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E-Commerce Tax: How The Taxman Brought Geography To The 'Borderless' Internet

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Abstract
Website operators engaged in cross-border e-commerce need to know the geographical location of those who visit their websites in order to comply with some current tax schemes. The literature discussing the technical feasibility of gaining such knowledge has so far largely overlooked the availability of so-called geo-identification. Against that background, this article examines the extent to which website operators engaged in crossborder e-commerce can rely on geo-identification as a means of ensuring compliance with tax law.

E-COMMERCE TAX: HOW THE TAXMAN BROUGHT GEOGRAPHY TO THE 'BORDERLESS' INTERNET*

DR DAN JERKER B. SVANTESSON**

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Against that background, this article examines the extent to which website operators engaged in cross-border e-commerce can rely on geo-identification as a means of ensuring compliance with tax law.

INTRODUCTION

Website operators have several reasons for wishing to know the geographical location of those who visit their websites. For example, such knowledge assists them in providing targeted advertisement, it allows them to avoid distributing their content where such distribution would be unlawful, and it caters for secure and efficient communications.

Apart from these reasons, website operators engaged in cross-border e-commerce have at least one other strong reason for seeking to identify the geographical location of their website visitors – they need that knowledge in order to comply with some current tax schemes.

WHY DOES GEOGRAPHICAL LOCATION MATTER?

There are several tax reasons why an Australian business engaged in e-commerce needs to know the geographical location of those it transacts with. I will, however, limit the discussion to those reasons stemming from consumption taxes.

On 1 July 2000, a new tax came into place in Australia through *A New Tax System (Goods and Services Tax) Act 1999* (Cth). It introduced a consumption tax popularly referred to as GST – a tax imposed on the supply of goods and services. The burden of collecting the tax is placed on the business supplying the goods or service. However, it is the final consumer who carries the burden of paying the tax. Interestingly for our discussion, GST is typically not applicable where goods or services are exported from Australia. However, GST may be payable, either as a tax or as an excise, where goods or services are imported to Australia. Further, GST is typically payable on entirely domestic transactions. Thus, the seller necessarily must know the geographical location of its customers.

Things are even more complex under the EU Value Added Tax (VAT) scheme.[1] Under that scheme, products not classed as goods (eg, information products such as downloaded software)

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are classed as services and are subject to VAT. The European Union amendment to the Sixth VAT Directive[2] has interesting effects on such services:

> Although technically complex, in summary its effect is to require a non-EU supplier of services to [EU] consumers to register with the tax authorities in the EU jurisdiction of its choice. The supplier is then required to identify the EU country from which each of its consumer customers originates, and to charge them VAT at the rate of their country of residence. […] The alternative is for the supplier to create an establishment in a chosen EU Member State and to make the supplies from that establishment. […] In this case, supplies to all EU consumers are made at the VAT rate of the country of establishment, which should, of course, be the EU Member State with the lowest VAT rate.[3]

One question of fundamental importance arises from this approach; why would an Australian company care about collecting tax for the European Union? Such collection would doubtlessly have a negative impact on the Australian company. First, it would make its pricing less competitive. Second, it would be associated with costs and administrative issues. The EU has recognised these concerns, and the rules about establishment work to assist foreign companies to a degree. However, more importantly the EU has indicated its intention to back up these rules with severe consequences for foreign companies failing to abide by them:

> For an operator, even one located outside the EU, to risk exposure to significant and unresolved tax debts in the world's largest marketplace cannot be considered prudent business practice. Neither does the debt lapse over time but continues to hover over the business and even, in certain circumstances, passes on to a subsequent purchaser of the operation. The presence of such a liability is furthermore hardly likely to assist in access to legitimate capital or funding sources. […] The risk of punitive tax assessments is also high. Moreover, in certain cases, sanctions under civil or criminal law may attach to the managers or owners of the business.[4]

At the same time, it must be recognised that, despite all these measures, not all foreign suppliers will comply with these rules. At least one expert has concluded that as far as non-EU e-commerce businesses are concerned, 'the Directive is effectively a scheme for voluntary submission to taxation'.[5]

For the purpose of this article, the most important aspect of the EU approach is that it clearly requires businesses engaged in e-commerce to identify the geographical location of the people they supply products to.

THE LITERATURE

A wide range of learned commentators have noted the difficulties associated with applying taxation rules based on geography to e-commerce. For example, Jones and Basu state that:

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1 For a detailed discussion of this scheme and what Australia can learn from it, see: C Alexiou and D Morrison, 'The Cross-Border Electronic Supply EU-VAT Rules: Lessons for Australian GST' (2004) 14 *Revenue Law Journal* 119.

2 *Council Directive 2002/38/EC of 7 May 2002 amending temporarily Directive 77/388/EEC as regards the value added tax arrangements applicable to radio and television broadcasting services and certain electronically supplied services* [2002] OJ L 128, 41.

3 Chris Reed, *Internet Law: Text and Materials* (2nd ed, 2004) 274.

4 Explanatory Memorandum, COM (2000) 349 Final 9 <http://eur-lex.europa.eu/LexUriServ/site/en/com/2000/com2000_0349en01.pdf>.

5 Above n 3, 275.

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> The taxing of on-line sales of intangibles is likely to lead to tax loss, as the location of customers cannot be known with certainty. Many on-line shoppers do not feel comfortable giving unnecessary personal information to a web site. Consequently, they may refuse to type it in, shop at a site that does not require it or simply lie.[6]

In discussing source and residency as bases for tax, Lim notes that both these concepts 'rely upon principles of physical geography'[7]. She then concludes that: 'That reliance breaks down in the context of Internet-based commerce where physical boundaries and borders mean very little.'[8]

Finally, in the context of the compliance burden facing non-EU businesses under the EU VAT scheme, Alexiou and Morrison note that 'Non-EU businesses […] have to rely on self-identification by customers or other indications like the country code of the customer's credit card.'[9]

The above reflects a widespread acceptance of the suggestion that geographical borders cannot be applied to the Internet, and that self-identification by customers is the only way in which their geographical location may be ascertained. However, that is not strictly correct in light of the use of so-called geo-location technologies – technical means for ascertaining the geographical location of those active online.

Geo-identification

Geo-identification is a broad term referring to attempts made at ascertaining the geographical location of Internet users or resources. As such, it covers a wide variety of means for achieving that end, including non-technical means (such as self-identification) and technical means (i.e. so-called geo-location technologies).

Currently the most relevant form of geo-location technology is geo-location technologies that translate Internet Protocol (IP) addresses[10] into geographical locations, based on information stored by the provider of the geo-location service. The figure below illustrates a common model of how this form of geo-location technology is applied:

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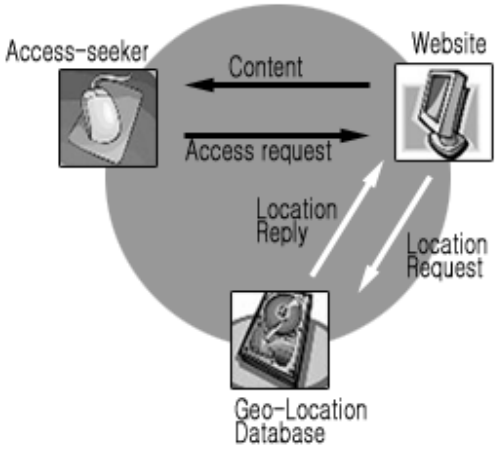
6 Richard Jones and Subhajit Basu, 'Taxation of Electronic Commerce: A Developing Problem' (2002) 16 1 *International Review of Law, Computers & Technology* 35, 38.

7 Yee Fen Lim, *Cyberspace Law - Commentaries and Materials* (2007) 719.

8 Ibid.

9 C Alexiou and D Morrison, 'The Cross-Border Electronic Supply EU-VAT Rules: Lessons for Australian GST' (2004) 14 *Revenue Law Journal* 119, 130.

10 See above. There are currently approximately 1.3 – 1.6 billion IP addresses in use, out of the 4.25 billion possible addresses that can be issued under the four block range from 0 to 255. (*See further*: Alex van Leeuwen, *Geo-targeting on IP Address: Pinpointing Geolocation of Internet Users* (2001) GeoInformatics <http://www.geoinformatics.com/issueonline/issues/2001/07_2001/pdf_07_2001/28_31_iptar.pdf> ; Stefanie Olsen, *Geographic tracking raises opportunities, fears* (2000) CNet News.com <http://news.com.com/Geographic+tracking+raises+opportunities,+fears/2100-1023_3-248274.html> ; and Todd Spangler, *They Know – Roughly – Where You Live* (2001) eWEEK.



As the person seeking to access the website in question enters the appropriate Uniform Resource Locator ('URL')[11] into his/her browser, or clicks on the appropriate hyperlink, an access-request is sent to the server operating the requested website. As the server receives the access-request, it, in turn, sends a location request (e.g. forwards the access-seeker's IP address[12]) to the provider of the geo-location service. The provider of the geo-location service has gathered information about the IP addresses in use, and built up a database of geo-location information.[13] Based on the information in this database, the provider of the geo-location service gives the website server an educated guess as to the access-seeker's geographical location. Having received this information, the web server can provide the access-seeker with the information deemed suitable (e.g. a message along the lines of: 'Sorry. This website is intended for the people of Sweden only',[14] or perhaps provide advertisement specifically targeted at people from the access-seeker's particular location). There are currently several products on the market utilising this type of system.[15] This technology is neither prohibitively expensive, nor is it particularly difficult to operate.

However, the accuracy of these products is difficult to gauge. The providers indicate the potential accuracy to be very high, but it should be remembered that they are marketing product and thus arguably could be forgiven for presenting their technology in the best light possible. For example:

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11 "[URL], Abbreviation of Uniform Resource Locator, the global address of documents and other resources on the World Wide Web. The first part of the address indicates what protocol to use, and the second part specifies the IP address or the domain name where the resource is located", <http://www.webopedia.com/TERM/U/URL.html> at 25 May 2004. For more details, see, eg, Laura A Chappell and Ed Tittel, *Guide to TCP/IP 271* (2002).

12 See further: <http://searchwebservices.techtarget.com/sDefinition/0,,sid26_gci212381,00.html> at 25 May 2004.

13 The methods of collecting this information are discussed below.

14 For example, when using a computer at University of New South Wales (Australia), to access Showtime's website, <http://www.sho.com> at 25 May 2004, I received the following message: 'We at Showtime Online express our apologies; however, these pages are intended for access only from within the United States.'

15 *See e.g.* <http://www.quova.com/> at 5 February 2007, <http://www.akamai.com/> at 5 February 2007, and <http://www.digitalenvoy.net/> at 5 February 2007. *See also* the following geo-location products that can be tested for free online:<http://www.activetarget.com/livedemo.asp> at 5 February 2007, <http://www.ip2location.com/free.asp> at 5 February 2007 and <http://www.geobytes.com/IpLocator.htm> at 5 February 2007.

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'Akamai says it can accurately identify a North American user's city at least 85 % of the time, while NetGeo promises an 80 % success rate for cities worldwide'[16]; Digital envoy claims that their product 'NetAcuity covers 99.9% of the Internet, and provides accuracy rates of over 99% at a country level and approximately 92% at a city-level worldwide'. These impressive figures have not been free from criticism:

> The way the vendors arrive at their accuracy statistics is to cross-check the physical location of sampling of Internet users (as determined by their software) against customer provided locational information already in the possession of the software vendors. There is no way to independently verify whether the software could provide the claimed levels of accuracy if the software vendors didn't first have other customer location information which their software may be using to determine customer location. Put somewhat differently, it is as if a 'psychic' claimed to be able to accurately know what card a customer held in their hand 99.5% of the time, and to prove it, the psychic would ask to see the cards in the hands of a sampling of customers before announcing that indeed those were the same cards he knew the customers to possess.[17]

Furthermore, some producers of geo-location technologies appear to base their accuracy rates on the risk that their positive guesses are incorrect. Imagine, for example, that the operator of a Swedish website wished to make the website accessible to people located in Sweden only. A provider of a geo-location technology may say that its product is accurate to 99%, referring to the fact that of the people the technology identifies as located in Sweden, 99% of them will actually be located in Sweden (i.e. the number of false positives is 1 in 100). However, this figure does not say anything about the rate of false negatives; that is, it does not reveal how many people, actually located in Sweden, will be refused access. It is, thus, similar to claiming to be able to tell if a person is male or not with 99% accuracy, and then only nominate people with extensive facial hair as males – the number of false positives is likely to be very low, while the number of false negatives may be high.

There is a range of factors affecting the accuracy of geo-location technologies. Due to the dual nature of the geo-location process, these factors can be divided into two categories: 'source problems' and 'circumvention problems'. Source problems are the problems associated with building up and/or collecting accurate geo-location data, and circumvention problems are the problems stemming from the fact that there are several methods for people with sufficient motivation and knowledge to circumvent geo-location technologies.[18]

WEAKNESSES ASSOCIATED WITH GEO-IDENTIFICATION

Apart from the accuracy concerns discussed above, there are also other concerns about how well these technologies will work for tax purposes. The Information Technology Association of America (ITAA) has commented on this matter:

> [G]iven the current inability of such technologies [ie, geo-location technologies] to overcome obstacles presented by corporate networks, anonymizers, AOL users, IPv6 [Internet Protocol version 6] and … other issues …, coupled with their lack of complete certainty as to customer location, they cannot be relied upon for consumption tax purposes.

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16 Todd Spangler, 'They Know – Roughly – Where You Live' (2001) eWEEK.

17 Information Technology Association of America, *ECommerce Taxation and the Limitations of Geolocation Tools* 6 <http://www.itaa.org/taxfinance/docs/geolocationpaper.pdf> at 25 May 2004.

18 For a discussion of how some of these circumvention technologies work, and a list of free such tools, see further:<www.svantesson.org>.

> Moreover, given that the new EU VAT rules base taxation on customer residence, not physical location of a customer at the time of a transaction, geolocation software do not resolve any of the concerns about being able to independently identify the correct taxation jurisdiction.[19]

These concerns will be discussed one by one. The first difficulty noted by ITAA in the passage above is that where the Internet user connects through either a corporate network or a major Internet Service Provider (ISP) like America On Line (AOL), geo-location technologies may struggle to obtain location data other than, for example, the location of the corporation's server, or the location of the ISP. While, several providers of geo-location technologies claim to have improved their accuracy in relation to people connecting in such a manner, it remains likely that the accuracy levels are going to be lower in relation to such people, compared to those connecting in other ways.

ITAA also pointed to the problems that stem from the use of anonymisers. An anonymiser works like a buffer between the Internet surfer and the websites she/he accesses:

When a web-surfer uses an anonymiser, his/her IP number is only transmitted to the provider of the anonymiser. He/she is then assigned a new IP number by the anonymiser in relation to any websites he/she visits while applying the anonymiser.

These applications were not developed for the purpose of circumventing geo-location technologies. However, by identifying the location of the anonymiser (or, more specifically, the location with which the IP numbers assigned by the anonymiser are associated), one may be able to find anonymisers from the country one wishes to appear to be located in. For example, when using an anonymiser called *The Cloak*,[20] I was assigned an IP number (216.127.72.7) indicating my location as being the US, while when using an anonymiser called *Anonymouse*,[21] I was assigned an IP number (82.96.100.100) indicating my location as being Germany.

The use of anonymisers is not free from concerns. Some anonymiser may log all information that passes through them. In other words, all the web-surfer's traffic can be accessed by the operator of the anonymiser. Thus, it is not advisable to send passwords or credit card details through an anonymiser.

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19 Information Technology Association of America, *ECommerce Taxation and the Limitations of Geolocation Tools* <http://www.itaa.org/taxfinance/docs/geolocationpaper.pdf> at 25 May 2004.

20 The Cloak <http://www.the-cloak.com/login.html>.

21 Anonymouse <http://anonymouse.org/anonwww_de.html>.

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ITAA mentioned that accuracy issues may flow from the use of IPv6. The Internet Engineering Task Force is working towards the introduction[22] of a new version of the Internet Protocols. The current version Internet Protocol version 4 (IPv4) is to be replaced by IPv6,[23] it is suggested. Some argue that the introduction of IPv6 would enhance the accuracy of geo-location technologies. For example, it has been said that 'IPv6 […] would expand the IP address system and make people more easily identifiable by assigning serial numbers to each computer's network-connection hardware.'[24] On the other hand, it has also been suggested that IPv6 might make geo-location technologies less accurate:

> [IPv6] will allow ISPs to dynamically reassign their address ranges at any time. The process for IP address reassignment is rather cumbersome under IPv4 due to the need to reconfigure routers and servers, and therefore they do not happen with anywhere near the frequency that is expected under IPv6, which will make the reassignment of IP address far easier to accomplish. With no actual geographic constraint, under IPv6 these IP address blocks could be reassigned to a new area at any time that demand shifts. As the Internet continues to expand and the need for renumbering grows, blocks of IP addresses will be shifted geographically with increasing regularity. Keeping track of all the growing number of reassignments of IP addresses may overwhelm geolocation software's capabilities. Moreover, during the multi-year global transition to Ipv6 [sic], dual sets of router table data will have to be maintained for both Ipv4 [sic] and Ipv6 [sic] IP addresses. The need to translate and correlate between tables may also introduce latency that negatively impacts the ability to conduct real time analysis.[25]

In light of this, it would seem there are reasons to think that while some aspects of IPv6 might work to enhance the accuracy of geo-location technologies, other aspects will work to decrease the accuracy of these technologies.

Finally, ITAA point to the fact that location does not necessarily indicate residence, and since the relevant tax rate is to be determined by reference to the consumers' residence, under the EU VAT rules, geo-location technologies are not the answer. But perhaps it must be concluded that a website operator relying on the geographical location of the website visitor in order to identify the appropriate tax rate should be seen as justified in relying on that information even if it cannot strictly be assumed that location and residence coincides? In other words, it may be necessary to shift the focus from the location of residence to the actual location of the buyer at the time of the purchase.

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22 While already in limited use, IPv4 is still, by far, the dominating internet protocol in use.

23 For detailed technical information about IPv6 see: Stephen E. Deering & Robert M. Hinden, *Internet Protocol, Version 6 (IPv6) Specifications* (1998) <http://www.ipv6.org/specs.html> at 25 May 2004.

24 Patricia Jacobus, *Building fences, one by one* (2001) CNET News.com <http://news.com.com/Taming+the+Web+-+page+2/2009-1023_3-255774-2.html> *See also*: Joel R. Reidenberg, 'Yahoo and Democracy on the Internet' (2002) 42 *Jurimetrics* 261, 263. Technically, network-connection hardware already does have unique serial numbers assigned; MAC addresses for example. The novelty of the IPv6 standard is that it includes the use of this serial number in networking protocols. See further: http://tools.ietf.org/html/draft-iesg-serno-privacy-00.

25 Above n 19, 7. *See also* Howard Kim and Simon Dobson, *An improved approach to geographically locating web clients* (2001) <http://www.cs.tcd.ie/publications/tech-reports/reports.01/TCD-CS-2001-49.pdf> at 25 May 2004. Briefly mentioning that the change to IPv6 'will make the maintenance of the mappings extremely difficult'.

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CONSEQUENCES OF GEO-IDENTIFICATION

One aspect not noted by the ITAA is that, while geo-identification may make it possible for e-commerce businesses to identify the geographical location of those who visit their websites, such identification comes at a price – the lowering of the degree of anonymity, and thereby the interference with the protection of privacy. While the developers of geo-location technologies argue that their products are 'non-invasive'[26],it is unclear how, for example, courts and authorities will view this issue. If IP addresses are considered 'personal data' or 'personal information' for privacy purposes, the collection, use and disclosure of such information may be seriously restricted, and the providers of geo-location tools may find it difficult to operate.[27]

Leaving aside the above, the most important issue remains; While geo-location technologies doubtlessly will help address some of the problems associated with applying legal rules to Internet conduct, they also have a negative effect. With an increased use of such technologies, the Internet will inevitably be transformed from a relatively borderless dimension into a medium that takes account of geographical and legal borders, much like the 'real' world. In other words, with an increased use of geo-identification, we stand to lose one of the Internet's main beneficial features; its 'borderlessness'. Regulators must ask themselves whether tax rules encouraging, or even relying on, the use of geo-location technologies are of such significance as to justify the sacrifice of one of the true wonders of the Internet of today.

GEO-IDENTIFICATION – ANOTHER REASON NOT TO TAX E-COMMERCE?

The taxation of e-commerce is controversial and several reasons have been presented against such taxation. For example, it has been argued that taxation slows down the development of the Internet in general and e-commerce in particular. Further, it has also been suggested that the slow pace of taxation development cannot keep pace with the rapid development of technology which risks leading to undesirable results. In addition, taking account of the complexity of the international tax system, there is a clear potential for inexperienced traders mistakenly failing to comply with the law due to ignorance. While ignorance as to the law is not a defence as such, some sort of reasonableness assessment may be called for.

Against these arguments it has, for example, been said that as more and more transactions take place online instead of offline, taxing traditional commerce will not generate as much revenue as it has so far. If governments are to receive a similar level of revenue, they need to either increase the tax on offline transactions or tax e-commerce. Increasing the tax on offline transaction would be contrary to the principle of neutrality. Indeed, the suggestion that e-commerce should not be taxed is contrary to that principle. It has also been argued that, since wealthy and educated people use e-commerce to a much greater extent than poor and uneducated people, taxing offline transactions, but not e-commerce transactions, works to widen the gap between the rich and the poor in society.

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[26] Digital Envoy, 'Digital Envoy Alliance With Melbourne IT Gives Global Boost To Innovative Internet Marketing and eCommerce Technology; Hoping to Avoid "Cookies" Controversy, Australian Firm Embraces NetAcuity As the Emerging Standard for Non-Invasive Web Tracking and Customer Service Activities' (Press Release, 9 April 2000) <http://www.digitalenvoy.net/news/press_releases/2000/pr_040900.shtml>.

[27] One way to avoid the complication is to produce a privacy friendly geo-location tool. One such product is currently being tested at <www.svantesson.org>.

In light of the discussion of geo-identification above, it could be said that geo-identification supports both sides in this debate. On the one hand, it can be argued that geo-location technologies justify, or even make possible, location-based taxation of online activities, thereby supporting e-commerce taxation. On the other hand, the fact that such tax schemes encourage the use of a technology which threatens to destroy a fundamental aspect of the Internet can perhaps be seen as an argument against the whole idea of taxing electronic commerce.

CONCLUDING REMARKS

The above has illustrated that the notion that geography does not apply to the Internet is misguided. Indeed, as noted by Mark I Wilson and his colleagues, '[w]hile the power of distance has been eroded, it should not be confused with the diminishing meaning of place'.[28] Place, or location, matter offline and it matters online, not least in the context of taxation.

[28] Mark I. Wilson et al., 'Death of Distance/Rise of Place: The Impact of the Internet on Locality and Spatial Organization' (Paper presented at INET 2001 - The 11th Annual Internet Society Conference, Stockholm, 5-8 June 2001).