## **Scopus**

### Documents

Suleman, S.<sup>a b</sup>, Bibi, S.<sup>c</sup>, Azam, M.<sup>b</sup>, Thas Thaker, H.M.<sup>a</sup>, Cheong, C.W.H.<sup>d</sup>

**Magnetic macro drivers of labor efficiency: a study of high and low trade open economies** (2025) *International Journal of Manpower*, 46 (3), pp. 410-429.

DOI: 10.1108/IJM-03-2024-0196

<sup>a</sup> Kulliyyah of Economics and Management Sciences, International Islamic University Malaysia, Kuala Lumpur, Malaysia

<sup>b</sup> Department of Management Sciences, Mohammad Ali Jinnah University, Karachi, Pakistan

<sup>c</sup> Department of Business Administration, IQRA University, Karachi, Pakistan

<sup>d</sup> Department of Economics and Finance, Sunway University, Bandar Sunway, Malaysia

#### Abstract

Purpose: This research aims to systematically compare the impact of macro drivers on labor efficiency (LEFF) in high and low trade openness economies, employing the Solow model as the theoretical framework. Design/methodology/approach: This study examines the influence of macro drivers on LEFF from 1995 to 2020, employing advanced panel regression methods such as stepwise regression (SR), fully modified ordinary least squares (FMOLS) and panel OLS. It utilizes Pedroni and Johansen co-integration tests to assess long-term dynamics and Granger causality tests to explore causal relationships between macro drivers and LEFF. Findings: The results reveal both long-term and short-term relationships between LEFF and the macro drivers: gross capital formation (GCF), per capita income (PCI), foreign direct investment (FDI), trade openness (TOP) and gross national savings (GNS). The findings show that these macro drivers positively and significantly influence LEFF in both high and low TOP economies. Specifically, FDI, PCI and GNS have a more substantial positive impact on LEFF in low TOP economies, while GCF and TOP have a greater influence in high TOP economies. Furthermore, in high TOP economies, FDI, TOP and PCI exhibit a unidirectional relationship with LEFF, while GNS and GCF show a bidirectional relationship. In low TOP economies, all five macrodrivers exhibit bidirectional relationships with LEFF. Research limitations/implications: This research focuses on countries with high and low TOP, limiting the generalizability of its findings to other economic systems due to the unique trade, institutional and governance frameworks of these two distinct groups. Originality/value: To the best of the authors' knowledge, this study is the first to compare the impact of theoretical macro drivers on LEFF across groups of countries differentiated by their degrees of TOP (high and low). © 2024, Emerald Publishing Limited.

#### Author Keywords

Cointegration; Labor efficiency; Labor efficiency drivers; Trade openness

#### References

- Abdelgany, M., Saleh, A.
  - Human capital and labor productivity: empirical evidence from developing countries (2022) International Journal of Economics, Finance and Management Sciences, 10 (4), pp. 173-184.
- Abdullahi, N.Y., Hamid, A.A.
   Performance of total factor productivity and trade openness on economic growth: an empirical evidence for Nigeria (2024) *Journal of Arid Zone Economy*, 3 (2), pp. 25-37.
- Adeosun, O.T., Odior, S.E., Shittu, I.A., Adegbite, W.M.
   Industrial sector performance, human capital development and economic growth in Nigeria

   (2023) International Research Journal of Biological Sciences, 16 (2), pp. 163-177.
- Agbarakwe, U.H., Bredino Samson, M.
   Trade liberalization & economic growth in Nigeria (1981-2022) (2024) Cross Current Int J Econ Manag Media Stud, 6 (2), pp. 48-52.
- Aitken, B.J., Harrison, A.E.
   Do domestic firms benefit from direct foreign investment? Evidence from Venezuela (1999) The American Economic Review, 89 (3), pp. 605-618.

Alataş, S.

Revisiting the Solow growth model: new empirical evidence on the convergence debate

(2023) Journal of Economic and Administrative Sciences, 39 (4), pp. 801-817.

- Amin, M., Islam, A.M., Khalid, U.
   Why are firms in high-income economies more productive than in middle-income economies? Decomposing the firm labor productivity gap

   (2023) Studies in Comparative International Development, 58 (4), pp. 1-30.
- Arize, A.C., Malindretos, J., Ghosh, D.
   Purchasing power parity-symmetry and Proportionality: evidence from 116 countries

   (2015) International Review of Economics & Finance, 37, pp. 69-85.
- Asada, H.
   Effects of foreign direct investment and trade on labor productivity growth in
   Vietnam
   (2020), lournal of Bisk and Einancial Management, 13 (0), p. 204

(2020) Journal of Risk and Financial Management, 13 (9), p. 204.

- Baltagi, B.H. (2008) *Econometric Analysis of Panel Data*, p. 366. p., 4th ed., Wiley and Sons, London
- Bandiera, O., Prat, A., Hansen, S., Sadun, R.
   CEO behavior and firm Performance (2020) *Journal of Political Economy*, 128 (4), pp. 1325-1369.
- Baptist, S., Teal, F. **Technology and productivity in African manufacturing firms** (2014) *World Development*, 64, pp. 713-725.
- Breusch, T.S., Pagan, A.R. **A simple test for heteroscedasticity and random coefficient Variation** (1979) *Econometrica*, 47, pp. 1287-1294.
- Capello, R., Lenzi, C., Perucca, G. **The modern Solow paradox. In search for Explanations** (2022) *Structural Change and Economic*, 63, pp. 166-180.
- Chen, S., Zhang, H., Wang, S. **Trade openness, economic growth, and energy intensity in China** (2022) *Technological Forecasting and Social Change*, 179.
- Chow, G.C.
   Tests of equality between sets of coefficients in two linear regressions
   (1960) *Econometrica*, 28 (3), pp. 591-605.
- Dua, P., Garg, N.K.
   Determinants of labour productivity: comparison between developing and developed countries of Asia-Pacific (2019) Pacific Economic Review, 24 (5), pp. 686-704.
- Elias, S., Worku, A. **The causal relationship between gross domestic savings and economic growth in East Africa: evidence from Ethiopia, Uganda, and Kenya** (2015) *Journal of Agriculture and Social Research*, 15 (2), pp. 31-39.
- Elryah, Y., Siddeg, A.
   Trade policy and productivity growth: why do Sudanese manufacturing firms export

less

(2023) Economics and Management Information, pp. 1-16.

- Emako, E., Nuru, S., Menza, M.
   The effect of foreign direct investment on structural transformation in developing countries

   (2022) Cogent Economics and Finance, 10 (1).
- Föllmi, R., Fuest, A., de Meulen, P., Micheli, M., Schmidt, T., Zwick, L. **Openness and productivity of the Swiss economy** (2018) *Swiss Journal of Economics and Statistics*, 154, pp. 1-21.
- Granger, C.W.
   Investigating causal relations by econometric models and cross- spectral Methods
   (1969) Econometrica: Journal of the Econometric Society, 37 (3), pp. 424-438.
- Greene, W.H. (2003) *Econometric Analysis*, Pearson Education India, New Delhi
- Gusev, A.Y., Koshkina, I.G.
   Labour productivity in the agricultural sector of the national economy is a key factor in the rise of production efficiency (2022) IOP Conference Series: Earth and Environmental Science, 949 (1).
- Ismail, R., Rosa, A., Sulaiman, N.
   Globalization and labour productivity in the Malaysian manufacturing sector (2012) *Review of Economic and Finance*, 2, pp. 76-86.
- Johansen, S.
   Statistical analysis of cointegration vectors

   (1988) Journal of Economic Dynamics and Control, 12 (2-3), pp. 231-254.
- Johansen, S.
   Estimation and hypothesis testing of cointegration vectors in Gaussian Vectorau to regressive models

   (1991) Econometrica: Journal of the Econometric Society, 59 (6), pp. 1551-1580.
- Johansen, S., Juselius, K.
   Maximum likelihood estimation and inference on Cointegration—with applications to the demand for money (1990) Oxford Bulletin of Economics and Statistics, 52 (2), pp. 169-210.
- Kacou, K.Y.T., Kassouri, Y., Evrard, T.H., Altuntaş, M.
   Trade openness, export structure, and labor productivity in developing countries: evidence from panel VAR approach (2022) *Structural Change and Economic Dynamics*, 60, pp. 194-205.
- Kumar, S., Russell, R.R.
   Technological change, technological catch-up, and capital deepening: relative contributions to growth and convergence

   (2002) The American Economic Review, 92 (3), pp. 527-548.
- Kumari, R., Shabbir, M.S., Saleem, S., Yahya Khan, G., Abbasi, B.A., Lopez, L.B. An empirical analysis among foreign direct investment, trade openness, and economic growth: evidence from the Indian economy (2023) South Asian Journal of Business Studies, 12 (1), pp. 127-149.
- Marasco, A., Khalid, A.M., Tariq, F.
   Does technology shape the relationship between FDI and growth? A panel data

#### analysis

(2023) Applied Economics, 56 (21), pp. 1-24.

- Massini, S., Piscitello, L., Shevtsova, Y.
   The complementarity effect of exporting, importing and R&D on the productivity of Ukrainian MNEs (2023) International Business Review, 32 (3).
- Ndubuisi, G., Otioma, C., Owusu, S., Tetteh, G.K. ICTs quality and technical efficiency: an empirical analysis (2022) *Telecommunications Policy*, 46 (10).
- Obeng-Amponsah, W., Owusu, E.
   Foreign direct investment, technological transfer, employment generation and economic growth: new evidence from Ghana (2023) International Journal of Emerging Markets,
- Osiobe, E.U.
   A literature review of human capital and economic growth (2019) Business and Economic Research, 9 (4), pp. 179-196.
- Özkaya, A.
   Time path of capital-labor ratio and steady-state conditions of the Solow long-run growth model
   (2022) *Fiscaoeconomia*, 6 (3), pp. 1266-1281.
- Pesaran, M.H., Schuermann, T., Weiner, S.M.
   Modeling regional interdependencies using a global error-correcting macroeconometric model
   (2004) Journal of Business & Economic Statistics, 22 (2), pp. 129-162.
- Petković, S., Rastoka, J., Radicic, D.
   Impact of innovation and exports on Productivity: are there complementary effects? (2023) Sustainability, 15 (9), p. 7174.
- Phillips, P.C., Hansen, B.E.
   Statistical inference in instrumental variables regression with I (1) Processes (1990) The Review of Economic Studies, 57 (1), pp. 99-125.
- Ricardo, D. (1817) The Principles of Political Economy and Taxation, Dutton, New York
- Rosado, J.A., Sánchez, M.I.A.
   From population age structure and savings rate to economic growth: evidence from Ecuador

   (2017) International Journal of Economics and Financial Issues, 7 (3), pp. 352-361.
- Singh, R., Aftab, A.
   Revisiting economic growth and trade openness: an empirical analysis of major trading nations

   (2023) Journal of Comparative International Management, 26 (1), pp. 123-139.
- Solow, R.M.
   Technical change and the aggregate production function (1957) The Review of Economics and Statistics, 39 (3), pp. 312-320.
- Suleman, S., Mohd Thas Thaker, H., Ariff, M., Cheong, C.W. **Relevancy and drivers of trade openness: a study of GIPSI countries** (2023) *Journal of Economic and Administrative Sciences*,

 Suleman, S., Boukhris, M., Kayani, U.N., Thaker, H.M.T., Cheong, C.W., Hadili, A., Tehseen, S.

Are trade openness drivers relevant to carbon dioxide emission? A study of emerging economies

(2024) International Journal of Energy Economics and Policy, 14 (2), pp. 183-196.

- Suleman, S., Thaker, H.M.T., Hoh, C.C.W. Magnetic macro drivers of trade openness: a study of BRICS economies (2024) South Asian Journal of Macroeconomics and Public Finance,
- Suleman, S., Nawaz, F., Sohail, M., Kayani, U., Thaker, H.M.T., Hoh, C.C.W. An empirical analysis of trade market dynamics on CO2 emissions: a study of GCC economies

(2024) International Journal of Energy Economics and Policy, 14 (6), pp. 114-126.

- Suleman, S., Thas Thaker, H.M., Cheong Wing Hoh, C. Is trade relevant to the macro drivers of carbon dioxide emissions? A study of highand low-trade openness economies (2024) Natural Resources Forum, Blackwell Publishing, Oxford
- Wattanadumrong, B., Liampreecha, W., Rattanawiboonsom, V. Exploring the relationship among foreign direct investment, technology transfer and economic growth: a case of the lower Northern region in Thailand (2023) International Journal of Professional Business Review: Int. J. Prof. Bus. *Rev.*, 8 (7), p. 116.
- Xie, Z.

Research on the influence of enterprise productivity on export trade under the new situation

(2023) Accounting and Corporate Management, 5 (4), pp. 1-5.

 Yasin, M.Z. Efficiency, productivity, and openness: empirical evidence from Asean plus, three economies

(2023) Bulletin of Monetary Economics and Banking, 26 (1), pp. 69-104.

- Naveed, A., Wang, C. Innovation and labour productivity growth moderated by Structural change: analysis in a global perspective (2023) Technovation, 119.
- Pedroni, P. Critical values for cointegration tests in heterogeneous panels with multiple regressors

(1999) Oxford Bulletin of Economics & Statistics, 61 (S1), pp. 653-670.

- Pedroni, P.
- Panel cointegration: asymptotic and finite sample properties of pooled time series tests with an application to the PPP hypothesis (2004) Econometric Theory, 20 (3), pp. 597-625.

**Correspondence Address** 

Suleman S.; Kulliyyah of Economics and Management Sciences, Malaysia; email: shahida.suleman123@gmail.com

Publisher: Emerald Publishing

ISSN: 01437720 Language of Original Document: English Abbreviated Source Title: Int. J. Manpow. 2-s2.0-85211445485 Document Type: Article Publication Stage: Final

# ELSEVIER

Copyright © 2025 Elsevier B.V. All rights reserved. Scopus  $\ensuremath{\mathbb{R}}$  is a registered trademark of Elsevier B.V.

