Example 16.1
Taxing Internet Transactions*

The online shopping industry has grown rapidly in recent years and will almost certainly continue to do so.   Internet sales were $155 billion in 2009, 6% of total retail sales, and Forrester Research expects them to grow by 10% per year for the next five years to $249 billion by 2014.[1]

You can be sure that the state governors have taken note of the Internet sales. The general sales tax is the main source of revenue for the 45 states that use the tax, but most Internet sales are exempt from taxation because taxing them is currently against the law. The Supreme Court ruled in *Quill Corp. vs. North Dakota* (1992) that vendors without a physical location, or nexus, in the state in which a purchaser resides do not have to collect that state's taxes on the sale, which eliminates the majority of electronic sales from states' sales taxes. (Such sales are referred to as remote sales.) The basis of the Court's decision was that there are over 8,000 different entities (such as state and local governments and other taxing jurisdictions) that impose sales taxes. Each of these entities may differ in tax rates, bases, and administrative rules – including filing, registration, exemptions, sourcing sales, and audits. [2] Asking firms to keep track of all these different tax rates, rules, and regulations would be so difficult and costly for them that it would amount to an unconstitutional restraint of interstate commerce.

The National Governors Association (NGA) has called on Congress to pass legislation authorizing the taxation of electronic sales. They point out that the states, which are hard pressed for revenues, are passing up billions of dollars of sales tax revenue every year because of the exemption. Furthermore, the exemption limits their ability to increase revenues by increasing their tax rates on sales at retail outlets, so-called bricks-and-mortar sales, because consumers will respond to any tax increase by purchasing ever more goods and services online. And the average sales tax rate across all states is already above 6%.

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* Example prepared from a draft by Lauren Kiely, Boston College '07.
[1] Erick Schonfeld, 'Forrester Forecast: Online Retail Sales Will Grow to $250 Billion By 2014,': TechCrunch, 8 March 2010, Figure 1,reported at www. techcrunch.com/2010/03/08/forrester-forecast-online-retail-sales-will-grow-to-250-billion-by-2014/.
[2] George Zodrow, "Optimal Commodity Taxation of Traditional and Electronic Commerce," *National Tax Journal*, March 2006, pp.8–9.

As Internet sales began to take off in the late 1990s, Congress did appoint an Advisory Commission on Electronic Commerce to study whether it should authorize the taxation of electronic sales. The Commission issued its report in December 2001 and went against the NGA. It advised Congress not to overturn the Supreme Court's exemption of taxation on remote electronic sales. So far, Congress has followed the advice of the Commission.

The difficulties in taxing remote electronic sales do not appear to be insurmountable. The Internet has several inherent characteristics that provide for easier collection of a potential Internet sales tax. The use of credit cards and well-established vendors allow for easily traceable electronic transactions, and computer software can be developed to calculate tax liabilities. Furthermore, since 2000 the states have been engaged in an ongoing Streamlined Sales Tax Project, which is an attempt to establish a single, unified state sales tax system that all states would adopt. A state would be free to set any sales tax rate that it wished, but the rates would be the only difference in the states' sales taxes.[3] As of 1 October 2009, 44 states and the District of Columbia were participating in the project, and 20 states were in compliance with its regulations.[4] The NGA was cognizant of the difficulties of taxing electronic sales enumerated in the Supreme Court's 1992 ruling. Its recommendation to Congress to authorize the taxation of remote electronic sales was made under the assumption that all or nearly all of the states would eventually adopt the recommendations of the Streamlined Sales Tax Project. If they do, then adding electronic sales to the tax base would not pose much difficulty for firms making remote electronic sales. They would only have to keep track of the different tax rates set by the states.[5]

The question remains: should electronic Internet sales receive preferential tax treatment relative to bricks-and-mortar sales? Asking the question assumes that the Streamlined Sales Tax Project will be successful, so that the Supreme Court would no longer view the taxation of electronic sales as an unconstitutional restraint of interstate commerce.

The theory of optimal commodity taxation developed in Chapter 16 of the textbook, which incorporates both efficiency and equity concerns, happens to be an excellent vehicle for considering the economic issues associated with the taxation of electronic sales. Recall that the theory highlights two key parameters in determining how heavily a good (service) should be taxed: the (compensated) demand elasticity of the good and whether the good is consumed relatively more by high-income or low-income people. Presumably high-income people have low social marginal utilities of income and low-income people have high social marginal utilities of income. The Inverse Elasticity Rule says that tax rates should be lower the higher a good's (compensated) elasticity of

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[3] George Zodrow, "Optimal Commodity Taxation of Traditional and Electronic Commerce," *National Tax Journal*, March 2006, p. 9.

[4] Information on member and participating states can be found on the website of the Streamlined Sales Tax Governing Board, Inc., www.streamlinedsalestax.org, the State Info link.

[5] The NGA's policy statements on taxation of electronic sales can be found on their website: www.nga.org.

demand, and vice-versa. Adding a concern for equity leads to the conclusion that tax rates should be lower on goods consumed disproportionately by people with high social marginal utilities of income (those with low incomes), and vice-versa.

Some empirical work has shed light on these two key parameters in relation to electronic sales. Austin Goolsbee estimated the price elasticity of demand for online sales based on a survey of 25,000 online users conduced by Forrester Research of Cambridge, MA in December of 1997. His strategy was to determine the demand elasticity by seeing if people in states with higher sales taxes were more likely to purchase online. The survey was detailed enough to control for such factors as income, education and age. His estimates revealed an extremely high demand elasticity, 3.5 in his most preferred estimate – online purchases were very sensitive to tax rates on bricks-and-mortar sales. On the basis of this, he concluded that applying the sales tax rates existing at the time to Internet sales would reduce online sales by 24%.[6] With an elasticity this high, one can presume that the compensated demand elasticity is also very high.

The Forrester survey also revealed that consumers with high incomes tend to purchase goods and services online more frequently than consumers with low incomes and therefore would pay a disproportionately greater amount of an Internet sales tax. On average, those who shop online have $5,400 more income and 0.4 more years of education than those who do not.[7] Additionally, individuals in metropolitan areas are more likely to have Internet access and to use that access to purchase online than those in rural areas. Finally, the tendency to make online purchases is generally lower for most minorities.[8]

A follow up study by James Alm and Mikhail Melnik made use of a much larger survey than the Forrester survey, a supplement to the 2001 Current Population Survey entitled "Computer Use and Internet Access Supplement, December 2001", conducted by the Bureau of Labor Statistics and the Census Bureau. The survey contained useful data on 109,100 individuals, some of whom purchased online and others of whom did not. Alm and Melnik found the same characteristics of the online purchasers as did Goolsbee in terms of income, education, and the like, but very much lower demand elasticities. Their preferred estimate was an elasticity of 0.52, with the implication that a tax on Internet sales would reduce online purchases by 6%.[9]

George Zodrow constructed a simple optimal commodity tax model and used information from these and other empirical studies to see what the model concluded about the preferential tax treatment of Internet sales.[10] His model contained two sets of

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[6] Austan Goolsbee, "In a World without Borders: the Impact of Taxes on Internet Commerce," *Quarterly Journal of Economics* (2002), p. 8.

[7] Austan Goolsbee, "In a World without Borders: the Impact of Taxes on Internet Commerce," *Quarterly Journal of Economics* (2002), Table 1, p.16.

[8] James Alm and Mikhail Melnik. "Sales Taxes and the Decision to Purchase Online," *Public Finance Review* 33 (2005): 184–212.

[9] James Alm and Mikhail Melnik. "Sales Taxes and the Decision to Purchase Online," *Public Finance Review* 33 (2005), pp. 185–186.

[10] George Zodrow, "Optimal Commodity Taxation of Traditional and Electronic Commerce," *National Tax Journal*, March 2006, pp. 7–31.

consumers: those who never purchase online and those who do purchase online. The online purchasers had higher incomes. A flexible social welfare function was applied to the two sets of consumers – flexible in the sense that society's aversion to inequality could be varied. There were four goods in the model: one that was untaxed, one that was taxed but never sold on the Internet, and two goods that were close but not perfect substitutes. One of these two goods was always sold online and the other was never sold online. Labor was the only factor of production used to produce the four goods. It had the same, constant marginal product in producing all the goods and received a wage, w, that was untaxed. Only commodity (sales) taxation was allowed. Finally, Zodrow allowed for the possibility that taxing Internet purchases has higher collection costs than taxing the bricks-and-mortar goods.

The presumption in any optimal commodity tax model is that goods that are very close substitutes should be taxed at (approximately) the same rate. If they are not, and consumers substitute towards the lower taxed good, then this introduces an artificial substitution effect that increases the dead weight loss of commodity taxation. Differential tax treatment of the goods may be called for, however, if the two goods have quite different (compensated) demand elasticities or if they are consumed disproportionately by people with high and low incomes.

Zodrow's results were fairly sensitive to his choices of demand elasticities for the close substitute that was purchased online, the difference in collection costs for online and bricks-and-mortar purchases, and society's aversion to inequality. Consider, first, the most extreme results. He found that preferential taxation of the close substitute that was purchased online resulted only if the price elasticity of the good purchased online was very high – as suggested by Goolsbee's estimates – the difference in collection costs was large, and society had little or no aversion to inequality. But even then, the preferential treatment was never higher than approximately a 30% reduction in the tax rate, nowhere close to an exemption from taxation. Conversely, if the price elasticity of the close substitute that was purchased online was low, in the range suggested by the Alm-Melnik estimates, the difference in collection costs was small, and society's aversion to inequality was high, then the disproportionate purchases online by the higher income people with relatively low social marginal utilities of income implied that the close substitute purchased online should be taxed 30% to 40% *higher* than the bricks-and-mortar close substitute. The strong aversion to inequality drove this result. Zodrow concluded that, under reasonable middle-of-the-road choices for these parameters, the original presumption of these models is correct: the close substitutes should be taxed at essentially the same rate. In his view, the optimal commodity tax model does not provide an economic justification for the current exemption of online sales in terms of efficiency and equity.