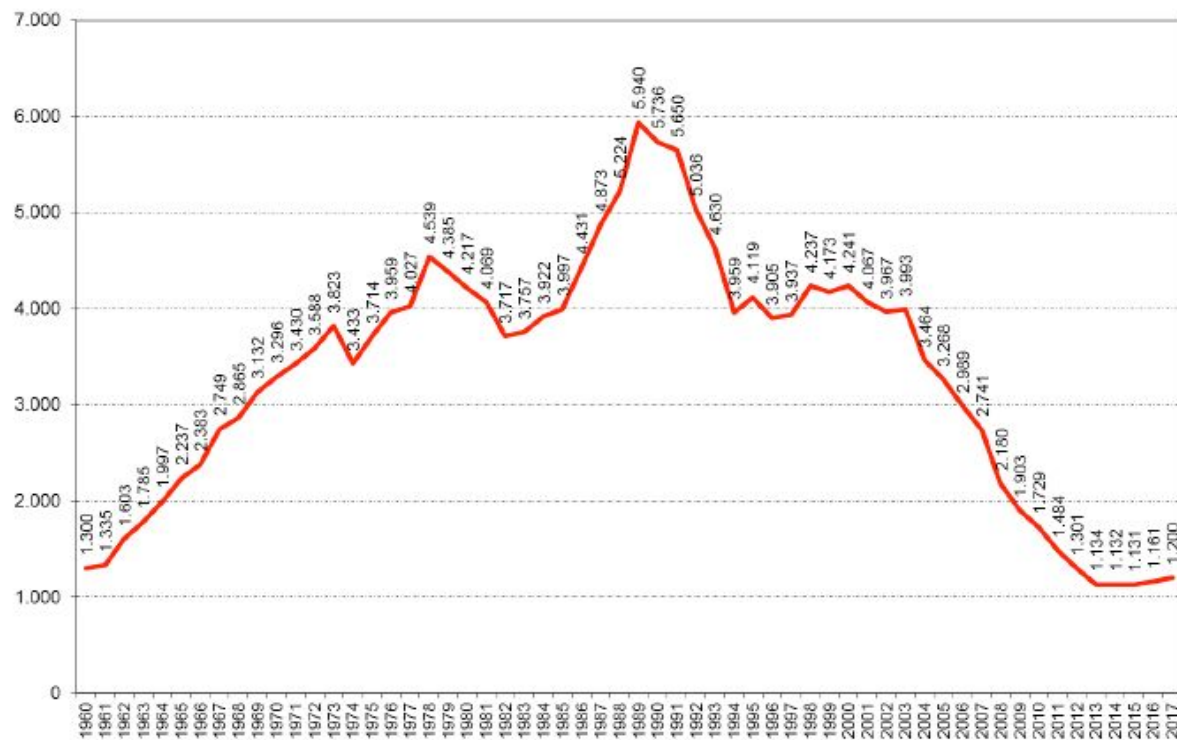
- Sociales



Series temporales: ejemplos

- Muertos en Carretera

https://www.youtube.com/watch?time_continue=9&v=_W2pR2PZfr4



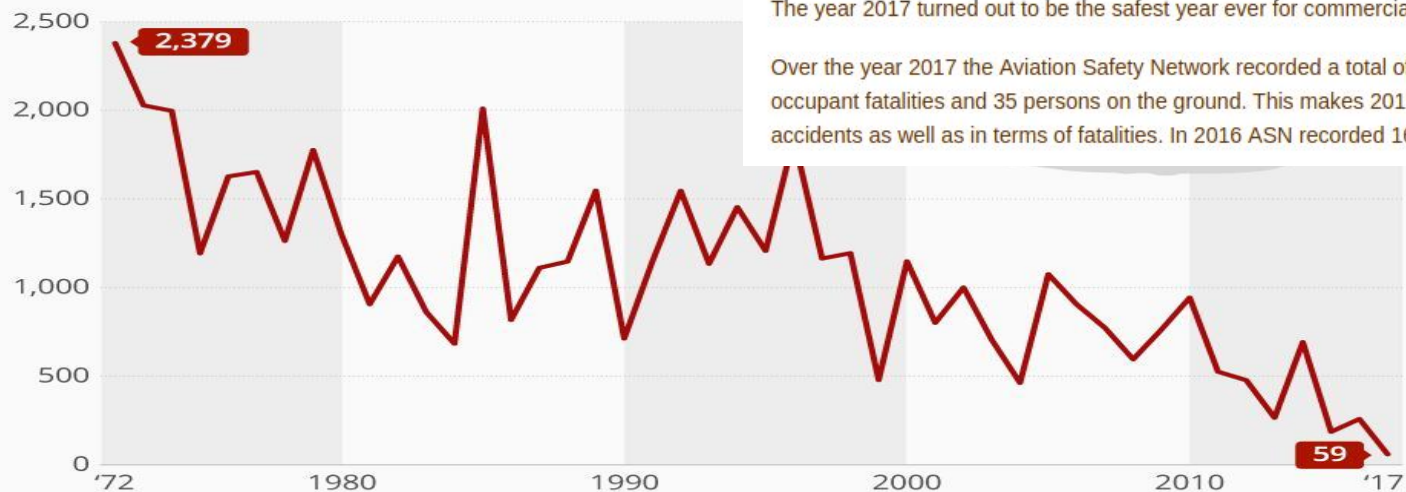
Series temporales: ejemplos

- Muertos en Aviación

ASN data show 2017 was safest year in aviation history

2017 Was The Safest Year In The History Of Aviation

Airline accident fatalities by year from 1972 to 2017



The Aviation Safety Network today released the 2017 airliner accident statistics showing an extremely low total of 10 fatal airliner accidents, resulting in 44 fatalities.

The year 2017 turned out to be the safest year ever for commercial aviation, Aviation Safety Network data show.

Over the year 2017 the Aviation Safety Network recorded a total of 10 fatal airliner accidents ^[1], resulting in 44 occupant fatalities and 35 persons on the ground. This makes 2017 the safest year ever, both by the number of fatal accidents as well as in terms of fatalities. In 2016 ASN recorded 16 accidents and 303 lives lost.

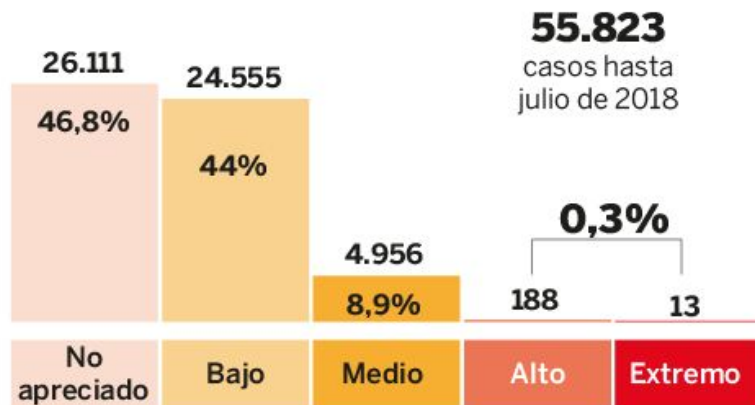
Series temporales: ejemplos

- Violencia de género

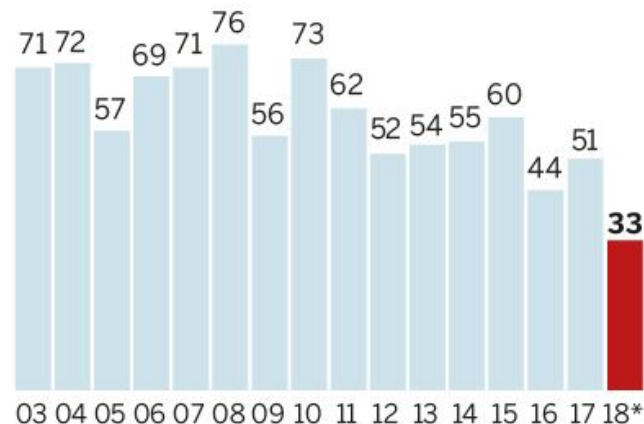
LA VIOLENCIA MACHISTA EN 2018

CALIFICACIÓN DEL NIVEL DE RIESGO DE LAS VÍCTIMAS

Casos activos registrados por todos los cuerpos policiales en todas las comunidades



VÍCTIMAS MORTALES



Series temporales: ejemplos

- Criminalidad

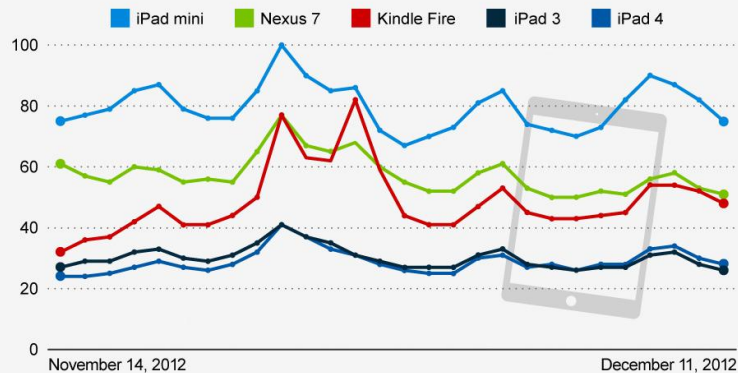


Series temporales: ejemplos

- Estacionalidad de ventas

Small Tablets Dominate Pre-Christmas Consumer Interest

Global search interest in the past 30 days (100 represents peak search volume)

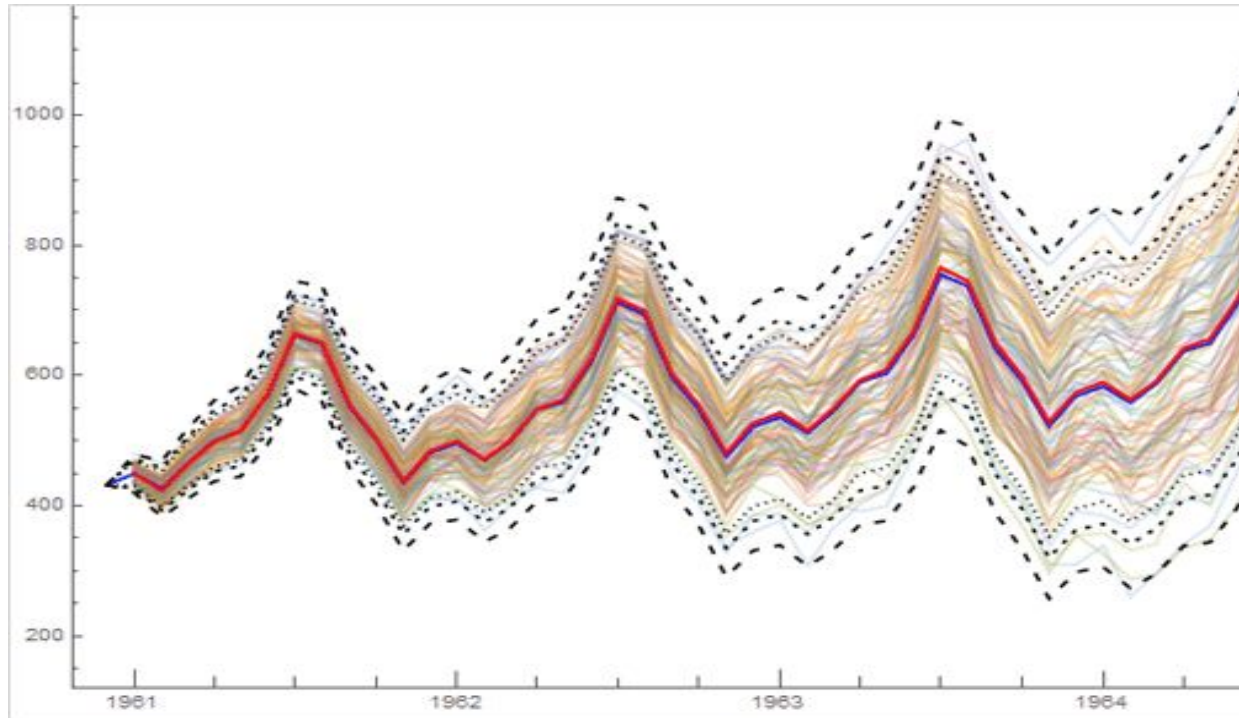


U.S. Retail E-Commerce Sales Grow by 16% in Q2 2013

Estimated desktop-based U.S. retail E-Commerce sales (in billion U.S. dollars)

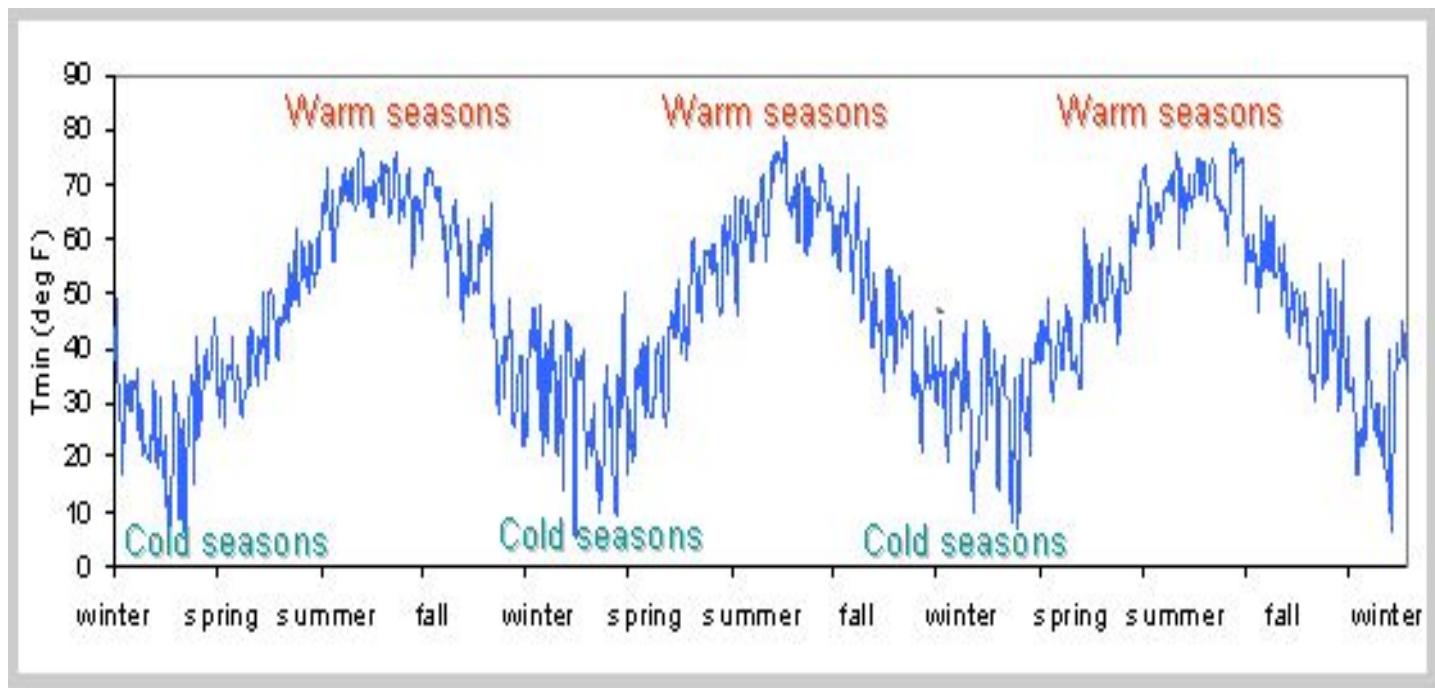


Análisis: Observar



Análisis: sesionalidad

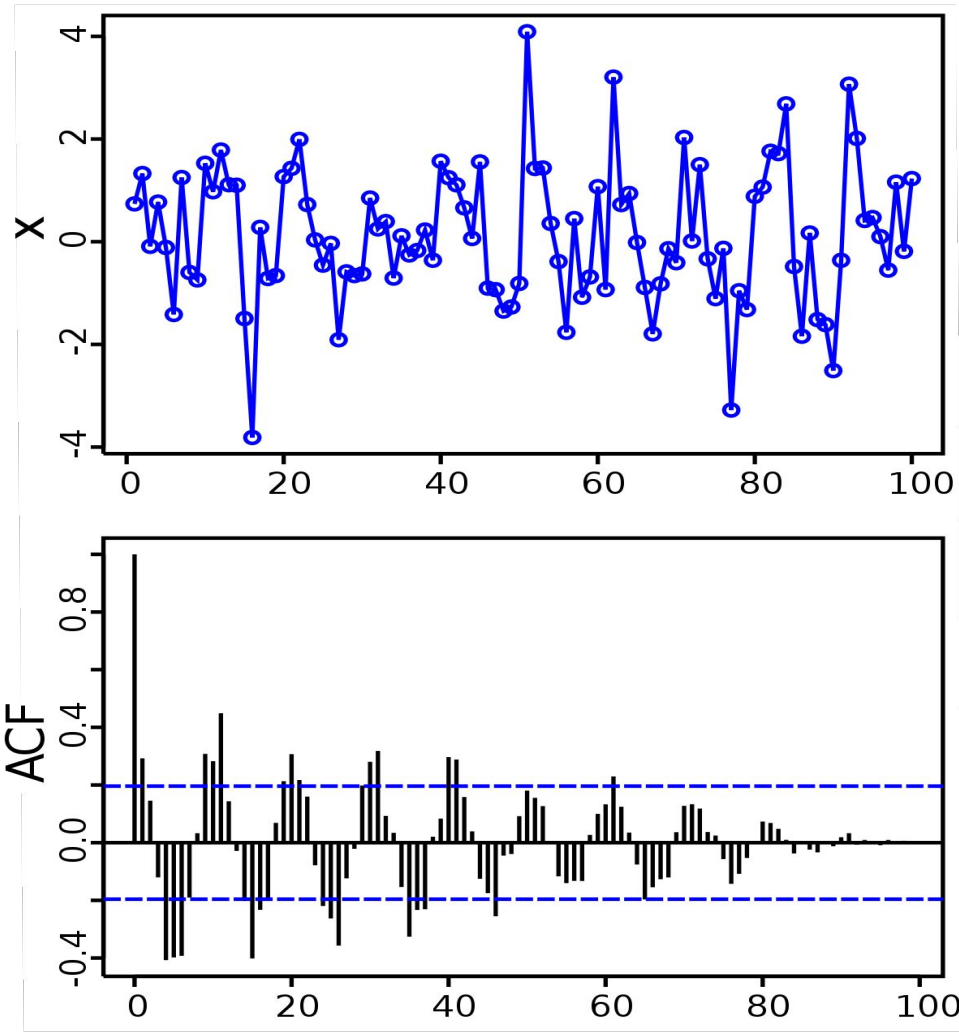
- Horaria
- Diaria
- Semanal
- Mensual
- Anual
- ...



Análisis: autocorrelación

- Correlación cruzada consigo misma
- En función del lag

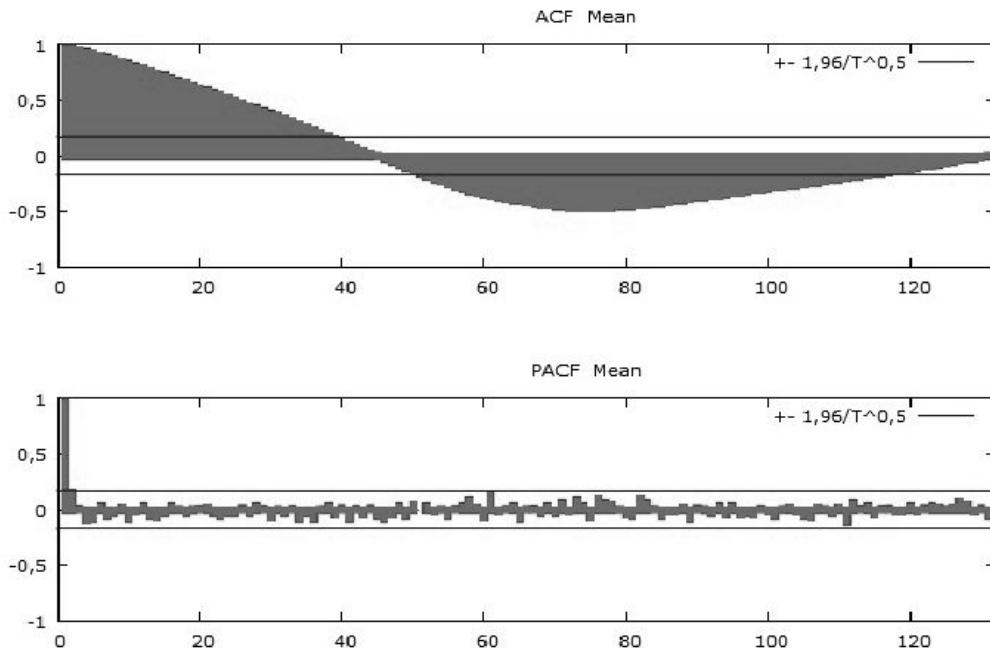
$$\frac{E[(x_t - \mu_t)(x_s - \mu_s)]}{\sigma_t \sigma_s}$$



Análisis: autocorrelación parcial

- Autocorrelación conociendo los valores en los lags menores.

$$\frac{\text{Covariance}(x_t, x_{t-3} | x_{t-1}, x_{t-2})}{\sqrt{\text{Variance}(x_t | x_{t-1}, x_{t-2}) \text{Variance}(x_{t-3} | x_{t-1}, x_{t-2})}}$$

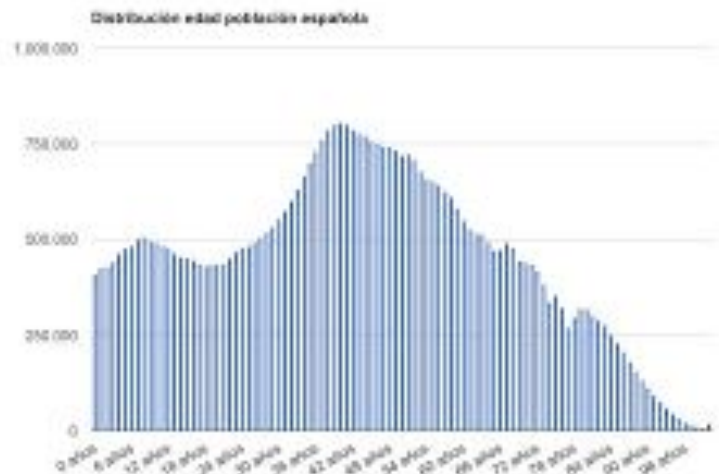


Análisis: Media móvil

- Promedio de n valores anteriores

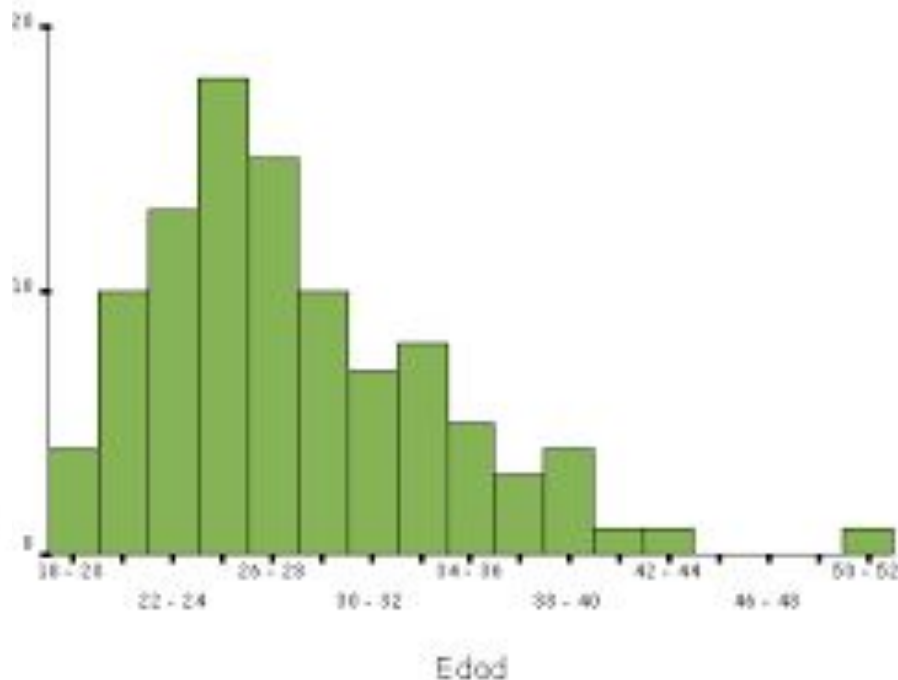


Análisis: Histograma datos



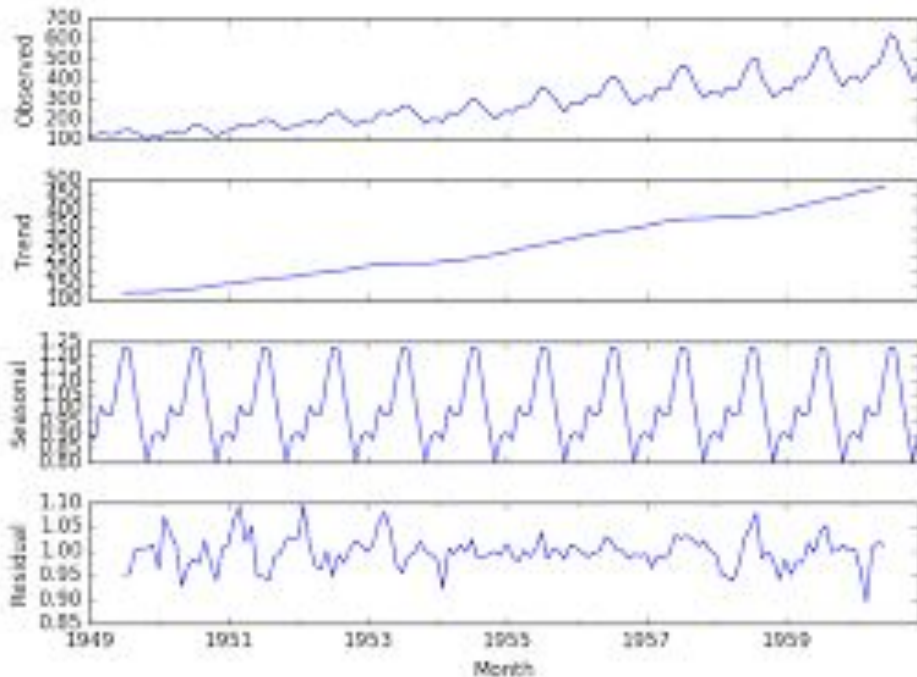
Datos:INE Fecha: 1/8/2016

Elaboración: www.asthacem.com

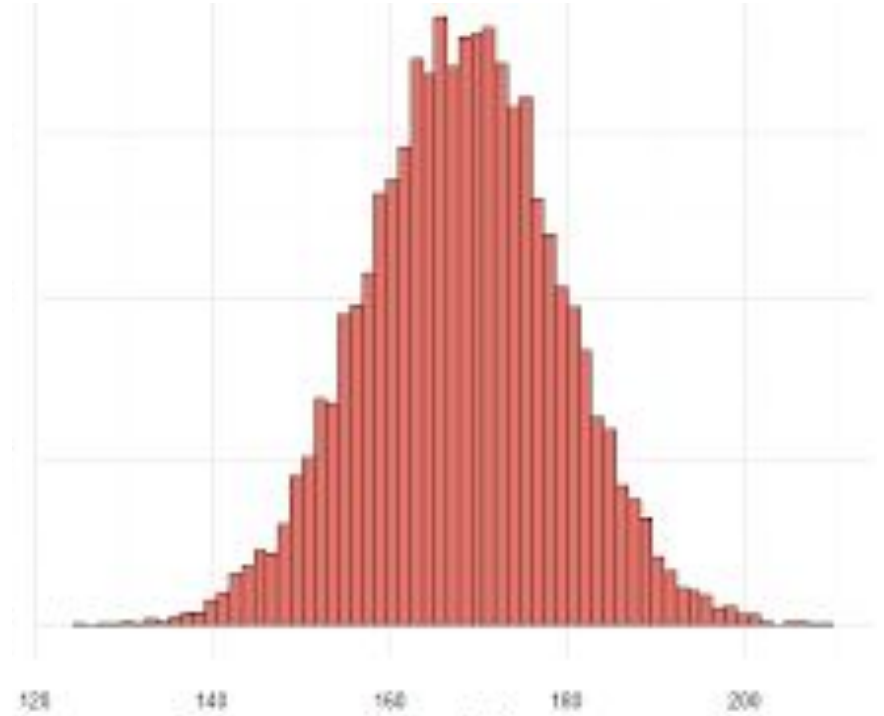


Análisis: Descomposición de la serie

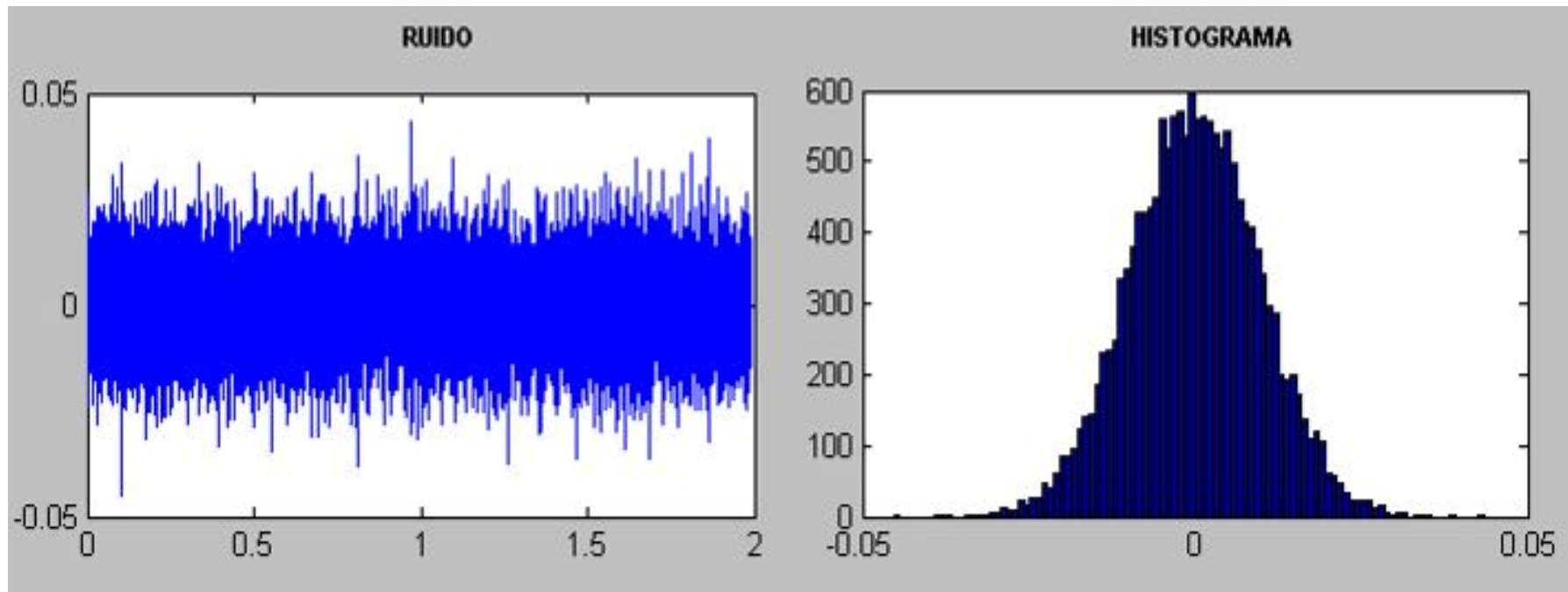
- Tendencia
- Sesionalidad
- Residuos



Análisis: Estudio de los residuos



Análisis: Estudio de los residuos



Análisis de una serie temporal: Ejercicio

