

ICT, Gravity And the Global Flow of Wine:

A Gravity Model of the Impact of ICT on the International Trade in Wine

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Abstract

Globalization results when markets and industries become more integrated because of reduced transaction and transport costs. These costs have fallen over the long term because of sustained advances in transport technology and, even more dramatically, in digital information and communication technology (ICT). Improved transport and information technologies then were complemented by the modern global supply chain, an organizational innovation that leverages information and transport technology to improve the coordination of widely dispersed economic activity.

Communication costs tend to be a minor component of total transaction costs in international trade, and their share in total trading costs of any one shipment is smaller yet. Nevertheless, diffusion of ICT – the 'digital grapevine' – is believed to stimulate international trade to an extent that appears to be large in proportion to the share of ICT costs in trading costs.

Wine has always been traded over long distances. Global trade in wine has, however, experienced accelerated growth and change during the past quarter century. First 'New World' wines from Australia, California and New Zealand penetrated markets which 'Old World' suppliers from Europe considered as theirs, and later other new entrants to the world wine market, such as Chile, South Africa and Argentina, added to global trade in wine. Moreover, wine traders ostensibly have employed ICT and modern transport technologies, and global wine supply chains have evolved.

What impact has the digital grapevine exerted on global trade in wine? Has it been commensurable with its impact on trade in other goods? We address these questions with a gravity model of trade in wine that includes the major wine trading countries and covers the period from 1995 to 2008. The model explains the value of wine trade in terms of the adoption levels of internet access and mobile phone, and we include fixed telephone for nostalgic completeness. We also control for a broad range of other factors that might also affect bilateral wine trade.

Our paper is organized into six main sections. After the Introduction we briefly review in Section 2 trends on ICT diffusion world-wide and the state of research on the impact on international trade of ICT. The main concern of Section 3 is the discussion of information and communication needs of international wine supply chains. The gravity model that we employ to test our hypotheses on the impact on wine trade of ICT is developed in Section 4. In this section we also describe our data sources which are varied because of the considerable number of control variables that are included in our gravity model. Estimation results are reported in Section 4 and discussed in Section 5. Section 6 concludes our paper.

Our results provide interesting findings, which vary between exporting and importing countries, and between near and distant trading partners. Mobile phone usage in importing

countries is a significant positive factor influencing trade in wine. Internet usage was found to have no effect on wine trade when examined for the sampled trading countries as a whole. But when only distant trading partners were considered, significant impacts were found to exist for internet usage in both exporting and importing countries. The less fashionable fixed telephone usage, on the other hand, proved not to be a significant determinant of wine trade values.

These results provide support for the proposition that recent developments in the internet and mobile telephony have had a significant impact on the pattern of trade in wine. The impact has been greater for these digital ICT sources than for the traditional communications source of telephone mainlines. But the fact that the impact of mobile phone usage has been felt only in importing countries suggests that the most crucial needs for this form of digital ICT occur once wine reaches port in the importing country.

Keywords: globalization, gravity model, ICT, internet, mobile phone, trade, wine