ICRAMCS 2026

THE EIGHTH EDITION OF THE INTERNATIONAL CONFERENCE ON RESEARCH IN APPLIED MATHEMATICS AND COMPUTER SCIENCE

April 23-24-25, 2026 | Marrakech, Morocco

Time-Frequency Dynamics of Exchange Rate Pass-Through in Morocco: A Partial Wavelet Coherence Approach

Communication Info

Authors:
Yassine EL-ALOUY
Ayad EL BAZ

National School of Business and Management, Chouaib Doukkali University, El Jadida, Morocco

Keywords:
(1) Exchange Rate Pass-Through
(2) Wavelet Coherence
(3) Partial Phase Difference
(4) Inflation
(5 Monetary Policy
(6) Morocco

Abstract

This research examines how exchange rate fluctuations impact consumer prices (Exchange Rate Pass-Through, or ERPT) in Morocco from 2010:M01 to 2024:M12.

Instead of traditional models, we use advanced frequency-based tools (**Wavelet Coherence**) to analyze the relationship between the exchange rate and inflation over time. We also use Principal Component Analysis (PCA) to filter out real economic factors (production and trade) to isolate the pure monetary impact.

The results reveal:

- Short-term Impact: ERPT in Morocco is strictly a short-term phenomenon. Exchange rate changes impact domestic inflation predominantly within a brief 3- to 6-month window.
- Long-term Stability: In the medium to long term, exchange rates and consumer prices are completely disconnected.

References

[1] Bilgili, Faik, et al. "Exchange rate pass-through at high and low frequencies in Turkey: a continuous wavelet transform model approach." *Journal of Economic Structures* 13.1 (2024): 21.

[2] Kuşkaya, Sevda, Nurhan Toğuç, and Faik Bilgili. "Wavelet coherence analysis and exchange rate movements." *Quality & Quantity* 56.6 (2022): 4675-4692.

[3] Tiwari, Aviral Kumar, Arif Billah Dar, and Niyati Bhanja. "Oil price and exchange rates: A wavelet based analysis for India." *Economic Modelling* 31 (2013): 414-422.

[4] Aguiar-Conraria, Luís, and Maria Joana Soares. "The continuous wavelet transform: Moving beyond uni-and bivariate analysis." *Journal of economic surveys* 28.2 (2014): 344-375.

[5] Andrieş, Alin Marius, Iulian Ihnatov, and Aviral Kumar Tiwari. "Analyzing time–frequency relationship between interest rate, stock price and exchange rate through continuous wavelet." *Economic Modelling* 41 (2014): 227-238.