Chapter 4

FOREIGN TRADE AND CO₂ EMISSIONS IN THE EUROPEAN UNION

Nalan Işık1

INTRODUCTION

For centuries, foreign trade has been one of the main determinants of the increase in production and the achievement of countries' economic growth and development targets. In the aftermath of the Second World War, more importance was attached to the liberalization of foreign trade on a global scale (İncekara, 1995). The global gross domestic product, which was USD 1,366 in 1960, reached USD 80,684 trillion in 2017. While the value of exported goods was USD 156,866 billion in 1960, this value was USD 22.8 trillion in 2017. The share of global trade of goods and services within the gross national product must also be addressed to better understand the pace of development. While global exports of goods and services accounted for 11.8% of the global gross national product in the 1960s, this ratio was 28.5% in 2017 (www.wordbank.org, 01.08.2018). Moreover, it should be noted that the global economic crisis of 2007-2008 caused a global recession that led to a slowdown in production and foreign trade; however, the growth continued despite this.

It is generally accepted that the liberalization of foreign trade and its increasing share in production have a positive impact on global welfare. On the other hand, the environmental consequences of the foreign trade activities have been a primary topic of debate between trade politicians and environmentalists. Today, the use of fossil energies during foreign trade activities triggers the increase in carbon dioxide emissions, resulting in global warming, climate change and environmental damage, which is a global concern for both developed and developing countries (Copeland and Taylor, 2004). The CO₂ gas is the gas that causes the greatest greenhouse effect in the atmosphere among other greenhouse gases, with a rate of 82%. Carbon dioxide holds the infrared rays reflected in the atmosphere and plays an important role in maintaining the temperature balance of the atmosphere (Akın, 2006). According to the measurements by the Earth System Research Laboratory,

Associate Professor, Gaziantep University, isiknalan@hotmail.com

Economics and Politics

concern for companies and multinational corporations that are engaged in foreign trade, they are crucial for future generations to be able to use the currently available natural resources.

Finally, the realization of empirical practices similar to this study, which handles the EU member states (28) individually, as well as studies with different variables representing the environmental pollution, energy use and the location selections of local/multinational corporations engaged in foreign trade activities can help policymakers to make more rational decisions.

REFERENCES

Akın, G. (2006). Küresel Isınma, Nedenleri ve Sonuçları [Global Warming, Reasons and Results]. Ankara Üniversitesi DTCF Dergisi, 46(2), 29-43.

Antweiler, W., Copeland, B., & Taylor, M.S. (2001). Is Free Trade Good for the Environment? *American Economic Review*, 91(4), 877-908.

Baltagi, B. (2008) Econometric Analysis of Panel Data. New York: John Wiley & Son.

Breitung, J. (1999). *The Local Power of Some Unit Root Tests for Panel Data: Discussion Paper.* Berlin: Humboldt University.

Choi, I. (2001) Unit Root Tests for Panel Data. *Journal of International money and Finance.* 20(2), 249-272.

Copeland, B. & Taylor, M.S. (2004). Trade, Growth, and the Environment. *Journal of Economic literature*. 42(1), 7-71.

Ekins, P., Folke C. & Costanza, R. (1994). Trade, Environment and Development: The Issues in Perspective. *Ecological Economics*. *9*(1),1-12.

European Union, www.ec.europa.eu, [18.08.2018]

European Comission Report (2018). Smarter, Greener, More Inclusive, Eurostat, Luxembourg: European Union.

Global Carbon Atlas, www.globalcarbonatlas.org. [22.07.2018].

Granger, C. W., & Newbold, P. (1974). Spurious Regressions in Econometrics. *Journal of Econometrics*. 2(2), 111-120

Grossman, G. & Krueger, A. (1991). Environmental Impacts of a North American Free Trade Agreement. National Bureau of Economic Research, No. w3914, 57p.

Im, K. S., Pesaran, M. H, & Shin, Y. (2003). Testing for Unit Roots in Heterogeneous Panels. *Journal of Econometrics*. 115(1), 53-74.

Işık, N. (2016). Türkiye'nin Dış Ticaret Tercihi: Avrupa Birliği mi, Şanghay İşbirliği Örgütü mü? [Turkey's Foreign Trade Preference: European Union or Shanghai Cooperation Organization]. In D.Ş. Saraçoğlu & F. Öztürk (Eds.) Cari Açık, Enerji Sektörü ve Ortadoğu Ve Asya ile Ekonomik İlişkiler [Current Deficit, Energy Sector and Economic Relations in Middle East and Asia (pp.45-73). Ankara: İmaj Press.

İncekara, A. (1995) Globalleşme ve Bölgeselleşme Sürecinde NAFTA ve Etkileri [NAFTA and its Effects in the Process of Globalization Territorialisation]. İstanbul: İstanbul Ticaret Odası Press.

Jayanthakumaran, K. Verma, K. & Liu, R.Y. (2012). CO₂ Emissions, Energy Consumption, Trade and Income: A Comparative Analysis of China and India. *Energy Policy*. 42, 450-460.

Kao, C. (1999). Spurious Regression and Residual-Based Tests for Cointegration in Panel Data. *Journal of Econometrics*. 90(1), 1-44.

Kao, C. & Chiang, M. H. (2000) Testing for Structural Change of a Cointegrated Regression in Panel Data. Syracuse University. Manuscript, 24p. Retrieved from: http://faculty.maxwell.syr.edu/cdkao/working/change.pdf.

Kesgingöz, H. & Karamelikli, H. (2015). Diş Ticaret-Enerji Tüketimi ve Ekonomik Büyümenin Co2 Emisyonu Üzerine Etkisi [Energy Consumption of Foreign Trade and The Effect of Economic

Economics and Politics

- Growth on Co2 Emission]. Kastamonu Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi. 9(3), 7-17.
- Leonard H.J. (1988). Pollution and the Struggle for The World Product: Multinational Corporations, Environment, and International Comparative Advantage. New York: Cambridge University Press.
- Levin, A., Lin, C. F., & Chu, C. S. J. (2002). Unit Root Tests in Panel Data: Asymptotic and Finite-Sample Properties. *Journal of econometrics*. 108(1), 1-24.
- Levinson, A. & Taylor, M.S. (2008). Unmasking the Pollution Haven Effect. *International Economic Review*. 49(1), 223-254.
- Maddala, G. S. & Wu, S. (1999). A Comparative Study of Unit Root Tests with Panel Data and a New Simple Test. *Oxford Bulletin of Economics and statistics*. *61*(S1), 631-652.
- Mani, M. & Wheeler, D. (1997). *In Search of Pollution Havens? Dirty Industry in the World Economy,* 1960-1995. Workshop on Social and Environmental Consequences of Growth-Oriented Policy. Washington: World Bank.
- Meadows, D. Meadows, D l., Randers, J. & Behrensvd, W.W. (1972) The Limits to Growth: A Report for the Club of Rome's Project on the Predicament of Mankind. New York: Universe Books.
- NOAA Earth System Research Laboratory, www.esrl.noaa.gov, [22.07.2018]
- Pedroni, P. (1999). Critical Values for Cointegration Tests in Heterogeneous Panels with Multiple Regressors. *Oxford Bulletin of Economics and Statistics*. *61*(s1), 653-670.
- Pedroni, P. (2004). Panel Cointegration: Asymptotic and Finite Sample Properties of Pooled Time Series Tests with an Application to The PPP Hypothesis. *Econometric theory*. 20(03), 597-625.
- Ren, S., Yuan, B., Ma, X. & Chen, X. (2014). International Trade, FDI (Foreign Direct Investment) and Embodied ${\rm CO_2}$ Emissions: A Case Study of China's Industrial Sectors. *China Economic Review. 28*, 123-134.
- Rezza, A.A. (2013). FDI and Pollution Havens: Evidence from the Norwegian Manufacturing Sector. *Ecological Economics.* 90, 140-149.
- Seyidoğlu, H. (2009). *Uluslararası İktisat [International Economics]* (17th Edition). İstanbul: Güzem Can Press.
- Seymen, D. (2005). Dış Ticaret-Çevre İlişkilerinin Dengelenmesi: Sürdürülebilir Ticaret, Teori ve Türkiye Değerlendirmesi [Balancing Foreign Trade and Environment Relations: Sustainable Commerce, Theory and Assessment of Turkey]. *Dokuz Eylül Üniversitesi Sosyal Bilimler Enstitüsü Dergisi.* 7(3), 99-127.
- Shahbaz, M., Lean, H.H. & Shabbir, M.S. (2012). Environmental Kuznets Curve Hypothesis in Pakistan: Cointegration and Granger Causality. *Renewable and Sustainable Energy* Reviews. *16*(5), 2947-2953.
- Shahbaz, M., Khan, A.S. & Bhattacharya, M. (2017). The Impact of Globalization on CO2 Emissions in China. *The Singapore Economic Review (SER)*, 62(04), 929-957.
- Shahbaz, M., Hoang, T.H.V, Mahalik, M.K, & Roubaud, D. (2017) Energy Consumption, Financial Development and Economic Growth in India: New Evidence from a Nonlinear and Asymmetric Analysis. *Energy Economics*. 63, 199-212.
- Stock, J. H. & Watson, M. W. (1993). A Simple Estimator of Cointegrating Vectors in Higher Order Integrated Systems. *Econometrica: Journal of the Econometric Society*. *61*(4), 783-820.
- Tatoğlu, F. (2013). Panel Veri Ekonometrisi [Panel Data Econometry]. İstanbul: Beta Press.
- Temurshoev, U. (2006) Pollution Haven Hypothesis or Factor Endowment Hypothesis: Theory and Empirical Examination for the US and China, CERGE-EI Working Paper, 292, 52p.
- Tobey, J. A. (1990). The Effects of Domestic Environmental Policies on Patterns of World Trade: An Empirical Test. *Kyklos.* 43(2), 191-209.
- World Development Indicator (WDI). www.wordbank.org. [01.08.2018]Kline, B. R. (2005). *Principles and practice of structural equation modeling* (Second edit). NY: The Guilford Press.