



Dieselization and Road Transport CO₂ Emissions: Evidence from Europe

PDF (Size:163KB) PP. 54-62 DOI: 10.4236/lce.2012.33008

Author(s)

António Cardoso Marques, José Alberto Fuinhas, Bruno Miguel Gonçalves

ABSTRACT

Road transport carbon dioxide emissions were analyzed, by focusing on a panel of 14 European countries for the time span 1995-2007. We deal with the existence of contemporaneous correlation by using the Panel Corrected Standard Errors estimator. We extend the empirical literature by controlling the effect of new diesel passenger car registrations and the average power of those vehicles. The price of gasoline and income reduce road transport carbon dioxide emissions, while population density and average power of new diesel passenger cars raises those emissions. We deepen the debate about dieselization, concluding that saving emissions by using diesel tend to be surpassed by the increased kilometers driven.

KEYWORDS

Road Transport; CO₂ Emissions; Fuel Prices; Dieselization

Cite this paper

A. Marques, J. Fuinhas and B. Gonçalves, "Dieselization and Road Transport CO₂ Emissions: Evidence from Europe," *Low Carbon Economy*, Vol. 3 No. 3, 2012, pp. 54-62. doi: 10.4236/lce.2012.33008.

References

- [1] EC, " Recommendation (1999/125/EC) of 5th February 1999 on the Reduction of CO₂ from Passenger Cars," European Comission, Brussels, 1999.
- [2] EC, " Recommendation (2000/304/EC) of 13th April 2000 on the Reduction of CO₂ from Passenger Cars (JAMA)," European Comission, Brussels, 2000.
- [3] EC, " Recommendation (2000/303/EC) of 13th April 2000 on the Reduction of CO₂ from Passenger Cars (KAMA)," European Comission, Brussels, 2000.
- [4] E. Zervas, " Analysis of the CO₂ Emissions and of the Other Characteristics of the European Market of New Passenger Cars. 1. Analysis of General Data and Analysis per Country," Energy Policy, Vol. 38, No. 10, 2010, pp. 5413-5425. Hdoi:10.1016/j.enpol.2010.02.008
- [5] K. Papagiannaki and D. Diakoulaki, " Decomposition Analysis of CO₂ Emissions from Passenger Cars: The Cases of Greece and Denmark," Energy Policy, Vol. 37, No. 8, 2009, pp. 3259-3267. Hdoi:10.1016/j.enpol.2009.04.026
- [6] L. Ryan, S. Ferreira and F. Convery, " The Impact of Fiscal and Other Measures on New Passenger Car Sales and CO₂: Evidence from Europe," Energy Economics, Vol. 31, No. 3, 2009, pp. 365-374. Hdoi:10.1016/j.eneco.2008.11.011
- [7] D. Stead, " Relationships between Transport Emissions and Travel Patterns in Britain," Transport Policy, Vol. 6, No. 4, 1999, pp. 247-258. Hdoi:10.1016/S0967-070X(99)00025-6
- [8] B. Los and B. Verspagen, " Localized Innovation, Localized Diffusion and the Environment: An Analysis of Reductions of CO₂ Emissions by Passenger Cars," Journal of Evolutionary Economics, Vol. 19, No. 4, 2009, pp. 507-526. Hdoi:10.1007/s00191-009-0146-8
- [9] I. Al-Hinti, A. Al-Ghandoor, B. Akash and E. Abu-Nada, " Energy Saving and CO₂ Mitigation through

• Open Special Issues

• Published Special Issues

• Special Issues Guideline

LCE Subscription

Most popular papers in LCE

About LCE News

Frequently Asked Questions

Recommend to Peers

Recommend to Library

Contact Us

Downloads:	47,985
------------	--------

Visits:	133,466
---------	---------

Sponsors, Associates, and
Links >>

- [10] T. Zachariadis, " On the Baseline Evolution of Automobile Fuel Economy in Europe," Energy Policy, Vol. 34, No. 14, 2006, pp. 1773-1785. Hdoi:10.1016/j.enpol.2005.01.002
- [11] M. Pock, " Gasoline Demand in Europe: New Insights," Energy Economics, Vol. 32, No. 1, 2010, pp. 54-62. Hdoi:10.1016/j.eneco.2009.04.002
- [12] G. Fontaras and Z. Samaras, " A Quantitative Analysis of the European Automakers' Voluntary Commitment to Reduce CO₂ Emissions from New Passenger Cars Based on Independent Experimental Data," Energy Policy, Vol. 35, No. 4, 2007, pp. 2239-2248. Hdoi:10.1016/j.enpol.2006.07.012
- [13] F. Cuenot, " CO₂ Emissions from New Cars and Vehicle Weight in Europe; How the EU Regulation Could Have Been Avoided and How to Reach It?" Energy Policy, Vol. 37, No. 10, 2009, pp. 3832-3842. Hdoi:10.1016/j.enpol.2009.07.036
- [14] L. Schipper, " Automobile Fuel Economy and CO₂ Emissions in Industrialized Countries: Encouraging Trends through 2008?" Transport Policy, Vol. 18, No. 2, 2011, pp. 358-372. Hdoi:10.1016/j.tranpol.2010.10.011
- [15] K. Bodek and J. Heywood, " Europe' s Evolving Passenger Vehicle Fleet: Fuel Use and GHG Emissions Scenarios through 2035," Publication No. FFFEE 2008-03 RP. Laboratory for Energy and Environment, MIT, 2008.
- [16] B. Liddle, " Long-Run Relationship among Transport Demand, Income and Gasoline Price for the US," Transportation Research Part D, Vol. 14, No. 2, 2009, pp. 73-82. Hdoi:10.1016/j.trd.2008.10.006
- [17] D. Greene, " Rebound 2007: Analysis of U.S. Light-Duty Vehicle Travel Statistics," Energy Policy, Vol. 41, 2012, pp. 14-28. Hdoi:10.1016/j.enpol.2010.03.083
- [18] D. Bonilla, " Fuel Demand on UK Roads and Dieselisation of Fuel Economy," Energy Policy, Vol. 37, No. 10, 2009, pp. 3769-3778. Hdoi:10.1016/j.enpol.2009.07.016
- [19] K. Storchmann, " Long-Run Gasoline Demand for Passenger Cars: The Role of Income Distribution," Energy Economics, Vol. 27, No. 1, 2005, pp. 25-58. Hdoi:10.1016/j.eneco.2004.03.002
- [20] C. Hamilton and H. Turton, " Determinants of Emissions Growth in OECD Countries," Energy Policy, Vol. 30, No. 1, 2002, pp. 63-71. Hdoi:10.1016/S0301-4215(01)00060-X
- [21] E. Hatzigeorgiou, H. Polatidis and D. Haralambopoulos, " CO₂ Emissions in Greece for 1990-2002: A Decomposition Analysis and Comparison of Results Using the Arithmetic Mean Divisia Index and Logarithmic Mean Divisia Index techniques," Energy, Vol. 33, No. 3, 2008, pp. 492-499. Hdoi:10.1016/j.energy.2007.09.014
- [22] P. Tapiio, D. Banister, J. Luukkanen, J. Vehmas and R. Willamo, " Energy and Transport in Comparison: Immaterialisation and Decarbonisation in the EU15 between 1970 and 2000," Energy Policy, Vol. 35, No. 1, 2007, pp. 433-451. Hdoi:10.1016/j.enpol.2005.11.031
- [23] B. Kavalov and S. Peteves, " Impacts of the Increasing Automotive Diesel Consumption in the EU," European Commission Joint Research Centre, Ispra, 2004.
- [24] European Comission, " Regulation (EC) No. 443/2009 of the European Parliament and of the Council of 23 April 2009," European Comission, Brussels, 2009.
- [25] F. De Filippis and G. Scarano, " The Kyoto Protocol and European Energy Policy," European View, Vol. 9, No. 1, 2010, pp. 39-46. Hdoi:10.1007/s12290-010-0121-7
- [26] C. Baum, " Residual Diagnostics for Cross-Section Time Series Regression Models," The Stata Journal, Vol. 1, No. 1, 2001, pp. 101-104.
- [27] M. H. Pesaran, " General Diagnostic Tests for Cross Section Dependence in Panels," Working Paper 1229, Cambridge Working Papers in Economics, Faculty of Economics, Cambridge, 2004.
- [28] E. Frees, " Assessing Cross-Sectional Correlation in Panel Data," Journal of Econometrics, Vol. 69, No. 2, 1995, pp. 393-414. Hdoi:10.1016/0304-4076(94)01658-M
- [29] E. Frees, " Longitudinal and Panel Data: Analysis and Applications in the Social Sciences,"

- [30] W. R. Reed and H. Ye, " Which Panel Data Estimator should I Use?" Applied Economics, Vol. 43, No. 8, 2011, pp. 985-1000. Hdoi:10.1080/00036840802600087
- [31] A. Cameron and P. Trivedi, " Microeconometrics Using Stata," Stata Press, College Station, Texas, 2009.
- [32] R. E. De Hoyos and V. Sarafidis, " Testing for Cross-Sectional Dependence in Panel-Data Models," The Stata Journal, Vol. 6, No. 4, 2006, pp. 482-496.
- [33] N. Beck and J. Katz, " What to Do (and Not to Do) with Time-Series Cross-Section Data," American Political Science Review, Vol. 89, No. 3, 1995, pp. 634-647. Hdoi:10.2307/2082979
- [34] E. Zervas, " SCO2 Benefit from the Increasing Percentage of Diesel Passenger Cars. Case of Ireland," Energy Policy, Vol. 34, No. 17, 2006, pp. 2848-2857. Hdoi:10.1016/j.enpol.2005.05.010H