

Collecting Taxes in the Cyberage

How online purchases could affect revenue collections



By

Michael T. Childress

Robert W. Cox, Merl M. Hackbart, Charles W. Martie, Kevin O'Neil and Peter Schirmer

COLLECTING TAXES IN THE CYBERAGE:

**HOW ONLINE PURCHASES
COULD AFFECT REVENUE COLLECTIONS**

Editor
Michael T. Childress

THE KENTUCKY LONG-TERM POLICY RESEARCH CENTER

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PREFACE

By 2002, it is estimated, 30 percent of the American population age 14 and over will have purchased something online. However, according to most estimates, only a small percentage of the sales and use tax owed on such purchases will be paid. This indicates an alarming trend for state and local governments, since many depend heavily on sales tax revenue to finance government operations and programs. The purpose of this report, therefore, is to educate the public and policymakers about the range of issues surrounding this topic, provide estimates on the long-term implications for the state budget, and discuss the policy options for increasing compliance to the use tax.

The report is designed so that it is not necessary to read it in its entirety. That is, each chapter can be read as a separate piece, and understanding it does not depend on having read the previous chapter, although on occasion one chapter will refer to material in another. This structure enables readers who have an interest in a specific topic to read only the chapter that deals with that area. The work can also be read from front to rear; however, some explanations will be repeated.

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Michael T. Childress serves as Executive Director of the Center. Those interested in further information about the Kentucky Long-Term Policy Research Center should contact his office directly:

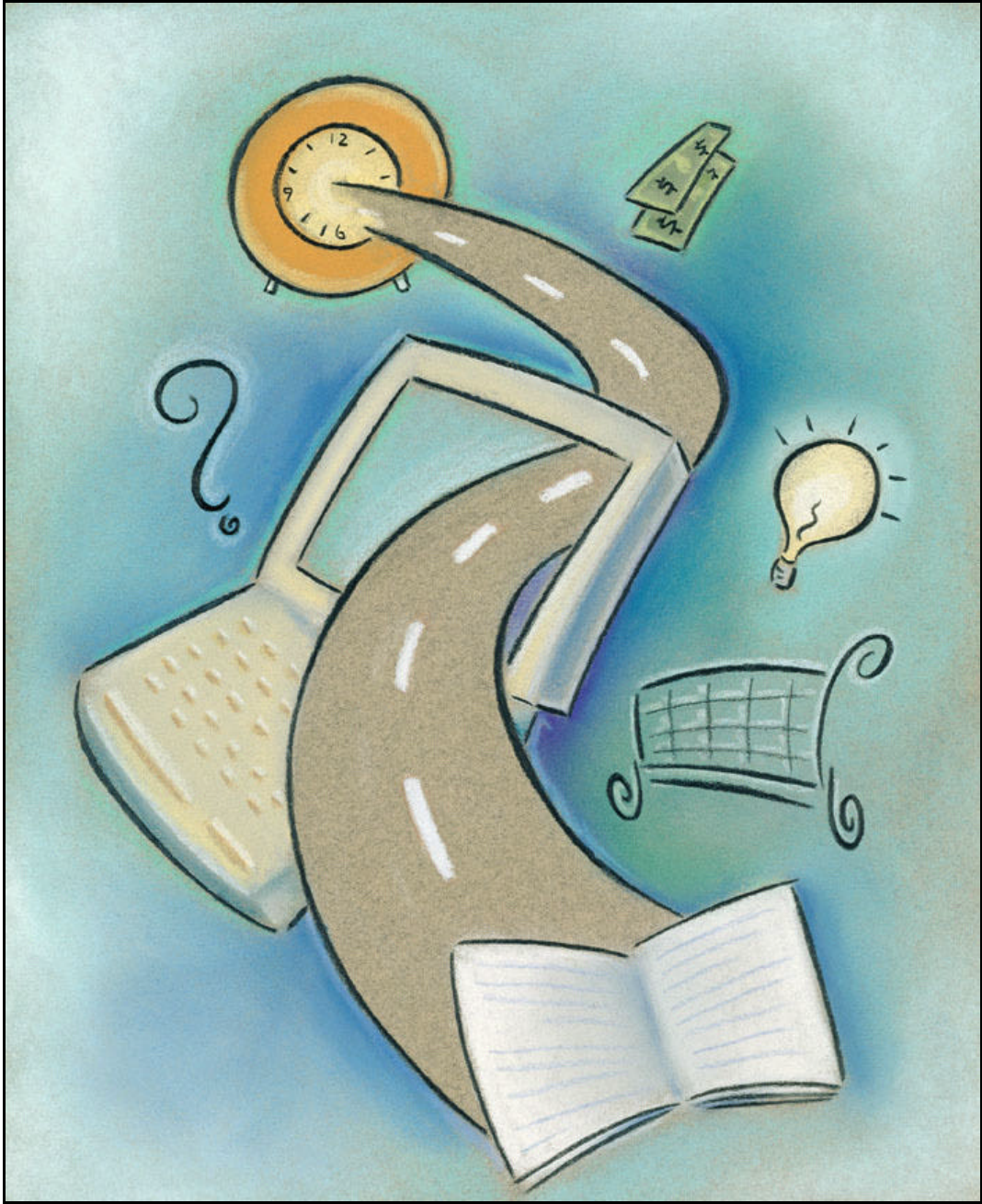
THE KENTUCKY LONG-TERM POLICY RESEARCH CENTER

111 St. James Court
Frankfort, KY 40601-8486
Phone: (502) 564-2851 or (800) 853-2851
e-mail: ltprc@lrc.state.ky.us
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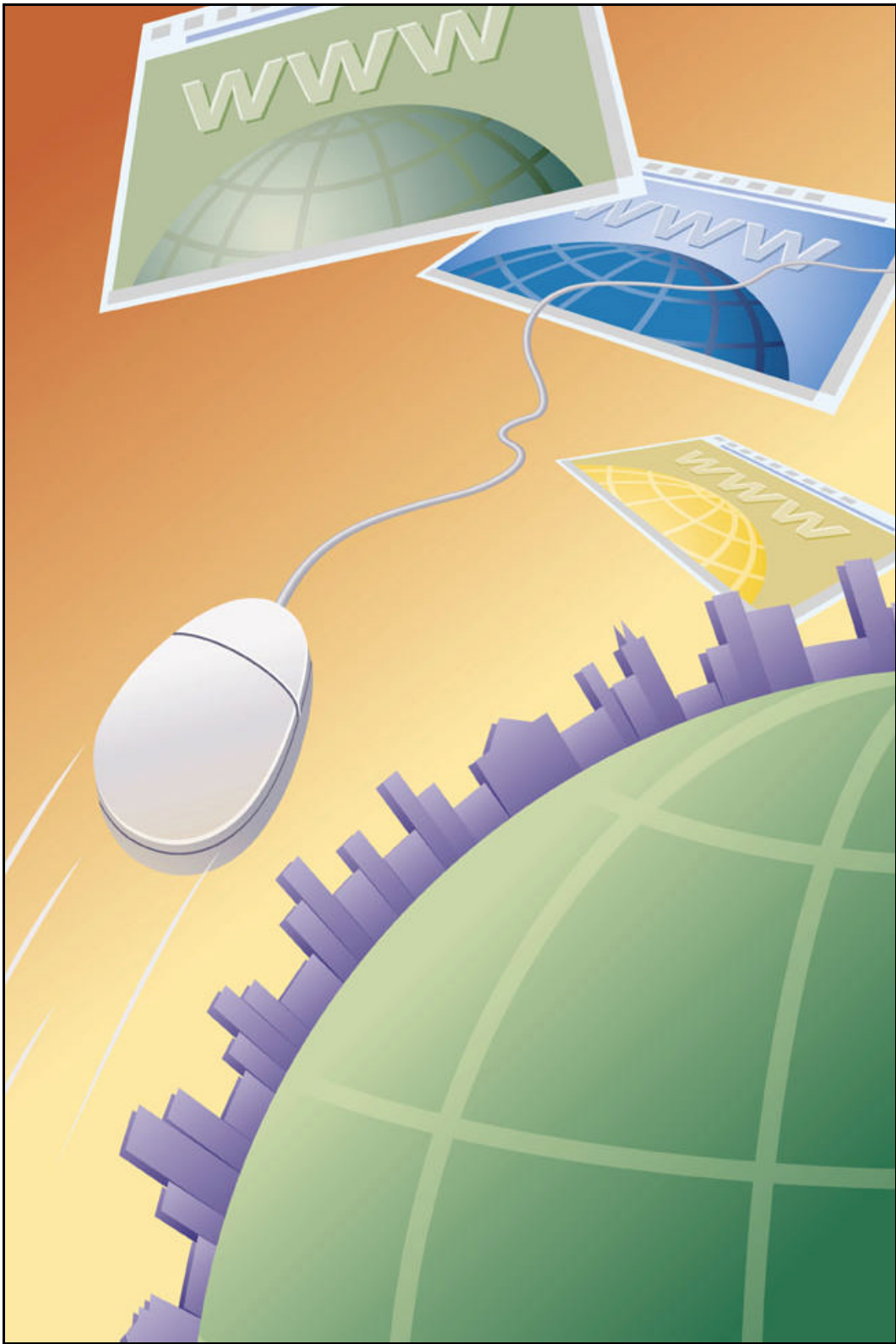
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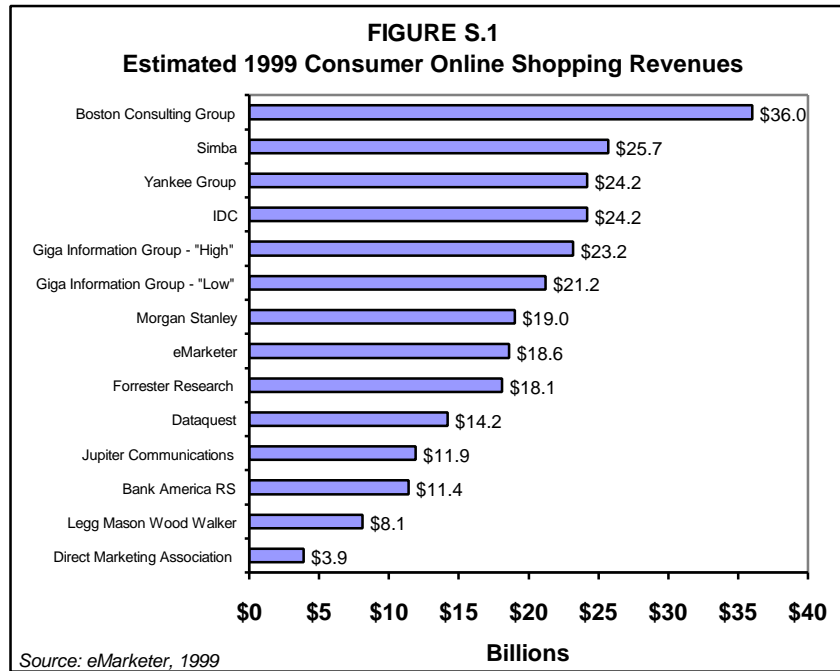
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SUMMARY

A Kentucky resident decides to do her Christmas shopping through mail order; she reads a gift catalog she received in the mail from a company in Maryland and decides to buy some toys for her grandchildren. She has a few options. She fills out the order form accompanying the catalog and reaches the line that says, “MD and VA residents add sales tax,” and leaves it blank. She totals the bill, writes the check, and puts the envelope in the mailbox. Or, she gets out her credit card, calls the company, places the order, gives her mailing address and credit card number, and hangs up. Or, she goes to the company’s website, chooses the items she wants from an online catalog, enters her mailing address and credit card number, clicks on “Order,” and logs off. All three scenarios yield the same result: her merchandise will be delivered in a few days, her account will be charged or debited for the price of the items plus shipping and handling, and she will owe the Commonwealth of Kentucky use tax. But the Maryland business does not collect the tax, because it has no presence or “nexus” in the state. Herein lies the problem: *a lot of people are making online purchases but only a few are paying the use tax.*

It is estimated that from 1997 to 2002 the percentage of Americans aged 14 and over who will have purchased something online will increase tenfold, from about 3.2 percent to approximately 30 percent. And a Forrester Research survey found that the average American who makes purchases on the Internet spends \$322 a year, with total consumer online shopping revenues for 1999 estimated by various sources to be between \$3.9 billion and \$36 billion (see Figure S.1).



We estimate that approximately 18 percent of Kentucky adults have made a purchase over the Internet. Who are these cybershoppers? A Kentuckian shopping on the Web is most likely a col-

lege-educated male, earning at least \$50,000 annually, and living in the urban triangle. Table S.1 shows some of the demographic characteristics of online purchasers in Kentucky.

The growth of consumer Internet sales is causing considerable alarm in state capitols across the country. This is because only a small percentage of the sales and use tax owed on consumer Internet purchases is ever paid, and states depend on sales and use taxes to finance government programs and operations. A recent report conducted by Ernst & Young assumes that only “4 percent of taxable business-to-consumer e-commerce sales result in sales and use tax payments,” while the U.S. Advisory Commission on Intergovernmental Relations estimates a somewhat higher rate of 16.5 percent.

There are multiple reasons for the general lack of compliance with the use tax. One is lack of knowledge. Our results show that only 37 percent of Kentuckians say that they have heard of the use tax. Another reason is simply an unwillingness to pay the use tax even if the requirement to do so is known. When asked to give the likelihood of reporting the use tax on their state income tax form, nearly 44 percent of Kentucky respondents to a Center survey said either “somewhat *unlikely*” or “very *unlikely*.”

Since the sales and use tax comprises about 35 percent of Kentucky’s total revenue collections, it is easy to understand why policymakers are concerned about the long-term trends of increasing consumer Internet sales and low use tax compliance. In the section that follows, we explore some of the implications for the state budget.

HOW MUCH SALES AND USE TAX IS OWED?

To examine the potential impact that Internet sales could have on Kentucky’s state budget, we start by looking at the estimated sales and use tax owed on catalog and Internet purchases from 1998 to 2003. We juxtapose catalog sales with Internet sales to provide a context within which to evaluate the potential magnitude of Internet sales.

There are at least three key points in Table S.2. First, the estimated tax owed from catalog and Internet purchases amounts to millions of dollars regardless of the scenario. Second, the estimated tax owed from Internet sales is considerably less than the estimated tax owed from catalog sales, particularly in the near term. Third, the growth rates for Internet sales are considerably higher than those for catalog sales. For example, in the medium growth Internet scenario, the tax owed from Internet purchases was about 1.6 percent of the tax owed from catalog sales in 1998, but it increases to 19.2 percent by 2003. This dramatic increase illustrates the extent to which Internet sales could pose a growing problem for the state budget. Depending upon how much of this money is remitted to the state coffers in the form of a sales and use tax, policymakers are faced with a considerable amount of lost revenue.

EDUCATION	
High School or less	11.1
Some College or Vocational School	16.8
Bachelor’s Degree or Higher	34.5
INCOME	
Under \$20,000	4.8
\$20,000 to \$50,000	22.5
\$50,000 or Higher	32.8
AGE	
Under 30	25.2
Between 30 and 49	22.4
Between 50 and 69	11.1
70 and Older	5.9

Source: Kentucky Long-Term Policy Research Center and UK Survey Research Center. Note: All percentages are unweighted averages (see footnote 21).

TABLE S.2 Estimating the Amount of Sales and Use Tax Owed from Mail Order Consumer Purchases in Kentucky, 1998-2003				
		Tax Owed on Internet Sales		
Year	Tax Owed on Mail Order Sales (non-Internet)	Low Growth Scenario	Medium Growth Scenario	High Growth Scenario
1998	\$ 87,478,622	\$ 226,910	\$ 1,359,217	\$ 3,076,304
1999	\$ 91,598,062	\$ 463,269	\$ 3,151,893	\$ 6,809,152
2000	\$ 95,932,360	\$ 831,831	\$ 5,950,184	\$ 11,803,138
2001	\$ 100,442,989	\$ 1,327,788	\$ 9,646,615	\$ 19,182,222
2002	\$ 105,188,362	\$ 1,987,288	\$ 14,494,097	\$ 30,175,349
2003	\$ 110,154,011	\$ 2,590,868	\$ 21,157,896	\$ 48,347,302

Note: Refer to Appendix B for an explanation of how these values are estimated.

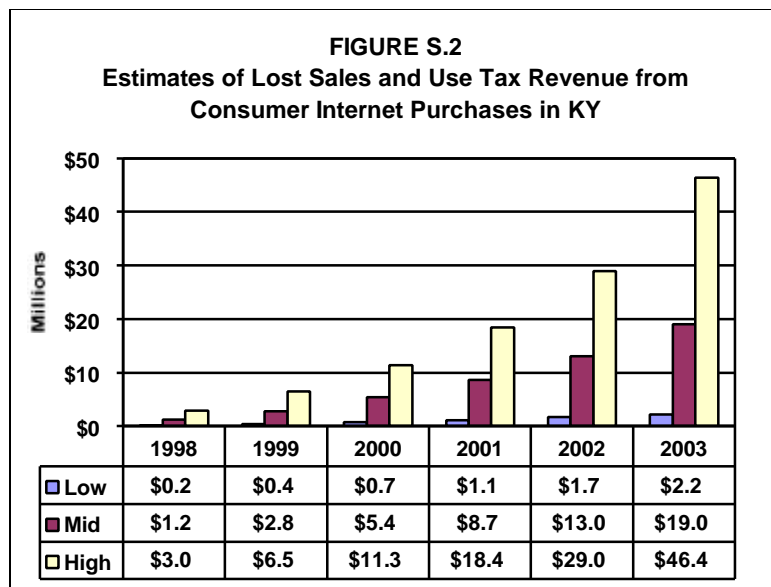
HOW MUCH SALES AND USE TAX IS LOST DUE TO INTERNET PURCHASES ?

We have estimated the amount of lost sales and use tax from consumer Internet purchases by taking into account the following factors:

- Projected total Internet sales
- Kentucky's lower retail consumer expenditures (relative to the U.S. average)
- Kentucky's lower Internet usage rates (compared with the U.S. average)
- Substitution effect (some purchases would have taken place as catalog or telephone purchases in the absence of the Internet)
- Taxability (not all items purchased over the web are taxable)
- Use Tax Consumer Compliance Rate

Figure S.2 shows the estimated lost sales and use tax from Internet consumer purchases from 1998 to 2003, based on three scenarios that reflect a range of estimates for the factors listed above.

The projected annual losses range from \$2.2 million to \$46.4 million by 2003. And these amounts range from 0.08 percent to 1.8 percent of Kentucky's projected sales tax revenue. While the percentages seem small, the actual dollar losses are not. For example, the estimated cumulative losses from 1998 to 2003 are \$6 million for the low estimate, \$50 million for the middle estimate, and \$115 million for the high estimate.



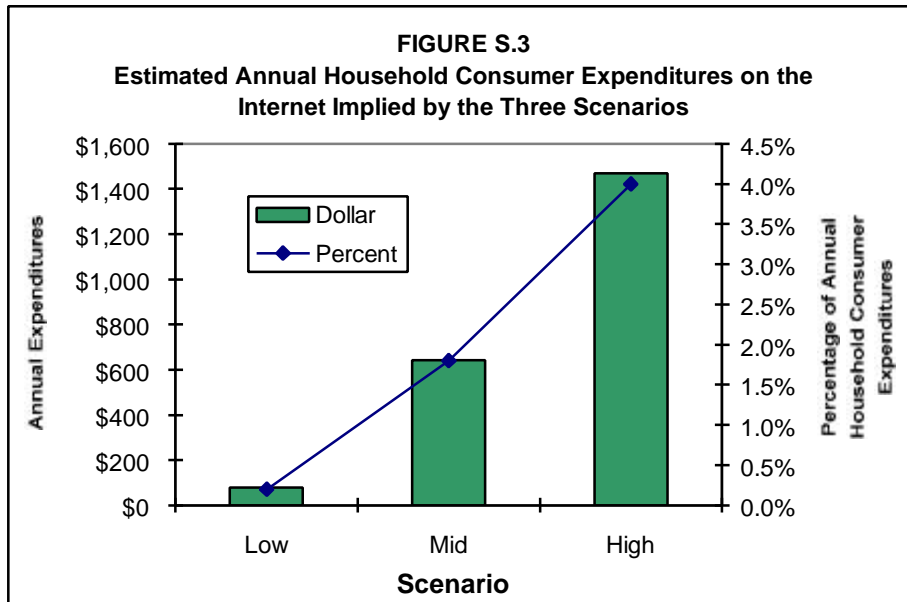
DO THESE SCENARIOS MAKE SENSE?

Given the difficulty of predicting how much commerce will occur over the Internet, our primary goal here is to present a reality check, tying projected losses in sales and use tax to consumer purchasing behavior. Our study seeks to answer the question “How much would people have to buy over the Internet for Kentucky to suffer significant losses in sales tax revenue?” Specifically, we use the three scenarios presented above to determine whether the resulting changes in consumer expenditure behavior make sense.

We used Consumer Expenditure Survey (CES) data as our starting point. The CES provides detailed information about how much households spend annually on specific categories of goods and services, and does not incorporate business-to-business sales. We took the CES data on the average amount of money households spend in each category, projected it to the year 2003, and multiplied it by the state’s projected household population. This procedure enables us to estimate the level and type of consumer spending in Kentucky.

The best way to use our data may be as a reality check. One might take our results and ask “How likely is it that in 2003, I and my fellow Kentuckians, including both computer lovers and technophobes, will be using the Internet to make this much of our purchases?” It may be very difficult to predict exactly, but this type of check can be used to ground our thinking on Internet commerce.

Are the three scenarios plausible, considering the amount of consumer expenditures on the Internet that each implies? The answer to this question is necessarily subjective, but the answer appears to be a “cautious yes.” Figure S.3 shows, for example, that in the “high scenario,” which assumes a \$46.4 million sales tax loss by 2003, Kentucky household consumer expenditures on the Internet would have to equal 4 percent for *all* CES categories, or about \$1,500 in annual expenditures. This does not appear to be an implausible figure, especially when we consider it is for 2003. However, we also have to consider that this is an average figure for *all* Kentucky households. One must remember that not all Kentucky households have access to the Internet, and that not all those with Internet access use it to make purchases. In 1998, only about 42 percent of Kentucky adults had ever accessed the Internet.



However, this model of Internet commerce assumes that *all* types of goods and services will sell equally well over the Internet. This is not a realistic assumption. Currently, some markets have blossomed on the Internet, while others have failed. Products that are unique, unfamiliar or that vary in quality or character are unlikely to sell well over the Net. Heavy or bulky items that cannot be easily shipped, such as furniture or major appliances, also do not represent a major threat to sales tax revenue. The ultimate Internet commodity is of homogenous and easily certifiable quality, has a high value-to-weight ratio, and can be marketed effectively using computer graphics and sound. In addition, if the product line includes a wide selection of styles or options, an Internet retailer may have a scale advantage over smaller local shops. It should also be noted here that items such as music and software, although taxable if delivered physically on CD or disk, are not taxable under Kentucky law if they are downloaded electronically.

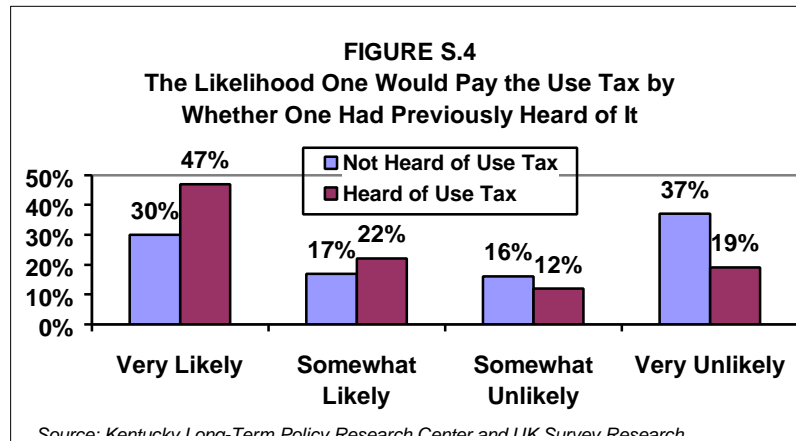
To model more accurately the current state of Internet commerce and its likely avenues of growth, the “Selected Products and Services” scenario restricts Kentuckians’ Internet purchases to items that already have significant or growing online sales. We picked, from the Consumer Expenditure Survey’s 70 categories, only categories that contained goods or services that currently are sold in significant quantities over the Internet or that have demonstrated concrete potential for sales over the Internet.

How much of Kentuckians’ consumer expenditures *in selected categories* would take place on the Internet in 2003 to equal the tax loss estimates for the three scenarios? In the “high scenario” Kentucky household consumer expenditures on the Internet would have to equal about 10 percent for the *selected* CES categories. Again, we estimate that the resulting sales tax loss would equal around \$46.4 million in this scenario. In the “low” and “mid” scenarios, we estimate that Kentucky household consumer expenditures would need to equal 0.6 percent and 4.6 percent respectively in the selected categories for the scenarios to be fulfilled. Again, these do not appear to be implausible spending levels for 2003.

POLICY OPTIONS

A number of options could be explored to increase the amount of use tax remitted to the state. First, it would probably help to expand awareness and understanding of the use tax by individual consumers. Some states have used mailings to inform citizens of the existence of the use tax and to ask them to review their records for any purchases subject to the use tax. States that have launched public relations programs to advertise the features of the tax and the responsibilities of citizens to report it have achieved varying degrees of success. Indiana, for example, sent 86,000 letters to higher income individuals, which generated approximately 20,000 responses, half claiming no tax due and the others generating an average tax payment of \$30. Assuming full compliance among those who remitted tax based on the letter, the campaign revealed approximately \$1.5 million in taxable transactions not previously observed.

Most states have expanded taxpayer assistance, with easier access to agency employees, increased training and professional development, and improved availability of instructional materials through the Internet. Clearly, the Internet offers significant opportunities to target education to



those consumers most likely to make online purchases. Nevertheless, it would seem that additional efforts to educate the public about the use tax might result in a higher compliance rate. First, almost two thirds of the public do not know about the requirement to pay the use tax. Obviously, they will not be paying a tax that they do not know about. Second, as Figure S.4 illustrates, individuals who say they have heard about the use tax are more likely to say they will pay it. For example, of those individuals who say they are very likely to pay the use tax, 47 percent have also heard of the use tax, whereas 30 percent have not. Conversely, those who say that they are very unlikely to pay the use tax have less familiarity with the tax.

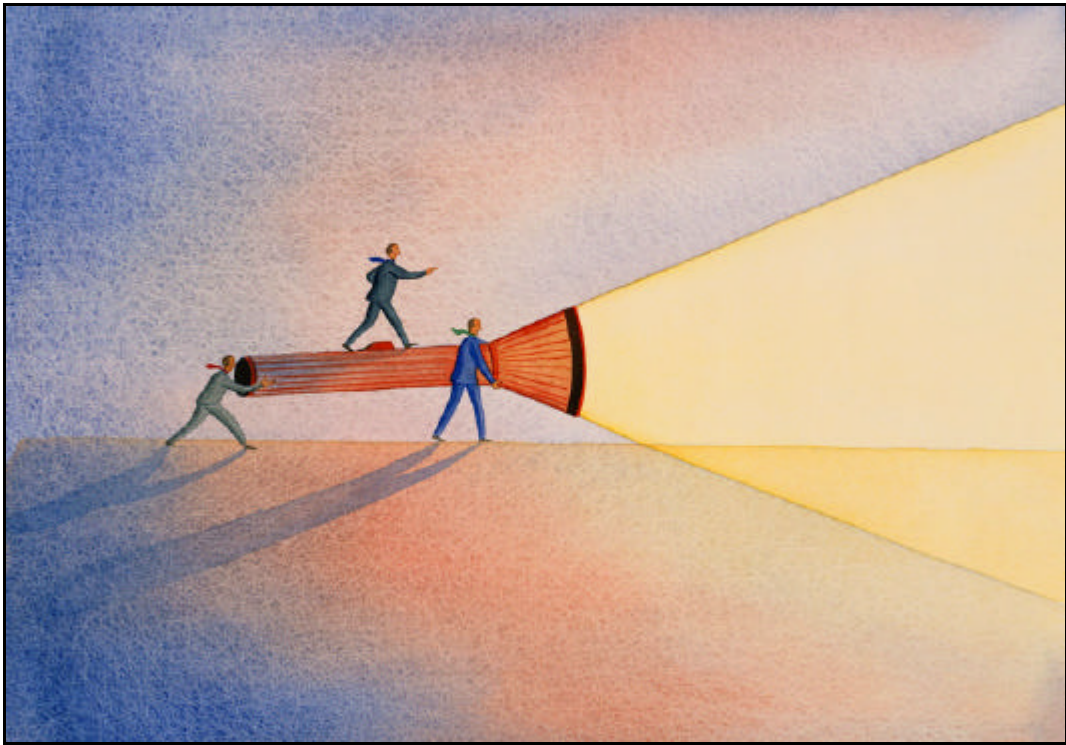
A second option would entail a continuing focus on the retailers or vendors. The Kentucky Revenue Cabinet already participates in interstate agreements to enhance voluntary vendor compliance and to cooperate on enforcement activities. These agreements generally take the form of regional compacts to share information and pool resources to encourage voluntary compliance and share audit responsibilities. One of the earliest successful compacts was the New York-New Jersey Sales and Use Tax Agreement, established in 1986. This compact established joint administration responsibilities for the two states in which a vendor in either state registers in one state and must remit sales and use tax due in both states. Since then, the trend has been toward increasing cooperation among states on a regional basis. Kentucky is an associate member of the Multistate Tax Commission (MTC), which provides for information sharing and a multistate audit staff, and a member of the Southeastern Association of Tax Administrators (SEATA) and the Ohio/Indiana Exchange Agreement. Kentucky also participates in the Federation of Tax Administrators (FTA), an organization representing taxing jurisdictions throughout the United States. The FTA has been progressive in expanding information sharing among state tax agencies, recently providing electronic means of communicating and sharing data. In general, Kentucky's experience with these agreements and organizations has been productive, leading to more efficient tax administration through exploration of best practices and adoption of more uniform administration among the states. Moreover, the Revenue Cabinet currently collects use tax from a large number of out-of-state firms that have voluntarily registered to report and remit the tax on sales to Kentucky residents. The Cabinet encourages such voluntary compliance and is investing in systems integration technology to reduce the costs of compliance.

Third, several legal avenues could be explored. The state sales and use tax statute contains a provision to require delivery companies to collect the use tax for deliveries of tangible personal property made from retail outlets located outside the state. Kentucky could investigate ways that this law could be applied efficiently to collect the taxes due the state. However, the potential consequences to revenues as well as the economic impact of this need to be examined. The state could also challenge the establishment by in-state retailers of subsidiary e-commerce companies that have allowed them to avoid nexus in Kentucky. In Kentucky's case, the validity of the retailers' claim of nexus avoidance has not been determined. Although it is by no means certain that the state would prevail in such a case, it is certain that Kentucky would not collect the revenue otherwise. Yet another option for enforcing the collection of use tax is a statutory change similar to provisions used to enforce the bank franchise tax. This tax, created in 1996 as a replacement to the bank share tax, contains an enforcement provision that restricts noncompliant banks from seeking redress in any state court or with any state agency for any obligation of debts. The bank franchise tax has been effective in retaining revenue that many had feared would be lost due to the rise of interstate banking. However, nexus standards under that tax are currently being challenged.

Ultimately, a solution will likely be found at the national level. The state presently has no legal power over out-of-state sellers who do not have a presence or nexus in the state. Congress, however, can enforce sales taxes on sellers with no nexus. Congress has charged the Advisory Commission on Electronic Commerce with the responsibility of recommending policy on sales tax and electronic commerce. After their first meeting, several members of the Commission expressed the opinion that sales tax will eventually be applied to Internet purchases. One likely solution is to make state sales tax enforceable on out-of-state vendors and to require these vendors to use a database to match buyers with their local tax jurisdictions. Another proposed solution is to impose a

national sales tax on interstate purchases that would be collected by the federal government and then granted to the states. In the long term, Kentucky's best policy tool is simply to monitor national progress in this area and to lobby for legislation favorable to the state. Kentucky is well prepared for national sales tax reform, because it has no local option sales taxes, which might have to be eliminated to simplify a national sales tax system.

The challenge to create a viable, fair, and adequate revenue source means constant monitoring and adjustment. In the case of the sales and use tax, the state must be able to adapt its taxing system to changing technologies and market structures if it is going to carry on in the 21st century. The growth of e-commerce, which has occurred with unprecedented swiftness, has revealed or magnified several weaknesses with the current structure. It is up to policymakers to understand and react to this new method of doing business.



AUTHORS

Michael Childress is the Executive Director of the Kentucky Long-Term Policy Research Center. He received a Bachelor of Arts degree from the University of Kentucky in 1984 and a Master of Arts degree from the University of California, Los Angeles, in 1986—both in political science. From 1988 to 1993, he was a social scientist at the RAND Corporation in Santa Monica, California. While at RAND, he authored numerous studies on topics ranging from demographic trends in the third world to the implications of declining budgets for the U.S. Army. In August of 1993, he became the first executive director of the Kentucky Long-Term Policy Research Center, where he oversees the Center's numerous research activities.

Robert W. Cox is the Deputy Executive Director of the Governor's Office for Economic Analysis (GOEA). He is principally responsible for the official General Fund and Road Fund revenue estimates used to prepare the Commonwealth's biennial budgets. Mr. Cox received his Master's Degree in economics at the University of Virginia in 1985. After working as a research economist at the University of Virginia's Center for Public Service and Tayloe Murphy Institute for five years, he began working within the Kentucky Finance and Administration Cabinet in 1990. His primary interests are in the areas of public finance, regional economics, and input-output analysis.

Merl M. Hackbart is Professor of Finance and Public Administration and Director of Graduate Studies for the doctoral program in Public Policy and Administration at the University of Kentucky. He also serves as a member of the Kentucky Council on Postsecondary Education, the Kentucky Consensus Revenue Forecasting Group, and is a Senior Fellow at the Council of State Governments. He has held several administrative positions at the University of Kentucky, including Associate Dean of the College of Business and Economics, Director of the Martin School of Public Policy and Administration, and Special Assistant to the Chancellor. He has also served two times as State Budget Director and is currently a Senior Policy Advisor to the Governor.

Charles W. Martie is currently Director of the Division of Research and Development at the Kentucky Revenue Cabinet. His current research includes tax policy, data warehousing, and the application of data mining techniques to tax compliance. He was formerly an Associate Professor and Chair of the Economics Department at Quinnipiac College in Hamden, Connecticut. He has also served as an economist in the Bureau of Economics at the Federal Trade Commission, specializing in antitrust and merger policy. He earned his doctorate in Economics from the University of Connecticut. His publications include research in local government organization, tax policy, and health economics. He currently resides in Scott County with his wife and two children.

Kevin O'Neil got to know the world of Internet commerce while a summer intern at the Kentucky Long-Term Policy Research Center. He currently studies Economics and English Literature at Swarthmore College in Pennsylvania. Kevin's other experiences include study abroad in Spain, summer work with the Lexington-Fayette Urban County Government, and volunteer work as a firefighter and teacher of English as a second language.

Peter Schirmer was a policy analyst with the Kentucky Long-Term Policy Research Center from 1994 to 1999. While at the Center, he authored, co-authored or edited eight book-length reports on topics ranging from rural Kentucky in the global economy to the role of information technology in the delivery of governmental services. He has a B.A. in Political Science from the University of Kentucky and an M.A. in Public Policy from the University of Michigan. Currently, he is working on an M.B.A. at Georgetown University.



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While many individuals contributed to this report, the Kentucky Long-Term Policy Research Center assumes full responsibility for its content. We welcome any and all comments.



CHAPTER ONE

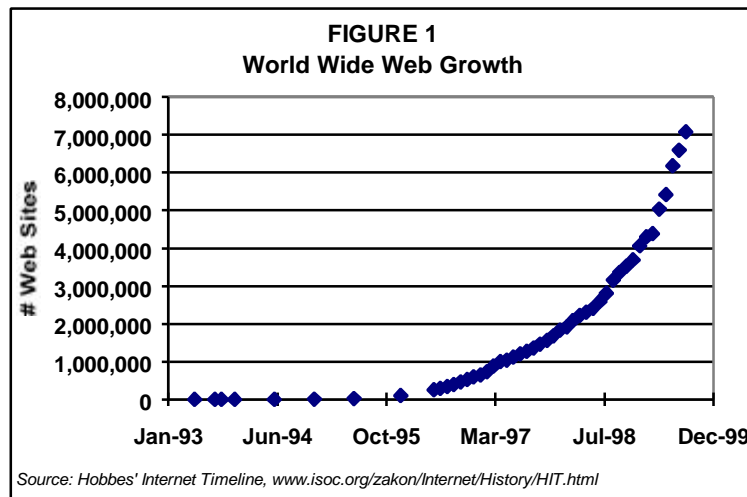
INTRODUCTION

By Merl Hackbart

The World Wide Web did not exist until 1991.¹ As recently as five years ago, the public knew little about the World Wide Web or the Internet. Today, it is possible to go grocery shopping on the Net. Americans have embraced this technology at an unprecedented rate. It has taken less than seven years for the Web to penetrate into 30 percent of U.S. households.² By comparison, the telephone took 38 years, television took 17 years, and personal computers took 13 years. In June 1993, there were 130 web sites. By August 1999 there were more than 7 million (see Figure 1).³ While the ubiquitous “.com” seems as though it has been around forever, most such businesses were born after the typical first-grader. For example, the domain names of the popular web sites of Amazon.com, Yahoo.com and AOL.com were registered only in 1994, 1995, and 1995 respectively.

As the number of businesses with “.com” after their names increases, so does the number of Americans who feel comfortable purchasing online. Figure 2 illustrates the projected growth in online purchases. And a Forrester Research survey found that the average American who does make purchases on the Internet spends \$322 a year.⁴

Consumers are obligated to pay sales or use tax on the products and services they purchase over the Internet, but it is widely believed that few do. Consequently, the growth of electronic commerce has fostered a series of tax and revenue policy concerns for state governments. Many governors, legislators, and fiscal policy analysts consider issues surrounding the taxation of electronic commerce to be the major state tax policy concern of the next decade. Issues such as: 1) whether state governments can tax e-commerce access charges and collect sales tax on electronic



¹ The World Wide Web (WWW) was released by the European Laboratory for Particle Physics (CERN) in 1991. Refer to *Hobbes' Internet Timeline v4.2*, <http://www.isoc.org/guest/zakon/Internet/History/HIT.html#1980s>, accessed on 10 December 1999.

² *Government Internet Guide*, October 1999: 12. Also available online at <http://www.govtech.net>.

³ Refer to *Hobbes' Internet Timeline v4.2* (fn. 1). Sites = # of web servers (one host may have multiple sites by using different domains or port numbers).

⁴ Austan Goolsbee, "In a World Without Borders: The Impact of Taxes on Internet Commerce," revision of NBER working paper #6863, 1999; online, University of Chicago Web site, <http://gsbwww.uchicago.edu/fac/austan.goolsbee/research/intertax.pdf>, accessed on 21 July 1999: 6.

commerce transactions; 2) whether they should tax such transactions; and 3) how these transactions should be taxed are major tax policy concerns.

The resolution of these issues requires more information regarding the “e-commerce industry,” including its size, its potential for future growth, and the impact of an expanded e-commerce industry on the state’s revenue base. The latter issue is a particular concern to state governments, as the sales tax is the states’ most important revenue source.

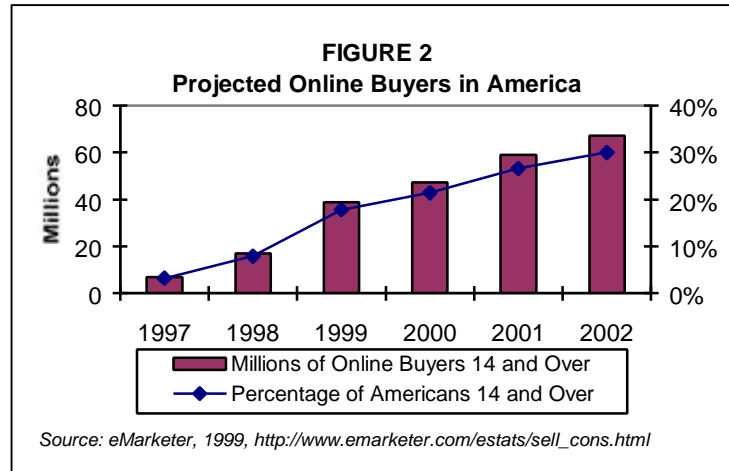
If the states cannot tax access charges or collect sales tax on e-commerce transactions, they face a severe deterioration of General Fund revenue as untaxed electronic commerce replaces conventional retail trade. As a consequence, the ability of the states to tax e-commerce access and to collect sales tax on electronic commerce is being debated nationally in such forums as the Advisory Commission on Electronic Commerce, meetings of the National Governors’ Association and the National Council of State Legislatures, and in the halls of Congress.

PURPOSE AND ORGANIZATION OF THE REPORT

To provide a starting point for an analysis of the need for tax policy adjustments due to the emergence of e-commerce in Kentucky, this report provides an overview of e-commerce issues and the potential fiscal policy implications. The report is designed so that it is not necessary to read it in its entirety. That is, each chapter can be read as a separate piece, and understanding it does not depend on having read the previous chapter, although on occasion one chapter will refer to material in another. This structure enables readers who have an interest in a specific topic to read only the chapter that deals with that area. The work can also be read from front to rear; however, some explanations will be repeated.

In Chapter Two, Robert Cox places the electronic commerce/sales tax issue in perspective by reviewing the history of Kentucky’s sales and use tax. In addition, he highlights some of the legal and constitutional issues associated with the assessment and collection of sales and use taxes on Internet and mail order sales. He raises two key issues regarding the remote sales industry which will affect the ultimate impact of e-commerce sales on Kentucky’s revenue base. First, he asks whether Internet sales are predominately “business-to-consumer” or “business-to-business” transactions. Business-to-consumer Internet transactions are subject to the *sales* tax if the Internet company has a presence or nexus in Kentucky; if the company lacks nexus, then the transaction is subject to the *use* tax. Business-to-business e-commerce transactions are subject to the sales or the use tax, unless they are of the “sale-for-resale” variety. Studies suggest that a majority of Internet transactions are business-to-business, and are thus believed to have a higher rate of use tax compliance. His second question focuses on which transactions are most likely to be displaced by e-commerce. If e-commerce is replacing former mail order catalog sales, the net revenue loss may be minimized, as the states have not been effective in collecting sales or use taxes on these transactions. If, however, they are replacing in-state retail transactions, the revenue erosion implications are much more serious.

Michael Childress reports in Chapter Three on a survey designed to determine how involved Kentuckians are in Internet commerce and how likely they are to report and pay the use taxes due on such transactions. The study indicates that approximately 18 percent of Kentucky residents



have traded on the Internet, while only 36 percent are “very likely” to report the transactions for use tax compliance purposes. This outcome seems consistent with the fact that Kentucky only collected \$718,000 of use taxes in the most recent tax year.

In Chapter Four, Peter Schirmer, Kevin O’Neil, and Michael Childress tackle the difficult issue of the impact of mail order sales and expanding Internet sales on Kentucky’s revenue base. Not surprisingly, they find that Internet sales are currently dwarfed by mail order transactions. Therefore, failure to pay the use tax on such activity is currently much more serious than the loss of revenue from the failure to collect use taxes due on Internet transactions. Following national studies, they evaluate three scenarios regarding Internet sales growth and their tax base loss implications (low-, mid-, and high-level estimates of Internet purchases in Kentucky). Their mid-level estimate of use tax evasion on Internet purchases approached \$3 million in 1999. Their study also highlights the revenue base erosion implications of growth of the e-commerce industry, which could be as much as \$46 million by 2003. This would represent approximately 2 percent of future sales and use tax revenue.

In Chapter Five, Kevin O’Neil presents a “reality check” of the three scenarios regarding e-commerce growth and potential revenue base erosion reported in Chapter Four. Overall, he finds the scenarios to be reasonable. For example, he estimates that a tax loss of 1 percent in 2003 could result if only 2.4 percent of the Kentucky consumer expenditures were made on the Internet, or 6.2 percent of selected products most commonly acquired online. He concludes that the “threat of the Internet commerce is not sufficient to justify drastic fiscal changes within the next few years.” However, without new congressional legislation empowering the states to force collection of the sales or use tax, the states may need to pursue voluntary collection by remote vendors through other means to protect their revenue bases.

Turning to broader issues and implications of e-commerce expansion in Chapter Six, Charles Martie reports on possible initiatives to enhance compliance with current use tax laws. Among the initiatives to be considered are: 1) enhanced public education programs to counter the lack of knowledge about the use tax; 2) multi-state efforts to streamline the sales tax nationally by striving for common state rates and sales tax bases; and 3) alternatively, the establishment of general sales tax economy-wide. The third proposal may emerge as the ultimate solution to the changing nature of retail transactions. Such an approach might involve the coupling of a national sales tax with a revenue sharing program to distribute sales tax proceeds to the participating states. Such an initiative would result in a trade-off of state tax policy independence and sovereignty for enhanced sales tax revenue.

In summary, this report is an effort to inform policymakers and citizens of the Commonwealth of the fiscal policy and tax revenue implications of the emergence of one aspect of the new high-tech economy—electronic commerce. This study indicates that the state of Kentucky is currently realizing minimal sales and use tax losses from the Internet, but those losses are likely to grow rapidly in the future. Beyond future revenue losses, the failure to tax e-commerce provides an unfair advantage to remote retailers over retailers located in Kentucky. For now, the fairness or level-playing-field issue may be of greater concern than state General Fund revenue losses. Over the long-term, the projections provided in this report raise serious concerns regarding Kentucky’s sales tax base—its second most important General Fund revenue source. Several possible solutions have emerged to preserve the state’s sales tax revenue base. Among these initiatives are congressional action to broaden state authority to collect such taxes, voluntary cooperative efforts to collect such taxes from remote vendors, or more aggressive solutions such as establishing a national sales tax with revenue distributions to the states. However, the importance of the issue will continue to mobilize forces to attain an acceptable solution to all offended parties. Hopefully, this report will stimulate debate and foster a solution or solutions for the Commonwealth.

CHAPTER TWO

COLLECTING TAXES IN THE CYBERAGE: AN OVERVIEW

By Robert W. Cox

The rapid growth of the Internet in recent years has unleashed a flood of information to average citizens on a scale unimaginable just a few years ago. Currently, an individual with a personal computer, modem and phone connection, or the new cable-modem devices can readily and speedily access electronic files in the Library of Congress, obtain driving directions and a map to any destination in the United States, or peruse local weather reports from around the world. As the access to information via Internet connections has increased, its popularity has soared, and its advocates have rushed into place protections from regulation and taxation that they feared would effectively smother this fledgling industry.

A basic tenet of classical economic thinking is that opportunities for profit are not long overlooked in a competitive environment. Thus it should surprise no one that businesses were quick to realize and seize the opportunity to advertise and sell their products via electronic communications with distant consumers. The old economics of retail marketing that require a geographic concentration of potential customers is being shattered, and savvy marketers are now able to reach potential customers worldwide with very low advertising costs.

As state and local governments wake up to the realities of Internet economics, its effect on their finances has become a deep concern. In particular, the dispersion of retailers and their customers means in many cases that the two are located in separate states, if not separate countries. This creates a problem for state governments in particular, since they often depend on sales taxes collected by local retailers from local consumers for a significant portion of their budgets. Taxes on interstate sales, like those facilitated by use of the Internet, are beyond the capability of most states to collect effectively. In the past, states have tried and failed to compel out-of-state retailers to collect and remit sales taxes made to customers located within the state. Thus, with the meteoric growth in Internet activity and the possibility for interstate sales to grow proportionately, the scenario is set for possible massive erosion of the sales tax base.

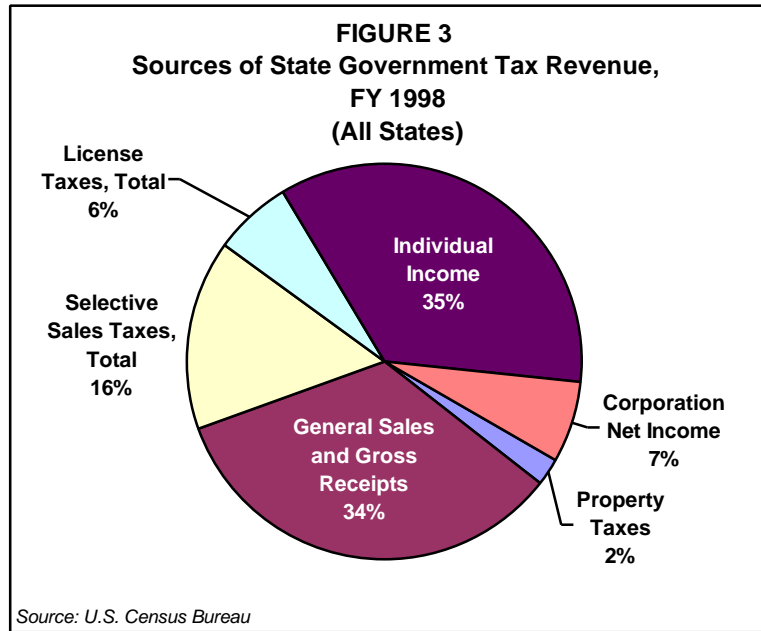
EVOLUTION OF A PROBLEM

According to the U.S. Census Bureau, in FY 1998, sales taxes, selective and general combined, comprised 50 percent of state government tax revenues for the United States (see Figure 3). Thus they form the largest type of tax collected at the state level—larger than income, property, license, or other types of taxes. From this prominence, it would seem they have long been the mainstay of state taxes. However, they are relative newcomers on the tax scene.

Mississippi enacted the first general sales tax in the country in 1932, in reaction to declining property tax revenue during the Great Depression.⁵ Other states followed, including Kentucky, which passed a 3 percent sales tax in 1934, only to repeal it two years later. But in 1960, a sales tax again was enacted at a rate of 3 percent on the retail sale of tangible personal property. The tax was imposed on all retailers for the privilege of making retail sales in Kentucky. The retailer was required to pass the tax along to the consumer as a separate charge. At the same time, the state

⁵ John L. Mikesell, "The Future of American Sales and Use Taxation," in *The Future of State Taxation*, (Washington, D.C.: The Urban Institute Press, 1998).

created the use tax on the storage, use, or other consumption of tangible personal property in Kentucky. A credit was granted to the use tax for sales taxes paid to other states.



Creating this tax sowed two seeds for future tax base erosion: one was the shift from buying goods to purchasing services and the other was in how the tax was administered. To begin with, far from being an overall consumption tax, the levy was imposed only on “tangible” personal property, a category that excluded most services like medical, cosmetic, legal, and other personal services, as well as business services. In recent years, the effect of this exclusion has been growing. According to Professor William Fox of the University of Tennessee, the consumption of personal services grew from 47.4 percent of total consumption expenditures in 1979 to 57.7 percent in 1996.⁶ In the future, therefore, it is likely that revenue increases within Kentucky from this tax will grow more slowly than personal consumption expenditures overall. Indeed, this tax was the leading source of General Fund revenue from its inception up until 1986, when the individual income tax replaced it as the largest revenue generator. (The sales and use tax maintained this status through rate increases, so that in 1986 a 5 percent rate was in effect. But an increase to 6 percent in 1990 did not restore it to primacy, primarily because income taxes were raised at the same time.)

The second avenue for tax base erosion was created in the administration of the use tax. To a certain extent, creation of the use tax was a necessary “evil,” in that a sales tax imposed on Kentucky retailers left a very large loophole that undermined its effectiveness. Consumers can simply purchase goods outside of Kentucky in a jurisdiction free of sales taxes, and transport them into the state and avoid any tax. The use tax holds the consumer liable for the tax regardless of the point of purchase, as long as that consumer is a resident of Kentucky.

The loophole resulted from restrictions on the state imposed under Article 1, Section 8 of the U.S. Constitution, which grants to Congress, and not the states, the power to tax and regulate interstate commerce. Therefore, any state wishing to tax or regulate business that transpires across state lines is almost certain to end up in court.

At the time the sales and use taxes were created (1960), the issue of mail-order and Internet sales was of little concern. The Internet, of course, was a creature of the distant future, and na-

⁶ William F. Fox, “Can the State Sales Tax Survive a Future Like Its Past?” in *The Future of State Taxation*, (Washington, D.C.: The Urban Institute Press, 1998).

tionwide coverage by a delivery service was difficult. Federal authority was needed for each state border that was crossed, and each state had to grant permission for the movement of packages within its borders. The amount of tax revenue lost from mail-order activity was believed to be minor. Thus from its inception, the enforcement of the use tax for consumers has been limited to self-reporting. Reacting no doubt to the citizenry's ignorance of the use tax and the self-reporting requirement, the Kentucky Revenue Cabinet has not pressured individuals to comply with this tax. For businesses that have use tax liabilities, it is easier to enforce, and the state has made greater efforts to collect the use tax from commercial enterprises.

As interstate trucking and air transportation became increasingly deregulated, major players in the mail-order business began to emerge. Delivery firms like UPS and FedEx developed the national infrastructure needed for efficient delivery of goods purchased from remote vendors. With this infrastructure in place, the mail order business boomed. For the first time in American history, consumers in small towns and rural communities had access to goods that had heretofore been restricted to major markets. Given the new choices, consumers have availed themselves of them. Data from the U.S. Census Bureau show that mail-order sales from 1990 to 1995 have grown nearly twice as fast as all retail sales, rising by 45 percent versus 26 percent.⁷ Undoubtedly, some of the growth in mail-order sales has come at the expense of local purchases. With lower levels of local purchases, the tax base has not kept pace.

Some states, including Kentucky, reacted to the growth in mail-order sales by attempting to force mail-order retailers to collect and remit the use tax. Although a few retailers voluntarily comply, most have fought this requirement. The battle reached the U.S. Supreme Court in 1992, when, in the *Quill v. North Dakota* decision, the Court declared that states did not have the power to force out-of-state retailers to collect the use tax unless the retailer had physical presence or nexus in that state.⁸

Since the *Quill* decision, the states have been stymied in their attempts to collect use taxes on mail-order purchases from out-of-state vendors. The decision does not challenge the use tax *per se*, but rather the collection method employed. To date, no state has found a suitable alternative for collecting this tax from mail-order purchases.

It is somewhat interesting to note that, in the midst of this erosion of the sales and use tax base, the states themselves have also been guilty of undermining it, by passing many exemptions, deductions, and credits. In Kentucky, a variety of tax exemptions have been approved since the creation of the sales and use tax in 1960. The most significant of these exempt groceries, residential utilities, and prescription medicine. Taken as a whole, in FY2000 these tax expenditures are believed to reduce the sales and use tax revenue by \$905 million when compared with the revenue that could have otherwise been raised.⁹

E-COMMERCE: THE NEXT TAX FRONTIER

Voluntarily giving up revenue from certain retail sources and losing revenue from external developments are two different things. The former can be planned in advance, is made in accordance with the state's goals and objectives, and the necessary budget and revenue adjustments can be anticipated. The latter is unplanned, often unknown, and undesirable.

Given their bitter experiences with the mail-order companies, states have reacted with alarm and anxiety over the rapid growth of the Internet and its potential to erode use tax revenues even further. Early articles that looked at the issue only heightened these anxieties. "Prop 13 Meets the Internet: How State And Local Government Finances Are Becoming Road Kill On The Informa-

⁷ U.S. Bureau of the Census, *Statistical Abstract of the United States: 1998* (Washington, D.C., 1998), Table 1287 (page 771).

⁸ "ACIR Releases 1994 Revenue Estimates From Interstate Mail-Order Sales," *State Tax Notes*, August 22, 1994.

⁹ Author's calculations based on the Kentucky Finance and Administration Cabinet's report, *Tax Expenditure Analysis: Fiscal Years 1998-2000*. To derive this number, the tax expenditures created after the original legislation were counted. The tax expenditures created in the enacting sales tax legislation were not counted.

tion Superhighway,” by UC Berkeley’s Center for Community Economic Research, shrieked its alarm over the potential for revenue loss.¹⁰

Reports analyzing the potential impact of the growth of the Internet have produced numbers of all magnitudes, but on one fact there seems to be broad agreement: the Internet is here to stay and is growing like a weed. A recent survey conducted by the U.S. Internet Council, a private-public organization that seeks to promote the Internet, estimates that 81 million Americans had access to the Internet by early 1999. By August 1998, an estimated 53.5 million U.S. adults had used the Internet in the previous 30-day period. Contrast that with early 1993, when an estimated 90,000 Americans had access to the Internet.¹¹

Electronic commerce has become a pervasive part of the economic landscape over the past few years. While estimates of its total dollar value vary widely, most analysts still believe it is low relative to the overall economy. Its rapid growth and enormous potential have generated great interest. The lofty market capitalizations afforded almost any new stock offering with “.com” in its name are testament to the expectations for this new purchase medium.

Estimating the potential revenue loss of use tax revenue from the growth of e-commerce involves considerably more than merely estimating the growth of the Internet or growth of Internet sales. A first consideration is the nature of the sales. Are they business-to-consumer, or are they business-to-business? The former would be automatically subject to use tax (unless it is in a specifically exempted category); the latter would be subject to the sales and use tax unless it falls in the “sale for resale” category. Furthermore, the state is much more capable of enforcing use tax for businesses through its system of audits. Evidence has been mounting that business-to-business transactions are fueling much of the growth of Internet sales. According to a study released by the accounting firm Ernst & Young, 80 percent of e-commerce is comprised of business-to-business sales.¹²

A second question is to determine whether the growth in e-commerce is cannibalizing local retail merchants, eating into the growth of mail-order sales, or both. Many catalogs now come through the mail with their company’s web site boldly printed on each page. Some customers of these companies are making e-commerce purchases, which the catalog retailer prefers, due to the lower costs of processing the order. If the state was not collecting use tax on these purchases before the rise of e-commerce, it can be argued that these Internet sales represent nothing new, merely a technological shift in the mode of purchase.

Another question that must be resolved in estimating revenue losses is the rise of local e-commerce vs. remote (i.e., out of state). A local retailer who operates a web site and accepts orders over the Internet is required to collect state sales taxes. This issue is not a trivial one, as many of the largest retail chains also conduct business over the Internet (e.g., Wal-Mart, Eddie Bauer, Barnes and Noble). The state is much better able to collect sales taxes from businesses that have a physical nexus in Kentucky. Some of the larger chains have been successfully avoiding sales taxes in Kentucky by operating their e-commerce divisions as wholly-owned subsidiaries with no physical presence in Kentucky.

Finally, the replacement of tangible property with intangible property and the implications of this substitution for the sales tax require consideration. This e-commerce alchemy occurs when a customer downloads computer software, video, audio, or other digital information from the Internet to his home computer, instead of buying a diskette version of it. For instance, downloading popular music from an Internet site for a charge, currently possible, is an alternative to buying the same music in the store on CD. And while the state stands to collect sales taxes on the purchase of

¹⁰ Center for Community Economic Research (CCER), University of California, Berkeley, “Prop 13 Meets the Internet: How State And Local Government Finances Are Becoming Road Kill On The Information Superhighway,” released August 16, 1995, downloaded by the author on August 26, 1999 at <http://garnet.berkeley.edu:3333/budget/tax-Internet.html>.

¹¹ These figures come from the U.S. Internet Council, “State of the Internet: UISC’s Report on Use & Threats in 1999,” Released in July 1999, and downloaded on August 24, 1999 from http://www.usic.org/usic99/usic_state_of_net88.htm.

¹² See Robert J. Cline and Thomas S. Neubig, “The Sky Is Not Falling: Why State and Local Revenues Were Not Significantly Impacted by the Internet in 1998.” (Washington, D.C.: Ernst & Young, June 1999).

a CD in a local music store, the downloaded version, regardless of the nexus question, is not considered “tangible” and is not subject to sales tax. The possibility for this type of erosion to grow will be enhanced by expected improvements in the capacity of Internet communications. (As one expert has termed it, most consumers are getting their Internet access through a garden hose. With improvements like cable modem and ADSL, they will be able to get Internet access through a fire hose.)

If the erosion of the sales and use tax base is believed to be significant enough to warrant action, Kentucky has options under existing tax laws to enforce collection of the use tax. First of all, it should be recognized that the existing compliance mechanism on consumers is inadequate. Kentuckians are asked to report their use tax liability when they file their state income tax return. In the most recent year for which data is available, the state collected only about \$718,000. This figure is far below most estimates of the revenue that should be collected. However, enforcing compliance with the use tax by targeting individual households for audits and other compliance measures would be costly, unproductive, and extremely unpopular.

WHERE CAN WE GO?

Unfortunately, most states, including Kentucky, view themselves as being paralyzed by the passage in 1998 of the Internet Tax Freedom Act. Briefly, the federal act imposes a three-year moratorium on state and local taxes on Internet access or any multiple or discriminatory taxes on electronic commerce. In the meantime, a special commission was established to study the question of remote sales and to recommend what, if any, kinds of taxation should be applied to e-commerce.

The following remedies are suggested to facilitate greater discussion of the possible options for collecting the sales and use tax. These do not represent a formal opinion of the Kentucky Revenue Cabinet, the Finance and Administration Cabinet, or any other branch of state government. They are based on the author’s conversation with knowledgeable officials on taxation and e-commerce.

The state sales and use tax statute contains a provision that requires delivery companies to collect the use tax for deliveries of tangible personal property made from retail outlets located outside the state.¹³ Kentucky could investigate ways that this law could be applied efficiently to collect the taxes due the state. The potential consequences to revenues as well as the economic impact of this need to be examined.

Second, the state could challenge the establishment by in-state retailers of subsidiary e-commerce companies that have allowed them to avoid nexus in Kentucky. In Kentucky’s case, the validity of the retailers’ claim of nexus avoidance has not been determined. Although it is by no means certain that the state would prevail in such a case, it is certain that Kentucky will not collect the revenue otherwise.

A third option for enforcing the collection of use tax is a statutory change similar to provisions used to enforce the bank franchise tax. This tax, created in 1996 as a replacement for the bank share tax, contains an enforcement provision that restricts noncompliant banks from seeking redress in any state court or with any state agency for any obligation of debts.¹⁴ The bank franchise tax has been effective in retaining revenue that many had feared would be lost due to the rise of interstate banking. However, nexus standards under that tax are currently being challenged.

Lost in this discussion is recognition of the vast economic potential released though the Internet. The greater availability of information through electronic media has been a boon to businesses and consumers alike. Both groups are using this information to squeeze inefficiencies out of the marketplace, with the result that more resources are available for alternative uses. Although it is too early to determine what widespread Internet access has meant to the economy, to the extent

¹³ See Kentucky Revised Statutes 139.750. This provision has been on the books since the creation of the sales and use tax, but enforcement has been lacking.

¹⁴ See KRS 136.500 to 136.575 for a complete description of this tax. The enforcement clause is contained specifically in KRS 136.570(2).

that it accelerates economic growth, it may generate more tax revenue indirectly to state governments than is being lost through the inability to collect use taxes on certain purchases. Time will tell.

The challenge to create a viable, fair, and adequate revenue source means constant monitoring and adjustment. In the case of the sales and use tax, the state must be able to adapt its taxing system to changing technologies and market structures if it is going to carry on in the 21st century. The growth of e-commerce, which has occurred with unprecedented swiftness, has revealed or magnified several weaknesses within the current structure. It is up to policymakers to understand and react to this new method of doing business.

CHAPTER THREE

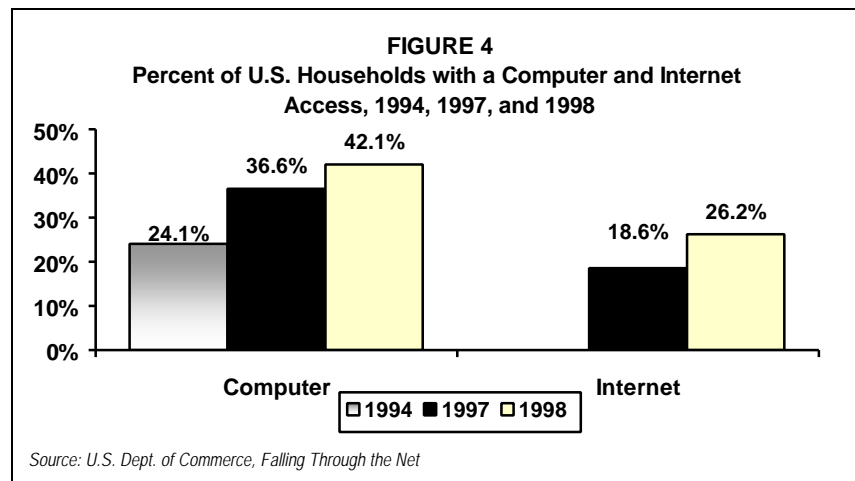
A NEW WAY TO SHOP: KENTUCKIANS FIND THE WEB

By Michael T. Childress

We present data in this chapter about who is making online purchases in Kentucky and explore the factors that might help explain the probability of knowledge of the use tax and willingness to pay it. We also examine Internet access and usage, a necessary precondition for making an online purchase. This chapter lays a foundation for evaluating the findings presented in the following chapters.

LEVELS OF INTERNET ACCESS AND USAGE

Une recent study conducted by the National Telecommunications & Information Administration (NTIA) found that Americans are becoming increasingly interconnected in the wired community.¹⁵ As illustrated in Figure 4, the percentage of U.S. *households* with computers and Internet access increased rapidly from 1994 to 1998.¹⁶



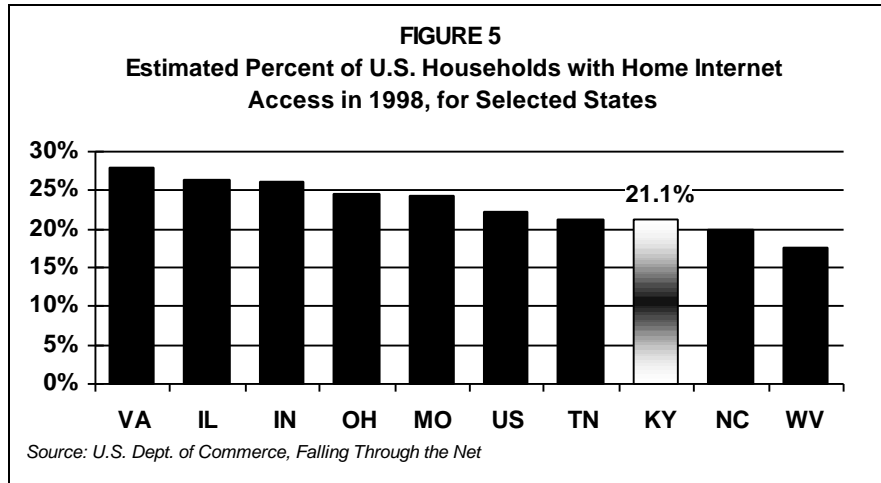
Kentucky is competitive with neighboring states with respect to the percentage of households with Internet access (Figure 5).¹⁷ And two statewide surveys conducted for the Kentucky Long-Term Policy Research Center by the University of Kentucky Survey Research Center find that, like most U.S. households, citizens of the Commonwealth are moving rapidly into the Information

¹⁵ National Telecommunications & Information Administration (NTIA), *Falling Through The Net: Defining the Digital Divide* (U.S. Department of Commerce, Washington, DC, 1999): online, NTIA Web site, <http://www.ntia.doc.gov/ntiahome/ftn99/contents.html>, accessed on 2 Dec. 1999.

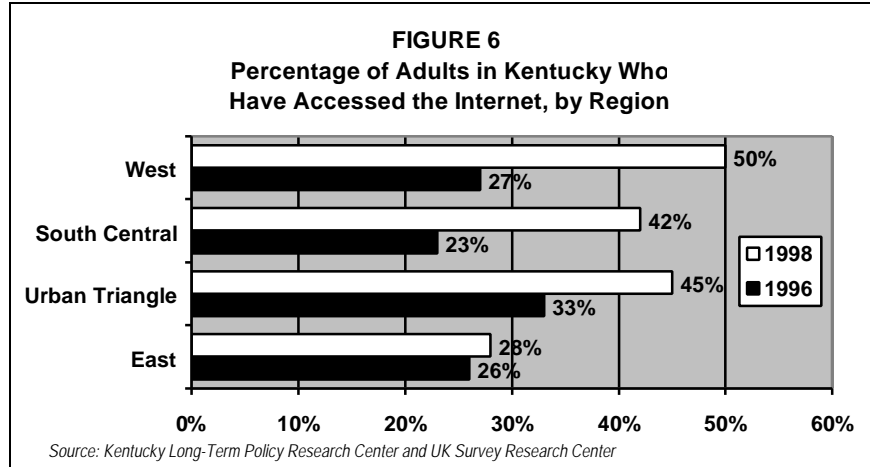
¹⁶ The data presented from the NTIA are household-level data. The data presented from the University of Kentucky Survey Research Center are individual-level data. Consequently, the two sources of data cannot be compared.

¹⁷ Due to sampling error, there is no statistically significant difference (at alpha level .10) among any of the states listed in the figure.

Age.¹⁸ While access to computers has only inched upward over the past few years, Internet exploration has soared.



Internet use in Kentucky has increased significantly over the past two years. In 1996, we found that about 26 percent of adults in Kentucky had used the Internet in the past year.¹⁹ In 1998, rates of Internet access had increased to 41.8 percent.²⁰ Three years ago, we found that younger people and more educated people were the most likely to have used the Internet. While that remains true today, Internet use has soared at all age and education levels. Moreover, regional disparities in Internet use have virtually disappeared, with the exception of eastern Kentucky, which continues to lag behind the rest of the state (Figure 6). Low Internet use in eastern Kentucky may be explained by lower rates of home computer ownership. Computer users at home are more likely to have accessed the Internet than computer users at work, school, or elsewhere.



¹⁸ The 1996 survey was conducted from May 5 until June 5, 1995. Households were selected using random-digit dialings, a procedure giving every residential telephone line in Kentucky an equal probability of being called. The sample includes 629 noninstitutionalized Kentuckians 18 years of age or older. The margin of error is slightly less than 4 percentage points at the 95 percent confidence level. Calls for the 1998 survey were conducted from May 11 until June 10, 1998. The sample includes 658 noninstitutionalized Kentuckians 18 years of age or older. The margin of error is approximately ± 3.8 percentage points at the 95 percent confidence level.

¹⁹ These data are on Kentucky *adults* instead of Kentucky *households*. Therefore, the percentages in Figure 6 are not comparable to the NTIA data on households, which are presented in Figures 4 and 5.

²⁰ Estimates of Internet use for both 1996 and 1998 are age and education adjustments of the raw numbers. The raw rates of use were 25.6 percent in 1996 and 40.6 percent in 1998.

Currently, the data suggest that Kentuckians are accessing the Internet at rates just below the national average. However, as Internet access and usage in Kentucky increases, Kentuckians will likely become more fully integrated into the digital economy. In the sections below, we present survey data about who is making online purchases in Kentucky and explore the factors that might help explain the probability of knowledge of the use tax and willingness to pay it.

WHO IS PURCHASING ONLINE AND HOW MUCH ARE THEY SPENDING?

An estimated 17.7 percent of Kentucky adults said “Yes” when asked, “Have you ever purchased a product over the Internet?”²¹ This is somewhat lower than our estimated U.S. average of around 25 percent.²²

Who are these cybershoppers? A Kentuckian shopping on the web is most likely a college-educated male, earning at least \$50,000 annually, and living in the urban triangle.²³ Table 1 shows some of the demographic characteristics of online purchasers in Kentucky.

GENDER	
Female	13.6
Male	23.2
REGION	
Western Kentucky	18.3
South Central	12.7
Eastern Kentucky	12.1
Urban Triangle	22.7
EDUCATION	
High School or less	11.1
Some College or Vocational School	16.8
Bachelor's Degree or Higher	34.5
INCOME	
Under \$20,000	4.8
\$20,000 to \$50,000	22.5
\$50,000 or Higher	32.8
AGE	
Under 30	25.2
Between 30 and 49	22.4
Between 50 and 69	11.1
70 and Older	5.9
<i>Source: Kentucky Long-Term Policy Research Center and UK Survey Research Center. Note: All percentages are unweighted averages (see footnote 21).</i>	

²¹ The raw percentage is 17.7, but women are overrepresented in this sample. Women constitute 57 percent of the sample, but only about 51.5 percent of the actual population in Kentucky. If we adjust the results to reflect this oversampling of women, the percentage of Kentucky adults who have made a purchase on the Internet increases to 18.2 percent. It increases because men are more likely to make a purchase on the Internet. Using population estimates from 1995, we used the following formula to calculate the weighted average: $18.2 = (13.57 * .5146) + (23.16 * .4854)$, where 13.57 percent of women have made an online purchase and 23.16 percent of men have. The survey was conducted by the University of Kentucky Survey Research Center. Households were selected using random-digit dialing, a procedure giving every residential telephone line in Kentucky an equal probability of being called. Calls were made from July 15 until August 12, 1999. The sample includes noninstitutionalized Kentuckians 18 years of age or older. There were 633 completed interviews. The margin of error is approximately ± 3.9 percentage points at the 95 percent confidence level.

²² The National Telecommunications & Information Administration estimates that in 1998 32.7 percent of U.S. persons (15 years-old and older) had used the Internet from any location. Available online at http://www.ntia.doc.gov/ntiahome/ftn99/InternetUse_II/Chart-II-1.html. And, according to one source, about 75 percent of the online population has made at least one purchase in the past 90 days. Available online at http://www.greenfieldcentral.com/research_findings/bear_stearns/bear_stearns.htm. Thus, it follows that about one quarter of the U.S. population has made a purchase online ($.327 * .75 = .245$). This number is close to another estimate that puts the online consumer purchases at 28 percent of the U.S. population. Available online at <http://ecommerce.vanderbilt.edu/Student.Projects/filling.gaps.online.retailing/forecast.htm>. Finally, we further validated this estimate by multiplying the 24.5 percent times the U.S. population estimate as of July 1, 1999, from the U.S. Census Bureau. If we include only the population of 18 years and over then this implies that about 49 million Americans have made a purchase online ($.245 * 202$ million). If we include all Americans 15 years and older (about 214 million), then the estimate goes up to around 52 million. This estimate of about 50 million online purchasers is consistent with an estimate by Rasmussen Research. As of February 25, 1999, its analysts were reporting and expecting 50 million online American shoppers in six months. Available online at <http://www.portraitofamerica.com/html/poll-377.html>.

²³ Using a logistic regression model, we find statistically significant relationships between the probability of buying something online and education (alpha = .05), income (.05), gender (.10), age (.05), and urban location (.05).

Total online retail spending in the United States in 1999 is estimated to be about 10 times the size it was just a few years ago. According to at least one source, consumer purchases on the Internet were about \$1.8 billion in 1997, \$8 billion in 1998, and \$18.6 billion in 1999.²⁴ And already, 22 percent of the online community can envision doing *most* of their shopping online in the future.²⁵

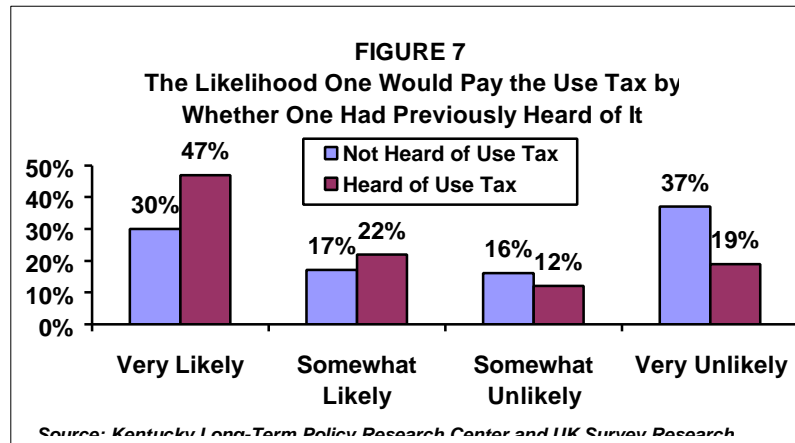
WHO KNOWS ABOUT THE USE TAX AND WHO PAYS IT?

A lot of money is being spent online now, and it is likely that even more will be spent in the future. So, who knows about the use tax and who pays it? The following questions were asked on the University of Kentucky Survey Research Center's spring 1999 survey:

- *If you make Internet or catalogue purchases from out-of-state companies, Kentucky law requires that you pay Kentucky sales tax. If the company does not collect Kentucky sales tax, it is your responsibility to report the purchase on your state income tax form and pay the 6 percent tax. This is called the use tax. Have you heard of this law? (YES or NO)*
- *If you were to make Internet or catalogue purchases from out-of-state companies that did not collect Kentucky sales tax, how likely is it that you would report those purchases on your state income tax form? (VERY LIKELY, SOMEWHAT LIKELY, SOMEWHAT UNLIKELY, VERY UNLIKELY).*

Only 37 percent of Kentuckians say that they have heard of the use tax.²⁶ And when asked to give the likelihood of actually reporting the use tax, we find that 35.8 percent said "Very Likely," 18.5 percent replied "Somewhat Likely," 14.3 percent said "Somewhat Unlikely," 29.6 percent replied "Very Unlikely," and 1.8 percent said that they did not file state income tax.²⁷

These survey results show that about 54 percent indicated that they are either very or somewhat likely to pay the use tax. However, these individuals are probably overly optimistic about their likelihood of paying the use tax. For example, a recent report conducted by Ernst & Young assumes that only "4 percent of taxable



business-to-consumer e-commerce sales result in sales and use tax payments."²⁸

Nevertheless, it would seem that additional efforts to educate the public about the use tax might result in a higher compliance rate. First, almost two thirds of the public do not know about the requirement to pay the use tax. Obviously, individuals won't pay a tax that they do not know

²⁴ Accessed at http://www.emarketer.com/estats/111899_specrep.html, 2 Dec. 1999.

²⁵ Accessed at <http://www.portraitofamerica.com/html/poll-377.html>, 26 August 1999.

²⁶ Sample size = 630.

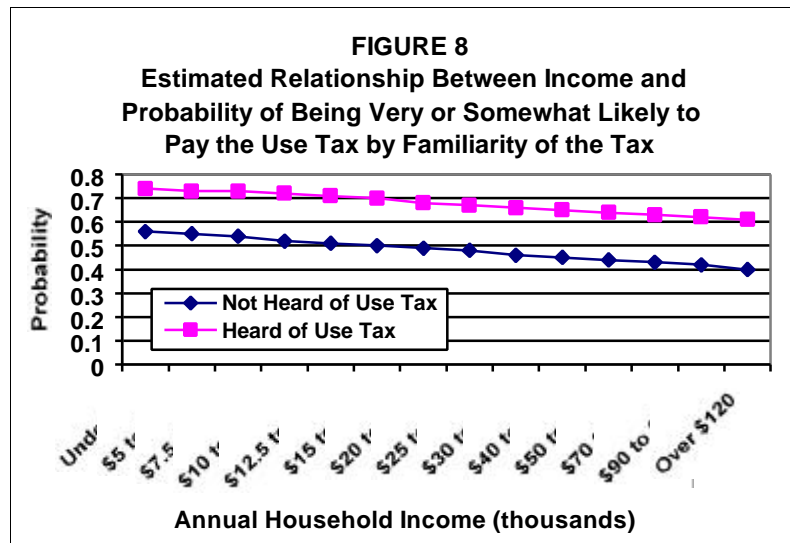
²⁷ Sample size = 595.

²⁸ Robert J. Cline and Thomas S. Neubig, "The Sky is not Falling: Why State and Local Revenues were not Significantly Impacted by the Internet in 1998," (Ernst & Young Economics Consulting and Quantitative Analysis, 1999): 7. The U.S. Advisory Commission on Intergovernmental Relations reports a higher rate of 16.5 percent in *Taxation of Interstate Mail Order Sales: 1994 Revenue Estimates*.

about. Second, as Figure 7 illustrates, individuals who say they have heard about the use tax are more likely to say they will pay it. For example, of those individuals who say they are very likely to pay the use tax, 47 percent have also heard of the use tax, where 30 percent have not. Conversely, those who say that they are very *unlikely* to pay the use tax have less familiarity with the tax.

We used a statistical model to estimate the effect of a series of variables on the probability that an individual would report being very or somewhat likely to pay the use tax. For example, are individuals in urban Kentucky more or less likely than those living in rural areas to pay the use tax? Are individuals in households with higher income levels more or less likely to indicate a willingness to pay the tax? And what effect do education, gender, and age have on their expressed willingness to comply with the use tax law? This kind of analysis enables us to estimate the effect of any one variable, like income level, on the probability of an individual's expressed willingness to comply with the use tax requirement, while holding all other variables constant. For example, the model enables us to take two individuals living in an urban area with the same gender, age, and education and estimate the effect of income level on the probability of complying with the use tax law.²⁹

Figure 8 illustrates two of the more interesting results of the statistical analysis. First, individuals who had previously heard of the use tax have a higher probability of reporting that they are either very or somewhat likely to pay the use tax (while holding all other variables constant). Second, as an individual's income increases, the probability they would indicate a willingness to comply with the use tax law *decreases*. We also find statistically significant relationships between willingness to pay the use tax and education level, as well as living in an urban area. More educated individuals and those living in rural areas have a higher probability of reporting that they are very or somewhat likely to pay the use tax.



CONCLUSION

Kentucky consumers will be making an increasing percentage of their expenditures on the Internet in the future. As more Kentuckians shop online, policymakers will be challenged to develop new and better ways to increase the use tax compliance rate. While these survey results show that over half of Kentuckians say that they are very or somewhat likely to pay their use tax,

²⁹ We used a cumulative logit model for ordinal responses. Refer to Appendix A for parameter estimates and predicted probabilities.

other research suggests that no more than 16 or 17 percent of the use tax owed nationally is actually paid.³⁰

Educating consumers about the use tax could be a good first step. A significant percentage, about 63 percent, does not even know about the requirement to pay the use tax. And our analysis shows that consumers who have heard about the use tax have a much higher probability of indicating they are either very or somewhat likely to comply with the use tax requirement.

Finally, the results presented in this chapter also suggest that tax reform might be in Kentucky's future. First, if online purchases continue to increase while use tax compliance remains low, the sales and use tax base will gradually erode. Consequently, other sources of revenue will have to be found, or state expenditures will have to be adjusted accordingly. Second, the use tax is regressive, since individuals with higher incomes appear to be less likely to comply with the use tax requirement.

In the next two chapters, we present alternative scenarios for online purchases in Kentucky and discuss the implications for future revenue collections. The data and analysis presented in this chapter should provide a useful context for evaluating the plausibility of those projections and scenarios.

³⁰ The U.S. Advisory Commission on Intergovernmental Relations reports a rate of 16.5 percent in *Taxation of Interstate Mail Order Sales: 1994 Revenue Estimates*.

CHAPTER FOUR

THE INTERNET AS A VIRTUAL TAX-FREE ZONE: IMPLICATIONS FOR THE STATE BUDGET

By Peter Schirmer, Kevin O'Neil, and Michael T. Childress

For 20 years, the Internet was used primarily by academicians and researchers to exchange notes, data, and research results. Then the World Wide Web emerged in the early 1990s, and soon L.L.Bean was using the Internet to sell waterproof Vacationland Dome Tents for \$89 plus shipping and handling, *but not tax*. If a resident of Kentucky, for example, purchases such a tent over the Internet, Maine-based L.L.Bean does not collect any sales tax, either for Maine or for Kentucky. Instead, the customer is required to report all out-of-state purchases on his state income tax form and submit the requisite 6 percent *use tax*. But the law is virtually unenforceable, in Kentucky and everywhere else, effectively making the Internet a massive, borderless, tax-free zone.

TABLE 2 Summary of Mail Order Purchases and Use Tax Collections in 1997	
Total mail order purchases in the United States	\$318 billion
Total consumer goods purchased by mail order in the United States	\$102 billion
Per capita consumer goods purchased by mail order in the United States	\$378
Total consumer goods purchased by mail order in Kentucky*	\$1.4 billion
Per capita consumer goods purchased by mail order in Kentucky*	\$355
Potential sales and use tax revenue for consumer goods purchases in Kentucky	\$71.7 million
Use tax collected on mail order purchases in Kentucky	\$712,000
<i>*Note: Mail-order purchases in Kentucky are estimates based on national data and include catalog as well as Internet sales. Source: KLTPRC calculations of data provided by National Mail Order Association; Marketing Logistics, Inc.; U.S. Bureau of the Census.</i>	

The requirement to pay use tax on out-of-state Internet and catalog purchases is widely disregarded. In fact, a recent report conducted by Ernst & Young assumes that only “4 percent of taxable business-to-consumer e-commerce sales result in sales and use tax payments.”³¹ Table 2 shows that an estimated \$71.7 million in sales and use tax was owed on out-of-state consumer “mail order” purchases (which include Internet purchases) in 1997.³² Yet the state collected only \$712,000 in use taxes from consumers (and an unknown amount in sales tax from businesses).³³

³¹ Robert J. Cline and Thomas S. Neubig, “The Sky is not Falling: Why State and Local Revenues were not Significantly Impacted by the Internet in 1998,” (Ernst & Young Economics Consulting and Quantitative Analysis, 1999): 7. The U.S. Advisory Commission on Intergovernmental Relations reports a higher rate of 16.5 percent in *Taxation of Interstate Mail Order Sales: 1994 Revenue Estimates*.

³² According to data from Market Statistics and reported in the Statistical Abstract of the United States, Kentucky’s retail purchases per capita were 93.8 percent of the national average. Therefore, we assumed that mail order consumer goods purchases in Kentucky were also 93.8 percent of the national average, giving us the figure of \$1,378 million (rounded to

Internet commerce has received so much attention from the media and from policymakers that many people probably believe the Internet has surpassed more traditional forms of mail-order purchases, but that is hardly the case. According to Marketing Logistics, Inc., which conducts research for the National Mail Order Association, Internet sales accounted for less than 1 percent of total mail-order sales in 1997, which topped \$318 billion.³⁴ Indeed, it is conventional wisdom that the bulk of lost revenue is due not to Internet sales but to mail-order sales. In late 1998, *Information Week* magazine ran a story entitled, “Myths and Realities,” about Internet commerce. In it, the author wrote:

Even by the most generous accounts, online retail sales remain only a tiny fraction of what’s sold in physical stores or through mail-order catalogs—even in the Web’s most popular product categories. Online book sales will account for less than 5% of all U.S. book sales this year, according to Keenan Vision. Online music sales? Less than 2%. Even online travel sales—which will reach \$1.8 billion this year, leading all consumer products (except IT products) sold online—won’t even reach 1% of the \$488 billion in total U.S. travel spending. Web-based advertising revenue also remains minuscule compared with broadcast and print—just 0.4% of ad agency bookings this year.³⁵

But concern in Kentucky and across the country about lost sales tax revenue is not prompted by the size of the problem today, but rather by the potential size of the problem a few years from now. Estimates vary considerably (even, interestingly, when they come from the same company), but they all suggest that the value of Internet sales will be many times higher in a few short years than it is today. Forecasts from perhaps the best-known industry research firm, Forrester Research, are frequently cited, and no two are the same; but they are similar in spirit to one cited by iCompanyStore: “According to Forrester Research, online (business-to-consumer) sales in the U.S. are expected to generate over \$108 billion by 2003 compared to expected revenue of \$7.8 billion in 1998.”³⁶ Forecasts of growth rates and sales volumes from other market researchers are similarly eye-popping. Thus, there is widespread belief, if not fear, that while lost revenue may constitute a small percentage of the general fund today, it could be considerably larger in ten or even five years.

Yet any assumption that state treasuries will be barren as a result of Internet commerce is far more equivocal, for at least two reasons. First, it is unclear to what extent Internet commerce will spur economic growth that will, in turn, generate more government revenue from other sources, such as income taxes and business licenses. Second, the extent to which Internet commerce will actually *replace* traditional store-based commerce is unknown. Both points deserve closer examination.

THE IMPACT OF INTERNET COMMERCE ON THE LARGER ECONOMY

Without going into too much detail, it is clear that the national and the state economies are strong. Nationally, gross domestic product growth for much of the 1990s has been at or above the long-run average; interest rates and unemployment are at 30-year lows; incomes and productivity are rising; prices are stable. In Kentucky, more people are working, and the gap between state and national per capita income is narrowing. Such economic prosperity is reflected

\$1.4 billion in Table 2). After the sales tax rate was raised from 5 to 6 percent in 1991, sales tax revenue has been about 5.2 or 5.3 percent of total retail sales. The estimate of \$71.7 million in potential revenue is 5.2 percent of \$1,378 million.

³³ Some businesses collect the 6 percent sales tax from the consumer and remit it to the state. However, because of the way in which these taxes are remitted to the state, we do not know the amount related to mail order purchases.

³⁴ Only \$101.7 billion were sales of consumer goods. Consumer services accounted for \$67.8 billion, business-to-business sales were \$85.3 billion, and sales to charities were \$63.8 billion. Data available online at <http://www.nmoa.com/Library/1997sale.htm>.

³⁵ Clinton Wilder, “Myths and Realities,” *Information Week*, December 7, 1998. Available online at <http://www.informationweek.com/712/12iumyt.htm>.

³⁶ iCompanyStore. Available online at <http://icompanystore.com/ecommerce.htm>.

in the relative health of the federal and state budgets. The federal budget has a surplus for the first time since 1969, and the state general fund, which is required by law to be balanced, over the past five years has had a total of \$330 million more than forecasters anticipated. Table 3 shows the year-to-year underestimates of general fund revenue, dating back to FY94. Note that the consensus forecasts listed in this table are the last, best forecasts made before the respective fiscal years.

	FY94	FY95	FY96	FY97	FY98
Actual receipts	4,647.1	5,154.1	5,336.9	5,663.6	6,011.8
Consensus forecast	4,599.4	5,070.1	5,269.3	5,556.6	5,988.5
Excess receipts	47.7	84.0	67.6	107.0	23.3

Source: Office of Finance and Administration

Moreover, sales tax revenue, which had fallen from 38 percent of general fund revenue in 1976 to 30 percent in 1991, has rallied to 33 percent today. Part of this increase is certainly due to the rise in the sales tax rate from 5 to 6 percent in 1991, but even after 1991 sales tax revenue has grown faster than overall general fund revenue. This is somewhat counterintuitive, given that the economy is largely service-based and has become increasingly so during the 1990s. Most services are not taxed in Kentucky. One explanation for the higher-than-expected rise in sales tax revenue is the rapid increase in consumer purchases during the 1990s. As shown in Table 4, growth rates in personal income and retail sales were approximately the same between 1982 and 1992. However, between 1992 and 1996, retail sales grew much more rapidly than did personal income. If food sales (the vast majority of which are not taxed) are excluded, the growth rates in income and retail sales are even more disparate.

	1982-92	1992-96
Personal income per capita	5.9%	3.9%
Store-based retail per capita	5.8%	5.6%
Store-based retail sales less food per capita	6.3%	6.6%
Sales tax revenue	7.2%	6.9%
General fund revenue	7.6%	5.2%

Source: Kentucky Finance & Administration Cabinet; U.S. Bureau of Economic Analysis; Market Statistics, NY, cited in U.S. Statistical Abstract

Much of the credit for this “new economy” we are enjoying today is given to the Internet and, more generally, to information technology. The argument is that information technology makes workers and businesses more productive, and rising productivity enables businesses to hire more workers and pay higher wages without having to raise prices. Thus, although Internet commerce may cost Kentucky some sales tax revenue, it may also be responsible for raising incomes and spurring more traditional economic activity from which the state *does* receive revenue, as well as lowering spending on social support programs.

THE REPLACEMENT OF TRADITIONAL RETAIL SALES WITH INTERNET SALES

In today’s strong economy, people are buying more things: in stores, from catalogs, and over the Internet. Although states would surely like to be able to tax the more than \$100 billion worth of consumer goods purchased by mail order, the more immediate concern for states is the extent to which mail order purchases will eat into store-based purchases in the coming years. Even though traditional retail sales are growing quickly, mail order sales are growing even faster.

Every five years, the federal government conducts an economic census that measures store-based retail sales, but presently it does not track Internet sales. Companies such as Market Statistics, which estimates retail sales for non-census years, have some fairly reliable guides. However, companies such as eMarketer have no such guides when estimating Internet sales, so estimates vary, sometimes widely. Therefore, the precise numbers in Table 5 are less important than the overall message, with which all estimates agree: Internet sales are growing much, much faster than store-based retail sales or other forms of mail-order sales.

	1992-96
Store-based retail per capita	4.6%
Mail order sales per capita	12.5%
Mail order consumer goods per capita	8.2%
Internet sales of consumer goods per capita*	81.0%

**Note: 1995-1997, Source: Market Statistics; Market Logistics; eMarketer*

Although Internet sales are small today, if they continue to grow at their current rates, they will eventually make a considerable dent in store-based retail. At that point, sales tax revenue growth begins to slow and states will have to make up for lost revenue elsewhere, or else they will have to slow spending growth.

HOW MUCH SALES AND USE TAX IS OWED?

To examine the potential effect that Internet sales could have on Kentucky's state budget, we start by looking at the estimated sales and use tax owed on catalog and Internet purchases from 1998 to 2003.³⁷ We juxtapose catalog sales with three growth scenarios for Internet sales, to provide a context within which to evaluate the magnitude of Internet sales.

Table 6 contains at least three key points. First, the estimated tax owed from catalog and Internet purchases amounts to millions of dollars, regardless of the growth scenario. Second, the estimated tax owed from Internet sales is considerably less than the estimated tax owed from catalog sales, particularly in the near term. Third, the growth rates for Internet sales are considerably higher than those for catalog sales. For example, in the medium growth Internet scenario, the tax owed from Internet purchases was about 1.6 percent of the tax owed from catalog sales in 1998, but it increases to 19.2 percent by 2003. This growth illustrates the extent to which Internet sales could pose a growing problem for the state budget. Depending upon how much of this money is remitted to the state coffers in the form of a sales and use tax, policymakers face a considerable loss of revenue.

Year	Tax Owed on Mail Order Sales (non-Internet)	Tax Owed on Internet Sales		
		Low Growth Scenario	Medium Growth Scenario	High Growth Scenario
1998	\$ 87,478,622	\$ 226,910	\$ 1,359,217	\$ 3,076,304
1999	\$ 91,598,062	\$ 463,269	\$ 3,151,893	\$ 6,809,152
2000	\$ 95,932,360	\$ 831,831	\$ 5,950,184	\$ 11,803,138
2001	\$ 100,442,989	\$ 1,327,788	\$ 9,646,615	\$ 19,182,222
2002	\$ 105,188,362	\$ 1,987,288	\$ 14,494,097	\$ 30,175,349
2003	\$ 110,154,011	\$ 2,590,868	\$ 21,157,896	\$ 48,347,302

Note: Refer to Appendix B for an explanation of how these values are estimated.

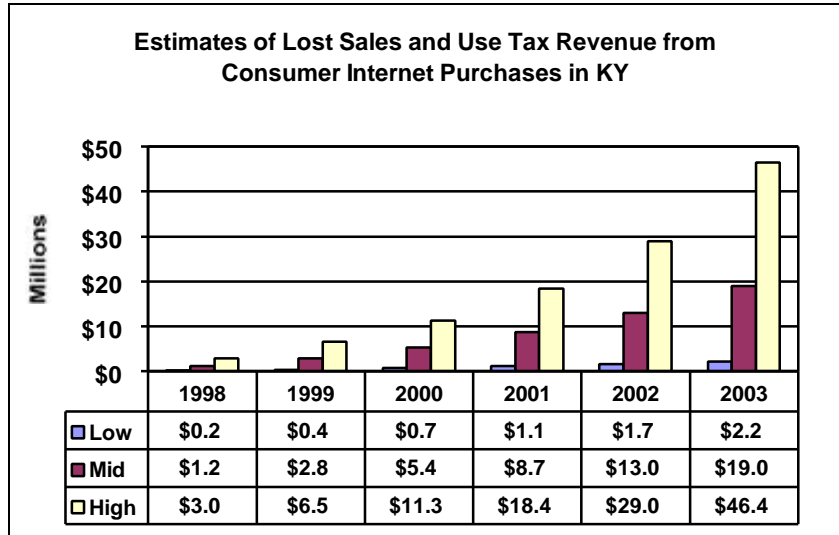
³⁷ The tax owed from catalog sales is based on a conservative estimate of 4.1 percent annual growth in per capita sales in Kentucky. The three Internet projections are based on estimates provided by DMA, Forrester Research, and International Data Corporation. Refer to Appendix B for additional details.

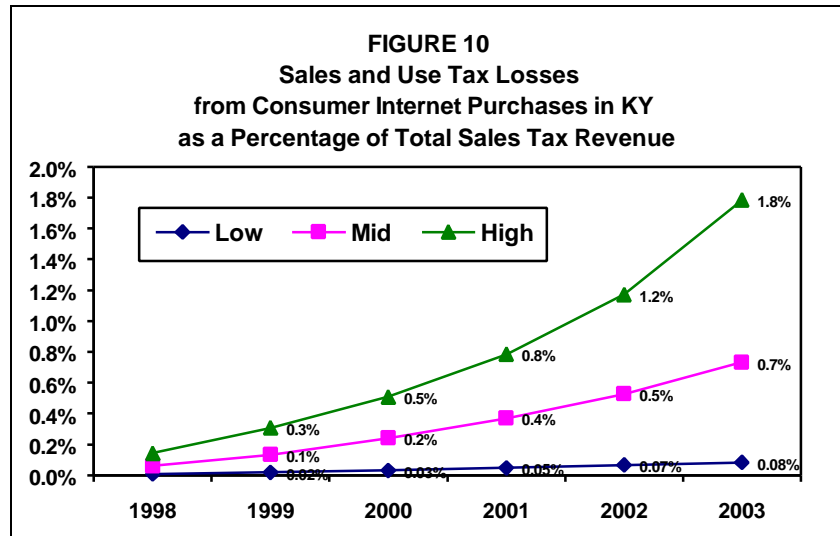
HOW MUCH SALES AND USE TAX IS LOST DUE TO INTERNET PURCHASES?

We have estimated the amount of lost sales and use tax from consumer Internet purchases by taking into account a number of factors:

- Projected total Internet sales
- Kentucky’s lower retail consumer expenditures (relative to the US average)
- Kentucky’s lower Internet usage rates (compared to the US average)
- Substitution effect (some purchases would have taken place as catalog or telephone purchases in the absence of the Internet)
- Taxability (not all items purchased over the web are taxable)
- Use Tax Consumer Compliance Rate

Figure 9 shows the estimated lost sales and use tax from Internet consumer purchases from 1998 to 2003 based on three scenarios that reflect a range of estimates for the factors listed above (see Appendix B for a full explanation). Projected annual losses range from \$2.2 million to \$46.4 million by 2003. And these amounts range from 0.08 percent to 1.8 percent of Kentucky’s projected sales tax revenue in 2003 (see Figure 10). While the percentages seem small, the actual dollar losses are not. For example, the estimated cumulative losses from 1998 to 2003 are \$6 million for the low estimate, \$50 million for the middle estimate, and \$115 million for the high.





CONCLUSION

The loss of sales and use tax from consumer purchases over the Internet is a small, but growing, problem. Our estimates suggest that in 2003 the annual loss to Kentucky's budget could range between \$2.2 million and \$46.4 million, which would approach 2 percent of Kentucky's sales tax revenue. Studies by Austan Goolsbee of the University of Chicago and by the accounting firm Ernst and Young confirm our assessment. Both studies estimate that nationally states currently lose less than 1 percent of their potential sales tax revenue due to Internet commerce and that in the short term, Internet sales do not present a major threat to state budgets.^{38,39} Goolsbee estimates that even if current Internet growth rates continue, losses will still amount to less than 2 percent of expected state sales tax collections. He goes on to point out, however, that if current growth rates continue through 2007, losses could reach 10 percent of state sales tax revenues. His predictions fit with our assessment that Internet commerce will not cause serious fiscal problems before 2003, but could grow to be a problem soon thereafter.

Clearly though, significant uncertainties underlie these projections. So in the next chapter we examine these projections from another perspective. We consider the following question: *how much would Kentucky consumers have to purchase over the Internet to achieve the sales and use tax losses discussed in this chapter?* This analysis will allow us to ground the estimated losses presented in this chapter to actual consumer behavior and ask whether such spending behavior is plausible.

³⁸ Austan Goolsbee and Jonathan Zittrain, "Evaluating the Costs and Benefits of Taxing Internet Commerce," *National Tax Journal*, Sept 1999; online, University of Chicago Web site, <http://gsbwww.uchicago.edu/fac/austan.goolsbee/research/jzntj.pdf>, accessed on 21 July 1999.

³⁹ Cline and Neubig, 9.

CHAPTER FIVE

INTERNET COMMERCE ESTIMATES: A REALITY CHECK

By Kevin O'Neil

Internet commerce is booming in the United States. A University of Texas study estimated that sales over the Internet produced over \$100 billion in revenue worldwide during 1998.⁴⁰ This figure, while impressive, still represents only about 1 percent of the United States' Gross Domestic Product, and it appears that the economic potential of Internet commerce has yet to be realized.

The exact potential, however, is impossible to predict, and growth estimates vary significantly. In 1998, the Organization for Economic Co-Operation and Development compiled predictions from 12 reputable consulting firms for the annual value of Internet commerce in the years 2000 through 2002. All firms predicted high growth rates, but they still varied widely in their estimates of the total value of Internet-based commerce. The figures ranged from 6 percent to 1000 percent of the median prediction, differing by as much as \$1.5 trillion.⁴¹ More recent studies show no greater consensus about the future of Internet commerce, and frequently they do not even agree on its present value.

The growth of Internet commerce is of concern to the state because of the likelihood that sales or use taxes are not collected on most Internet purchases, even when tax is legally owed. Kentucky citizens owe sales or use tax on any purchase of a taxable good, even if the seller is located outside the state. This applies to catalog and other traditional mail-order sales, as well as Internet sales.

The state can only require out-of-state businesses to collect and remit use tax if the company has a physical presence, legally referred to as a "nexus," in Kentucky. For instance, if an out-of-state company has stores, offices, or a distribution center in Kentucky, it has nexus. However, nexus is not established if a company's only presence in Kentucky is via a third party it hires to deliver goods, such as UPS or Federal Express. Sellers who have nexus in Kentucky are legally required to collect sales tax on transactions and remit it to the state.

Businesses may elect to collect and remit use tax even if they have no nexus in Kentucky, but they are under no legal obligation to do so and few do. If the seller does not collect sales or use tax, consumers are legally required to report purchases on their annual income tax return and pay use tax on them. It appears that few do. Ignorance of the law and the onerous record keeping demanded ensure that this method collects little of the tax owed. Indeed, the U.S. Advisory Commission on Intergovernmental Relations estimates that only 16.5 percent of taxable business-to-consumer e-commerce sales result in sales and use tax payments.⁴²

Thus, whenever a Kentucky consumer chooses to buy a taxable item from an out-of-state mail order company instead of a local storefront retailer, the state may be losing tax revenue. The method through which the order is made is not important: whether the customer uses mail, phone,

⁴⁰ Barua, A. and Whinston, A., *The Internet Economy Indicators*. (Austin, TX: University of Texas 1999): online, The Internet Economy Indicators Web site (<http://www.internetindicators.com/features.html>), Internet, 21 July 1999.

⁴¹ Organization for Economic Co-Operation and Development (OECD), *The Economic and Social Impacts of Electronic Commerce: Preliminary Findings and Research Agenda*. (OECD, Paris.1999) 27: online, OECD Web site (<http://www.oecd.org/subject/e-commerce/ebooks/027-054.pdf>), Internet, 21 July, 1999.

⁴² United States Advisory Commission on Intergovernmental Affairs, *Taxation of Interstate Mail Order Sales: 1994 Revenue Estimates*.

fax, or the Internet to make the order, the state still may be losing sales tax. In this report, we are concerned only with commerce conducted via the Internet. Although tax can be lost on both catalog and Internet sales, more traditional forms of mail order commerce are growing only slowly, while Internet commerce is booming. We seek to assess the impact this boom will have on Kentucky's future revenues.

PURPOSE

Given the difficulty of predicting how much commerce will occur over the Internet, our primary goal is not to predict precisely how much sales tax revenue will be forgone as a result of this commerce. Instead, we present a reality check, tying projected losses in sales and use tax to consumer purchasing behavior. Our study seeks to answer the question, "How much would people have to buy over the Internet for the state of Kentucky to suffer significant losses in sales tax revenue?" Specifically, we use the three scenarios in the previous chapter to determine whether the resulting changes in consumer expenditure behavior make sense.

HOW SHOULD WE LOOK AT THESE RESULTS?

Our models take various levels of Internet spending by household consumers⁴³ and show, given a specific use tax compliance rate, the resulting loss of sales and use tax revenue. We also present the results as the amount of Internet spending households would have to do under the three scenarios presented in Chapter Four.

We used Consumer Expenditure Survey (CES) data as the starting point for our models.⁴⁴ The CES provides detailed information about how much households spend annually on specific categories of goods and services, and does not incorporate business-to-business sales. We took the CES data on the average amount of money households spend in each category, projected it to the year 2003, and multiplied it by the state's projected household population. The result enables us to estimate the level and type of consumer spending in Kentucky.⁴⁵

The best way to use our data may be as a reality check. The results can answer the question, "How likely is it that in 2003, I and my fellow Kentuckians, including both computer lovers and technophobes, will be using the Internet to make this many of our purchases?" It may be very difficult to predict exactly, but this type of check can be used to ground our thinking on Internet commerce.

⁴³ We assumed that consumer purchases were the primary source of sales tax loss. Business-to-business sales make up the bulk of online commerce, and sales tax collected from such sales composes much of Kentucky's sales tax receipts. But businesses generally have better tax information, keep better records, and face higher standards of accountability than do household consumers. Individual consumers are more difficult to audit and less familiar with use tax law. Thus, consumer purchases represent the greatest potential loss of sales tax owed on traditional mail-order and Internet purchases.

⁴⁴ Data from the 1997 Consumer Expenditure Survey (CES) were used to model Kentucky consumer spending habits. The survey is conducted by the federal government's Bureau of Labor Statistics and is considered the most comprehensive and accurate data available on consumer spending behavior. The CES presents average expenditures per household, with a household defined as either a family living in the same house, a financially interdependent couple, or a financially independent individual. The CES reports household expenditures in over 70 distinct categories, ranging from purchases of tangible goods such as "Cereals and cereal products," to purely financial expenditures such as "Retirement, pension, and Social Security contributions." CES results specific to Kentucky are not available, so we used regional data for the South as a proxy. Although no data are available for household expenditures at a state level, we feel expenditure data for the South are a close enough approximation for our purposes. Kentucky's average household expenditures are probably slightly smaller than the South's average, however. Average household expenditures for the South in 1997 were 93 percent of the national average. In comparison, Kentucky in 1996 had per capita retail sales 94 percent of the national average (Marketing Statistics, 1997 Statistical Abstract of the United States) and a per capita disposable income of 82 percent of the national average (US Census, 1997 Statistical Abstract of the United States).

⁴⁵ To extend the model to years after 1997, the CES data were corrected for growth in household expenditures over time. Average household expenditures have consistently risen from year to year as income and living standards have risen. Our model assumes that the average household will increase its expenditures at a constant annually compounded percentage rate based on the average growth in CES expenditures over the past five years. In our projections, expenditures in all categories grow at an annual rate of 4.37 percent. Household population projections are KLT-PRC interpolations of projections made by the Kentucky State Data Center based on the 1990 US Census.

WHAT WE FOUND

- The scenarios presented in Chapter Four appear plausible. For example, in the worst case (i.e., high) scenario, Kentuckians would have to purchase, on average, only 4 percent of all their consumer products on the Internet, or 10.4 percent of selected products (e.g., books, software, music CDs) by 2003.
- A tax loss equivalent to 1 percent of expected sales tax (about \$26 million) could result from Kentucky households using the Internet to make as little as 2.4 percent of all their expenditures (or 6.2 percent of only the type of products most frequently purchased on-line).⁴⁶
- Beyond 2003, lost tax revenue due to Internet commerce could expand enormously, and the state does not have strong policy options to improve compliance. The state should take what steps it can to increase payment of use tax.

TWO SCENARIOS

SCENARIO ONE: ALL PRODUCTS AND SERVICES, 2003

How much sales tax revenue might the state lose if Kentuckians made 1 percent of all their consumer purchases on the Internet? What if they made 5 percent of their consumer purchases on the Internet? In Scenario One, we kept the percentage of expenditures made over the Internet constant across CES categories. Of course, the majority of these expenditures are not taxable and do not contribute to our estimates for forgone revenue. All taxable expenditures made on the Internet were considered a potential source of revenue loss. Modeling Internet expenditures as a fixed percentage of all expenditures is a concession to the difficulty of predicting how people will spend money there. Currently, some products and services sell much better over the Internet than others, but overall a diverse range of products and services are sold electronically, with new markets being opened constantly. In time, people may come to spend money on the Internet much as they do in traditional stores. The first scenario assumes this will be the case.

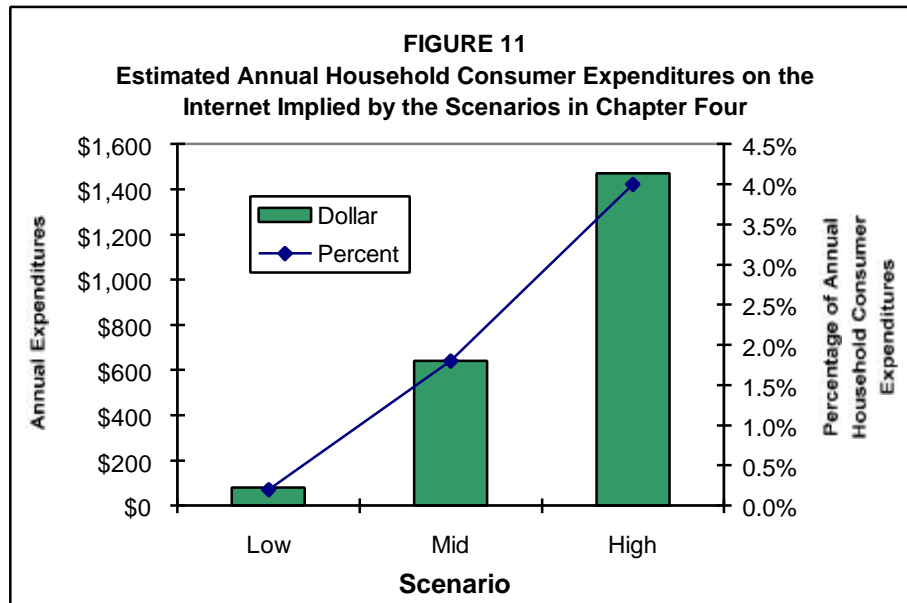
In Table 7, we see the results of Kentucky households making various percentages of all of their expenditures over the Internet for the year 2003. The results of these various buying behaviors are presented as a dollar figure for forgone revenue. This figure is also presented as a percentage of total projected sales tax receipts. For example, one could read this chart as “If Kentucky households on average made 1 percent of all expenditures over the Internet, the state would lose 11.9 million dollars (at 1 percent compliance), 10.8 million dollars (at 10 percent compliance), or 6.0 million dollars (at 50 percent compliance).” As this example illustrates, the compliance rate makes a big difference in the amount of lost sales tax.

Percent of expenditures made on Internet	1% Compliance		10% Compliance		50% Compliance	
	Revenue Loss (Million \$)	Loss, % of Sales Tax	Revenue Loss (Million \$)	Loss, % of Sales Tax	Revenue Loss (Million \$)	Loss, % of Sales tax
1	11.9	0.5	10.8	0.4	6.0	0.2
5	59.4	2.3	54.0	2.1	30.0	1.2
10	118.7	4.6	108.0	4.2	60.0	2.3
25	296.9	11.4	269.9	10.4	150.0	5.7
50	593.8	22.8	539.8	20.7	299.9	11.5

⁴⁶ We assume a 10 percent compliance rate with the sales and use tax for these projections.

We use this method to test the viability of the three scenarios presented in Chapter Four. We presented a low, medium, and high scenario in that chapter and estimated a range of sales tax losses associated with each. We estimated a \$2.2 million loss of sales tax revenue by 2003 in the low scenario, a \$19 million loss in the medium scenario, and a \$46.4 million loss in the high scenario.⁴⁷ Are these plausible scenarios, considering the amount of consumer expenditures on the Internet that each implies? The answer to this question is necessarily subjective, but the answer appears to be a “cautious yes.”

Figure 11 shows, for example, that in the “high scenario,” which assumes a \$46.4 million sales tax loss, Kentucky household consumer expenditures on the Internet would have to equal 4 percent for *all* CES categories, or about \$1,500 in annual expenditures. This does not appear to be an implausible figure, especially when we consider it is for 2003. However, we also have to consider that this is an average figure for *all* Kentucky households. One must remember that not all Kentucky households have access to the Internet, and that not all those with Internet access use it to make purchases. In 1998, about 42 percent of Kentucky adults had ever accessed the Internet. And in April 1999, a Nielsen Media study estimated that of consumers who regularly use the Internet, only 30 percent had *ever* purchased a product over the Internet. Results of a 1999 poll of Kentucky adults show that about 18 percent of them have bought something over the Internet. And a Forrester Research survey found that the average American who does make purchases on the Internet spends \$322 a year.⁴⁸



SCENARIO TWO: SELECTED PRODUCTS AND SERVICES, 2003

The “All Products and Services” model of Internet commerce assumes that all types of goods and services sell equally well over the Internet. This is not a realistic assumption. Currently, some markets have blossomed on the Internet, while others have failed. Products that are unique, unfamiliar or that vary piece-by-piece in quality or character are unlikely to sell well over the Net.

⁴⁷ We also assumed a 16.5 percent use tax compliance rate in the low scenario, 10 percent in the medium scenario, and 4 percent in the high scenario. See Peter Schirmer, Kevin O’Neil, and Michael Childress, “The Internet as a Virtual Tax-Free Zone,” *Collecting Taxes in the Cyberage*, (Frankfort, KY: Kentucky Long-Term Policy Research Center, 1999).

⁴⁸ Austan Goolsbee, “In a World Without Borders: The Impact of Taxes on Internet Commerce,” revision of NBER working paper #6863, 1999: online, University of Chicago Web site, (<http://gsbwww.uchicago.edu/fac/austan.goolsbee/research/intertax.pdf>), Internet, 21 July 1999: 6.

Heavy or bulky items that cannot be easily shipped, such as furniture or major appliances, also do not represent a major threat to sales tax revenue. Even if these items were sold over the Net, a local distributor would likely be used to deliver them, giving the state nexus. The ultimate Internet commodity is of homogenous and easily certifiable quality, has a high value-to-weight ratio, and can be marketed effectively using computer graphics and sound. In addition, if the product line includes a wide selection of styles or options, an Internet retailer may have a scale advantage over smaller local shops. It should also be noted here that items such as music and software, although taxable if delivered physically on disk or CD, are not taxable under Kentucky law if they are downloaded electronically.

Music is a prime example of an Internet marketable product. An Internet user can quickly use a Web database to search thousands of albums, as opposed to browsing through a record store, which may have a smaller selection and lack a searchable database. At the same Web site, she can read online reviews, see pictures of the album liner art, and download audio samples. Once she has selected an album, she can purchase it on Compact Disc, an easily shipped format of known quality. As music increasingly becomes available by electronic download, eliminating shipping costs and time, it will become even more attractive as an Internet commodity. Further, downloaded music is not subject to Kentucky sales tax. Software and financial services are other examples of intangible items that can be delivered electronically and thus have boomed on the Internet.

To model more accurately the current state of Internet commerce and its likely avenues of growth, the "Selected Products and Services" scenario restricts Kentuckians' Internet purchases to items that already have significant or growing online sales. We picked, from the Consumer Expenditure Survey's 70 categories, only categories that contained goods or services that currently are sold in significant quantities over the Internet or that have demonstrated concrete potential for Internet sales. Below is a list of CES categories we consider to have high potential for Internet sales and some of our justifications for picking them.

SELECTED CATEGORIES, POTENTIAL SOURCES OF REVENUE LOSS

These are categories that contain goods that are expected to sell well over the Internet and are taxable. The state will be unable to collect sales tax on these goods and will lose revenue due to Internet sales.

- *Reading Materials*—According to Ira Magaziner, 20 percent of books sold in America are now sold online.⁴⁹ A more conservative estimate by Keenan Vision estimated that about 5 percent of books sold in America are sold online.⁵⁰ Amazon.com reported sales of \$610 million in 1998.⁵¹ Book sales are another example where the ability of Internet retailers to maintain a large product selection and a searchable database gives them an advantage.
- *Television, radio, and sound equipment*—A Nielsen Media Research report listed CDs, videos, and home electronics, all included in this category, as among the products most often shopped for on the Internet.⁵² Forrester Research predicts online sales of consumer electronics will grow from an estimated \$84 million in 1998 to \$6 billion in 2003.⁵³
- *Apparel*—Forrester Research estimated online apparel sales in 1998 at \$530 million and projects sales of over \$13 billion in 2003.⁵⁴ An Ernst & Young survey of households who had made purchases on the Internet found 21 percent of them had purchased clothing.⁵⁵

⁴⁹ OECD: 47, 52.

⁵⁰ Clinton Wilder, "Myths and Realities" *Information Week*, December 7, 1998: online, Information Week Web site (<http://www.informationweek.com/712/12iumyt.htm>), Internet, 21 July, 1999.

⁵¹ Robert Hof and Linda Himmelstein, "eBay vs. Amazon.com," *Business Week* 31 May 1999: 129.

⁵² Nielsen Media Research, "CommerceNet and Nielsen Media Research Issue Results of Spring 1999 Internet Demographic Survey," press release (1999): online, CommerceNet Web site (<http://www.commerce.net/news/press/fact0699.html>), Internet, 22 July 1998.

⁵³ Austan Goolsbee, "In a World Without Borders: The Impact of Taxes on Internet Commerce," Table 2B.

⁵⁴ Austan Goolsbee, "In a World Without Borders: The Impact of Taxes on Internet Commerce," Table 2B.

- *Drugs*—Online drug sellers drugstore.com, planetrx.com, and soma.com recently opened, to strong consumer response, selling taxable nonprescription drugs as well as sales tax-exempt prescription drugs.⁵⁶ Drug chains Rite Aid, CVS, and Walgreens also sell drugs over the Internet, but do so through their local stores, giving the state nexus to tax them. This category is only partly taxable, so only part of it is classified as a “potential source of revenue loss.”
- *Miscellaneous Household Equipment*—This category includes computer hardware and software, products that currently make up the largest sector of Internet commerce. The Yankee group estimated consumers bought over one billion dollars worth of computer supplies online in 1998.⁵⁷ The Ernst & Young survey found that of households that made purchases online, 39 percent had bought computer-related products.⁵⁸ This CES category also includes items with limited Internet sales potential, however, making its potential for sales over the Internet lower than it would be had it contained only computers. Sales of computer goods over the Internet may be to a great extent diverted from more traditional mail order sales that have escaped sales tax anyway. For this reason, computer sales in particular may not present a “new” source of sales tax loss.⁵⁹ However, we do not attempt to account for this “diversion” effect.
- *Small appliances, miscellaneous housewares*—The Ernst & Young survey found 21 percent of households that made purchases online bought consumer electronics, including goods in this category as well as “Television, radio and sound equipment.”⁶⁰ Forrester Research estimated that online sales of appliances and household goods were \$100 million in 1998 and could reach over \$5.7 billion in 2003.⁶¹
- *Pets, toys, and hobbies*—Forrester's estimates for online toy sales in 1998 were \$68 million, predicted to climb to \$1.5 billion in 2003.⁶² The Internet's ability to exploit a niche market is well suited to selling to hobbyists. Online pet supplies merchants Pets.com, Pets.net, and Ac-mepet.com are showing increasing sales and attracting significant investment.⁶³
- *Other entertainment equipment and services*—Forrester estimated 1997 Internet entertainment sales at \$194 million, encompassing goods in this category as well as several others.⁶⁴

We also identified a few categories containing goods with high Internet sales potential that do not present a source of sales tax loss, either because they are exempt from the sales tax or because the particulars of the goods give the state nexus to enforce tax collection. Although these categories do not contribute to our estimates of tax loss, we use them in our calculations for comparing estimates of overall electronic commerce values. Some of these categories include financial services,⁶⁵ travel services,⁶⁶ fees and admissions,⁶⁷ food,⁶⁸ and drugs.⁶⁹

⁵⁵ Ernst & Young LLP, “Second Annual Ernst & Young Internet Shopping Study,” (1999): online, Ernst & Young Web site, (<http://www.ey.com/publicate/consumer/pdf/internetshopping.pdf>), Internet, 21 July 1999, 13.

⁵⁶ David Leonhardt, “Checking out the Corner Cyberstore,” *Business Week* 10 May 1999: 130.

⁵⁷ Nua Ltd., “1998 US Consumer Spending Online Chart,” online, Nua Ltd. Web site, (http://www.nua.ie/surveys/graphs_charts/1998graphs/consumer_spending_us.html), Internet, 21 July, 1999.

⁵⁸ Ernst & Young LLP, 13.

⁵⁹ For more information see: Austan Goolsbee, “Evaluating the Costs and Benefits of Taxing Internet Commerce.”

⁶⁰ Ernst & Young LLP, 13.

⁶¹ Austan Goolsbee, “In a World Without Borders: The Impact of Taxes on Internet Commerce,” Table 2B.

⁶² Austan Goolsbee, “In a World Without Borders: The Impact of Taxes on Internet Commerce,” Table 2B.

⁶³ Michelle Rafter, “Pets.com Fetches Investment From Amazon.com” *The Industry Standard* 29 March 1999, online, (<http://www.thestandard.com/articles/display/0%2C1449%2C4021%2C00.html>), Internet, 22 July 1999.

⁶⁴ Nua Ltd., “1997 US Consumer Spending Online Chart,” online, Nua Ltd. Web site, (http://www.nua.ie/surveys/graphs_charts/1997graphs/consumer_spending_us.html), Internet, 21 July, 1999.

⁶⁵ Boston Consulting estimated that \$1.4 billion was spent over the Internet on financial services in just the first half of 1998, second only to computer goods in total consumer sales. See Austan Goolsbee, “Evaluating the Costs and Benefits of Taxing Internet Commerce,” Table 2A. Also, the OECD predicts that 60 percent of the retail stock trade will be online by 2005. Refer to OECD, 44.

⁶⁶ Travel expenses by both consumers and businesses accounted for \$3 billion in sales over the Internet, according to Forrester Associates, and are predicted to reach \$29 billion in Internet sales by 2003. See Austan Goolsbee, “Evaluating the Costs and Benefits of Taxing Internet Commerce,” Table 2B.

We assumed all expenditures Kentuckians made over the Internet would be in these CES categories. Only the percentage of expenditures in these selected categories was varied. In all other categories, we assumed no Internet expenditures. Overall, the categories we identified as of high Internet sales potential contained about 25 percent of all average household expenditures. Of all the selected expenditures, about 44 percent were in the taxable categories that are potentially a source of revenue loss.

Because the types of expenditure the scenario assumes will be made over the Internet have been restricted from the All Products and Services Scenario, the revenue loss from a certain percentage of goods purchased over the Internet will be less than the same percentage applied over all the categories. However, it is far more realistic to expect people to have large percentages of expenditures in these categories over the Internet than it is to expect them to have large percentages of all categories of expenditures over the Internet.

RESULTS OF THE SELECTED CATEGORIES SCENARIO

In Scenario Two, forgone revenue is again directly proportional to the percentage of selected expenditures made on the Internet and inversely proportional to the compliance rate. One could read this chart “If Kentucky households make 1 percent of their expenditures in the selected categories over the Internet, the state would lose 4.6 million dollars (1 percent compliance), 4.2 million dollars (10 percent compliance), or 2.3 million dollars (50 percent compliance).” Table 8 is directly comparable to Table 7, which presents the results of the All Categories scenario. However, the percentages of expenditures in Table 8 refer to a smaller group of expenditures than in Table 7, so the sales tax losses for any given percentage of expenditures made over the Internet are about 40 percent of those in Table 7. Nevertheless, it is far more realistic to expect high Internet expenditure rates in the Selected Categories scenario than in the All Categories scenario.

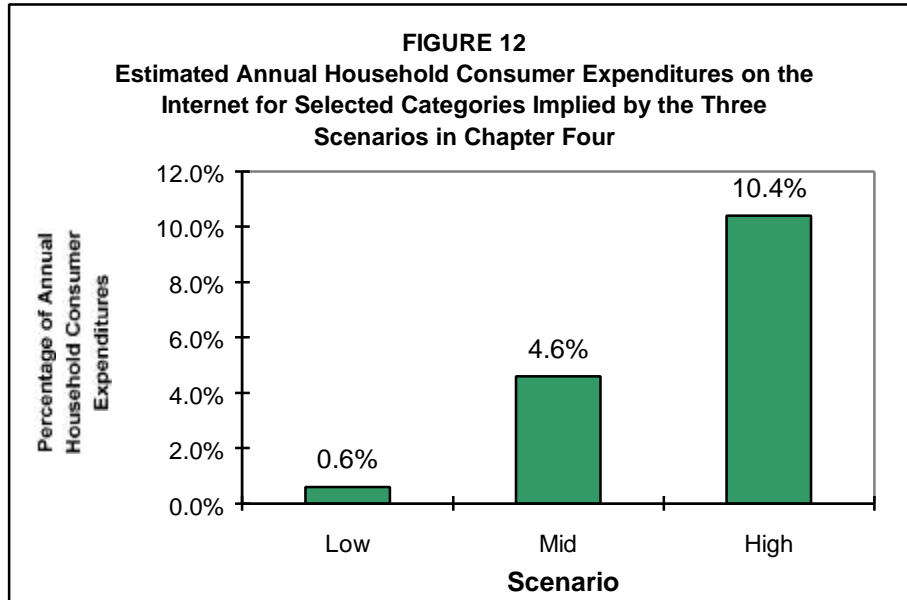
TABLE 8 Results of the Selected Products and Services Scenario Projected foregone sales tax from expenditures made on the Internet for 2003, varying according to percent made online of all household expenditures at compliance rates of 1%, 10%, and 50%						
Percent of expenditures made on Internet	1% Compliance		10% Compliance		50% Compliance	
	Revenue Loss (Million \$)	Loss, % of Sales Tax	Revenue Loss (Million \$)	Loss, % of Sales Tax	Revenue Loss (Million \$)	Loss, % of Sales Tax
1	4.6	0.2	4.2	0.2	2.3	0.1
5	23.0	0.9	20.9	0.8	11.6	0.4
10	46.0	1.8	41.8	1.6	23.2	0.9
25	115.1	4.4	104.6	4.0	58.1	2.2
50	230.1	8.8	209.2	8.0	116.2	4.5
75	345.2	13.3	313.8	12.1	174.3	6.7
100	460.2	17.7	418.4	16.1	232.4	8.9

⁶⁷ Ticketmaster.com reported online sales of event tickets had risen 270 percent in 1997 to be worth over \$19.8 million per quarter. Refer to OECD, 41.

⁶⁸ Online grocers have reported increasing sales. Online grocery sales were estimated at \$235 million in 1998 and are projected to reach \$11 billion in 2003, significant but still less than 2 percent of the overall grocery market. Refer to Linda Himmelstein, “Can You Sell Groceries Like Books?” *Business Week*, 26 July, 1999, EB44. Grocery sales are in general exempt from sales tax. A small number of grocery purchases (candy and soft drinks) are taxable. We decided to not include these purchases as possible sources of revenue loss because successful online grocers such as Peapod or Netvan are tending to use local distribution centers rather than mail delivery. A local distribution center gives the state nexus to require tax collection.

⁶⁹ This category includes prescription drugs that are exempt from sales tax (although there is a separate prescription tax). Thus, although prescription drugs have a high potential for Internet sales, we consider a portion of this category not to be a source of lost sales tax revenue.

How much of Kentuckians' consumer expenditures *in selected categories* would have to take place on the Internet in 2003 for the three scenarios presented in the previous chapter? Figure 12 shows, for example, that in the "high scenario" Kentucky household consumer expenditures on the Internet would have to equal about 10 percent for the *selected* CES categories. Again, we estimate that the resulting sales tax loss would equal around \$46.4 million in this scenario.



UNEVEN SALES

Of course, even with our selected categories, consumers will buy more of some than of others. For purposes of demonstration, we further divided our categories into high, moderate, and modest Internet sales potential. We then assumed that the percentage of expenditures made on the Internet in categories of moderate Internet growth would be half that in high growth categories, and that the percentage in the modest growth categories would be one quarter that in the high growth categories. This ratio holds true until the high growth potential categories hit 100 percent of expenditures made over the Internet, at which point the other categories continue to grow in the same fixed ratios relative to each other. We present these figures as equivalents to the flat percentages of selected categories discussed in this scenario to demonstrate a realistic example of how these types of losses might occur. The percentages of high, moderate, and modest growth categories are presented according to their equivalent in overall percentage of selected categories on the Internet in terms of the *resulting tax losses*. Because many non-taxable goods were classified as "high potential," the tax losses caused by categories with uneven distribution differ somewhat from those with even distribution.

TABLE 9
Equivalent Tax Losses Assuming Uneven Sales on the Internet

Equivalent "Percentage of Selected Categories spent on the Internet"	1%	5%	10%	25%	75%	100%
High Potential Categories (% on Internet)						
Reading Materials						
Television, radio, and sound equipment	2%	9%	18%	46%	100%	100%
Miscellaneous (non taxable)						
Public Transportation (non taxable)						
Moderate Potential Categories (% on Internet)						
Apparel						
Drugs	1%	5%	9%	23%	78%	100%
Fees and Admissions						
Miscellaneous Household Equipment						
Modest Potential Categories (% on Internet)						
Small appliances, miscellaneous housewares	0%	2%	5%	12%	39%	100%
Pets, toys, and hobbies						
Other entertainment equipment and services						

Table 9 simply shows how losses might occur if various types of goods do not sell evenly. For instance, looking at Table 8, we see that if 10 percent of expenditures in every one of the selected categories is sold over the Internet, the state will lose between \$23 and \$46 million, depending on the compliance rate. Table 9 shows that the same tax loss would occur if 18 percent of expenditures were made in the "high potential" category, 9 percent in the "moderate potential" category, and 5 percent in the "modest potential" category. We include this chart in our discussion to show a more sophisticated model of consumer behavior. Based on current sales and trends, it may be more realistic to expect people to buy 19 percent of such goods as books and music and only 5 percent of such goods as small appliances, as Table 9 indicates, rather than expecting them to buy 10 percent of all of these goods, the equivalent in Table 8, in which all of the selected categories are presumed to sell at the same rate on the Internet.

CONCLUSION

The analysis in this chapter gives us an idea of the plausibility of the three scenarios presented in the previous chapter, and it would seem that even the "High Scenario" is plausible. For example, in the worst case scenario (i.e., high), Kentuckians would have to purchase, on average, only 4 percent of all their consumer products on the Internet, or 10.4 percent of selected products (e.g., books, software, music CDs), by 2003. Remember, though, that these are averages, and a significant number of Kentuckians do not have access to the Internet.

Our results show that a tax loss equivalent to 1 percent of expected sales tax (about \$26 million) could result from Kentucky households using the Internet to make as little as 2.4 percent of all their expenditures (or 6.2 percent of only the type of products most frequently purchased online).⁷⁰ It seems less likely, then, that the state would experience sales and use tax losses that would be equal to or greater than 5 percent of projected receipts in 2003. To result in a 5 percent sales tax loss, Kentuckians would have to make 13 percent of all expenditures, or 30 percent of the selected category expenditures, over the Internet. This level of spending represents a fairly aggressive extension of Internet commerce in 4 years and greatly exceeds estimates by both Forrester and the DMA. Still, Internet commerce is currently growing rapidly.

Beyond 2003, lost tax revenue due to Internet commerce could expand enormously, and the state does not have strong policy options to improve compliance. The state should take what steps

⁷⁰ We assume a 10 percent compliance rate with the sales and use tax for these projections.

it can to increase payment of use tax. Our models show that increasing the “compliance rate” decreases losses to Internet commerce. For example, in the All Products and Services Scenario, if people make 10 percent of their purchases over the Internet, the state loses \$119 million if it collects 1 percent of the tax owed, but only \$60 million if it collects 50 percent of the tax owed, and of course, loses nothing if all the tax is collected. The most effective way to increase compliance is to require sellers to collect and remit sales tax. This is why the compliance rate from storefront expenditures is essentially 100 percent and why transactions where nexus exists account for most of what little tax is collected from Internet and other mail-order purchases.

Unfortunately, the state presently has no legal power over out-of-state sellers without nexus in the state. Congress, however, can enforce sales taxes on sellers with no nexus. Congress has charged the Advisory Commission on Electronic Commerce with the responsibility of recommending policy on sales tax and electronic commerce. After their first meeting, several members of the Commission expressed the opinion that sales tax will eventually be applied to Internet purchases.⁷¹ One likely solution is to make state sales tax enforceable on out-of-state vendors and to require these vendors to use a database to match buyers with their local tax jurisdictions. Another proposed solution is to impose a national sales tax on interstate purchases that would be collected by the federal government and then distributed to the states. In the long term, Kentucky’s best policy tool is simply to monitor national progress in this area and to lobby for legislation favorable to the state. Kentucky is well-prepared for national sales tax reform, because it has no local option sales taxes, which might have to be eliminated to simplify a national sales tax system.

Our results suggest that the threat of Internet commerce is not sufficient to justify drastic fiscal changes within the next few years. The state can take some steps to improve the compliance rate, but without legislation by Congress, the policy tools at hand are of limited effectiveness. Vendors with no nexus in the state are not legally responsible for the tax, and it is difficult to enforce the tax on individual consumers. The state participates in the Southeastern States Exchange of Information Agreement. Participating states share information on high-value interstate sales and encourage out-of-state vendors to remit sales tax voluntarily. In practice, however, vendors have little incentive to collect sales tax, and the states only record a small segment of sales. The state could, in theory, try to audit taxpayers’ reports by purchasing lists of customers from out-of-state vendors, but such a solution would be prohibitively costly and raise serious privacy issues. Educating the public about the law may be the state’s best strategy for raising the compliance rate. A recent poll by the Kentucky Long-Term Policy Research Center indicated that knowledge of the law also increases a person’s willingness to pay the tax (refer to Chapter Three). Efforts to improve the convenience of reporting use tax might increase revenues enough to justify their cost.

⁷¹ Curt Anderson, “Sales tax inevitable for Internet purchases, panel says,” *The Courier-Journal* 23 June 1999: A3.

CHAPTER SIX

ISSUES IN USE TAX ADMINISTRATION: INCREASING THE COMPLIANCE RATE

By Charles W. Martie⁷²

A Kentucky resident decides to do her Christmas shopping through mail order; she reads a gift catalog she received in the mail from a company in Maryland and decides to buy some toys for her grandchildren. She has a few options. She fills out the order form accompanying the catalog and reaches the line that says, “MD and VA residents add sales tax,” and leaves it blank. She totals the bill, writes the check, and puts the envelope in the mailbox. Or, she gets out her credit card, calls the company, places the order, gives her mailing address and credit card number, and hangs up. Or, she goes to the company’s website, chooses the items she wants from an online catalog, enters her mailing address and credit card number, clicks on “Order,” and logs off. All three scenarios yield the same result: her merchandise will be delivered in a few days, her account will be charged or debited for the price of the items plus shipping and handling, and she will owe the Commonwealth of Kentucky use tax.

Kentucky and every other state with a sales tax impose a use tax. Generally, use taxes are levied on the “storage, use, or consumption of tangible personal property not subject to sales tax or exempt from tax that is brought into that state, or acquired under nontaxable presumption.”⁷³ The use tax “backstops” the sales tax and is designed to balance the burden between those purchasing tangible personal property inside the state and those who buy outside the state. It represents an attempt to ensure that the sales tax will not unfairly burden in-state retailers who must compete with retailers in other states who are not required to remit the sales tax. In recent years, the spectacular growth of online commerce has generated concerns about a declining sales tax base, and has thus accelerated the pace of states’ action regarding use tax policy. This chapter explores past and current experience with use tax administration, both nationally and in Kentucky, and describes some of the opportunities for improved administration in the future.

EARLY SALES TAX AND COMPENSATING USE TAX EXPERIENCE

State imposition of use tax dates back to the mid-1930’s, when California and Washington imposed taxes on the use of goods purchased outside the state. The U.S. Supreme Court upheld Washington’s tax, finding that it was not a tax on interstate commerce, but on the privilege of using goods after the interstate commerce transaction was completed.⁷⁴ This decision provided the basis for use taxation in the states. The Interstate Commerce Clause of the Constitution necessitates the imposition of use taxation to ensure that interstate commerce transactions do not escape taxation. By the 1960’s, all states with sales taxes had passed some form of use tax.

While tax laws clearly established the tax liability upon the value of the goods being used within a state’s boundaries, case law worked to relieve out-of-state sellers of their responsibility to collect and remit the tax, unless they maintained some physical presence in the state. Thus, state

⁷² Kentucky Revenue Cabinet, Division of Research and Development. The views expressed in this chapter are those of the author and not necessarily of the Revenue Cabinet. Any errors are the responsibility of the author. I wish to express great thanks to my associates at the Revenue Cabinet for their assistance in this project.

⁷³ Fields, Robert J., *Understanding and Managing Sales and Use Tax*, CCH Incorporated: Chicago IL, 1994, p. 47.

⁷⁴ *Henneford v. Silas Mason Co., Inc.*, 300 US 577 (1937).

tax agencies have had to rely heavily on voluntary and enforced compliance of individuals and businesses with a presence (nexus) in the state. The nexus issue remains a substantial source of controversy in use tax administration and consequent litigation. The courts have found that out-of-state companies with retail locations inside the state have sufficient nexus and must register and remit the tax.⁷⁵ They also have found that the presence of the seller's employees, representatives, or agents within the state taking orders for delivery from out-of-state generates sufficient nexus.⁷⁶ However, occasional delivery activities of an out-of-state seller do not generate nexus.⁷⁷ In 1967, the Court found that a mail order company whose only presence in the state was to send catalogs to prospective customers and receive orders through the U.S. mail and ship goods to customers via common carrier did not have sufficient nexus for the state to require them to register, collect, and remit use tax.⁷⁸ More recently, the Court found that the Due Process Clause justification for the 1967 mail order decision was invalid, but upheld the decision based on the Interstate Commerce Clause.⁷⁹ This decision led to a flurry of activity among the states to craft nexus standards that would capture mail order activity, should the Congress exert its powers to regulate interstate commerce in this arena.

Kentucky statutes impose a 6 percent use tax on the purchase price of goods purchased for storage, use, or other consumption in the state, with credit given for tax paid in another state. Those persons first using, storing, or consuming the tangible property are liable for the tax. The responsibility for collection of the tax rests with every "retailer engaged in business in the state." The statutory definition of a "retailer engaged in business in the state" (KRS 139.340) attempts to address the nexus issues raised by court decisions described above. The Revenue Cabinet provides various methods for taxpayers to report and remit the tax.

CURRENT EFFORTS AMONG THE STATES

Individual Income Tax Return. Approximately 15 states and the District of Columbia link the collection of use tax with the individual income tax. About half of these states offer a consumer use tax form with instructions inside the packet of income tax forms. The others include a line on the income tax return where consumers can report their use tax liability. Kentucky uses the latter method and provides a worksheet for the consumer use tax line in the income tax instruction booklet. Compliance with this method of use tax reporting is spotty. Data from Kentucky's income tax forms indicate that approximately 1 percent of Kentucky individual income tax filers report something on this line, with an average use tax liability of \$37, for a total of approximately \$700,000 for tax year 1998. These taxpayers have, on average, \$63,000 in Federal AGI, \$7,500 in itemized deductions, three dependents, and income tax liabilities of \$2,600. The data also suggest that use tax reported increases slightly with income. It is interesting to note that more than 600 of the 18,000 taxpayers that filed this way reported \$1 of use tax. Only 1,200 reported more than \$100. Nevertheless, this low-cost means of reporting and remitting use tax represents nearly \$12 million in taxable transactions. Individuals can also report their use tax liabilities on a Consumer Use Tax form, so these data underestimate individuals' use tax compliance levels.

Collection via Consumer Use Tax and Sales and Use Tax Returns. In Kentucky, consumers should report and remit their use tax liability within 20 days following the month in which they made purchases subject to use tax. The Revenue Cabinet provides a Consumer Use Tax return on which taxpayers report the number, type, and purchase price of these items, and calculate their tax liability. The form is available at the Cabinet's Website for downloading and at any of the Cabinet's taxpayer service centers located throughout the state.

Most other states have similar forms for remitting use tax. Businesses can remit payments on the sales and use tax forms. Most use tax is paid in this fashion. Generally, use tax collections run

⁷⁵ *Nelson v. Montgomery Ward*, 312 US 373 (1941).

⁷⁶ *General Trading Company v. State Tax Commissioner*, 322 US 325 (1944) and *Scripto v. Carson*, 362 US 207 (1960).

⁷⁷ *Miller Brothers v. Maryland*, 347 US 340 (1954).

⁷⁸ *National Bellas Hess v. Illinois Department of Revenue*, 386 US 753 (1967).

⁷⁹ *Quill Corporation v. North Dakota*, 112 S.Ct. 1904 (1992).

between 7 and 9 percent of total sales and use taxes among the states.⁸⁰ Kentucky collects approximately \$250 million in use tax via the sales and use tax returns, or about 12 percent of total sales and use tax collections.

Cooperative Agreements. States have entered into interstate agreements to enhance voluntary vendor compliance and to cooperate on enforcement activities. These agreements generally take the form of regional compacts to share information and pool resources to encourage voluntary compliance and share audit responsibilities. One of the earliest successful compacts was the New York-New Jersey Sales and Use Tax Agreement, established in 1986. This compact established joint administration responsibilities for the two states in which a vendor in either state registers in one state and must remit sales and use tax due in both states. Since then, the trend has been toward increasing cooperation among states on a regional basis. Kentucky is an associate member of the Multistate Tax Commission (MTC), which provides for information sharing and a multistate audit staff, and a member of the Southeastern Association of Tax Administrators (SEATA) and the Ohio/Indiana Exchange Agreement. Kentucky also participates in The Federation of Tax Administrators (FTA), an organization representing taxing jurisdictions throughout the U.S. The FTA has been progressive in expanding information-sharing among state tax agencies, recently providing electronic means of communicating and sharing data. In general, Kentucky's experience with these agreements and organizations has been productive, leading to more efficient tax administration through exploration of best practices and adoption of more uniform administration among the states.

Voluntary Compliance Among Out-of-State Sellers. The Revenue Cabinet currently collects use tax from a large number of out-of-state firms that have voluntarily registered to report and remit the tax on sales to Kentucky residents. The Cabinet encourages such voluntary compliance and is investing in systems integration technology to reduce the costs of compliance.

Collection of Use Tax on Large-Ticket Items. Individuals who purchase large-ticket items (boats, planes, furniture, mobile homes, computers, etc.) out-of-state for use in Kentucky incur a use tax liability if a 6 percent sales tax was not paid. The use tax compliance on these purchases tends to be greater than for small items. In particular, those items that require registration have tended to pose less of a problem for tax agencies. However, enforcement efforts vary considerably from state to state. Kentucky is among the states that put significant effort into enforcing the tax on boats and planes. Other large ticket items, such as mobile homes and travel trailers, are also subject to varying levels of enforcement among states.

FUTURE OPPORTUNITIES FOR ENHANCING COMPLIANCE

Expanding Awareness and Understanding of the Tax. States that have launched public relations programs to advertise the features of the tax and the responsibilities of citizens to report it have achieved varying degrees of success. Some states have used mailings to remind citizens them of the use tax, asking them to review their records for any purchases subject to it. Indiana, for example, sent 86,000 letters to higher income individuals, which generated approximately 20,000 responses, half claiming no tax due and the others generating an average tax payment of \$30.⁸¹ Assuming full compliance among those that remitted tax based on the letter, the campaign revealed approximately \$1.5 million dollars in taxable transactions not previously observed. However, it is not known how many of these taxpayers would have reported their liability on Indiana's individual income tax return.

Most states have expanded taxpayer assistance, with easier access to agency employees, increased training and professional development, and improved availability of instructional materials through the Internet. Clearly, the Internet offers significant opportunities to target education to those consumers most likely to make on-line purchases.

Encouraging Validation of Taxpayer Reporting. Because of the timing lag between purchases and the due date of individual income tax returns, taxpayers may have little information

⁸⁰ John F. Due and John L. Mikesell, *Sales Taxation*, 2nd ed., (Washington, D.C.: The Urban Institute Press, 1994): 246.

⁸¹ *Ibid.*, p. 264.

upon which to base their use tax calculation. Some states have tried to provide taxpayers with a means of calculating their use tax based on income, which simplifies reporting and effectively validates the amount they report. Maine includes a line on the individual income tax return for reporting use tax. The taxpayer can choose to report actual use tax due, or elect to report .04 percent of Maine AGI. If the taxpayer purchased an item that cost \$1,000 or more, they are required to report a use tax for that purchase in addition to the .04 percent of Maine AGI. Before tax year 1998, if the taxpayer left the use tax line blank, Maine assessed an amount equal to .04 percent of AGI. That provision was repealed beginning in 1999 (1998 tax year); under current law a blank line is now considered a reporting of zero tax liability.

PROMOTING SOUND POLICY ON STATE SALES AND USE TAXATION

Policymakers have tended to focus on the Internet's threat to the revenue adequacy of sales and use tax base. But the effects on efficiency and equity of the tax have received consideration as well. Efficient taxes minimize the distortion of consumer and producer decisions and the cost of compliance and administration. A general sales tax economy-wide is relatively efficient, in that all prices are affected similarly. Thus, no reallocation of resources from one market to another would result. The efficiency of the sales tax diminishes as the tax base shrinks, diverting consumption and corresponding resources to exempt markets. In the context of Internet sales, current sales and use taxes impose different prices on the same goods depending on the location of the seller. The most obvious distortion is between local and interstate goods, as mail order through the Internet becomes more popular. The distortion, or excess burden, harms the public by diverting resources from their highest and best use. Excess burden increases with the sensitivity of consumers to price or elasticity of demand. The extent of the excess burden of consumer use tax is unknown, but will likely be large if consumers perceive little difference in the delivered price of the goods other than the 6 percent tax. In addition, compliance costs have been a concern among multi-jurisdictional sellers, given the patchwork of state and local rates, exemptions, and filing calendars.

The shrinking of the tax base also raises equity concerns. Horizontal equity requires equal treatment of equals. On the business side, current administration of the tax favors out-of-state retailers. As more transactions take place via the Internet, in-state retailers will be forced to bear an increasing portion of the burden of the sales and use tax, as they strive to compete with out-of-state sellers not remitting the tax. Horizontal equity among households is less of a concern, given the ease with which households can transact on-line.

Also of concern is the effect of Internet sales on the vertical equity of the tax. Vertical equity implies unequal treatment of "unequals" and is widely held to mean that households with higher incomes should bear a larger portion of taxes. A Kentucky Long-Term Policy Research Center survey and analysis found that "the people who use technology tend to be younger, better educated, wealthier, and urban."⁸² Estimates of sales tax incidence based on current income indicate the sales tax is regressive as it stands. Until access to Internet purchases is available to households regardless of income and wealth, the sales and use tax will become even more regressive.

The *Quill* decision opened the door for Congress to authorize state imposition of use tax collection on out-of-state vendors. In fact, in the wake of the *Quill* decision, several bills were proposed in Congress to expand states' ability to collect use tax, including the Consumer and Main Street Protection Act of 1995, The Independence for Families Act, (1994), and Senate Bill 1825 (1994). None of these bills moved very far in the legislative process.⁸³

Cooperation among the states has progressed and offers some hope. At its 1999 winter meeting, the National Governors' Association adopted a policy on streamlining sales taxation. The policy recognizes the ramifications of the *Quill* decision in reaffirming the authority of Congress

⁸² Peter Schirmer and Stephen Goetz, *The Circuits Come to Town* (Frankfort, KY: Kentucky Long-Term Policy Research Center, 1997): chapter 2.

⁸³ For a comprehensive treatment of use tax in a legal context, see Saba Ashraf, *Virtual Taxation: State Taxation of Internet And On-Line Sales*, 1997 Florida State University Law Review, viewed at http://www.law.fsu.edu/journals/lawreview/issues/243/ashraf.html#FNT*, 1 Dec. 1999.

to address state tax issues that affect interstate commerce, the states' responsibility to simplify sales and use taxes, and the opportunities provided by innovation in information technology. The following description appears on the National Governors' Association (NGA) website:⁸⁴

The policy calls for joint industry/government development of a simplified sales tax system, including one sales tax rate per state, streamlined administration and audit requirements, and uniform definitions of the goods and services that may be taxed. States retain the authority to determine what is taxed and at what rate. The policy establishes incentives for states to streamline and simplify their sales tax systems by calling on the federal government to restore fairness in the sales tax by requiring remote sellers to collect sales taxes for states that simplify their taxes. A minimum level of sales would be established; companies that made sales in the past year above that de minimus level would be required to collect and remit the sales tax to qualified states.

INFORMATION TECHNOLOGY CAN REDUCE TAXPAYER'S COSTS OF COMPLIANCE

Improvements in technology offer opportunities for reducing compliance costs for taxpayers. In the past, sellers have argued that multi-jurisdictional taxation imposed significant costs of calculating sales tax on a transaction-by-transaction basis. This is no longer the case. State and local tax rates can be applied to transactions based on a key in the transaction record. The rate database would have to be continually updated, but several businesses already provide such updates at relatively low cost.

The availability of rate information raises the relative importance of obtaining clear interpretation of the sales tax base. Compliance costs among taxpayers can be greatly enhanced to the extent that state and local governments can clearly establish which transactions are exempt and which are taxable. Sales tax uniformity across states would increase the use of such software by businesses to remit sales and use tax.

The NGA policy on Streamlining Sales Taxation offers the following solution:

One potential approach to administration of sales taxes would be to encourage establishment of a system of independent third-party organizations that would be responsible for remitting taxes to the states. Remote sellers would use a software package preapproved by the states that would calculate the tax due on the purchase based on the state rate where the item is sent, and electronically remit that tax to the collection organization. Remote sellers that opt to use the third-party system would enjoy additional benefits of compliance, including not filing returns and not remitting funds to states.⁸⁵

Successful implementation of such a proposal requires considerable cooperation among the states and retailers and a newfound dedication to simplifying the tax codes. Therein lie significant challenges. Nonetheless, the benefits of such a program and the concern over an unpalatable federal solution to the nexus issue may provide enough incentive to get the job done.

CONCLUDING REMARKS

In the 1950's and 1960's, tremendous investment in interstate highways greatly reduced the cost of interstate commerce, bringing cheap delivery of out-of-state merchandise to our businesses and homes. In the 1990's, the investment has been in the information highway, with similar effects. Now the marketing and accounting functions of out-of-state sellers have reached our doorsteps as well. As we would expect, both periods have generated their share of interstate commerce problems. Fortunately, the Internet brought with it expanded opportunities for communication among the states and the technology to reduce taxpayer compliance costs to address these prob-

⁸⁴ <http://www.nga.org/106Congress/SalesTax.asp>, viewed 5 Nov. 1999.

⁸⁵ <http://www.nga.org/Pubs/Policies/EC/ec12.asp>, viewed 5 Nov. 1999.

lems. Kentucky is embracing the promise offered by these cooperative efforts, as well as the new technology of tax administration, and is participating in the national policy debate on efficient tax systems.

APPENDIX A

METHOD FOR ESTIMATING PROBABILITIES

We used a cumulative logit model for ordinal responses to estimate the relationships between answers to the survey questions on the likelihood of paying the use tax and the explanatory variables of education, income, urbanity (or rurality), gender, age, and whether the individual had previously heard of the use tax.

In the Spring of 1999 the Kentucky Long-Term Policy Research Center asked two questions about online buying on the University of Kentucky Survey Research Center Kentucky survey:⁸⁶

- *If you make Internet or catalogue purchases from out-of-state companies, Kentucky law requires that you pay Kentucky sales tax. If the company does not collect Kentucky sales tax, it is your responsibility to report the purchase on your state income tax form and pay the 6 percent tax. This is called the use tax. Have you heard of this law? (YES or NO)*
- *If you were to make Internet or catalogue purchases from out-of-state companies that did not collect Kentucky sales tax, how likely is it that you would report those purchases on your state income tax form? (VERY LIKELY, SOMEWHAT LIKELY, SOMEWHAT UNLIKELY, VERY UNLIKELY).*

For the dependent variable, very likely equals one, somewhat likely equals two, somewhat unlikely equals three, and very unlikely equals four. The mean value equals 2.40. We use the parameter estimates in Table A.1 to calculate the estimated probabilities in Table A.2.⁸⁷ The generic formula for calculating cumulative probabilities is:

$$P(Y = j) = ((\exp(a_j + \beta x)) / (1 + (\exp(a_j + \beta x))))$$

Table A.1				
Model Estimates on the Likelihood of Paying the Use Tax				
Variable	Parameter Estimate	Standard Error	Pr > Chi Square	Mean
INTERCP1	-0.5516	.3604	0.126	.
INTERCP2	0.2947	.3596	0.412	.
INTERCP3	0.9431	.3620	0.009	.
EDUCATION	0.0538	.0317	0.090	5.13
INCOME	-0.0487	.0290	0.093	7.91
GENDER	0.0887	.1762	0.615	0.43
URBANITY	-0.3323	.1747	0.057	0.47
AGE	-0.0035	.0058	0.539	46.15
TAXHEAR	0.8252	.1825	0.0001	0.37

The generated values with this formula are cumulative probabilities, so we have subtracted the values between the categories to obtain the probabilities for each of the response values. These estimated probabilities are presented in Table A.2.

⁸⁶ Refer to footnote 21 for additional information about the survey.

⁸⁷ See Alan Agresti, *An Introduction to Categorical Data Analysis* (New York, N.Y.: John Wiley & Sons, Inc., 1996): 214.

Table A.2					
Estimated Probabilities of the Likelihood of Paying the Use Tax by Explanatory Variable					
HEARD OF USE TAX	(1) Very Likely	(2) Somewhat Likely	(3) Somewhat Unlikely	(4) Very Unlikely	TOTAL
(0) No	0.28	0.20	0.16	0.36	100%
(1) Yes	0.47	0.20	0.12	0.20	100%
ANNUAL HOUSEHOLD INCOME					
	(1) Very Likely	(2) Somewhat Likely	(3) Somewhat Unlikely	(4) Very Unlikely	TOTAL
(1) Under \$5,000	0.43	0.21	0.13	0.23	100%
(2) \$5-7.5K	0.41	0.21	0.14	0.24	100%
(3) \$7.5-10K	0.40	0.21	0.14	0.25	100%
(4) \$10-12.5K	0.39	0.21	0.14	0.26	100%
(5) \$12.5-15K	0.38	0.21	0.14	0.27	100%
(6) \$15-20K	0.37	0.21	0.15	0.28	100%
(7) \$20-25K	0.36	0.21	0.15	0.29	100%
(8) \$25-30K	0.35	0.21	0.15	0.30	100%
(9) \$30-40K	0.33	0.21	0.15	0.31	100%
(10) \$40-50K	0.32	0.20	0.15	0.32	100%
(11) \$50-70K	0.31	0.20	0.16	0.33	100%
(12) \$70-90K	0.30	0.20	0.16	0.34	100%
(13) \$90-120K	0.29	0.20	0.16	0.35	100%
(14) Over \$120,000	0.28	0.20	0.16	0.36	100%

APPENDIX B

METHOD FOR ESTIMATING SALES AND USE TAX LOSSES

Our method starts with projected US Internet sales from 1998 to 2003. Table B.1 shows projections from three sources. These three projections form the basis of our “low,” “mid,” and “high” scenarios. Many estimates are available to choose from, but we believe these are representative of the range of estimates.

TABLE B.1			
Projected US Internet Business-to-Consumer Sales			
(millions)			
Year	DMA (Low) ⁸⁸	Forrester (Mid) ⁸⁹	International Data Corporation (High) ⁹⁰
1998	\$ 1,663	\$ 8,000	\$ 14,900
1999	\$ 3,405	\$ 18,000	\$ 31,000
2000	\$ 6,129	\$ 33,000	\$ 50,700
2001	\$ 9,806	\$ 52,000	\$ 78,000
2002	\$ 14,709	\$ 76,000	\$ 116,500
2003	\$ 19,217	\$ 108,000	\$ 177,700

Table B.2 shows projected per capita US consumer Internet sales. We calculate this by dividing projected US Internet business-to-consumer sales by the US population. For example, the value of **\$66.10** in Table B.2 is obtained by dividing **\$18,000** (million) in Table B.1 by **272.3** (million) people in Table B.2. Where we provide an illustrative calculation, we shade the cells containing the figures used in the example.

TABLE B.2				
Projected Per Capita US Consumer Internet Sales				
Year	US Population (millions)	(Low)	(Mid)	(High)
1998	270.0	\$ 6.16	\$ 29.63	\$ 55.18
1999	272.3	\$ 12.50	\$ 66.10	\$ 113.83
2000	274.6	\$ 22.32	\$ 120.16	\$ 184.61
2001	276.9	\$ 35.41	\$ 187.78	\$ 281.67
2002	279.2	\$ 52.68	\$ 272.22	\$ 417.28
2003	281.5	\$ 68.28	\$ 383.72	\$ 631.37

Table B.3 shows Kentucky’s projected total Internet sales (in millions). We derive this by multiplying projected per capita US consumer Internet sales *times* Kentucky’s population *times* 0.938. The 0.938 is used to reflect Kentucky’s lower retail sales relative to the US average.⁹¹ So, the value of **\$245** million in Table B.3 is the product of **\$66.10** in Table B.2 times **3.95** million people in Table B.3 times **0.938**.

⁸⁸ The Direct Marketing Association, (DMA) projected direct interactive media sales revenue. DMA provides the estimates for 1997-9, 2003. We interpolate for the years 2000-2. Available online at http://www.the-dma.org/services1/charts/inter_mrktg_stats.html. Accessed on 7 December 1999.

⁸⁹ Estimates from Forrester Research, US ECOMMERCE 1998-2003, Business-to-Consumer. Accessed online at http://www.nua.ie/surveys/graphs_charts/comparisons/ecommerce_us.html, on 11 June 1999.

⁹⁰ These estimates are from the International Data Corporation. The estimates are published by the United States Internet Council at http://www.usic.org/usic99/usic_state_of_net99.htm. Accessed on 21 October 1999.

⁹¹ According to data from Market Statistics and reported in the Statistical Abstract of the United States, Kentucky’s retail purchases per capita were 93.8 percent of the national average.

TABLE B.3
Projected Total Kentucky Consumer Internet Sales
 (millions)

Year	KY Population (millions)	(Low)	(Mid)	(High)
1998	3.93	\$ 23	\$ 109	\$ 203
1999	3.95	\$ 46	\$ 245	\$ 422
2000	3.98	\$ 83	\$ 448	\$ 689
2001	4.00	\$ 133	\$ 705	\$ 1,057
2002	4.03	\$ 199	\$ 1,028	\$ 1,576
2003	4.05	\$ 259	\$ 1,458	\$ 2,398

An estimated 18.2 percent of Kentucky adults said “Yes” when asked, “Have you ever purchased a product over the Internet?”⁹² This is equal to 75 percent of our estimated U.S. average of 24.6 percent.⁹³ We adjust for Kentucky’s lower online purchasing rate in Table B.4. In the “low” scenario we keep Kentucky’s rate at a constant 75 percent of the US rate for the 1998 to 2003 period. In the “mid” scenario we start at 75 percent in 1998 and then increase it to 87.5 percent by 2003; this is a purely arbitrary figure. And in the “high” scenario we assume that Kentuckians reach the US average by 2003. So we start at 75 percent in 1998 but increase it to 100 percent of the US number by 2003. For example, \$190 million = \$245 million *times* 0.775.

TABLE B.4
Projected Total Kentucky Consumer Internet Sales After Adjusting for Lower Online Purchasing
 (millions)

Year	(Low)	(Mid)	(High)
1998	\$ 17	\$ 81.9	\$ 153
1999	\$ 35	\$ 190.0	\$ 338
2000	\$ 62	\$ 358.7	\$ 585
2001	\$ 100	\$ 581.5	\$ 951
2002	\$ 149	\$ 873.7	\$ 1,497
2003	\$ 195	\$ 1,275.3	\$ 2,398

⁹² The raw percentage is 17.7, but women are over represented in this sample. Women constitute 57 percent of the sample, but only about 51.5 percent of the population in Kentucky. If we adjust the results to reflect this oversampling of women, the percentage of Kentucky adults who have made a purchase on the Internet increases to 18.2 percent. It increases because men are more likely to make a purchase on the Internet. Using population estimates from 1995, we used the following formula to calculate the weighted average: $18.2 = (13.57 * .5146) + (23.16 * .4854)$, where 13.57 percent of women have made an online purchase and 23.16 percent of men have. The survey was conducted by the University of Kentucky Survey Research Center. Households were selected using random-digit dialing, a procedure giving every residential telephone line in Kentucky an equal probability of being called. Calls were made from July 15 until August 12, 1999. The sample includes noninstitutionalized Kentuckians 18 years of age or older. There were 633 completed interviews. The margin of error is approximately ± 3.9 percentage points at the 95 percent confidence level.

⁹³ The National Telecommunications & Information Administration estimates that in 1998 32.7 percent of U.S. persons (15 years old and older) had used the Internet from any location. Available online at http://www.ntia.doc.gov/ntiahome/ftn99/InternetUse_II/Chart-II-1.html. And, according to one source, about 75 percent of the online population has made at least one purchase in the past 90 days. Available online at http://www.greenfieldcentral.com/research_findings/bear_stearns/bear_stearns.htm. Thus, it follows that about one quarter of the U.S. population has made a purchase online ($.327 * .75 = .245$). This number is close to another estimate that puts the online consumer purchases at 28 percent of the U.S. population. Available online at <http://ecommerce.vanderbilt.edu/Student.Projects/filling.gaps.online.retailing/forecast.htm>. Finally, we further validated this estimate by multiplying the 24.5 percent times the U.S. population estimate as of July 1, 1999 from the U.S. Census Bureau. If we include only the population of 18 years and over then this implies that about 49 million Americans have made a purchase online ($.245 * 202$ million). If we include all Americans 15 years and older (about 214 million), then the estimate goes up to around 52 million. This estimate of about 50 million online purchasers is consistent with an estimate by Rasmussen Research. As of February 25, 1999, they were reporting and expecting 50 million online American shoppers in six months. Available online at <http://www.portraitofamerica.com/html/poll-377.html>.

A lot of the business-to-consumer Internet sales should not be counted as *new* sales because they would have taken place as telephone or catalog sales in the absence of the Internet. Researchers have offered some estimates, and these are presented in Table B.5. A study conducted by Ernst & Young assumes that 20 percent of online sales would have taken place in the absence of the Internet and they caution that this is probably a low estimate.⁹⁴ In our “high” scenario then, we count only 80 percent of projected sales. We decided to double the percentage in our “low” estimate and use the average of the two for our “mid” estimate.

TABLE B.5			
Substitution Rates			
Year	(Low)	(Mid)	(High)
1998	60%	70%	80%
1999	60%	70%	80%
2000	60%	70%	80%
2001	60%	70%	80%
2002	60%	70%	80%
2003	60%	70%	80%

Not all products and services purchased online are taxable. Our “high” scenario estimate of 42 percent comes from Goolsbee, an economist at the University of Chicago.⁹⁵ The “low” scenario estimate from the Ernst & Young report⁹⁶ and the “mid” scenario estimate is the midpoint between the other two estimates.

TABLE B.6			
Taxability Rates			
Year	(Low)	(Mid)	(High)
1998	37%	39.5%	42%
1999	37%	39.5%	42%
2000	37%	39.5%	42%
2001	37%	39.5%	42%
2002	37%	39.5%	42%
2003	37%	39.5%	42%

Table B.7 presents Kentucky total Internet sales net of substitution and taxability. For example, \$52.53 million (Table B.7) equals \$190 million (B.4) times .7 (B.5) times .395 (B.6).

TABLE B.7			
Kentucky Internet Sales Net of Substitution and Taxability (millions)			
Year	(Low)	(Mid)	(High)
1998	\$ 3.78	\$ 22.65	\$ 51.27
1999	\$ 7.72	\$ 52.53	\$ 113.49
2000	\$ 13.86	\$ 99.17	\$ 196.72
2001	\$ 22.13	\$ 160.78	\$ 319.70
2002	\$ 33.12	\$ 241.57	\$ 502.92
2003	\$ 43.18	\$ 352.63	\$ 805.79

⁹⁴ Robert J. Cline and Thomas S. Neubig, “The Sky is not Falling: Why State and Local Revenues were not Significantly Impacted by the Internet in 1998,” (Ernst & Young Economics Consulting and Quantitative Analysis, 1999): 8.

⁹⁵ Austan Goolsbee and Jonathan Zittrain, “Evaluating the Costs and Benefits of Taxing Internet Commerce,” *National Tax Journal*, Sept 1999: online, University of Chicago Web site, <http://gsbwww.uchicago.edu/fac/austan.goolsbee/research/jzntj.pdf>, Internet, 21 July, 1999.

⁹⁶ Cline and Neubig, 7.

Table B.8 shows the estimated sales tax owed on consumer Internet purchases in Kentucky. For instance, the value of **\$3,151,893** in Table B.8 is equal to **\$52.53** million in Table B.7 *times* 0.06 (the state sales tax) *times* \$1 million.

TABLE B.8			
Estimated Sales Tax Owed on Consumer Internet Purchases in Kentucky			
Year	(Low)	(Mid)	(High)
1998	\$ 226,910	\$ 1,359,217	\$ 3,076,304
1999	\$ 463,269	\$ 3,151,893	\$ 6,809,152
2000	\$ 831,831	\$ 5,950,184	\$ 11,803,138
2001	\$ 1,327,788	\$ 9,646,615	\$ 19,182,222
2002	\$ 1,987,288	\$ 14,494,097	\$ 30,175,349
2003	\$ 2,590,868	\$ 21,157,896	\$ 48,347,302

The next assumption has to do with how much of the estimated owed sales tax is remitted to the state revenue collectors. Estimates vary on the percentage of use tax that is remitted to states. In the “high” scenario we assume a 4 percent compliance rate,⁹⁷ in the “low” scenario we assume a 16.5 percent compliance rate,⁹⁸ and in the “mid” scenario we assume a 10 percent compliance rate.⁹⁹ Table B.9 shows the estimated lost sales and use tax on consumer Internet purchases in Kentucky. The 1999 figure of **\$2,836,703** in Table B.9 is equal to **\$3,151,893** (Table B.8) *times* 0.90.

TABLE B.9			
Estimated Lost Sales and Use Tax on Consumer Internet Purchases in Kentucky			
Year	(Low)	(Mid)	(High)
1998	\$ 189,470	\$ 1,223,296	\$ 2,953,252
1999	\$ 386,830	\$ 2,836,703	\$ 6,536,786
2000	\$ 694,579	\$ 5,355,166	\$ 11,331,013
2001	\$ 1,108,703	\$ 8,681,954	\$ 18,414,933
2002	\$ 1,659,386	\$ 13,044,687	\$ 28,968,335
2003	\$ 2,163,375	\$ 19,042,107	\$ 46,413,410

Table B.10 shows the projected sales and use tax losses as a percentage of estimated total sales tax receipts. The percentage is the projected losses *divided by* projected sales tax revenue.

TABLE B.10				
Projected Sales and Use Tax Losses as a Percentage of Estimated Total Sales Tax Receipts				
Year	Forecasted Kentucky Sales Tax Revenue¹⁰⁰	(Low)	(Mid)	(High)
1998	\$ 2,062,047,400	0.01%	0.06%	0.14%
1999	\$ 2,132,568,200	0.02%	0.13%	0.31%
2000	\$ 2,227,270,500	0.03%	0.24%	0.51%
2001	\$ 2,345,262,500	0.05%	0.37%	0.79%
2002	\$ 2,470,388,900	0.07%	0.53%	1.17%
2003	\$ 2,602,203,800	0.08%	0.73%	1.78%

⁹⁷ Cline and Neubig: 7.

⁹⁸ The U.S. Advisory Commission on Intergovernmental Relations, *Taxation of Interstate Mail Order Sales: 1994 Revenue Estimate*.

⁹⁹ In the “mid” scenario, we take the average of the other two scenarios.

¹⁰⁰ Obtained from OFMEA personnel (Office of Financial Management and Economic Analysis).

Appendix C

METHOD AND ASSUMPTIONS

A number of assumptions governed the construction of our model to estimate sales tax losses. Here, we present the assumptions we made and the resulting calculations. We also discuss some factors that we did not include in our model, and the limitations they place on our results. A sample of the spreadsheet we used for our calculations is in Table C.1 at the end of this appendix.

WHEN IS INTERNET COMMERCE GOING TO MATTER?

Assumption: With its huge growth rates, Internet Commerce is already a significant force, and steps to account for it should be planned soon. Internet sales currently are still smaller than other mail-order sales, however, and their true impact is still several years off. The further into the future we look, the more difficult it becomes to make predictions and assumptions about Internet commerce. Further, Congress has created a commission to prepare a report on Internet commerce tax policy by April of 2000, raising the possibility that federal legislation will affect this issue within the next few years.

Method: All the figures we use have been projected forward to 2003.

WHAT SALES ARE WE CONCERNED ABOUT?

Assumption: We do not address here mail-order sales made through the traditional mediums of catalogs and telephone orders, even though they currently dwarf Internet sales. The National Mail Order Association estimated that 1998 Internet sales accounted for only \$5.6 billion of a total of \$109 billion in consumer mail order sales.¹⁰¹ From these data, we calculated that the average American household made 4.61 percent of their expenditures via traditional mail order transactions. Traditional mail order sales currently account for a much greater revenue loss than do Internet sales. However, the state has long accounted for these losses in its fiscal planning. The danger of the non-collection of sales and use tax from out-of-state purchases is not in its current level, but in its future growth. Although traditional mail order expenditures have been growing steadily, their growth rates do not approach those of Internet-based sales. For instance, a study by the WEFA group estimated that consumer catalog sales grew at a healthy 7.6 percent per year over the last few years, but estimated that consumer sales over the Internet grew at a torrid 242 percent annually.¹⁰²

Method: We do not address traditional mail order sales in this study, even though they currently cause a far greater revenue loss than that caused by Internet sales. Our estimates for sales tax loss include only Internet sales. We are concerned with Internet commerce because of its large potential for growth.

WHAT TYPES OF INTERNET COMMERCE CAUSE A TAX LOSS?

Assumption: We assumed that consumer purchases were the primary source of sales tax loss. Business-to-business sales make up the bulk of online commerce, and sales tax collected from such sales composes much of Kentucky's sales tax receipts.¹⁰³ But businesses generally have better tax information, keep better records, and face higher standards of accountability than do household consumers. Individual consumers are more difficult to audit and less familiar with use tax

¹⁰¹ The National Mail Order Association (NMOA), "1998 National Mail Order Sales Results," online, NMOA Web site (<http://www.nmoa.org/Library/1998sale.htm>), Internet, 19 July 1999.

¹⁰² The WEFA Group, *Economic Impact: U.S. Direct Marketing Today 1998* (New York, NY: The Direct Marketing Association, 1999) 83, 95.

¹⁰³ According to our estimates using Consumer Expenditure Survey data, about half of sales tax revenues comes from purchases by household consumers. Presumably, the other half comes from business-to-business sales.

law. Thus, consumer purchases represent the greatest potential loss of sales tax owed on traditional mail order and Internet purchases.

Method: We used Consumer Expenditure Survey (CES) data as the starting point for our model.¹⁰⁴ The CES provides detailed information about how much households spend annually on specific categories of goods and services, and does not incorporate business-to-business sales. We took the CES data on the average amount of money households spend in each category, projected it to the year 2003, and multiplied it by the state's projected household population. This gave us a prediction of the total amount of money Kentucky consumers would spend on items in each category.¹⁰⁵

HOW MUCH WILL PEOPLE SPEND ON THE INTERNET?

Assumption: As we observed earlier, forecasts for the overall value of Internet commerce vary greatly. Many of the most-quoted experts making these predictions are involved in developing Internet commerce and could have reasons for making enthusiastic projections about the growth of electronic commerce. Thus, we approached this study with the assumption that our projections should be based on a range of changes in consumer spending, rather than estimates of the precise value of aggregate Internet sales.

Method: The primary independent variable in our model is the amount of total expenditures in each category the average household spends over the Internet. Note that "average household" includes households that do not buy anything over the Internet and that may not have Internet access. We vary the percentage of expenditures made over the web to show the relationship between how much people buy over the web and the resulting sales tax loss. This percentage figure, multiplied by our projections of total Kentucky consumer expenditures in that category, gives the total amount Kentucky household consumers will spend on the web in each category.

WHAT WILL PEOPLE BUY OVER THE INTERNET?

Assumption: Currently, some goods sell far better over the Internet than others. Further, the mix of goods sold over the Internet changes as new markets are explored and as companies improve their distribution networks and inventory capabilities. Presumably, the mix of goods sold over the Internet affects tax loss: if the Internet is used primarily to sell non-taxable services, such as stock trading, less sales tax is lost than if many taxable products, such as books, are sold. We try to model Internet sales in as flexible and sophisticated a fashion as possible.

Method: To create a more sophisticated picture of Internet sales, we ran our model for two scenarios, explained below. Scenario One, the "All Categories" scenario, assumes that Internet purchases are made on the same items and in the same proportions as overall household expenditures. Scenario Two, the "Selected Categories" scenario, recognizes that not all goods are equally

¹⁰⁴ Data from the 1997 Consumer Expenditure Survey (CES) were used to model Kentucky consumer spending habits. The survey is conducted by the federal government's Bureau of Labor Statistics and is considered the most comprehensive and accurate data available on consumer spending behavior. The CES presents average expenditures per household, with a household defined as either a family living in the same house, a financially interdependent couple, or a financially independent individual. The CES reports household expenditures in over 70 distinct categories, ranging from purchases of tangible goods such as "Cereals and cereal products," to purely financial expenditures such as "Retirement, pension, and Social Security contributions." CES results specific to Kentucky are not available, so regional data for the South were used. Although no data are available for household expenditures at a state level, we feel expenditure data for the South are a close enough approximation for our purposes. Kentucky's average household expenditures are probably slightly smaller than the South's average, however. Average household expenditures for the South in 1997 were 93 percent of the national average. In comparison, Kentucky in 1996 had per capita retail sales 94 percent of the national average (Marketing Statistics, 1997 Statistical Abstract of the United States) and a per capita disposable income of 82 percent of the national average. (US Census, 1997 Statistical Abstract of the United States).

¹⁰⁵ To extend the model to years after 1997, the CES data were corrected for growth in household expenditures over time. Average household expenditures have consistently risen from year to year as income and living standards have risen. Our model assumes that the average household will increase its expenditures at a constant annually compounded percentage rate based on the average growth in CES expenditures over the past five years. In our projections, expenditures in all categories grow at an annual rate of 4.37 percent. Household population projections are KLT-PRC interpolations of projections made by the Kentucky State Data Center based on the 1990 US Census.

suited for Internet commerce and assumes that only certain goods will sell over the Internet. We present the results of each scenario separately. The scenario determines in which CES categories we vary the percentage of expenditures made over the Internet. In the “All Categories” scenario, a fixed percentage of goods in all categories is sold over the Internet. In the “Selected Categories” scenario, the percentage of goods sold over the Internet is varied only in categories with strong Internet sales potential; all other categories are assumed to have no sales.

WHAT PURCHASES ARE TAXABLE?

Assumption: Only changes in how people buy *taxable* items lead to a sales or use tax loss. Not all purchases made by consumers are subject to sales tax. Exempt items include food, prescription medications, and most services.

Method: We took each category in the Consumer Expenditure Survey and assessed it to determine if the goods it contained were taxable.¹⁰⁶ For each category, only Internet expenditures in taxable categories result in forgone revenue for the state. The projections we made for total state household expenditures over the Internet in each taxable category were multiplied by the state sales tax rate of 6 percent to yield the tax owed on Internet purchases.

HOW MUCH OF THE TAX OWED IS PAID?

Assumption: The portion of tax owed on Internet purchases that vendors or consumers will actually remit significantly affects the amount of tax revenue the state will lose. If a large percentage of Internet vendors have nexus in Kentucky or voluntarily collect sales tax, or consumers are very scrupulous about reporting purchases, a higher percentage of the tax owed will be collected than if few companies remit tax and individuals do not report their purchases. In this report we assume that the amount of use tax the state will collect on Internet purchases is not precisely known and may change over time.

We refer to the percentage of tax owed that is actually paid as the “compliance rate.” For example, a compliance rate of 10 percent would mean that for every dollar of tax owed on mail order purchases, the state collects only 10 cents. What we refer to as sales tax losses or forgone revenue, then, is the difference between the amount owed and the amount collected. Losses in sales tax revenue thus depend greatly upon the compliance rate.

The value of the compliance rate has not been determined and may change over time. Ernst and Young estimated that 4 percent of taxable business-to-consumer Internet sales result in tax payment by either the vendor or the consumer.¹⁰⁷ The U.S. Advisory Commission on Intergovernmental Relations estimated that 16.5 percent of taxable mail order sales generated use tax.¹⁰⁸ Our survey data show that 25 percent of Kentuckians said they were both familiar with the use tax and at least “somewhat likely” to pay it.¹⁰⁹ Furthermore, state policy may be able to change the compliance rate. Educating consumers about the sales tax and encouraging voluntary remission of tax by out-of-state businesses can boost the compliance rate. Market forces may affect the compliance rate as well. For example, many traditional store-based chain retailers that have nexus in

¹⁰⁶ Each CES category was classified as either a taxable or non-taxable expenditure. A few of the CES categories included both taxable and non-taxable expenditures. For these categories, an estimate was made for the portion of the expenditure that was taxable. In subsequent calculations, only this portion of the expenditure category was considered taxable. We estimated that about 28 percent of average household expenditures were subject to sales tax. Larry O’Nan of the Kentucky Revenue Cabinet assisted in assessing taxability. The CES includes sales tax paid by households in its expenditure values. To correct for this and avoid counting “tax on tax,” we deflated the values of expenditures in taxable categories using the weighted national sales tax average of 6.33 percent, as reported by Austan Goolsbee, “Evaluating the Costs and Benefits of Taxing Internet Commerce,” when calculating foregone revenue. This correction was performed only on those categories judged taxable under Kentucky law. All expenditure values in this report are expenditures before sales tax, to the extent that we were able to correct for it, and all results are based on these corrected values.

¹⁰⁷ Robert J. Cline and Thomas S. Neubig, “The Sky Is Not Falling: Why State and Local Revenues Were Not Significantly Impacted by the Internet in 1998,” (1999): online, Ernst and Young Web site (<http://www.ey.com/publicate/ecommerce/pdf/sky.pdf>), 7.

¹⁰⁸ Cline and Neubig, 7.

¹⁰⁹ Refer to Chapter Three in this publication.

Kentucky, such as Wal-Mart, are planning aggressive ventures into electronic commerce. If these companies successfully divert sales from Internet-only vendors that do not have nexus, the compliance rate will rise.

Method: The second independent variable in our model is the compliance rate. To account for the uncertainty of the present and future compliance rate, we present both of our scenarios with compliance rates of 1, 10, and 50 percent. We took our estimates for the total tax owed by Kentucky consumers in each category and multiplied it by the compliance rate to give the tax actually paid at each compliance rate. The difference between the tax owed and this figure is the tax loss in each category. This is the end result of our model: actual sales tax lost, given which scenario we used to model Internet purchases; the percent of expenditures households make over the Internet; and the compliance rate.

We use the 10 percent compliance rate for most of our discussion. Ten percent is our “best guess” based on information available. It is also a conservative figure compared with the lower compliance rates suggested by Ernst & Young’s estimates. The 1 percent compliance rate represents the worst case, while the 50 percent figures are included to project losses if the state successfully raises the compliance rate.

MODEL

We present an example model in Table C.1 below. The example shown in this table corresponds to the information presented in Table 7. Table C.1 shows that the state would lose a projected \$54 million, assuming consumers purchased 5 percent of all products and services online and had a 10 percent compliance rate.

- Column A—Consumer Expenditure Survey (CES) categories (and number of subcategories)
- Column B—CES Household Expenditures in 1997 for the South (dollar value)
- Column C—Projected growth in expenditures from 1997 to 2003
- Column D—Projected number of Kentucky households in 2003 (millions)
- Column E—Projected total consumer household expenditures in Kentucky, 2003 (millions). It is the product of columns B, C, and D.
- Column F—Estimated percentage of products and services in the category that are taxable.
- Column G—Tax rate.
- Column H—Potential sales and use tax revenue. It is equal to the product of column E deflated by 6.33 percent and then multiplied by columns F and G. See footnote 92 for explanation.
- Column I—Percentage of all products and services purchased online
- Column J—Use tax compliance rate.
- Column K—Total revenue losses (millions \$). It is the product of columns H, I, and (1-J).

A	B	C	D	E	F	G	H	I	J	K
Cereals and bakery products (2)	415	1.29	1.727	925	0	6%	0.0	5.0%	10%	0.00
Meats, poultry, fish, and eggs (6)	753	1.29	1.727	1,678	0	6%	0.0	5.0%	10%	0.00
Dairy products (2)	290	1.29	1.727	646	0	6%	0.0	5.0%	10%	0.00
Fruits and vegetables (4)	438	1.29	1.727	976	0	6%	0.0	5.0%	10%	0.00
Sugar and other sweets	115	1.29	1.727	256	0.25	6%	3.6	5.0%	10%	0.16

TABLE C.1										
Model Spreadsheet Used in the "All Products and Services" Scenario										
A	B	C	D	E	F	G	H	I	J	K
Fats and oils	81	1.29	1.727	180	0	6%	0.0	5.0%	10%	0.00
Miscellaneous foods	387	1.29	1.727	862	0	6%	0.0	5.0%	10%	0.00
Nonalcoholic beverages	253	1.29	1.727	564	1	6%	31.8	5.0%	10%	1.43
Food prepared by consumer unit on out-of-town trip	40	1.29	1.727	89	0	6%	0.0	5.0%	10%	0.00
Food away from home	1,655	1.29	1.727	3,687	1	6%	208.1	5.0%	10%	9.36
Alcoholic beverages	229	1.29	1.727	510	0.5	6%	14.4	5.0%	10%	0.65
Mortgage interest and charges	1,779	1.29	1.727	3,963	0	6%	0.0	5.0%	10%	0.00
Property taxes	630	1.29	1.727	1,404	0	6%	0.0	5.0%	10%	0.00
Maintenance, repairs, insurance, other expenses	650	1.29	1.727	1,448	0.5	6%	40.9	5.0%	10%	1.84
Rented dwellings	1,694	1.29	1.727	3,774	0	6%	0.0	5.0%	10%	0.00
Other lodging	317	1.29	1.727	706	0.25	6%	10.0	5.0%	10%	0.45
Natural gas	185	1.29	1.727	412	0	6%	0.0	5.0%	10%	0.00
Electricity	1,094	1.29	1.727	2,437	0	6%	0.0	5.0%	10%	0.00
Fuel oil and other fuels	55	1.29	1.727	123	1	6%	6.9	5.0%	10%	0.31
Telephone services	839	1.29	1.727	1,869	1	6%	105.5	5.0%	10%	4.75
Water and other public services	290	1.29	1.727	646	0	6%	0.0	5.0%	10%	0.00
Personal services	249	1.29	1.727	555	0	6%	0.0	5.0%	10%	0.00
Other household expenses	286	1.29	1.727	637	0.75	6%	27.0	5.0%	10%	1.21
Housekeeping supplies (3)	427	1.29	1.727	951	1	6%	53.7	5.0%	10%	2.42
Household textiles	64	1.29	1.727	143	1	6%	8.0	5.0%	10%	0.36
Furniture	386	1.29	1.727	860	0	6%	0.0	5.0%	10%	0.00
Floor coverings	63	1.29	1.727	140	1	6%	7.9	5.0%	10%	0.36
Major appliances	187	1.29	1.727	417	1	6%	23.5	5.0%	10%	1.06
Small appliances, miscellaneous housewares	75	1.29	1.727	167	1	6%	9.4	5.0%	10%	0.42
Miscellaneous household equipment	608	1.29	1.727	1,355	1	6%	76.4	5.0%	10%	3.44
Apparel and services (7)	1,620	1.29	1.727	3,609	1	6%	203.7	5.0%	10%	9.16
Cars and trucks, new	1,486	1.29	1.727	3,311	0	6%	0.0	5.0%	10%	0.00

TABLE C.1										
Model Spreadsheet Used in the "All Products and Services" Scenario										
A	B	C	D	E	F	G	H	I	J	K
Cars and trucks, used	1,541	1.29	1.727	3,433	0	6%	0.0	5.0%	10%	0.00
Other vehicles	29	1.29	1.727	65	1	6%	3.6	5.0%	10%	0.16
Gasoline and motor oil	1,112	1.29	1.727	2,477	0	6%	0.0	5.0%	10%	0.00
Vehicle finance charges	335	1.29	1.727	746	0	6%	0.0	5.0%	10%	0.00
Maintenance and repairs	657	1.29	1.727	1,464	0.5	6%	41.3	5.0%	10%	1.86
Vehicle insurance	727	1.29	1.727	1,620	0	6%	0.0	5.0%	10%	0.00
Vehicle rental, leases, licenses, other charges	343	1.29	1.727	764	0	6%	0.0	5.0%	10%	0.00
Public transportation	243	1.29	1.727	541	0	6%	0.0	5.0%	10%	0.00
Health insurance	931	1.29	1.727	2,074	0	6%	0.0	5.0%	10%	0.00
Medical services	502	1.29	1.727	1,118	0	6%	0.0	5.0%	10%	0.00
Drugs	367	1.29	1.727	818	0.25	6%	11.5	5.0%	10%	0.52
Medical supplies	102	1.29	1.727	227	1	6%	12.8	5.0%	10%	0.58
Fees and admissions	358	1.29	1.727	798	0.75	6%	33.8	5.0%	10%	1.52
Television, radios, sound equipment	570	1.29	1.727	1,270	1	6%	71.7	5.0%	10%	3.22
Pets, toys, and playground equipment	299	1.29	1.727	666	0.9	6%	33.8	5.0%	10%	1.52
Other entertainment supplies, equipment, and services	334	1.29	1.727	744	1	6%	42.0	5.0%	10%	1.89
Personal care products and services	544	1.29	1.727	1,212	1	6%	68.4	5.0%	10%	3.08
Reading	130	1.29	1.727	290	1	6%	16.3	5.0%	10%	0.74
Education	449	1.29	1.727	1,000	0	6%	0.0	5.0%	10%	0.00
Tobacco products and smoking supplies	268	1.29	1.727	597	1	6%	33.7	5.0%	10%	1.52
Miscellaneous	806	1.29	1.727	1,796	0	6%	0.0	5.0%	10%	0.00
Total										\$53.98