Forensics, Elasticities and Benford’s Law: Detecting Tax Fraud in International Trade*

Banu Demir† Beata Javorcik‡
Bilkent University and CEPR University of Oxford and CEPR

March 20, 2018

Abstract

By its very nature, tax evasion is difficult to detect as the parties involved have an incentive to conceal their activities. This paper offers a setting where doing so is possible because of an exogenous shock to the tax rate. It contributes to the literature by proposing two new methods of detecting evasion in the context of border taxes. The first method is based on Benford’s law, while the second relies on comparing price and trade cost elasticities of import demand. Both methods produce evidence consistent with an increase in tax evasion after the shock. The paper further shows that evasion induces a bias in the estimation of trade cost elasticity of import demand, leading to miscalculation of gains from trade based on standard welfare formulations. Finally, welfare predictions are derived from a simple Armington trade model that accounts for tax evasion. JEL Codes: F10.

Keywords: Tax evasion, trade financing, border taxes, Benford’s law.

*The authors would like to thank Andy Bernard, Maria Guadalupe, David Hummels, Oleg Itskhoki, Mazhar Waseem and Muhammed Ali Yildirim as well as seminar audiences at Warwick, King’s College, Koc University, Free University of Amsterdam, Aarhus, Copenhagen, Nottingham and the New Economic School in Moscow for useful comments and discussions.

†Department of Economics, Bilkent University, 06800 Ankara Turkey. banup@bilkent.edu.tr

‡Department of Economics, University of Oxford, Manor Road Building Manor Road, Oxford OX1 3UQ, UK. beata.javorcik@economics.ox.ac.uk