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# Understanding The Antecedents And Consequences Of Sales And Use Tax Policy: Evidence From Three Studies

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UNDERSTANDING THE ANTECEDENTS AND CONSEQUENCES OF SALES & USE
TAX POLICY: EVIDENCE FROM THREE STUDIES

by

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A dissertation submitted in partial fulfillment of the requirements
for the degree of Doctor of Philosophy
in the Kenneth G. Dixon School of Accounting
in the College of Business Administration
at the University of Central Florida
Orlando, Florida

Summer Term
2009

Major Professor: Donna Bobek

**ABSTRACT**

This dissertation consists of three separate but interrelated studies examining the antecedents and consequences of sales and use tax (SUT) policy. The first study investigates whether elements of the SUT system influence elements of economic development, and tests whether SUT rates and/or bases influence state-aggregated levels of capital expenditures and employment within the manufacturing sector from 1983-2006. Results indicate that elements of the tax base (i.e., SUT exemptions) affect these indicators of economic development, but the same relationship was not seen for SUT rates. The second study examines individual taxpayer compliance across different tax settings (i.e., the state use tax compared to the federal income tax) and tests whether differences in detection mechanisms, social norms, or ignorance explain these differences in compliance. Based on a final sample of 148 taxpayers, results show that social norms had an important influence on tax compliance differences across tax settings. The third study investigates the antecedents of states' adoption of the Streamlined Sales & Use Tax Agreement (SSUTA) using both a cross-sectional empirical model and an in-depth qualitative case study of three states. Both the model and case study suggest that governmental interest groups, rather than businesses, play an important role in the adoption of inter-jurisdictional tax policy changes. Overall, the three studies within this dissertation all advance the SUT literature by using various theoretical perspectives and methodological approaches to demonstrate that governmental interest groups influence the adoption of SUT policy (antecedents), and that SUT provisions in turn influence business and individual decisions alike (consequences).

# ACKNOWLEDGMENTS

I am forever indebted to many individuals for their support in helping me complete this dissertation. First and foremost, I am eternally grateful for my wonderful dissertation chair, Donna Bobek, for her exceptional insight, feedback, guidance, inspiration, generosity, and compassion. Donna has given so much of herself to me throughout my entire doctoral process, always dropping whatever she is working on to assist me. I am incredibly blessed to have her as my mentor.

I am also thankful for my committee members and mentors Vicky Arnold, Sean Robb, and LeAnn Luna for their insightful comments and support. I am indebted to Robin Roberts for his encouragement and leadership of the Ph.D. program. All of the Dixon School of Accounting faculty and staff members have been invaluable. I particularly appreciate the assistance of Marcye Hampton and Scott Smith in the collection of my experimental data, and the guidance of Steve Sutton and Peggy Dwyer. All of my fellow doctoral students have been an immeasurable source of camaraderie and encouragement during this process, particularly Anna Alon, Jillian Phillips, Clark Hampton, Joe Canada, and Charles Cho.

Above all, I am incredibly appreciative of my family for their never-ending love and support. My extended family has been full of cheerleaders during my entire four-year journey. My children, Annika and Daniel, have been a constant source of joy and have taught me how to keep life in perspective. Most of all, I wish to thank my husband, Will, without whose encouragement I never would have begun the Ph.D. program, let alone finished this dissertation. Will was there for me every step of the way, from reading earlier drafts to boosting my spirits during challenging times. I love you, Will, and I could not have done it without you.

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# GENERAL INTRODUCTION

Empirical taxation research in accounting has exploded over the past few decades. Most taxation researchers seek to explore the *consequences* of tax policy via the examination of "…three questions of scholarly and policy interest: Do taxes matter? If not, why not? If so, how much?" (Shackelford and Shevlin, 2001, p. 321). Other researchers have investigated the *antecedents* of tax policy (e.g., Roberts and Bobek, 2004). The majority of prior taxation research has examined *federal* income tax issues, but understanding taxation issues in other settings is also important, including at the *state* and/or local level (Shackelford and Shevlin, 2001). However, prior accounting studies of state taxation have primarily focused on the state *income* tax (e.g., Moore et al., 1987; Klassen and Shackelford, 1998; Lightner, 1999; Gupta and Hofmann, 2003; Omer and Shelley, 2004).

*Sales and use taxation* (SUT) is one other important state- and local-level tax; it is administered on transactions, rather than on income. The SUT is the largest source of state governmental revenue (U.S. Census Bureau, 2008); some studies estimate that the SUT paid on business inputs dwarfs any other type of state-level taxation, and lags only the property tax on the local level (e.g., Phillips et al., 2009). While most prior studies of the SUT are rooted in the field of economics, accounting researchers have also begun to address the implications of this tax (e.g., Petroni and Shackelford, 1999; Luna, 2004; Luna et al., 2007).

This dissertation seeks to investigate the antecedents and consequences of SUT policy, which offers important implications for academics and policymakers alike. The dissertation first sets the stage to investigate questions within this field through a comprehensive literature review of the SUT field for accountants. This is followed by the development and execution of three

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separate but related studies, each of which examine a different element of the antecedents and consequences of SUT policy. The subsections below briefly discuss the literature review and the resulting three studies.

**Literature Review: A 21st Century Literature Review of Sales and Use Taxes for Accountants**

This section reviews the recent SUT literature, with a focus on SUT studies published in traditional accounting outlets from 2000 until the end of 2007. While some economists reviewed the SUT literature during the 1990s (e.g., Murray and Fox, 1997), no such comprehensive review has been conducted for the current decade. Moreover, this review extends prior accounting literature reviews on state taxation (e.g., Hofmann, 2002) to the SUT element of state and local taxation. The review demonstrates that recent SUT research has addressed an array of analytical, theoretical, and empirical issues. Analytical or theoretical studies have focused on evaluating elements of the *existing* SUT structure (e.g., McClure, 2005) and on evaluating elements of *proposed* SUT structures (e.g., Slemrod, 2006). Empirical studies have focused on the *antecedents* of SUT policy (e.g., Luna et al., 2007) and on the *consequences* of SUT policy (e.g., Goolsbee, 2000).

Future accounting researchers have many opportunities to contribute to the SUT literature, particularly in the area of empirical work. One particularly fertile area concerns the consequences of *general* SUT policy. While gross premium taxes (which function like a type of SUT on the insurance industry) have been shown to affect organizational decisions, fewer studies have investigated whether general SUT influences business decisions in other industries. The effect of the SUT on individual consumer behavior is another under-explored area. Prior studies within this field have used economic theory to explore these relationships (e.g., Goolsbee, 2000;

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Ke et al., 2000), but have not examined the influence of non-economic variables. Finally, future accounting researchers may also wish to use different research methodologies to explore some of the common research questions within this field. The use of experimental methods could enable the investigation of the influence of non-economic factors on the SUT (e.g., Shadish et al., 2002), while the use of qualitative methods could enable a stronger investigation of context (e.g., Merchant and Van der Stede, 2006). The studies within this dissertation therefore seek to extend the accounting SUT literature within these underexplored areas.

**Study One: The Influence of State Sales and Use Taxes on Capital Expenditures and Manufacturing Employment**

The first study investigates the extent to which elements of the state-level SUT influence business activity. Specifically, this study examines whether sales and use tax (SUT) exemptions and/or rates influence employment and capital investment for manufacturing firms when controlling for other tax system and economic factors. Given the dramatic contraction in manufacturing activity during the current 2008-2009 recession, understanding the extent to which taxation factors influence the manufacturing industry is of vital importance (Schneider and Shin, 2009). Recent reports have estimated that the SUT paid on business inputs vastly exceeds the amount paid for the state corporate income tax, and is one of the primary taxes paid by businesses at the state and local level (Phillips et al., 2009). The SUT may therefore be an important influence on economic development (see also Bruce et al., 2003).

This study uses state-aggregated panel data on capital expenditures and employment within the manufacturing industry from 1983-2006. Specifically, this study predicts that states with higher SUT rates will have lower levels of capital expenditures and manufacturing employment, whereas states with increased exemptions for machinery and materials will have

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increased levels of these economic development measures. The models developed to test these relationships also control for other tax system and non-tax system factors that could influence these variables. Furthermore, analysis also considers the influence of state-specific and year-specific effects to control for potential omitted variables.

Overall, the first study contributes to the taxation literature in several important ways. First, this study addresses the influence of SUT on state-level employment and investment growth, and considers whether corporate income tax factors are still important when also considering the SUT (Gupta and Hofmann, 2003). Second, this study is one of the few to examine the influence of tax factors on employment and capital expenditures in tandem. Third, the sample period extends the study of tax incentives into a more recent period and updates prior studies (e.g., Goolsbee and Maydew, 2000; Gupta and Hofmann, 2003; Harden and Hoyt, 2003; Kunce, 2006). Finally, this study extends the SUT literature into the effect of SUT on businesses, and therefore furthers the literature on the consequences of the SUT.

### Study Two: Use Tax versus Individual Income Tax Compliance

The second study investigates the consequences of SUT policy as they affect individuals. Specifically, this study examines individual tax compliance across two different tax settings: federal income tax and state use tax. Both of these types of taxes require taxpayers to fully self-report and pay the assessed taxes, but compliance of unreported items at the federal income tax level remains much higher than in the state use tax area (e.g., Huefner and Hibschweiler, 2004; National Tax Advocate, 2005). Thus, this study investigates how the tax setting influences individual tax compliance decisions, and examines whether economic factors (e.g., Allingham

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and Sandmo, 1972), social norms (e.g., Cialdini and Trost, 1998) and/or ignorance (e.g., Manly et al., 2005) explain the gap in compliance between the taxes.

These questions are investigated using an experimental design, which enables the investigation of the influence of non-economic factors on tax compliance (e.g., Alm and Jacobson, 2007). Specifically, this study uses a three-by-two between-subjects experimental design in which the tax setting (income tax on a gain, income tax on cash receipts, or use tax on out-of-state purchases) and the presence of a detection mechanism (present or absent) are both manipulated in a hypothetical scenario. Experienced taxpayers respond to these hypothetical tax compliance scenarios and report their tax compliance intentions, social norms of compliance, perceptions of detection, and reported levels of ignorance regarding compliance.

This second study makes advances to both the SUT and tax compliance literature. First, this study extends investigation of the effect of the SUT on individual behavior (e.g., Goolsbee, 2000) and is one of the first SUT studies to employ an experimental method. Second, this study extends taxpayer compliance research to a non-income tax (state use tax) and investigates whether explanatory factors have a varying level of influence across different types of taxes. Finally, this study offers practical findings to policymakers interested in improving use tax compliance rates.

**Study Three: Antecedents of the Adoption of the Streamlined Sales & Use Tax Agreement**

The purpose of the third study is to investigate the antecedents of states' adoption of the Streamlined Sales & Use Tax Agreement (SSUTA). The current sales and use tax (SUT) system in the U.S. is riddled with complexity, in part because of the lack of coordination between jurisdictions. One vehicle of cooperative state action is the Streamlined Sales & Use Tax

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Agreement (SSUTA). The SSUTA is touted as a precursor to enticing Congressional action on permitting states to require remote vendors to collect sales taxes on purchases, an issue that has become increasingly salient with the economic downturn (e.g., McCullagh, 2009).

This study empirically examines the factors, including interest group strength (e.g., Peltzman, 1976) that influence a state's decision to adopt legislation conforming to the provisions of the SSUTA. This is investigated through a cross-sectional empirical model. A secondary purpose is to examine the political strategies and tactics (e.g., Hillman and Hitt, 1999) used by various interest groups in states that either have or have not conformed to the SSUTA. Examination of strategies and tactics is conducted through a case study analysis of primary and secondary archived documents of a conforming state (Kansas), a non-conforming state (Texas), and an associate member state (Tennessee), all of which have faced substantial controversy in their move toward SSUTA conformance.

The results of this study contribute to the literature in several important ways. First, this study extends work on political strategies (Hillman and Hitt, 1999) to the field of SUT, in which the investigation of the intricacies of intrastate interest groups and strategies is relatively rare. Second, this study triangulates an empirical model with a qualitative case study, which extends this type of methodology to the SUT realm. Third, in contrast to much prior literature that focuses on the importance of businesses in influencing tax policy changes (e.g., Suarez, 1998), this study focuses on the role of governmental interest groups in state policy adoption. This study therefore offers important implications in helping to understand potential changes in consumption taxes (e.g., Deloitte, 2008).

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## Overall Contribution

Taken together, the literature review and three empirical studies in this dissertation offer a significant contribution to the taxation literature. First, this dissertation helps to organize the SUT literature and demonstrates that accounting researchers have the potential to make a significant contribution in explaining the consequences of SUT policy on businesses and individuals alike. Second, this dissertation provides empirical evidence on the influence of SUT on business decisions through an examination of the influence of elements of the SUT system on state-level investment and employment decisions. The results demonstrate which SUT factors influence economic development and offer important implications to state policymakers attempting to balance tax incentives with state revenue needs in difficult economic times (e.g., Brunell, 2008). Third, this dissertation extends the study of SUT compliance to individual taxpayers (as opposed to the firms; see Alm et al., 2004). In the study of individual taxpayers, this dissertation also introduces the construct of social norms (Cialdini and Trost, 1998) to the SUT field.

Finally, this dissertation contributes to the SUT literature via the use of alternative methodologies. The use of experimental and qualitative methods is a relatively unchartered endeavor within the SUT literature. The use of these research methods within this dissertation helps to broaden research involving the SUT to include the influence of non-economic factors (through an experiment) and an in-depth examination of the role of interest groups in influencing tax policy (through a qualitative case study). In particular, results from the qualitative case study of the SSUTA offer important implications to policymakers regarding how opposing and

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supporting interest groups ultimately shape tax policy. In all, this dissertation advances the SUT literature by providing additional evidence in understanding the antecedents and consequences of SUT policy. The remainder of this dissertation presents the literature review and each of these three studies in detail.

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# LITERATURE REVIEW: A 21ST CENTURY LITERATURE REVIEW OF SALES AND USE TAXES FOR ACCOUNTANTS

## Introduction

Within the United States, sales and use taxation (SUT) is a transaction-level tax on consumer expenditures administered at the state and/or local level. This type of tax originally arose in the 1930s as a way for states to combat revenue loss from other types of taxes during the Depression, but remained a permanent part of most state and local revenue systems after World War II as a non-income based method of raising tax revenue (Due and Mikesell, 1994). Today, nearly all states impose the SUT and the tax is an important component of most state revenue systems.[1] Nationwide, collections from sales taxes are the largest source of revenue for state governments and constitute nearly one-half of total state government tax collections. General sales tax collections comprise nearly one-third of total state tax collections and selective sales tax collections (specific SUTs levied on transactions in specific industries such as alcohol, insurance, tobacco, and so forth) represent the remainder of state sales tax collections (U.S. Census Bureau, 2008). At the city and county level, SUTs are the second-largest source of revenue, lagging only collections from property taxes (Luna et al., 2007). Given the significance of SUT to state and local governments, understanding the implications, antecedents and consequences of SUT policy is critical.

In addition to being significant to policymakers, studies on SUT are also important for businesses and consumers alike. Businesses incur a larger burden from payments of SUT on purchases than they do from the imposition of state corporate income taxes, and pay more in

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[1] Five states – Oregon, Delaware, Alaska, Montana, and New Hampshire – do not impose a general statewide SUT.

state and local SUT than for any other state tax with the exception of the local property tax (Cline et al., 2007; Phillips et al., 2009). Thus, understanding SUT is important in ascertaining business decisions and can be useful in helping to guide state and local policymakers in formulating SUT policies that are attractive to businesses.

A review of the interdisciplinary *National Tax Journal* indicates that traditionally, most SUT research has been conducted by economists. Most economics research on SUT has focused on "its administration, its incidence, and, especially in recent years, its vulnerability to erosion with the growth of Internet commerce" (Alm et al., 2004, p. 209). Economics researchers have also evaluated current and proposed SUT structures in matters such as economic efficiency, equity, and/or simplicity (see Due and Mikesell, 1994).

SUT is also an important topic of study for *accountants*. One of the critical research questions within empirical tax research in accounting is whether taxes matter and to explain why or why not taxes make a difference in a particular context (Shackelford and Shevlin, 2001). Thus, accountants can examine whether SUT affects organizational and/or individual behavior. On the organizational level, accountants have unique institutional knowledge regarding the intersection of businesses and taxation, particularly since state and local taxation issues such as SUT have become areas "of specialty for practicing accountants" (Hofmann, 2002, p. 76). On the individual level, accountants have studied taxpayer responses to tax variables (see Cuccia, 1994), and are in a unique position to integrate this knowledge with SUT issues. Accountants' knowledge of the environment of state and local governments, such as inter-jurisdictional tax competition (Luna, 2004; Omer and Shelley, 2004), also gives accountants an advantage in furthering knowledge of SUT policy.

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The purpose of this chapter is to review the recent SUT literature. This review will focus on studies of SUT within traditional accounting outlets (such as the *Journal of the American Taxation Association* and the *National Tax Journal*), along with studies of SUT in other venues that have been cited within these traditional accounting outlets. There have been several reviews of the SUT literature during the 1990s (e.g., Due and Mikesell, 1994; Murray and Fox, 1997), but few comprehensive examinations on research within the past decade. Thus, the primary focus on this review is on articles published within the past decade, especially on articles published from 2000 to the end of 2007. Moreover, state and local taxes are an important component of accounting research, but the SUT element of state and local taxation has not been reviewed from an accounting perspective (Hofmann, 2002). This review will provide a comprehensive overview of recent SUT research and will help to foster interest of SUT within accounting research.

The remainder of this review is structured as follows. The second section presents a brief summary of the features of SUT. The third section contains the detailed literature review on recent SUT research. The fourth section summarizes common data sources and measurement issues when conducting SUT research. The fifth section concludes with suggested directions for future research and a conclusion.

## Background on Sales and Use Taxes

### *Overview of Sales and Use Taxes*

At a basic level, SUT is a consumption tax on consumer expenditures administered at the state and/or local level. Whereas the income tax is imposed on an individual's or firm's year-end taxable income, SUTs are imposed on *transactions*. Furthermore, whereas taxpayers are

responsible for filing and remitting income taxes, retailers with *nexus* in a jurisdiction (i.e., some minimal level of presence) are often responsible for collecting and remitting SUT taxes.

The SUT generally consists of two related components: the *retail sales tax* (sales tax) and the *compensating use tax* (use tax). Sales taxes are typically imposed on the final retail selling-price of taxable goods or services; state and local laws require retailers to collect and remit the sales tax to the appropriate taxing authority (Due and Mikesell, 1994). Thus, in-state retailers that collect the tax at the time of the sale and forward the tax on to the state taxation authorities (Cornia et al., 2000) are charging sales taxes.

*Use taxes* are "attempts to make out-of-state vendors equally responsible for the collection and remittance of sales tax revenue as in-state vendor" (Cornia et al., 2000, p. 1327), and are imposed on items consumed within a jurisdiction that were purchased outside of the jurisdiction (Tower et al., 2006). States provide credit for sales taxes paid in other states, such that consumers are typically responsible for paying use tax on property purchased out-of-state only when these transactions were not originally subject to sales tax, or were originally subject to a differential (lower) tax rate (Due and Mikesell, 1994).

### *SUT Rates*

One component of a jurisdiction's SUT policy is the *rate* of tax imposed. This identifies the rate of SUT that must be paid on the transaction. Since the inception of the SUT, the trend has been toward higher rates (Due and Mikesell, 1994). All states that impose the SUT impose a statewide rate, which identifies the tax collected by state governments. Most taxable transactions are subject to a single statewide rate, but some states provide lower rates on specific transactions involving items such as motor vehicles, goods used in production, or manufactured homes (Due

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and Mikesell, 1994). In 2007, of the states imposing SUT, the median state SUT rate was 5.5%, ranging from 2.9% (Colorado) to 7.25% (California) (Federation of Tax Administrators, 2007).

Beyond the statewide rate, many local governments (particularly cities and counties) impose a separate SUT rate in addition to the statewide rate. This practice began near the time of origination of the statewide SUT, but its use by local municipalities has grown over the past several decades (Due and Mikesell, 1994; Luna et al., 2007). Under some conditions, local governments may enact a SUT in the absence of a statewide SUT, as is the case in Alaska. As of 2004, 35 states imposed rules on the maximum local SUT rate (Federation of Tax Administrators, 2004). Considering both the state and local SUT, the median *total state and local* maximum SUT rate was 7%, ranging from 4% (Hawaii) to 11.5% (Arkansas).

## *SUT Bases*

The SUT taxable *base* refers to the amount on which SUT rates are applied. Many local jurisdictions that impose SUT will "piggy-back" onto the state's specification of the SUT base. Theoretically, the SUT is a consumption-based tax applied to consumption expenditures (Due and Mikesell, 1994). However, most states do not subject *all* consumption to the SUT, as there are a number of exemptions that effectively decrease a state's total SUT base.

States may implement several types of SUT exemptions. First, states may not include certain types of consumption expenditures in their taxable base. For instance, SUT originally focused on taxing tangible personal property, which implicitly excluded the taxation of services. Many states still exclude the taxation of services or only tax specifically enumerated services (Due and Mikesell, 1994).

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Second, states may specifically exempt certain normally taxable transactions. States may choose to offer *targeted incentives*, in which certain businesses or groups are specifically granted SUT exemptions on normally taxable purchases. For example, a state may choose to offer SUT exemptions for qualifying purchases by businesses in distressed areas (Buss, 2001), or may grant SUT exemptions to a new business for a certain period of time in an effort to encourage business location decisions. Likewise, states may offer *general tax system incentives*, which pertain to general exemptions specifically built into the tax code (Fox and Luna, 2002).

General tax systems exemptions may also be offered for social or equity concerns, such as the exemption of food or prescription medicines. Other general exemptions are for production inputs (business purchases), which are commonly offered for economic development purposes. No states completely exempt all business purchases from SUT, but states may offer a range of SUT incentives for different types of production inputs such as SUT exemptions on purchases of materials used in production, utilities, manufacturing equipment and machinery, or research and development (Mikesell, 2001). In one recent example, in 2004, Louisiana enacted an exemption on sales taxes for manufacturing machinery to be phased in over seven years, which was marketed by the state as "…another example of Louisiana's serious effort to encourage the growth of business" (Louisiana Revenue Information Bulletin, 04-012; Louisiana Department of Revenue Press Release, 2004).

### *Compliance*

States typically require retailers with physical presence (nexus) within a state to collect and remit *sales taxes* on taxable purchases. Thus, vendors (i.e., retailers) are responsible for charging and collecting sales taxes at the time of a taxable transaction and must then remit the

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tax to the state within a specified time frame (Due and Mikesell, 1994). Since retailers are responsible for the collection of tax, this assures compliance at the consumer level.

Compliance with *use taxes* is more problematic. Vendors have no responsibility to collect this tax if they lack a physical presence within a state. Instead, states legally require consumers within the state that use or consume an item within that state to accrue and pay a *use tax* on the purchase (Cornia et al., 2000; Tower et al., 2006); consumers entirely self-assess and report the use tax to the appropriate governmental agency. Business taxpayers are routinely audited for compliance with both sales and use tax provisions (see Alm et al., 2004), but identifying the use tax due from individual taxpayers has historically been difficult. These challenges may have arisen because for individual transactions, there is generally "…little awareness of the tax obligation, no clear mechanism to pay it, and no effective means of administration and enforcement by the state" (Huefner and Hibschweiler, 2004, p. 74).

All states with sales taxes have enforced compensating use taxes since the 1960s (Due and Mikesell, 1994). Non-compliance with the use tax by individual consumers has been problematic ever since the origin of this tax, but potential state revenue loss due to individuals' compliance with the use tax was generally a trivial issue until the rise of electronic commerce. As stated by Goolsbee (2000, p. 561):

> This apparent lack of geography in cyberspace, however, has raised some difficult problems regarding governmental policy, especially tax policy, toward the "new" economy. Although online transactions currently make up only a very small fraction of total retail sales, predictions of astounding future growth have caused state policy makers to become highly concerned about the fact that most online transactions pay no sales or use tax.

The prediction of Goolsbee (2000) over the meteoric increase of online purchases has proven to be correct. The U.S. Census Bureau estimates that in 2005, sales, shipments, and

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revenues from e-commerce amounted to $2.4 trillion, or over 12% of the overall U.S. economy (U.S. Census Bureau E-Stats, 2007). The rise of e-commerce has fueled concerns over non-compliance with the use tax. Whereas use tax compliance is somewhat greater for businesses (although non-compliance is still problematic), use tax compliance "is very limited for individuals" (Bruce and Fox, 2000, p. 1375). Indeed, individual non-compliance of the use tax is one of the drivers behind the decline in state SUT bases relative to personal income (Bruce and Fox, 2000). Estimates of annual nationwide losses due to individual non-compliance are in the billions (Bruce et al., 2009).

In response to this burgeoning non-compliance, states have begun to adopt different measures aimed at raising attention and awareness of the use tax. As of 2003, 19 states incorporated a self-assessment provision on their individual income tax returns where individuals could accrue and report use tax owed (Huefner and Hibschweiler, 2004). Other states, such as Maine, have begun a "Use Tax Compliance Program" in which consumers are allowed to disclose and pay prior use tax obligations without incurring interest or penalties; information surrounding this announcement highlighted that the Maine Department of Revenue could potentially discover use tax liabilities from a variety of sources (Maine Use Tax Compliance FAQ, 2006).

However, evidence still suggests that the majority of taxpayers are non-compliant when reporting the use tax. Several states have reported individual use tax compliance percentages of around 1% (Huefner and Hibschweiler, 2004). One common perception – albeit not one that has been empirically tested – is that use tax compliance is extremely low due to limited possibilities for detection (e.g., Huefner and Hibschweiler, 2004). Some commentators believe that the use tax is "largely unenforceable" (Slemrod, 2007, p. 37), emphasizing that tax evasion for use tax is

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explicitly due to a lack of deterrence. Regardless, sales tax compliance is not a significant issue for state governments, but use tax compliance continues to be a burgeoning problem.

*Complexity and Attempts at Uniformity*

The current SUT structure is riddled with complexity and non-uniformity, given that more than 7,500 jurisdictions each impose this tax (Tower et al., 2006). In addition to state-level sales taxes, local jurisdictions such as townships, cities, or counties often levy an additional local sales tax, leading to a vast array of jurisdictions with different tax rates, reporting requirements, and occasionally, tax bases (Mikesell, 2000). This enormous complexity can lead to high compliance costs for taxpayers operating in multiple jurisdictions (Tower et al., 2006).

While SUT complexity and the burdensome costs of collection have existed since the inception of the SUT, the explosion of electronic commerce in the late 1990s led to heightened awareness of this complexity (Swain and Hellerstein, 2005). Online retailers now face the challenge of complying with thousands of local jurisdictions, many of them with arcane rules regarding SUT rates and bases (Tower et al., 2006).[2] Furthermore, the rise of online purchases has created heightened concern in state and local governments regarding the potential impact on their revenue collections (see Houghton and Cornia, 2000). Thus, the "structural flaws in the [sales and use] tax" have become increasingly apparent (Swain and Hellerstein, 2005, p. 605).

In response to the rise of awareness regarding the problems of a tax system designed for a simpler economy, 15 states met in May 2000 to begin the Streamlined Sales Tax Project (SSTP), a voluntary effort toward streamlining SUT policy in multiple jurisdictions. Specifically, the

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[2] For example, the state of California imposes SUT on fertilizer sold for use on flower gardens, but exempts fertilizer used on vegetable gardens. The state also generally exempts cold drinks consumed outside of the retailer's location, but generally taxes "hot" drinks (i.e., above-room temperature liquids) (Pender, 2009).

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SSTP was formed with the intention of developing a "voluntary, streamlined, multi-state system for sales and use tax collection and administration" (Sheppard, 2001, p. 37). Per the Streamlined Sales Tax Governing Board's website (www.streamlinedsalestax.org), the purpose of the SSTP is to "develop measures to design, test, and implement a SUT system that radically simplifies sales and use taxes."

The SSTP's vehicle through which to achieve greater simplicity and uniformity has been the Streamlined Sales & Use Tax Agreement (SSUTA), drafted by the SSTP council. The SSUTA is a voluntary agreement among states that enables all participating states to adopt uniform standards for levying and collecting the SUT, leading to uniform tax returns and compliance rules, uniform sourcing rules (taxing a sale at the point of its destination), and simplified SUT rates and bases (Tower et al., 2006). The SSUTA became effective in October 2005 (SSTP, 2005). As of April 1, 2009, 19 states are full members that are in full compliance with the SSUTA policies, and three states are associate members that have implemented some of the provisions of the SSUTA[3] (SSTP website).

The SSUTA is notable in that *both* state revenue departments and larger organizations supported this measure, an uncommon trend with policy changes (Swain and Hellerstein, 2005). State governments stand to benefit from collecting tax from remote vendors and from the reduction in administrative costs. Many larger corporations are already routinely involved in multi-jurisdictional transactions, and simplifying the administration of the SUT could greatly reduce compliance costs (Tower et al., 2006). However, per Swain and Hellerstein (2005), local businesses and some local cities have particularly raised concerns that the change in sourcing

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[3] Full members as of April 1, 2009 are Arkansas, Indiana, Iowa, Kansas, Kentucky, Michigan, Minnesota, Nebraska, Nevada, New Jersey, North Carolina, North Dakota, Oklahoma, Rhode Island, South Dakota, Vermont, Virginia, Washington and Wyoming. Associate members are Ohio, Tennessee, and Utah.

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requirements may have detrimental outcomes. Pressure from smaller businesses in some jurisdictions has forced state legislatures to delay the adoption of some of the SSUTA's provisions (Swain and Hellerstein, 2005).

The formation of the SSTP and the adoption of the SSUTA signal that state governments are beginning to collectively push for greater uniformity and reduced complexity across the board. Along with the compliance problems inherent with the rise of electronic commerce, the SSTP suggests that simplification could continue to be a critical topic in this decade.

## Review of Recent Sales and Use Tax Research

Recent SUT research has primarily relied upon two types of research methodologies – studies that are chiefly theoretical or analytical, and studies that rely principally on the use of empirical data to test hypothesized relationships. This division is somewhat arbitrary, as studies that are principally analytical or theoretical may use data in some of their analyzed relationships; however, these studies are more focused on *analytically evaluating the structure* of the SUT system itself.

The first sub-section within this review contains a discussion of the analytical or theoretical studies, as divided between those that evaluated elements of the existing SUT structure and those that evaluated components of proposed SUT structures. The second sub-section focuses on empirical studies, as divided between the antecedents of SUT policy (factors that have influenced states or jurisdictions' policy adoptions) and the consequences of SUT policy (how SUT components have influenced individual or corporate decisions or other attributes).

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### *Evaluation of the SUT Structure*

From an economics perspective, one common type of tax research is the evaluation of tax structure. Such evaluation often focuses on the "optimal" design of a tax structure or how current elements of a taxation system compare against these optimal parameters. One classic definition of an "optimal tax" is that it satisfies the criteria of economic efficiency (a minimization of altered economic decisions and waste due to taxation), equity (fairness in the distribution of the tax burden), and simplicity (simple administration and compliance requirements) – principles originally espoused by Adam Smith over two hundred years ago. The majority of studies evaluating elements of the SUT system use some form of these criteria, although other evaluation parameters such as constitutional limitations are also possible (e.g., Hellerstein, 2000).

Optimal tax policy is typically studied more prevalently by economists than by accountants. Nevertheless, these studies can be very influential in the tax policy debate, and can be important building blocks for accountants' research on how taxation affects decisions.

### *Evaluation of Current SUT Structures*

Studies that evaluate elements of the current SUT structure tend to examine a component of the SUT system and evaluate how "optimal" it is against criteria such as efficiency, equity, and/or simplicity. Recent evaluations of elements of SUT structures have focused on telecommunications taxes (a type of selective SUT), components of the SSUTA, and other attributes. Not surprisingly, many of these studies show that the current SUT system fails to satisfy many of the principles of optimal tax theory. Table 1 contains a summary of these studies.

Taxes on telecommunications and wireless communication are both specific-sector taxes (i.e., a selective SUT imposed on specific types of transactions). The focus on these taxes has heightened over the past decade with the rise of inter- and intra-state communications, with researchers investigating whether these types of taxes satisfy the criteria of optimal taxation principles. Cordes et al., (2000) analyzed telecommunication taxes at the state and local level in relationship to the principles of an optimal tax, and found that these taxes do not satisfy the criteria of an effective tax. In particular, Cordes et al., (2000) indicated that these taxes were overly complex and constituted a higher burden than similar types of consumption tax, a problem that could grow with the rising telecommunications activity. Similarly, Hausman (2000) examined the efficiency of taxes on wireless communication and concluded that these taxes were extremely inefficient. In particular, the economic burden of these taxes (suppression of the demand for wireless activity) was several billion dollars greater than the revenue gained. Both studies suggest that selective SUT do not satisfy the criterion of optimal taxation, particularly because of the loss of economic efficiency.

Another popular topic in the past decade has been the evaluation of components of the SSUTA. The SSUTA is an effort at greater uniformity among inter-jurisdictional SUT systems that emphasizes commonalities in administration, SUT bases, definitions, rates, sourcing rules, and so forth (Swain and Hellerstein, 2005). Given the wide-sweeping changes of the adopted SSUTA, taxation researchers have been interested in evaluating its purported reforms. Leskowicz (2001) argued that the SSUTA can achieve its goal of greater tax simplification, but its long-run success depends on the feasibility of individual state legislatures' adoption of these reforms. Haas (2004) conducted a similar examination of the long-run feasibility of the SSUTA. This study concluded that as structured, the SSUTA was unlikely to achieve increased

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conformity and uniformity in its own right, but that the movement may spur Congress to become involved in state SUT issues. Cornia et al., (2004) also examined the long-run feasibility and consequences of the SSUTA, using criteria such as administrative feasibility, compliance costs, and political constraints. This study is unique in its analysis of the SSUTA from a *firm* level, in modeling whether a firm would be likely to voluntarily collect use taxes if provisions of the SSUTA were adopted. Overall, Cornia et al., (2004) concluded that there are many political and administrative barriers in states' full adoption of the reforms of the SSUTA, but that if adopted, the increased simplification and reduced compliance costs could encourage firms to begin voluntarily collecting use taxes. Taken together, these three studies suggest that the SSUTA may have positive long-term consequences, but that administrative hurdles must be overcome to obtain this result.

Another set of studies examined the general state SUT structures in place, rather than focusing on a single component. Most of these studies are driven by the principle of *economic efficiency,* and investigate whether the current SUT systems are efficient. McClure (2005) demonstrated that the general SUT structure is inefficient and leads to distortive outcomes. This distortion arises from the differential taxation of goods and services, along with the vast amount of system complexity. A further reason for the inefficiency of SUT is due to the treatment of production inputs. Under an effective tax system, economists argue that all production inputs should be exempt from SUT to avoid discouraging business activity; however, no state truly exempts all production inputs, and most therefore suffer from economic inefficiencies in their current system (Mikesell, 2001). Likewise, Hawkins (2002) modeled the efficiency of several general SUT structures and concluded that the current structure reduced efficiency – particularly because of relatively high SUT rates and differential exemptions. However, Hawkins (2002) also

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demonstrated that this reduced economic efficiency had positive social benefits for the majority of households, who paid less SUT than they might with a more efficient system. A recurring finding is therefore that SUT systems do not reach the "efficient" threshold of a truly optimal taxation – but many households may prefer the current system because of their own reduced payments of tax (Hawkins, 2002).

A final evaluation of a component of the SUT concerns how SUT revenues vary with the business cycle. As compared to other types of taxes, the imposition of the SUT on *inelastic commodities* (a commodity such as food for which price has little influence on demand) generally has a stable rate and base from year to year and is less likely to fluctuate with the business cycle. However, the level of inter-state SUT variation (e.g., the definition of the tax base, level of tax rate, and reliance on the SUT) makes it difficult to predict how the business cycle will affect the short-run stability and long-run growth of SUT revenue as a whole (Dye, 2004).

In the aggregate, these recent examinations of the SUT suggest that the overall SUT system is inefficient and does not uniformly satisfy conditions of equity or simplicity. However, inefficiencies may have advantages for a majority of households due to specific exemptions. Likewise, economists characterize the current SUT system as overly complex and burdensome; the effect of states' adoption of the SSUTA could potentially alter this, but a complete simplification of the SUT system may not be administratively feasible. These studies suggest that because the current SUT system does not satisfy the principles of optimal taxation, empirical studies may be necessary to determine the influence of an "imperfect" tax structure.

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*Evaluation of Proposed SUT Reforms*

A similar type of taxation research that evaluates components of the SUT system concerns the evaluation of *proposed or hypothetical* SUT changes. This research addresses the "optimal" components of SUT in terms of efficiency, equity, and/or simplicity, either in terms of developing a theoretically "optimal" suggested tax structure or in evaluating a proposed SUT change under these criteria. Recent evaluations have included the SUT treatment of electronic commerce, financial services, telecommunications, nationally-administered rates, and other administrative or base-broadening changes. Table 2 contains a summary of recent studies in this research stream.

The influence of e-commerce on SUT has been of rising concern in the past decade. With the rise in remote vendors making inter-state sales, taxation researchers have been concerned by the potential decline in the SUT base and associated tax collections (Alm et al., 2004). Several researchers have explored this topic by developing models of the optimal SUT treatment of e-commerce. Fox and Murray (1997) argued that sales made from e-commerce should still be subject to SUT, as taxing both e-commerce and retail sales in a similar manner would help achieve horizontal equity and neutrality and avoid distortion. Based on these arguments, Fox and Murray (1997) developed a set of policy recommendations that would address the problems of e-commerce taxation via destination-based taxes, an expanded definition of "nexus" (presence required to collect SUT), a broad tax base, and legislative specification of non-taxable services. Zodrow (2006) provided an updated examination of the optimal SUT treatment of e-commerce by focusing on elements of an optimal tax treatment of commodities, including equity concerns and administrative and compliance costs. Like Fox and Murray (1997), Zodrow (2006)

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concluded that tax-exemption of e-commerce is *not* optimal and that equal tax treatment of traditional and e-commerce is the preferential structure.

Other analyses of e-commerce and SUT evaluate proposed SUT changes addressing e-commerce. For instance, the National Tax Association (NTA) carried out a project on e-commerce and telecommunications. This project identified a single-rate, destination-based sourcing, and pure state-level sourcing as elements of a successful SUT system (Houghton and Cornia, 2000), which could help address some of the rising concerns about the SUT treatment of e-commerce. Practically, Houghton and Cornia (2000) concluded that these issues were important, but that political stumbling blocks might impede long-run progress. Hellerstein (2000) examined a separate issue: the ability of Congress to legislate a nationwide state SUT on e-commerce. Rather than examining this within the parameters of optimal tax treatment, Hellerstein (2000) performed a legal analysis of congressional and judicial limitations (e.g., Commerce Clause and Due Process Clause), concluding that despite concerns, Congress did have the authority to legislate issues affecting state taxation such as the SUT treatment of e-commerce.

A second topic of interest for recent researchers has been the optimal SUT treatment of financial services for consumers. Currently, financial services (e.g., loans, insurance, investment, and so forth) are not subject to SUT. Grubert and Mackie (2000) stated that prior researchers had struggled with the issue of financial services when trying to design an optimal consumption-based tax. They argued that from an efficiency standpoint, financial services do not technically meet the definition of *consumption* and should therefore be exempt from tax. Rousslang (2002) responded to this conclusion and suggested that under certain conditions, taxing financial services would not be distortive; thus, the SUT rate on financial services should approximate the

rate on general consumer goods. Jack (2000) contended that a middle-ground approach was more appropriate, arguing that certain expenditures should be taxed (e.g., financial service charges imposed *proportionately*), but that others (e.g., *fixed* financial charges) should be left untaxed to avoid price distortions. All three of these papers used analytical arguments of optimal conditions but did not test their propositions empirically; Rousslang (2002) conceded that quantitative empirical work was probably necessary to truly resolve this debate. Overall, this theoretical work could be useful in shaping policy debate and in motivating future empirical work.

A third area of proposed tax reform concerns the telecommunications sector. Lee (2002) used a general equilibrium model to evaluate the benefits of replacing the property (capital) tax on the telecommunications industry with an increased SUT tax on the sector. Given existing distortions, however, Lee (2002) concluded that a tax on telecommunications' property was still more economically efficient than a SUT. This complements work that evaluated the current telecommunications tax structure (e.g., Cordes et al., 2000).

A fourth area of examination concerns the adoption of a more uniform SUT rate. Murray (1997) evaluated a proposed national retail sales tax, which was touted as a replacement for the federal income tax system. Murray (1997) modeled the potential tax evasion that could result from the implementation of this tax, concluding that a national retail sales tax would be associated with a high degree of erosion in the tax base. This erosion could seriously undercut the estimated revenue generated from such a tax system and require a higher tax rate to be economically feasible. Slemrod (2006) used a survey of individual attitudes regarding taxation to demonstrate that public support for the retail sales tax was highest among those that (mistakenly) believed that the retail sales tax would be less regressive than the existing income tax system. Another recent proposal was the potential simplification of SUT by implementing a single

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statewide rate, which would reduce administrative burdens and compliance costs associated with maintaining a presence in multiple jurisdictions. Cornia et al., (2000) evaluated the administrative feasibility of the single statewide rate proposed in five states, including a discussion of political or allocation issues that could arise. This study concluded that a single SUT would be administratively feasible, despite initial hurdles. All of these studies are useful from a policy perspective, but their analysis covers reforms that have not been implemented in the years since the studies' publication.

Finally, two studies examined various base-broadening reforms that could improve the SUT system. Mikesell (2000) argued that for the SUT to be an effective source of state revenue, remote vendors (vendors without a physical presence within a state) should also be required to collect and remit sales tax. Russo (2005) used an analytical model to evaluate several base-broadening reforms – including taxation on services, consumption-based taxation, and a national retail sales tax – using the standard optimal tax criteria of efficiency, equity, and simplicity. Results from the model suggested that base-broadening measures could greatly improve economic efficiency.

Overall, these studies concern both the development of an optimal SUT structure and the evaluation of proposed SUT reforms. In general, economists agree that e-commerce transactions should also be subject to SUT, but disagree as to the optimal tax treatment of financial services.[4] Future empirical work on states that differentially tax these elements could help resolve the debate. Studies on proposed changes to the SUT structure suggest positive outcomes from measures including the taxation of e-commerce and base-broadening reforms, but that reforms

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[4] Interestingly, more recent work on the SUT has focused on taxation of financial services, rather than on services in general. Studies on the taxation of services can be found in Fox (1992).

such as a national retail sales tax will not come without a cost. In all, these theoretical and analytical studies do much for refining examples of "optimal" taxation, but may need to be subject to empirical examination to understand the true consequences of changing the current SUT system.

### *Empirical Studies on Antecedents and Consequences of SUT Policy*

A second category of taxation research consists of empirical studies that analyze the antecedents or consequences of state and/or local SUT policy. These recent studies have been conducted by both economists and accountants; both parties use empirical data to test hypothesized relationships.

Studies on the *antecedents* of SUT policy typically examine macro-level factors that drive states and local jurisdictions to adopt different tax policies. These studies help to explain why no states have "optimal" SUT structures and provide evidence of the influential forces in policy adoption. In contrast, studies on the consequences of SUT policy examine how SUT policy affects individual or organizational behavior. These studies therefore help to shed light on the ramifications of the types of SUT policies.

### *Antecedents of SUT Policy*

State and local tax policy does not arise in a vacuum. Studies on the antecedents of state income tax policy have demonstrated that states engage in strategic tax competition in formulating taxation policy such that states imitate the behavior of competing neighboring states in a "race to the bottom" among state competitors (Omer and Shelley, 2004). Moreover, Vines et al., (1994) established that prior differences in the relative burdens of states' individual or

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corporate income tax burdens was driven by differences in power between the two groups. These findings help to explain different tax treatment among the states.

Similarly, researchers on the antecedents of SUT policy have also concluded that a variety of internal and external factors lead to differential SUT treatment. In particular, external factors such as inter-jurisdictional tax competition help to explain why jurisdictions may mimic the SUT structure of neighboring states. Likewise, internal factors such as a state's production mixture or political system are also important. Collectively, the findings of these studies suggest that jurisdictions are responsive to changes made in other regions, but are still influenced by unique demographic, economic, or political differences. Table 3 contains a summary of recent empirical research on the antecedents of SUT policy.

One of the prominent findings in recent SUT research is the importance of inter-jurisdictional tax competition in influencing jurisdictions to adjust their own SUT bases or rates. Tax competition theory predicts that jurisdictions will use elements of their tax system to compete for resources (Wilson, 1999). Researchers have empirically demonstrated that both state and local jurisdictions use SUT policy to compete with neighboring areas.

At the state level, tax competition has been shown to influence SUT revenues, rates, and progressivity. Tannenwald (2002) used aggregated data from the past four decades to examine the influence of inter-jurisdictional tax competition on SUT and other state-level revenues, along with the influence of internal factors such as production mix, intangible assets, and e-commerce. Tannenwald (2002) concluded that competition among governments had increased over the past few decades and was likely to have negative long-run consequences; however, few solutions for reining in this behavior were feasible. Moreover, declines in SUT revenue were also due to factors such as consumption shifts, the rise of e-commerce, and the increase in intangible assets.

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Tax competition also influences changes in SUT rates. Rork (2003) examined general SUT rates and the selective SUT on cigarettes and gasoline over a period from 1967-1996, concluding that the general SUT base was much less mobile than those of selective sales taxes.[5] For mobile tax bases (e.g., commodities such as gasoline or cigarettes), states exhibited positive responsiveness to the SUT rates of neighboring states (tax increases in one state led to tax increases in a neighboring state), whereas immobile SUT bases (e.g., general consumption) were associated with negative responsiveness (increases in one state led to tax *decreases* in a neighboring state). Finally, using national- and regional-aggregated data from 1977, 1985, and 1991, Chernick (2005) found a negative neighbor effect with the progressivity of taxes – states with progressive tax systems were likely to border states with regressive tax systems.[6] Internal determinants were also important, as states with progressive tax systems were unlikely to be controlled by the Republican Party. Overall, these findings suggest that states are influenced by the actions of their neighbors when formulating SUT policy.

Two recent studies examined the influence of inter-jurisdictional tax competition on *local*, county-level sales tax factors. Sjoquist and Wallace (2003) examined annual county-aggregated data from Georgia's 159 counties over a 30-year period to determine the effect of tax competition on the adoption of a local-options sales tax. The study's findings support the existence of a mimicking effect, as counties are influenced by their neighbors' adoption. Luna (2004) studied inter-jurisdictional tax competition by examining *monthly* county-level data on

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[5] A mobile tax base is one that is more affected by cross-border shopping and is elastic with respect to changing SUT rates. An immobile tax base is not generally affected by cross-border shopping and is inelastic with respect to changing SUT rates.

[6] The progressivity of the tax system refers to the distribution of the tax burden. Under a progressive tax, the effective tax rate paid increases as the tax base increases. Under a regressive tax, the effective tax rate paid decreases as the tax base increases.

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local sales tax rates and bases from 1977-1993 for the 95 counties within Tennessee and those in the eight bordering states. The results showed that county sales tax rates were influenced by the rates of bordering counties in both the short- and long-term. Moreover, in the long-term, an increased sales tax rate led to a reduced sales tax base. The findings from both studies on local tax competition support the general finding that governments use SUT policy as a competitive tool that is responsive to changes in neighboring jurisdictions.

Beyond the external influence of inter-jurisdictional tax competition, SUT policy is influenced by *internal* factors. Two recent investigations have focused on internal state factors that explain SUT treatment for SUT payments on business expenditures. Christensen et al., (2001) analyzed state- and national-aggregated data in 1999 to determine the influence of state tax policy and administration on SUT payments by businesses. The overall conclusion of Christensen et al., (2001) was that non-income based taxes were a larger burden for corporations than were corporate income taxes, of which SUT payments constituted a significant component. Similarly, Cline et al., (2007) examined SUT payments by businesses in fiscal year 2006. Different state economic structures tended to influence differential state tax treatment, but overall, business payments of SUT were the largest portion of businesses' state and local tax burdens.[7] The aggregate results suggest that state economic or administrative factors influence SUT differences among states, and that overall, SUT payments constitutes a significant burden for businesses.

Two recent studies examine how economic and political factors may affect SUT policy. Swain and Hellerstein (2005) examined the nationwide formulation from 1997 to 2005 of the

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[7] These estimates were updated in Phillips et al., (2009), with similar conclusions.

SSTP and resulting SSUTA. The authors concluded that political interest groups such as larger businesses supported these movements toward simplification and streamlining, but that local governments and smaller businesses opposed these changes. The influence of political factors is also evident in local SUT policy adoption. Luna et al., (2007) analyzed county-level data from Tennessee's counties and those of bordering states from 1975-1999 in an investigation of the political and economic forces behind the adoption of the legal maximum local sales tax rate. Results indicated that the relative importance of these factors has shifted over time; lower sales tax capacity was an important driver in earlier years (1975-1984), whereas the reduced property tax capacity and the proportion of Republican voters was more influential in later periods (1985-1999). Together, studies on the influences of economic and political factors suggest that the relative importance of a particular factor is both issue- and time-specific.

Beyond general state political or economic factors, another category of antecedents of SUT policy is business-level variables. These business-level factors have been used to explain a specific state's SUT audit selection and compliance, along with general participation in the SSTP. Murray (1995) and Alm et al., (2004) both investigated the antecedents of SUT audit selection and compliance. Murray (1995) used firm-level SUT accounts from 1986-1988 from the Tennessee Department of Revenue to examine the factors influencing both audit selection and the likelihood of business compliance. Business taxpayers were less likely to comply when there were additional opportunities for under-reporting, such as through SUT ambiguities. Alm et al., (2004) examined these same issues with an analysis of firm-level data from New Mexico from 1994-1996. Like Murray (1995), Alm et al., (2004) demonstrated empirically that firms were less likely to comply with SUT rules when there were additional opportunities to cheat (e.g., greater deduction variability or an out-of-state business address). Alm et al., (2004) also

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showed that SUT auditors generally employed a systematic selection process, choosing businesses for audit when they had greater deductions or more variability in reporting.

Cameron (2004) studied the antecedents of states' participation in the SSTP; her topic of interest is similar to Swain and Hellerstein (2005), but Cameron (2004) used empirical data to cross-sectionally test individual states' participation in the SSTP in 2001, rather than examining the nationwide factors underlying the trend. Cameron (2004) examined whether a state's business climate – business vitality or innovation capacity – was related to participation, and found a negative relationship between climate and participation. She also showed that states with higher SUT rates were more likely to participate. Overall, business-level factors affect elements of the SUT in terms of states' auditor behavior and larger policy adoption.

Two recent studies examined unique antecedents – e-commerce sales and consumer factors. Bruce and Fox (2000) used national- and state-aggregated and forecasted data from 1999-2003 to explain estimated SUT revenue losses and base declines. The authors concluded that e-commerce sales had a significant influence on SUT revenue and forecasted several billions of dollars in reduced collections.[8] Ring (1999) examined the incidence of the SUT in 1989, and analyzed the factors that explained consumers' share of the general SUT (i.e., incidence of the SUT). States with higher consumer expenditures resulted in a higher share of the consumers' portion of the general SUT. While differences in consumer spending accounted for differences across the states, on average, consumers incurred approximately 59% of the general SUT, with the SUT on business purchases likely accounting for the remainder (Ring, 1999). Not

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[8] These estimates have been updated several times, in Bruce and Fox (2001), Bruce and Fox (2004), and most recently, Bruce et al., (2009).

surprisingly, both studies suggest that the level of expenditures – through e-commerce sales or household spending – dramatically influences the resulting revenue and incidence of the SUT.

In the aggregate, these empirical studies suggest that one of the most important antecedents of SUT policy for a jurisdiction is the *actions of its neighbors*. Other variables play a role based on the type of SUT policy. For broad SUT policy differences, the unique economic and political features of a state or local government are also important. Business-level variables are influential for both specific (audit selection) and broader (SSTP participation) actions affecting business taxpayers. The level of a state's e-commerce activity and consumer expenditures can have a dramatic influence on both the incidence and the revenue generated from the tax.

These studies therefore treat components of the SUT as a dependent variable and are useful in helping to understand how "sub-optimal" SUT policies have resulted. A separate set of empirical studies examines SUT as an independent variable, and examines the extent to which SUT policy itself influences organizational, consumer, or other types of behavior.

*Consequences of SUT Policy*

Within the accounting field, researchers have documented that state income and franchise taxes are important in influencing the behavior of corporate taxpayers. Elements of state and local tax regimes drive decisions governing bank portfolio choices (Beatty and Harris, 2001), foreign investment (Hines, 1996; Moore et al., 1987), manufacturing employment (Lightner, 1999; Goolsbee and Maydew, 2000), and new capital spending (Weiner, 1996; Gupta and Hofmann, 2003). Corporations engage in income shifting to minimize state income taxes (Klassen and Shackelford, 1998; Gupta and Mills, 2002), showing that state-level taxes can have

a powerful influence on organizational behavior. However, less attention has been placed on the influence of SUT on businesses or on other groups.

Recent research on the consequences of SUT has been sparser than the empirical work on the antecedents of the SUT. This suggests many opportunities for future researchers interested in the short- or long-term results from SUT policy action. Existing studies have examined how SUT policies influence consumer behavior, business activity, prices, and activity within a particular sector, and indicate that different SUT rates and/or bases will influence decisions. See Table 4 for a summary of this recent research.

Three recent studies have used empirical data to show how SUT policy influences individual consumer behavior. Goolsbee (2000) investigated whether consumers were more likely to make online purchases if they lived in states with a higher SUT rate. Using a proprietary survey of 110,000 households from December 1997, Goolsbee (2000) demonstrated this relationship, suggesting that individual consumers will cross-border shop and engage in behavior to minimize the incidence of the SUT (as the paper assumed that these individual consumers would avoid paying use tax on their online purchases). Indeed, Goolsbee (2000) estimated that complete SUT compliance for all online purchases could decrease the number of individuals buying online by up to 24%. Angelini and Shaw (2004) investigated this same research question with a different research method: a survey of college alumni on the relationship between SUT treatment and online purchases. The authors found that most individuals, particularly those with the greatest amount of online purchases, would be unlikely to discontinue shopping online if purchases were subject to SUT. These different results may be because Angelini and Shaw (2004) investigated the *planned* behavior resulting from SUT treatment, whereas Goolsbee (2000) studied *actual* behavior. Furthermore, Goolsbee (2000) studied e-commerce behavior in

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1997, when online shopping was relatively new, whereas Angelini and Shaw (2004) used a more recent sample.

Ke et al., (2000) examined state premium taxes levied on purchases of insurance coverage, which constitutes a type of selective SUT. Using aggregated firm-level data from annual statements from insurance companies from 1993-1995, Ke et al., (2000) found that states with higher state premium taxes had a smaller degree of property-casualty insurance coverage, showing that consumers minimized the incidence of premium taxes via self-insurance (Ke et al., 2000). Overall, SUT affects consumer behavior, since consumers act to minimize the incurrence of payments of SUT.

In addition to individual consumers, evidence suggests that businesses are also influenced by SUT. Two studies on the insurance industry examine the influence of state-level premium taxes (a selective SUT). Petroni and Shackelford (1995) used insurer-specific data from one year (1991) to demonstrate that along with regulatory costs, premium taxes are an important determinant of the decision of the type of organizational structure (licensing or subsidiary) for an insurance company expanding into a new state. Another demonstration of how SUT can affect businesses is Petroni and Shackelford (1999), who again utilized firm-level data on the insurance industry. Their findings suggest that multi-state insurers minimize their premium tax liability by manipulating their reported premiums for a particular state. Thus, SUT-type taxes encourage businesses to engage in activities to minimize the occurrence of this tax.

Another group of studies examined whether state and local retail sales taxes affected the prices of consumer goods, to examine the incidence of the SUT.[9] Both Poterba (1996) and

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[9] The incidence of the SUT refers to which party bears the burden for this tax (e.g., the consumer or the retailer).

Besley and Rosen (1999) used local-level aggregated data for selected cities to determine how sales taxes influenced the prices of consumer goods. Poterba (1996) found that retail sales taxes were shifted into retail prices for clothing from 1947-1977 (i.e., the after-tax cost of clothing fully reflected the sales tax), but were not fully shifted during the Depression (1925-1939). Besley and Rosen (1999) investigated this same research question using a more recent period (quarterly data from 1982-1990) and a variety of commodities (e.g., bread, milk, shampoo, etc.). Results indicated that whereas retail sales taxes were fully shifted into the prices for some commodities, such as eggs, some commodities, such as bread, experienced over-shifting (retail prices rose by more than the amount of the sales tax). These results suggest that retail sales taxes are generally absorbed into the prices of consumer goods (i.e., consumers fully bear the sales tax burden), but that there are pockets of anomalies in the incidence of sales taxes.

A final recent topic concerns the influence of different SUT treatment on the growth of different industry sectors. Merriman and Skidmore (2000) used state-level aggregated data from 1982, 1987, and 1992 to determine whether different state tax treatment of the retail and service sectors were related to the proportion of statewide receipts as a percentage of personal income attributed to each sector. The results indicate that higher SUT rates were positively associated with the value of the service sector, but were negatively associated with the value of the retail sector (Merriman and Skidmore, 2000). This macro-level analysis suggests that SUT may influence consumer behavior with the relative proportion of services or retail goods purchased.[10]

In all, these studies on the consequences of the SUT show that the imposition of this tax affects consumer behavior, business decisions, consumer pricing, and industry-sector receipts.

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[10] Merriman and Skidmore (2000, p. 126) argue that reduced taxation of services, relative to retail goods, reduced the relative cost of services to consumers. This reduced cost of services may have encouraged consumers to increase their consumption of services relative to retail goods.

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However, the relatively few studies within this area suggest that there are many opportunities for future research on the influence of the SUT. In particular, examinations of how the SUT may influence organizational or business decisions could yield insightful findings on how businesses respond to the imposition of SUT. Petroni and Shackelford (1995, 1999) demonstrated that the gross premium taxes levied on the insurance industry influence business decisions and drive businesses to minimize the incidence of this tax, but it is not clear whether these findings are industry-specific and would apply to the *general* SUT as well.

## Data Sources and Measurement Issues

SUT studies that use theoretical arguments or analytical modeling to evaluate elements of existing or hypothetical SUT elements do not typically rely on empirical data; instead, most analyses use simulated information. However, empirical studies on the antecedents or consequences of SUT policy are likely to be plagued by the constraints of data sources and the resultant measurement error.

### *Data Sources*

Empirical studies of SUT may use either proprietary or publicly available data sources. Most proprietary data sources contain information at the firm- or individual-level of analysis; most publicly available data sources contain aggregated data.

### *Proprietary Data*

One of the difficulties with SUT research is that information on SUT paid and/or remitted by a business or consumer is difficult to obtain. However, several proprietary data sources

contain information at the organizational- or consumer-level of analysis that can be used to study SUT issues.

For the firm-level of analysis, researchers may purchase firm-level information from certain industries that have specific disclosure requirements, such as the insurance industry. Thus, researchers may purchase a database such as the NAIC Property/Casualty Annual Statement Database to study how premium taxes (a type of selective SUT) affect behavior (e.g., Petroni and Shackelford, 1995, 1999). Other researchers may purchase proprietary individual-level data, such as datasets on household spending habits available from Forrester Researcher (e.g., Goolsbee, 2000).

Creative researchers may also obtain access to proprietary data sources without incurring direct monetary costs. One alternative is to obtain SUT account data from filings with state departments of revenue (e.g., Murray, 1995; Alm et al., 2004). Another is for the researcher to use surveys to collect firm-level or individual-level SUT data (e.g., Angelini and Shaw, 2004).

### Publicly Available Data

Due to the difficulties in obtaining proprietary data, most empirical studies of SUT use publicly available, aggregated data. Local, state, or national governmental bodies have compiled most of these data sources. Moreover, most of the publicly available data sources that have been used by prior SUT researchers overlap with the data sources summarized by Hofmann (2002) as useful for studies of state corporate income taxation.

Multiple national governmental bodies have prepared state-level aggregated data on economic activity. The U.S. Department of Commerce's Bureau of Economic Analysis prepares a variety of regional economic statistics, including information on state-level GDP and personal

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income (e.g., Christensen et al., 2001). The U.S. Department of Labor's Bureau of Labor Statistics prepares detailed information on employment, productivity, prices indices, and consumption, including the *Consumer Expenditure Survey* (e.g., Ring, 1999).

The U.S. Census Bureau publishes a plethora of data. Its annual *Statistical Abstract of the United States* includes social, political, and economic summary statistics aggregated at the national, regional, and state levels. The *Annual Survey of Manufacturers* provides annual statistics on manufacturers, including general statistics, geographic area statistics, and information on the value of product shipments. The *Economic Census* contains statistics on U.S. businesses aggregated from the local to the national level and is published once every five years (e.g., Merriman and Skidmore, 2000). Included in the statistics gathered by the U.S. Census Bureau are historical state and local tax revenue collections from SUT.

Other entities publish useful summarized information on state characteristics that may be useful for studies of SUT. The Council on State Government's *The Book of the States* and the American Council on Intergovernmental Relations' (ACIR) *Significant Features of Fiscal Federalism* contain data on state governmental features; however, the ACIR's last annual publication was in 1995.

Another important data source for SUT studies concerns data on SUT bases and rates. Historical *state* SUT rate information is readily available through resources such as CCH's *State Tax Handbook* or *Multistate Sales & Use Tax Guide* or RIA's *All States Tax Handbook.* The AICR's *Significant Features of Fiscal Federalism* and Due and Mikesell (1994) are useful for obtaining older historical SUT rate information. However, these sources do not contain historical *local* SUT rate information. Researchers may be able to obtain the historical local SUT rates for

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a particular jurisdiction by using publications from a specific state or local government (e.g., Luna, 2004).

Obtaining historical SUT *base* information is more difficult to obtain; there is not a readily available comprehensive reference on states' historical SUT bases (i.e., *what* transactions are subject to SUT). Prior volumes of *Site Selection Magazine* contain information on several SUT exemptions that may be available for a given year. Previous issues of CCH's *State Tax Handbook* or *Multistate Sales & Use Tax Guide* or the AICR's *Significant Features of Fiscal Federalism* contain some information on available SUT exemptions, but summary information on exemptions is not always the same from year to year. Again, researchers may be able to obtain historical base information more readily for local jurisdictions or a particular state (e.g., Luna, 2004).

### *Measurement and Data Issues*

Whether using proprietary or publicly available data, most studies have some type of measurement issue that hampers the strength of the results. Researchers should consider these limitations when choosing the type of data source to use.

### *Issues with Proprietary Data*

Proprietary data often contains individual-level or firm-level data that offers the advantage of improved precision. However, the use of this type of data comes at a high cost. First, obtaining appropriate proprietary data can be challenging; researchers must either purchase these data sources (e.g., Petroni and Shackelford, 1995, 1999) or have access to contacts that are willing to entrust researchers with a proprietary data source (e.g., Murray, 1995 and Alm et al., 2004, who obtained SUT information from state departments of revenue). Second, studies that

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rely upon individual- or firm-level data obtained from proprietary sources often lack other pieces of data needed for the study, and are forced to measure other variables using publicly available, aggregated data. For example, Goolsbee (2000) obtained proprietary information on households' online spending, but not on the tax rate in effect for those households. The need to supplement proprietary, micro-level data (individual-level or firm-level) with publicly available, aggregated data may introduce noise in the empirical model.

### *Issues with Publicly Available Data*

The use of publicly available data can be equally challenging. The primary difficulty faced by researchers is that the desired data for a study may be unavailable. For instance, nearly all publicly available data is aggregated, making it difficult to study the effect of SUT on individual firms or consumers. A related problem is that much data is unavailable on the state level; for instance, researchers sometimes must use national-level data to estimate the state effects (e.g., Ring, 1999). Other data on the state level may only be available at certain points in time. The U.S. Census Bureau publishes its *Economic Census* only once every five years; researchers using this data are limited to these particular time intervals (e.g., Merriman and Skidmore, 2000).

Data on historical local SUT rates and both state and local SUT bases may be difficult to obtain. One solution is to focus on historical local SUT rates or bases within a particular jurisdiction (e.g., Luna, 2004; Luna et al., 2007). Another solution is to control for potential changes in the SUT base, such as limiting the analysis to jurisdictions with the same underlying SUT base (e.g., Poterba, 1996).

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Overall, researchers must balance these practical constraints when selecting variables and the data for these variables. Regardless of the type of data used, researchers will still face potential measurement concerns.

## Directions for Future Research and Conclusions

Recent studies on SUT have included both empirical work (antecedents and consequences of SUT) and theoretical or analytical models or arguments (evaluation of proposed or current SUT structures). Accounting researchers have many opportunities to contribute to the SUT literature, particularly in the area of empirical work.

### *Directions for Future Research*

Future accounting researchers interested in SUT may wish to study the consequences of SUT policy, investigate the use of alternative research methodologies, or integrate the study of SUT with other areas of taxation. This work could help expand the boundaries of SUT research.

### *Consequences of SUT Policy*

One of the largely unexplored areas within SUT research pertains to the consequences of SUT policy. Recent research has examined SUT policy as it influences consumer prices, business decisions in the insurance industry, and consumer decisions to avoid the SUT. However, much work remains to be conducted regarding the influence of SUT on business decisions. Researchers have shown that "taxes matter" within other contexts – for instance, elements of the state corporate income tax influence a variety of business decisions, including multi-state allocations of employment and investment (Hofmann, 2002). Gross premium taxes, which function like a selective SUT on the insurance industry, influence decisions such as

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organizational structure (Petroni and Shackelford, 1995) and income shifting (Petroni and

Shackelford, 1999). It would be useful to investigate whether the general SUT influences

business decisions in other industries that must also incur corporate income taxes, such as

companies within the manufacturing or service industry. Once researchers have established

whether the general SUT matters for business decisions, they could shift focus to quantifying the

magnitude of the effects (Shackelford and Shevlin, 2001). This would be a particularly fertile

area for accounting researchers, given that questions of whether taxes influence business

decisions have been at the heart of accounting taxation research for more than a decade (Scholes

et al., 2002).

Another area for future accounting researchers concerns the consequences of the SUT for

individual consumers. Most research on the influence of SUT on consumer behavior uses

economic theory to explain why consumers act to minimize the incidence of SUT (e.g.,

Goolsbee, 2000; Ke et al., 2000). Future researchers may wish to examine non-economic

explanations for consumer behavior. For example, individual compliance for payment of the use

tax portion of the SUT is around 1% (Huefner and Hibschweiler, 2004), whereas around 68% of

income not subject to withholding information is reported to the Internal Revenue Service

(National Tax Advocate, 2005). This discrepancy suggests that consumer behavior in relation to

the SUT may be partially attributable to non-economic factors such as social norms.

*Alternative Research Methodologies or Data Sources*

Future accounting researchers may wish to use different research methodologies to

explore some of these common research questions. Most recent empirical SUT has used archival

data sources. However, the use of these secondary data sources often necessitates a non-

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experimental research design, in which researchers cannot clearly establish causality (Shadish et al., 2002). Researchers may therefore wish to use laboratory experiments or experimental economics to investigate questions of causality, particularly when concerning individual consumers. The use of experimental methods could also help resolve discrepancies in prior studies. Goolsbee (2000) concluded from an analysis of archival data that consumers were more likely to buy online (and thus effectively avoid paying SUT) if they lived in a high-SUT jurisdiction; however, Angelini and Shaw (2004) concluded from a survey analysis that impositions of SUT on online transactions would not affect purchases. Future researchers could use an experiment to help triangulate these findings, such as conducting an experimental market study with mock buyers and sellers. SUT compliance is another area that could benefit from an experimental methodology. Studies of business compliance of SUT have used firm-level data provided by state revenue departments (e.g., Murray, 1995; Alm et al., 2004). A study of *individual* SUT compliance could use an experiment as an alternative for generating this data.

Qualitative research methodologies are another alternative to archival research methodologies. Qualitative methods rely on the analysis of non-numerical data, and typically entail either a field study (generation and analysis of data via direct contact through participants) or a content analysis (analysis of non-numerical secondary data). Outside the study of management accounting, the use of qualitative research methods is rare in accounting, including taxation research (Merchant and Van der Stede, 2006). However, qualitative analyses could provide richer insight on the setting and context in which taxation decisions occur. Researchers may want to perform a field study or content analysis on the passage of SUT policies within a particular state; these findings could help inform prior literature on the complex antecedents of these actions. Another possibility is a field study of the SUT function within a corporate taxation

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department, which could shed light on the manner in which SUT influences organizational behavior.

Future researchers conducting archival analyses could greatly benefit from an improvement in data sources. Firm-level and individual-level data are difficult to obtain. Hofmann (2002) suggested the creation of a database of anonymous state taxation filings across state revenue departments. The state coordination of the SSUTA may improve the feasibility of such a creation, which could greatly improve the level of precision in empirical studies of SUT. In the absence of this type of coordination, researchers could continue to work with individual state revenue departments to obtain micro-level data (e.g., Alm et al., 2004). Alternatively, creative researchers may wish to explore alternative sources of aggregated data, or investigate industries (such as the insurance industry, e.g., Petroni and Shackelford, 1995) with disclosures that contain this type of detail.

### *Integration of SUT*

A final area of future SUT research for accountants concerns the integration of SUT with other aspects of state and local taxation (SALT). This would be particularly appropriate as the SUT field matures. Most accounting research to date has focused on the state corporate income tax element of SALT (Hofmann, 2002); researchers could focus on integrating these findings, such as determining if corporate income tax variables still influence corporate location decisions when controlling for SUT. Another promising area could integrate an examination of SUT and corporate income tax competition. Researchers have shown that jurisdictions engage in strategic tax competition when establishing elements of the state corporate income tax (Omer and Shelley,

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2004) as well as county-level SUT bases and rates (Luna, 2004). Accounting researchers could focus on how tax competition between these two types of taxes interacts.

This type of integrative research could also take place between the SUT and elements of federal income taxation. For instance, researchers could determine whether non-economic factors that influence individual compliance for federal income tax purposes (such as social norms; Bobek et al., 2009) would also hold true for SUT compliance. Organizational interests shape federal income tax laws (Roberts and Bobek, 2004). However, SUTs are imposed by traditionally less-powerful jurisdictions such as counties and states; the types of interest groups that would influence the adoption of SUT policies is unclear.

### *Conclusion*

In summary, SUTs are an important source of revenues for state and local governments. These taxes also constitute a significant portion of the taxes incurred by businesses and individuals alike. Given the economic significance of the SUT for multiple parties, it is important for tax researchers to not only evaluate current and proposed SUT structures, but to continue empirical investigations of the antecedents and consequences of SUT.

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# STUDY ONE: THE INFLUENCE OF STATE SALES & USE TAXES ON CAPITAL EXPENDITURES AND MANUFACTURING EMPLOYMENT

## Introduction

Governments have used taxation policy as a political strategy for courting businesses for hundreds of years (Buss, 2001). At the state level, the use of this strategy to maximize economic growth has increased dramatically since the 1980s, as states use tax incentives as a tool for attracting increased investment and employment (Goolsbee and Maydew, 2000). While some economists challenge the relative net effects of tax incentives on business location decisions and state economic development (see Wasylenko, 1997; Buss, 2001), state governments continue to spend billions of dollars a year to attract businesses (Peters and Fisher, 2004; Corporation for Enterprise Development, 2007).

Prior researchers have analyzed an array of general tax system factors in an attempt to distill the relative net effect of tax incentives on the location of business activity. These studies have examined both taxes in general (e.g., Wasylenko, 1997) and specific tax incentives (e.g., Faulk, 2002). Studies have investigated a variety of elements of the state corporate income tax system, including the corporate income tax rate (e.g., Lightner, 1999), formula apportionment[1] (e.g., Lightner, 1999; Goolsbee and Maydew, 2000), the number of tax incentives (e.g., Gupta

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[1] A state's formula apportionment system pertains to the distribution (apportionment) of a business's taxable income to a state, based on its relative proportion of property, payroll, and/or sales within the state (Hofmann, 2002).

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and Hofmann, 2003), unitary reporting[2] (e.g., Gupta and Hofmann, 2003), and the throwback rule[3] (e.g., Lightner, 1999; Gupta and Hofmann, 2003).

One general tax system incentive that researchers have not extensively examined is the role of state sales and use taxation (SUT) in driving economic development and business activity. Wasylenko (1997, p. 43) commented in a review of the literature on the link between taxation and economic development that "sales taxes might influence firm location," but that few studies have examined this connection. This gap is striking, given the importance of SUT. Combined collections from the general and selective SUT amount to approximately one-half of state revenues, constituting states' largest source of revenue (U.S. Census Bureau, 2008). The significance of SUT on business inputs is especially prevalent. In fiscal 2008, a report prepared by Ernst & Young LLP for the Council on State Taxation (COST) estimated that businesses paid more than $130 billion in state sales tax on "businesses' operating inputs and capital equipment purchases" (Phillips et al., 2009, p. 4), an estimate that is more than double the amount paid for the state corporate income tax.[4] Since SUT constitutes a higher proportion of business taxes than the state corporate income tax, is often imposed at a higher rate, and applies to both business inputs and outputs, SUT has "the potential to cause much larger location distortions than have

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[2] Unitary (combined) reporting refers to state corporate income tax regimes that tax the apportioned income of all members of an affiliated group, rather than only the entities that have nexus in the state (presence within the state; Hofmann, 2002).

[3] The throwback rule pertains to the sales factor within the apportionment formula, and requires that sales made to a state with no nexus be sourced back to their state of origin (Hofmann, 2002).

[4] The COST report estimates that "property taxes on business property" constitute the highest proportion of total state and local taxes (35.5%), followed by "general sales taxes on business inputs" (22.2%) (Phillips et al., 2009, p. 3). However, property taxes are almost uniformly imposed at the *local* level. Sales taxes paid on business inputs are estimated as the largest proportion of overall *state-level* business taxes (32.4%). All estimates are prepared by Ernst & Young's Quantitative Economics and Statistics division; a previous annual estimate reported that the models used for estimation contain "state-specific, industry-by-industry flows of business intermediate input and investment purchases based on national input-output relationships and state output estimates" (Cline et al., 2005, p. 4).

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generally been found in the literature" (Bruce et al., 2003, p. 38). This suggests that SUT could be an important factor in understanding the location of business activity.[5]

States may be able to use SUT as a tax incentive to encourage economic development by lowering overall statewide SUT *rates* or by manipulating elements of the state's SUT *base* (e.g., the amount on which the SUT rates are applied, which may be manipulated by offering exemptions). Most states do not offer general production input exemptions, but instead exempt certain narrowly-targeted business purchases by specified industries such as manufacturing (Bruce and Fox, 2000; Mikesell, 2001).

The purpose of this study is to examine the influence of state and local SUT bases and rates on state economic development, as they may be an important option for spurring economic development. Specifically, this study investigates the extent to which SUT bases and/or rates influence employment and capital investment for manufacturing firms as compared to other tax system and economic factors. The analysis uses state-aggregated panel data on capital expenditures and manufacturing employment from 1983-2006 to examine the effects of SUT rates and bases.

The results of the study demonstrate that SUT exemptions are more important than SUT rates in encouraging capital expenditures and employment in the manufacturing sector. This pattern remained when controlling for state- and year-specific effects. In particular, SUT exemptions for machinery and materials appeared to play a more important role in fostering capital expenditures from 1983-1996 than in a more recent period. SUT exemptions for machinery had a positive effect on manufacturing employment for all sample years, while SUT

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[5] State revenue departments and economic development bureaus often tout elements of their SUT system as an example of incentive packages. For example, the SouthernCarolina Alliance, a regional economic development organization, describes South Carolina's low SUT rates and prevalent SUT exemptions as tax incentives that could benefit businesses choosing to relocate or expand in the area (http://www.southerncarolina.org/).

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exemptions for materials also had a positive influence during the 1997-2006 period. In all, findings are in line with the conclusion that the tax *base* has a more important role in facets of economic development than the tax rate itself (Gupta and Hofmann, 2003). Despite the overall robustness and statistical significance of these results, however, the practical effect of SUT exemptions on both measures of economic development remains small.

The results of this study contribute to the taxation literature in several important ways. First, this study demonstrates how SUT may influence a state's employment or investment growth and provides further details as to whether the traditional "state corporate income tax regime variables" (Gupta and Hofmann, 2003, p. 2) are still significant when examined in conjunction with SUT, another element of state tax structure. The fact that many corporate income tax elements fail to achieve statistical significance when controlling for state and year effects suggests the limited economic impact of these variables. Second, unlike prior studies on the link between taxation and economic development that have analyzed the influence of state taxation policies on *either* employment (e.g., Lightner, 1999; Goolsbee and Maydew, 2000) or capital investment (e.g., Gupta and Hofmann, 2003), this study presents *both* for the same period. This joint investigation provides further details as to which outcomes tax variables affect. Third, the examination of an extensive sample period (1983-2006) extends the study of the influence of tax incentives to a more recent period, since the most recent broad studies on taxation and business activity used data ending over a decade ago (e.g., Goolsbee and Maydew, 2000; Gupta and Hofmann, 2003; Harden and Hoyt, 2003; Kunce, 2006).

Fourth, this study contributes to the literature on the outcomes of differing SUT policy as it affects *businesses*. Less research has been conducted on how businesses are specifically affected by SUT (Petroni and Shackelford, 1995, 1999 are exceptions); businesses such as

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manufacturers are ultimately *producers* rather than consumers (Mikesell, 2001), with different

motivations than individuals. This shows that targeted SUT exemptions do have a *statistically*

significant influence on businesses under some conditions. Finally, this study has implications

for policymakers, as results indicate that state legislatures' tweaking of SUT laws to provide

incentives for specific types of businesses has a low magnitude of *economic* influence on

employment or investment growth. While business leaders have recently proclaimed the

necessity of favorable SUT treatment for manufacturers in stimulating investment and growth

(e.g., Brunell, 2008), the results of this study suggest that this benefit is small in magnitude.

Thus, such legislative action to offer favorable SUT treatment to manufacturers may lead to little

net economic benefits among jurisdictions (Fox and Murray, 2004).

The remainder of this chapter is organized as follows. The next section presents prior

research and hypothesized relationships. The third section provides the research methodology,

which contains the statistical model, variable definitions, data sources, and method of analysis.

The fourth section presents results. The fifth section concludes with a discussion of the study's

findings.

## Prior Research and Hypothesis Development

### *Prior Research*

One of the basic goals of empirical tax research is to determine whether tax policies

affect business decisions (Shackelford and Shevlin, 2001). The underlying framework of much

research on the effect of taxes on business activity is the Scholes and Wolfson paradigm (SW,

1992; updated by Scholes et al. 2002), which predicts that both tax and non-tax costs affect

business decisions, as both can help achieve overall corporate profit or wealth maximization

(Shackelford and Shevlin, 2001). Multi-jurisdictional domains, in which tax rates and bases may vary across jurisdictions, are powerful settings in which to investigate whether taxes influence business activity. In particular, *multi-state* taxation discrepancies provide a rich environment through which to examine this area, especially given the growing interest in state taxation. However, most prior studies of state taxation have focused on *income*-based taxes, often to the exclusion of non-income taxes such as SUT (Shackelford and Shevlin, 2001). Given states' declining SUT collections due to e-commerce (Bruce et al., 2009) and the economic significance of SUT to businesses (Bruce et al., 2003), understanding how SUT influences business decisions is important.

According to Buss (2001), state legislatures' use of tax incentives to attract business and influence business activity has increased in the past few decades. Despite the frequency with which taxation incentives are used to attract businesses, "researchers cannot say how, when, and where with much certainty" such incentives or tax system factors will influence economic development (Buss, 2001, p. 101). Part of the reason for the lack of precise knowledge over the influence of tax incentives is due to the lack of consistency in how "economic development" and the accompanying "tax system factors" are studied.

One issue faced by researchers is the definition of *tax incentives* and *tax system factors*. Many earlier studies on the link between taxation and economic development used somewhat less precise measures of tax incentives, such as examining a state's overall tax burden rather than parceling out the effects of specific components of the tax system (Buss, 2001). Not surprisingly, these earlier studies often failed to find an effect of taxation policies on economic development. More recent studies have been more precise in the definition of "tax incentives" (e.g., Goolsbee and Maydew, 2000; Gupta and Hofmann, 2003). This has resulted in research that has shown

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that taxation policies had a statistically significant, albeit at times economically small, effect on state economic development (Wasylenko, 1997).

Another classification is needed on the definition of state *economic development*, or the location of business activity. Most researchers use an aggregate approach; micro-level studies measuring branch location have waned in the past 15 years (Wasylenko, 1997). Studies using an aggregate approach avoid the statistical difficulties in matching firm-specific variables with state-aggregated tax variables and can often use longer timeframes. Two of the most common proxies for aggregate measures of economic development are *employment* and *capital investments*.

Studies of employment are popular in the economic development literature (Wasylenko, 1997).[6] While some earlier studies showed little effect of taxation on employment (e.g., Carlton, 1983), subsequent studies have demonstrated that higher corporate tax rates affect employment (e.g., Newman, 1983; Lightner, 1999), whereas others found that the overall increase in taxation (e.g., Wasylenko and McGuire, 1985) or the state apportionment formula (e.g., Goolsbee and Maydew, 2000) had a more significant effect. The influence of taxation policies on employment may also be more predominant in more capital-intensive industries (e.g., Newman, 1983) or during specific periods (e.g., Carroll and Wasylenko, 1994). Overall, the preponderance of evidence suggests that tax system factors influence employment.

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[6] Studies of the influence of tax incentives on *employment* may be popular because, "Job growth, despite down-sizing, right-sizing, and productivity growth in manufacturing, is still the variable politicians identify most often with prosperity" (Wasylenko, 1997, p. 39).

Other researchers have examined how state tax policy influences new investments.[7] Studies on the link between taxation and capital expenditures have shown the influence of elements of the corporate income tax system, such as corporate income tax rates (e.g., Hines, 1996), the marginal after-tax rate of return (e.g., Papke, 1987; Tannenwald, 1996), and elements of the formula apportionment system (e.g., Weiner, 1996; Gupta and Hofmann, 2003).[8] The relationship between corporate income tax factors and new investment appears established, although differing studies produce different estimates of the relative magnitude of these effects (e.g., Hines, 1996; Gupta and Hofmann, 2003).

Both studies of employment and capital investments have focused on elements of the *corporate income* tax system. However, businesses pay comparatively less in corporate income taxes than they do in SUT, which in turn may have an even greater influence on the location of business activity (Bruce et al., 2003). Research on both employment and investment has also been conducted over older periods; none of the identified prior studies examine a period after 1996 (Lightner, 1999; Goolsbee and Maydew, 2000; Gupta and Hofmann, 2003; Kunce, 2006). Thus, it is unclear whether tax system factors beyond the corporate income tax may also relate to employment and investments in a more recent timeframe.

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[7]For manufacturers, studies of investment output may be more informative than studies of employment growth because many manufacturers have increased their plant investments while decreasing their workforce (Wasylenko, 1997). Some commentators view this proxy for location as the "engine that drives employment and income growth" (Gupta and Hofmann, 2003, p. 2).

[8] The joint examination of multiple tax system factors also demonstrates the relative importance of each in its relation to new capital expenditures – combined reporting and throwback rules have the most influence, followed by apportionment formula rules and corporate income tax rates, with the number of incentives of comparatively lesser importance (Gupta and Hofmann, 2003).

*Hypothesis Development*

The majority of the prior literature on the connection between state taxation policy and economic development has ignored non-corporate income tax factors, including the role of SUT. However, a few prior studies have examined the connection between SUT and economic development.

Bartik (1989) failed to find a relationship between the SUT rates and the number of small business start-ups, but advocated that future researchers should examine the precise exemptions available within a particular industry (i.e., elements of the SUT *base*) in addition to the SUT *rate*. Another conclusion of Bartik (1989) was that the study of a targeted industry, such as manufacturing, could be more useful for an examination of the effects of SUT than a cross-industry evaluation.

Several studies have investigated the relationship between SUT factors and employment. Wasylenko and McGuire (1985) examined whether the percentage of revenue a state derived from the SUT was related to the percentage change in employment, but found no significant effects. Likewise, Harden and Hoyt (2003) studied the relationship between a state's total employment growth and the general sales tax revenue as a proportion of personal income from 1980-1994, and failed to find a significant relationship. However, Carroll and Wasylenko (1994) investigated the relationship of a host of general tax system factors, including SUT, on overall and industry-specific employment from 1967 to 1988. The authors found no connection between *total* employment and the proportion of sales tax revenue to state personal income, but found *industry-specific* effects for the finance, service, and manufacturing industries at different points in time. The lack of a specific measurement of sales tax rate and base in all prior studies,

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however, leaves open questions regarding the influence of these components of the SUT, particularly in a more recent period.

Two intraregional studies have likewise produced conflicting results regarding the importance of SUT on employment. A study from the Washington State Department of Revenue examined whether offering sales tax deferrals and exemptions for distressed areas and manufacturing sales tax deferrals affected employment in these distressed areas, and did not find that these tax incentives significantly affected employment (Washington Department of Revenue, 1996, p. 20, as cited by Buss, 2001). However, this study examined the influence of one element of the SUT base on employment in *distressed areas* within a particular state. Mark et al., (2000) examined the influence of various types of taxes, including the SUT *rate,* on total private-sector employment growth in the Washington D.C. metropolitan area from 1969-1994, and found that higher SUT rates resulted in lower employment growth in the following year. Thus, Mark et al., (2000) concluded that employment growth rates of businesses were sensitive to SUT rates. However, whether the results of these intraregional studies would generalize to a broader setting is empirically untested.

In summary, prior studies have shown mixed results regarding the influence of SUT on business activity, but these discrepancies may be due to the failure to measure *both* the taxable *base* and *rate* of SUT within a state, or to confine the examination to a particular industry. Logically, the incidence of the SUT should affect taxpayer decision-making, as the SUT is a significant burden on business taxpayers. Reduction of the costs of doing business, including taxation, enables businesses to achieve their profit and wealth maximization goals. Thus, when controlling for other business taxes and costs, this desire to reduce the amount of SUT paid gives incentives for businesses to locate *capital expenditures* within a state that provides lower SUT on

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these expenditures. Reduction of the total SUT burden could be achieved through both lower tax rates and lower bases subject to tax (i.e., more exemptions). The effect of this behavior would be particularly pronounced in a capital-intensive industry. Since SUT are levied on purchases of tangible goods, including capital expenditures, it follows that:

$H_1$: For a capital-intensive industry, capital expenditures are inversely related to the state's SUT base and/or rate.

In addition to the level of capital expenditures, one other commonly used proxy for economic development within a state is the level of *employment*. A state's SUT policies may also influence its level of employment within certain industries. For instance, an increased reliance on SUT may relate to decreased manufacturing employment and increased service employment (Carroll and Wasylenko, 1994), while higher SUT rates may decrease employment growth within a particular region due to the increased cost of doing business (e.g., Mark et al., 2000). As an increased SUT burden within a state increases the cost of doing business and employing workers within the state, it is logical that businesses would seek to minimize this burden through minimizing both the SUT rate and the SUT base that are subject to tax. This leads to the second hypothesis:

$H_2$: For a capital-intensive industry, the level of employment in a state is inversely related to the state's SUT base and/or rate.

## Research Method

### *Sample Selection*

To test whether SUT bases and rates influence new investment or employment decisions, this study will focus on the *aggregate* measures of capital expenditures and employment for the *manufacturing* sector within a particular state. Using aggregate data enhances comparability with

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prior findings and avoids the challenges of matching firm-level data with aggregate tax variable measures.

This study will also confine its focus to the manufacturing industry for several reasons. First, prior literature suggests that SUT incentives may influence specific sectors (e.g., Carroll and Wasylenko, 1994) but not across-the board economic development; the use of a specific sector therefore provides a more precise testing ground. Second, SUTs are imposed on purchases of tangible goods. Manufacturers' production is capital-intensive and depends on the acquisition of tangible goods; companies within this industry thus will likely be more sensitive to such differences in SUT bases and rates. Third, many state legislatures have introduced SUT reductions or exemptions specifically targeting manufacturers (Mikesell, 2001). Fourth, analyzing this sector enhances comparability with prior results. While some commentators have proclaimed that the manufacturing sector now has little overall importance in the overall U.S. economy (e.g., Ramaswarmy and Rowthorn, 2000), the manufacturing industry has been credited with driving U.S. economic growth and has been particularly important in fostering economic recovery during recent recessions (Manufacturing Institute, 2006). Given the dramatic contraction in manufacturing activity during the current recession, understanding the extent to which taxation factors influence this activity is of vital importance (Schneider and Shin, 2009).

This study uses panel data on capital expenditures and employment from 1983 to 2006. The use of a long time period helps control for economic factors that may independently affect employment or capital investments (Goolsbee and Maydew, 2000) and provides a wide window during which many states have changed their SUT bases or rates (see Due and Mikesell, 1994). This sample period also enables a more recent examination of the effect of tax system changes, since the most recent broad studies of tax influences of state employment used data ending in the

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mid-1990s (Goolsbee and Maydew, 2000; Gupta and Hofmann, 2003; Harden and Hoyt, 2003; Kunce, 2006). This results in 1,200 total state-year observations.

### *Empirical Model and Variable Definitions*

Equation 1 contains the empirical model used to test $H_1$:

$$CAPX_{it} = ά + B_1 SUTRATE_{i\ t-1} + B_2 MACHINE_{it-1} + B_3 MATERIALS_{i\ t-1} + B_4 CORPRATE_{it-1} + B_5 COMBINE_{it-1} + B_6 THROW_{i\ t-1} + B_7 PROPFAC_{it-1} + B_8 PERRATE_{it-1} + B_9 INCENT_{it-1} + B_{11} VALUE_{it-1} + B_{10} BONUS_{it-1} + B_{12} ENERGY_{it-1} + B_{13} PUBLIC_{it-1} + B_{14} GROWTH_{it-1} + έ_i \quad (1)$$

where *CAPX* is the natural log of the level of capital expenditures within the manufacturing sector for a particular state in a given year; *SUTRATE*, *MACHINE,* and *MATERIALS* are the test variables measuring SUT rates and bases for the manufacturing sector; *CORPRATE, COMBINE, THROW, PROPFAC,, PERRATE*, *INCENT,* and *BONUS* are controls for other tax system variables; and *VALUE, ENERGY, PUBLIC,* and *GROWTH* are non-tax control variables. All test variables, tax system factors, and control variables are lagged for one year to control for potential endogeneity.

Equation 2 contains the empirical model used to test $H_2$:

$$EMPL_i = ά + B_1 SUTRATE_{it-1} + B_2 MACHINE_{it-1} + B_3 MATERIALS_{it-1} + B_4 CORPRATE_{it-1} + B_5 COMBINE_{it-1} + B_6 THROW_{it-1} + B_7 PAYFAC_{it-1} + B_8 PERRATE_{it-1} + B_9 INCENT_{it-1} + B_{10} VALUE_{it-1} + B_{11} STAUNEMP_{it-1} + B_{12} GROWTH_{it-1} + έ_i \quad (2)$$

where *EMPL* is the natural log of the level of employment within the manufacturing sector for a particular state in a given year; *SUTRATE*, *MACHINE,* and *MATERIALS* are the test variables measuring SUT rates and bases for the manufacturing sector; *CORPRATE, COMBINE, THROW, PAYFAC,, PERRATE*, and *INCENT,* are controls for other tax system variables; and *VALUE, STAUNEMP,* and *GROWTH* are non-tax control variables. Again, all test variables, tax system factors, and control variables are lagged for one year to control for potential endogeneity. Table

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5 describes the variables, measurement, expected signs, and data sources used to estimate the above equations.

*Dependent Variables*

As collected by the U.S. Census Bureau, the *Annual Survey of Manufacturers'* reported measure of "capital expenditures" changed during the sample period. For 1996 and previous years, information on the level of *new* capital expenditures for the manufacturing sector (as classified by SIC code) is available; for 1997 and subsequent years, data on the level of *new and used* (total) capital expenditures for the manufacturing sector (as classified by NAICS code) is available.[9] The changes in classification from SIC code to NAICS code also had significant ramifications for the classification of "manufacturing" activities. In particular, auxiliary establishments for manufacturers such as data processing or accounting services were previously classified as part of manufacturing activities under the SIC classification scheme, but are classified under the type of auxiliary activities under the NAICS classification.[10] Thus, it is necessary to bifurcate the sample.

For the purposes of testing Equation 1, these measurements are converted by taking the natural logarithmic values to correct for potential non-linear relationships and scaling concerns (Gupta and Hofmann, 2003). Therefore, following Gupta and Hofmann (2003), *SICCAPX* represents the natural log of the level of new capital expenditures for the manufacturing sector

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[9] According to the Census Bureau, "new and used capital expenditures" refers to "all expenditures during the year for both new and used structures (excluding land) and equipment chargeable to asset accounts for which depreciation amortization accounts are ordinarily maintained." Thus, expenditures for used structures would still be subject to state SUT. Refer to: http://www.census.gov/csd/ace/faq/quesnum7.htm

[10] More information on the development of the NAICS classification scheme can be found at: http://www.naics.com/info.htm

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(in millions) from 1983-1996; *NAICSCAPX* represents the natural log of the level of new and used capital expenditures for the manufacturing sector (in millions) from 1997-2006.

Likewise, during the sample period, the Bureau of Economic Analysis switched from classifying sector employment using SIC code to using NAICS code. To match the classification used for capital expenditures, following Goolsbee and Maydew (2000), *SICEMPL* is the natural log of the level of manufacturing employment (as defined by SIC code) for a given state from 1983-1996. *NAICSEMPL* is the natural log of the level of manufacturing employment (as defined by NAICS code) from 1997-2006.

### *SUT Test Variables*

Prior studies that have examined the influence of SUT on business activity have used less precise measures of SUT, such as the proportion of revenue from sales tax (Wasylenko and McGuire, 1985) or SUT revenues as a proportion of personal income (Carroll and Wasylenko, 1994; Harden and Hoyt, 2003). The present study develops more refined measures to test the influence of SUT rates and bases for the manufacturing sector. The independent variable *SUTRATE* measures the SUT rate in effect on January 1 for a given year.[11] The measures of the state sales tax base for manufacturers, *MACHINE* and *MATERIALS*, are modifications of Gupta and Hofmann's (2003) measure of the corporate income tax base, coded as the extent to which

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[11] In measuring the SUT *rate*, some difficulty may arise since local cities or counties in many states may levy an additional local-option sales tax on top of the base state rate (Goolsbee, 2000). Thus, following Goolsbee (2000), sensitivity tests restrict the sample to the states that impose a uniform statewide rate across the sample period to control for potential error in the "sales tax rate" variable in those states that also impose local option taxes. Results regarding the SUT rate are inferentially identical between the entire sample and among states only imposing a statewide rate, suggesting that insights are not lost due to the lack of data on historical local option sales tax rates.

purchases by manufacturers are generally exempt from SUT.[12] *MACHINE* reflects whether a

state exempts purchases of machinery and equipment by manufacturers; *MATERIALS* reflects

exemptions for purchases of materials used in production.[13] These variables enable the

examination of the effect of the SUT bases and rates on economic activity with a specific

industry, and are analogous to variables used in prior studies of the *corporate* income tax (e.g.,

Goolsbee and Maydew, 2000; Gupta and Hofmann, 2003).

## *Other Tax System Factors*

Other variables are needed to control for a variety of additional tax factors that could

influence state-level economic development. First, controls are needed for corporate income tax

factors since many prior studies have established a connection between these factors and

business activity. *CORPRATE* represents the highest state corporate income tax rate in effect for

a given year (Lightner, 1999; Goolsbee and Maydew, 2000; Gupta and Hofmann, 2003).

*COMBINE* controls for a state's use of combined reporting (unitary) tax system for its corporate

income tax base (Weiner, 1996; Williams et al., 2001; Gupta and Hofmann, 2003). *THROW*

measures if a state imposes the throwback rule for corporate income tax purposes (Gupta and

Hofmann, 2003).

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[12] Gupta and Hofmann (2003, p. 6) defined the corporate income tax base as "the computation of a firm's taxable income subject to tax." Thus, exemptions diminish a state's SUT base, as this reduces the total value of transactions that are subject to SUT.

[13] The classification of whether a sales tax exemption exists for manufacturing purchases of materials or machinery/equipment is complicated, particularly since states may have varying levels or types of exemptions. As indicated in Table 1, *MACHINE* and *MATERIALS* are based on *Site Selection* magazine's classification of the sales tax treatment for these items, in which items are either fully exempt (indicated as exempt with no further restrictions), partially exempt (indicated as exempt, but with restrictions, such as IRB revenue bonds, phased-in exemptions, etc.), or fully taxable (exemption not indicated).

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Second, non-corporate income tax variables are also important. *PERRATE* represents the highest state individual (personal) income tax rate in effect for a given year (Goolsbee and Maydew, 2000; Gius and Frese, 2002). *INCENT* measures the number of general tax system incentives available for the manufacturing industry (Gupta and Hofmann, 2003) not captured by the above variables.[14]

Some of the taxation variables differ based on whether capital expenditures or employment is investigated. One control includes the state's formula apportionment factors for corporate income taxation.[15] For the estimation of capital expenditures, *PROPFAC* represents the state's property apportionment factor for a given year (Gupta and Hofmann, 2003). For the estimation of employment, *PAYFAC* represents the state's payroll factor for a given year (Goolsbee and Maydew, 2000). For estimations of capital expenditures from 1997 onward, *BONUS* measures whether a state-year allows federal bonus deprecation.[16]

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[14] Following Gupta and Hofmann (2003), this variable is composed as a count of 13 non-SUT tax incentives available for businesses identified per *Site Selection Magazine*. These items include: "corporate income tax exemption," "personal income tax exemption," "excise tax exemption," "tax exemption or moratorium on land or capital improvements," "tax exemption or moratorium on equipment or machinery," "inventory tax exemption on goods in transit," "tax exemption on manufacturers' inventories," "tax incentive for creation of jobs," "tax incentive for industrial investment," "tax credits for use of specified state products," "tax stabilization agreements for specified industries," "tax exemption to encourage research and development," and "accelerated depreciation of industrial equipment."

[15] These controls are necessary because prior studies have shown that a state's formula apportionment system is related to the level of new investment (e.g., Hines, 1996; Gupta and Hofmann, 2003) and employment (e.g., Goolsbee and Maydew, 2000) within a state.

[16] Federal income tax bonus depreciation rules permitted taxpayers to take an additional amount for first-year depreciation on qualifying property purchased after September 11, 2001 and placed in service before January 1, 2005. Some states adopted these provisions, whereas others chose to "de-couple" from the federal income tax guidelines and did not permit additional deductions. Thus, controls are included for states' adoption of bonus depreciation in these qualifying years. For years before 2001, all states are coded as not allowing bonus depreciation ("0"). Beginning in 2001, states that adopted bonus depreciation are coded as "1" and those that did not are coded as "0".

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*Non-Tax System Controls*

Non-tax system factors may also affect a state's overall level of capital expenditures and employment, so controls are needed for these elements. First, estimations of both capital expenditures and employment require controls for the differences in the sizes of the states. More recent studies have used "value added by manufacturers" as a direct measure of the size of the state's manufacturing infrastructure (Klassen and Shackelford, 1998; Gupta and Hofmann, 2003).[17] *VALUE* therefore controls for the value added by the manufacturing industry in a given state and is a proxy for size that is specific to the manufacturing industry. A state's economic development may also vary due to overall economic growth; thus, *GROWTH* controls for the annual percentage change in a state's overall personal income (analogous to Goolsbee and Maydew, 2000).

Finally, some of the non-tax controls vary based on whether capital expenditures or employment are the dependent variable. For the estimation of capital expenditures, *ENERGY* controls for the average total energy costs, a large manufacturing expense that varies by state (Gupta and Hofmann, 2003). *PUBLIC* controls for a state's total general expenditures less public welfare expenditures (Gupta and Hofmann, 2003). For the estimation of employment, *STAUNEMP* controls for the state unemployment rate (Goolsbee and Maydew, 2000).

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[17] The variable "value added by manufacturers" is a measure of manufacturing activity; this is calculated as the cost of shipments less the cost for materials, supplies, fuel, electricity, containers, and contract work, adjusted for the change in beginning and year-end finished goods and work-in-process inventories. Earlier studies used state population as a control for size (e.g., Papke, 1987, 1991), but controlling for "value added by manufacturers" is a more direct control for the size of the manufacturing industry. In the current study, "population" and "value added by manufacturers" are very highly correlated (correlation coefficient > 0.90); thus, only "value added by manufacturers" is used for purposes of the analysis.

## *Method of Analysis*

The sample period for both capital expenditures and manufacturing employment begins in 1983. Both dependent variables have data available through 1996 using SIC codes to classify manufacturing activity, resulting in an initial model of 700 state-years (14 years x 50 states). Data for dependent variables using the NAICS code for manufacturing is available for both dependent variables from 1997 through 2006, resulting in a second model of 500 state-years (10 years x 50 states). These initial models include information from all states, including those that lack either a statewide sales and use tax or corporate income tax.[18]

The basic approach to testing the hypothesized relationships is to determine whether states with a lower SUT rate and more SUT exemptions for manufacturers have higher levels of capital expenditures and/or employment, when controlling for other tax and non-tax factors. Each relationship is tested using a basic pooled model (with no controls for state-specific or temporal effects), a model with state dummy variables (i.e., state fixed-effect model), and a model with both state and year dummy variables (i.e., two-way fixed-effects model). While the pooled model controls for factors established in the prior literature as influencing capital expenditures and employment, there are likely an array of other state-specific factors that could affect economic development activities (such as labor costs, education level of the workforce, transportation infrastructure, etc.). Thus, the inclusion of state dummy variables controls for any additional unmeasured state-specific factors that could influence capital expenditures and

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[18] Alaska, Delaware, Montana, Oregon, and New Hampshire do not impose a statewide sales and use tax; these states are therefore coded as imposing a tax rate of "zero," full sales and use tax exemptions, and so forth. However, subsequent sensitivity analysis considers which elements of states' tax systems influence economic development by restricting the analysis to the 39 states that impose both corporate and sales and use taxes; results on this subsequent analysis are reported later. (States that lack a corporate income tax are: Michigan, Texas, Nevada, South Dakota, Washington, and Wyoming (Gupta and Hofmann, 2003)).

employment (Gupta and Hofmann, 2003). The final model specification includes state dummy variables as well as *year* dummy variables to also control for any additional unmeasured differences across years that could influence the dependent variables (such as nationwide recessions; Goolsbee and Maydew 2000).

All three types of models offer different levels of inference. The basic *pooled model* provides information on the across-the-board differences among the states. Thus, this model provides information on *cross-state differences* over time (i.e., *interstate* differences) in the relationship between tax system factors and the dependent variables (capital expenditures and employment) when controlling for the non-tax system factors specified in the empirical model (see Equations 1 and 2). The *state fixed-effect model* (i.e., including dummy variables for the states) controls for unobservable state-specific effects that do not vary over time. Thus, this model provides information on *within-state differences* over time (i.e., *intrastate* differences) in the influence of tax system factors on the dependent variables. The *two-way fixed-effects model* (i.e., including dummy variables for both the states and years) controls for both unobservable state-specific effects (assumed not to vary over time) and unobservable time-specific effects (assumed not to vary across states). Thus, this model provides information on *within-state differences when controlling for temporal differences* in the influence of tax system factors on the dependent variables.

## Results

### *Hypothesis 1 – Capital Expenditures*

#### *Descriptive Statistics and Correlations*

Table 6 presents descriptive statistics for the variables included in the capital

expenditures models, as well the Pearson correlation matrix of the variables included in the

models. Examination of the summary information shows that over the entire sample period for

all states, the mean statewide sales tax rate was 4.45%, and most states either partially or fully

exempted purchases of materials or machinery and equipment by manufacturers. Surprisingly,

the lagged value of *SUTRATE* is strongly *positively* correlated with both *SICCAPX* and

*NAICSCPAX* (correlations > 0.30). However, the lagged values of *MACHINE* and *MATERIALS*

are both significantly positively correlated with both measures of capital expenditures,

suggesting that increased exemptions are associated with increased capital expenditures.[19]

#### *Model Results – New Capital Expenditures, 1983-1996*

Table 7 reports the results for the models of new capital expenditures for 1983-1996,

including the pooled model, the model with state dummy variables (state fixed-effect model) and

the model with both state and year dummy variables (two-way fixed-effects model).[20] The table

contains the coefficient estimates for each independent variable and the applicable t-statistics, all

of which are corrected for heteroskedasticity using robust standard errors. The adjusted $R^2$ of the

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[19] None of the correlations between the test variables and other independent variables exceed 0.35. Variance Inflation Factors (VIF) for both the capital expenditure and employment models are all inspected to ensure that the model does not suffer from multicollinearity. In all models, the VIFs are below 10.0, suggesting that multicollinearity is not a problem hampering the overall interpretation of the model.

[20] For all reported fixed-effect models in the study, a Hausman (1978) test was conducted to determine whether a fixed-effects or random-effects model was more appropriate. In all cases, the Hausman test indicated that the fixed-effect model was preferred. Thus, random effects models are never presented.

pooled model is 0.78; the adjusted $R^2$ is 0.96 when including state dummy variables, a result in line with Gupta and Hofmann (2003), and is 0.97 when including controls for both state and temporal effects.

The first column in Table 7 presents the model results for the pooled model, which compares *across* states over time. Results indicate that for the pooled model, the coefficients for *MACHINE* and *MATERIALS* are both positively related to *SICCAPX* ($p < .01$, all tests two-tailed); thus, new capital expenditures are higher in states that offer more exemptions for these purchases. However, *SUTRATE* is also positively related to new capital expenditures ($p < .01$), which also implies that new capital expenditures are higher in states with higher SUT rates. The coefficients on all remaining tax system factors and control variables are statistically significant in the predicted direction, with the exception of *CORPRATE* and *PERRATE*, which fail to reach statistical significance, and *PROPFAC,* which is unexpectedly positive.

The second column in Table 7 presents the model results when controlling for state fixed-effects (i.e., including state dummy variables), which enables *within-state* comparisons over time. With this model specification, the coefficients on both *MATERIALS* and *SUTRATE* remain positive and statistically significant ($p < .05$). The final column in Table 7 uses a two-way fixed-effects model (i.e., including state and year dummy variables) which compares within states when controlling for temporal differences. In this specification, the *SUTRATE* is no longer statistically significant. Instead, the coefficients for *MACHINE* ($p < .05$, two-tailed) and *MATERIALS* ($p < .10$, two-tailed) are both positive and statistically significant. None of the tax system control factor remain statistically significant across all model specifications, although both the negative coefficient on *THROW* and the positive coefficient on *INCENT* are statistically significant in both the pooled model (across states) and the model with state dummy variables

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(within states), a result in line with Gupta and Hofmann (2003). Across all model specifications, the coefficient on *PUBLIC* is negatively related to capital expenditures ($p < .01$). [21] The coefficients on both *VALUE* and *GROWTH* are positive and highly significant ($p < .01$), as predicted.

Examining all three models of new capital expenditures together suggests that the seemingly surprising result for *SUTRATE* is likely due to a failure to control for time-specific effects. Closer inspection of the changes in SUT rates across the period suggests that many states increased their SUT rates in unison at certain points in the business cycle, particularly during the recession of the early 1980s.[22] These results also show the importance of exemptions for machinery and materials in a state's level of new capital expenditures. This suggests that the SUT *base* is more important than the rate in influencing new capital expenditures. Results also suggest that the throwback rule, an element of the corporate income tax base, has a greater influence on new capital expenditures than does the corporate income tax rate alone. In contrast to the conclusions of prior literature (e.g., Goolsbee and Maydew, 2000; Gupta and Hofmann, 2003), by itself, the property factor weight has little influence on new capital expenditures when controlling for elements of the SUT system and both state and year effects. Thus, the significance of elements of the tax system base appears to outweigh rates alone. SUT exemptions

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[21] The negative coefficient on *PUBLIC* implies that more governmental expenditures are associated with less capital expenditures by manufacturers, a result consistent with Gupta and Hofmann (2003). While this finding may appear counter-intuitive, one explanation is that "…to the extent that public expenditures are funded by taxes, higher…public spending may simply reflect higher tax burdens, and thus discourage business expansion" (Gupta and Hofmann, 2003, p. 15).

[22] Supplemental analysis restricts the model of capital expenditures from 1988-1996 (with all independent variables lagged by one year) to exclude the SUT changes during the early- and mid-1980s. While the coefficient on *SUTRATE* remains significantly positive in the pooled model, it is no longer statistically significant in the state fixed-effect model (i.e., including state dummies). This suggests that the seemingly positive relationship between SUT rates and capital expenditures is likely due to an effect of the early- and mid-1980s.

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may matter more because such exemptions are specifically targeted to the manufacturing sector and have a greater effect on overall taxes paid than rates alone.[23]

*Model Results – New and Used Capital Expenditures, 1997-2006*

Table 8 presents the results for analyses of new and used capital expenditures for 1997-2006. The models' overall predictive power in explaining statewide capital expenditures is similar to the earlier years (adjusted $R^2$ of 0.75 in the pooled model and 0.97 when including state and year dummies). The coefficient for *SUTRATE* is again strongly positive and statistically significant ($p < .01$) in the pooled model; however, the variable is no longer statistically significant when controlling for state and temporal effects. Again, this suggests that while states with more capital expenditures do tend to impose higher sales tax rates, the relationship between capital expenditures and sales tax rates is due to other state-specific or macroeconomic factors. In contrast to earlier periods, exemptions for machinery and materials appear to have little influence on capital expenditures in later periods. The coefficient on *MATERIALS* is positively related to new and used capital expenditures in the pooled model ($p < .05$, two-tailed), but loses statistical significance when controlling for state and year effects. This suggests that while states with higher levels of capital expenditures tend to exempt manufacturers' purchase of materials, within-state differences are negligible. Likewise, the coefficient on *MACHINE* never reaches statistical significance in any of the model specifications. Thus, the SUT rate and base do not explain capital expenditures in more recent times.

The results for some of the other tax variables are puzzling. As predicted, the coefficient for combined return reporting has a significantly negative relationship with the capital

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[23] This finding may be reflective of the fact that changes in sales tax rates (e.g., 6% compared to 5%) are less dramatic than changes in the SUT base (e.g., 6% compared to 0%).

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expenditures in the pooled model ($p < .01$), but has a statistically significantly positive

relationship in both of the fixed-effects models ($p < .10$ for both models). Likewise, the

coefficient for *INCENT* is in the predicted positive direction in the pooled model, but becomes

negative when controlling for state-specific and temporal effects ($p < .01$ for both models). These

changes in the sign of the coefficients between the models suggest that the patterns seen in

comparing across states (pooled model) are not robust to making comparisons within a state

(fixed-effect models). The coefficient on *PROPFAC* is significantly positive across all model

specifications ($p < .10$). None of the other tax system factors has any statistical significance

across the different model specifications. Again, the control variables *VALUE* and *GROWTH*

have a have a strong positive relationship with *NAICSCAPX*, while *PUBLIC* has a strong

negative relationship.

Overall, these results suggest that while favorable tax system factors are associated with

recent capital expenditures across the states, the state's use of a favorable tax system element

(e.g., the absence of combined return reporting or the throwback rule, a greater number of tax

incentives, etc.) is not associated with greater capital expenditures *within* the state. In particular,

elements of the SUT system have had little influence.[24]

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[24] A variety of sensitivity tests were conducted to consider whether variables definitions and model specification affect the robustness of the results. First, all analyses were rerun using data from the 39 states that impose both the SUT and the corporate income tax. Second, analysis was conducted on the 13 states that only impose a single statewide rate for all years of the study's sample to control for potential variations in local option rates (Goolsbee, 2000).Third, a state's overall SUT revenue as a proportion of total personal income was substituted for the SUT rate (Carroll and Wasylenko, 1994; Harden and Hoyt, 2003). Fourth, further analysis used a binary measure of exemptions (distinguishing between those states that fully tax these manufacturing purchases and those that offer some degree of exemption as indicated by *Site Selection*). Fifth, analysis considered the product of the SUT rate and the tax treatment of machinery and materials. None of these sensitivity analyses changed the interpretation of the reported results.

*Hypothesis 2 – Manufacturing Employment*

*Descriptive Statistics and Correlations*

Table 9 shows summary statistics and the correlation matrix for the variables included in the employment model. The lagged variable of *SUTRATE* is strongly *positively* correlated with both *SICEMPL* and *NAICSEMPL*, indicating that states with higher sales and use tax rates had higher manufacturing employment over the sample period (both correlations > 0.35). The lagged values of both *MACHINE* and *MATERIALS* are also both strongly positively correlated with both measures of manufacturing employment, showing that states with higher manufacturing employment tended to have more exemptions for purchases made by manufacturers.

*Model Results – Manufacturing Employment (SIC Code), 1983-1996*

Table 10 presents the results of the models of manufacturing employment for 1983-1996, including both the pooled model and the two fixed-effect models. The adjusted $R^2$ for the pooled model is 0.72; the value improves to 0.99 when controlling for state and year effects, a result in line with Goolsbee and Maydew (2000). One strong result across all model specifications is that the coefficient on *SUTRATE* is strongly positive ($p < .01$). This suggests that manufacturing employment is higher in states with *higher* SUT rates, and that within-state differences follow this pattern as well. This result is puzzling. Closer inspection suggests that states with a greater manufacturing base may have been more likely to impose higher SUT rates, as manufacturers may have already located in a state *before* its SUT rates increased.[25] The coefficient on

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[25] For example, the five states that do not impose statewide SUT and hence have a 0% rate for the purposes of this model (Alaska, Delaware, Montana, New Hampshire, and Oregon) do not have a strong manufacturing base. Many of the states with highest capital expenditures in the manufacturing sector (such as California, Michigan, Ohio, Pennsylvania, and Texas) also imposed much higher SUT rates than average, even at the beginning of the sample period (and even when lagging a year for endogeneity concerns). This suggests that during this period, the presence of a manufacturing base may drive states to alter their SUT rates, rather than the alternative.

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*MATERIALS* is significantly positive in the pooled model, but never attains statistical significance in either of the two fixed-effect models. However, the coefficient of *MACHINE* is positive and statistically significant in both the pooled model and in both of the fixed-effect model specifications (all $p < .05$). Thus, manufacturing employment for 1983-1996 was higher in states that exempted manufacturers' purchases of machinery and equipment, and this relationship was robust to comparisons within states.

The interpretation of many of the tax control variables changes when controlling for state and temporal effects, suggesting that the differences seen across states over time are not present when comparing within states. The coefficient on *CORPRATE* is positive in the pooled model ($p < .01$), but is negative in the model controlling for state-specification effects ($p < .10$) and loses statistical significance when controlling for both state and temporal effects. The coefficient on *COMBINE* is significantly negative in the pooled model, but loses statistical significance in both of the fixed-effect specifications. As predicted, the coefficients on *PERRATE* and *INCENT* in the pooled model are significantly negative and positive, respectively, but the sign of these coefficients reverses when controlling for fixed and temporal effects (all $p < .10$, two-tailed). This indicates that states with higher levels of manufacturing employment tend to impose a lower tax burden on businesses, but this relationship is absent *within* states.

The results for manufacturing employment (SIC code) for 1983-1996 provide further evidence that SUT *exemptions,* rather than the SUT rate itself, are the enticements that lead to increased manufacturing employment within a state. In conjunction with the findings for capital expenditures for 1983-1996, this indicates that SUT exemptions for machinery are particularly beneficial for economic development.

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*Model Results – Manufacturing Employment (NAICS Code), 1997-2006*

Table 11 details the results for the various model specifications for manufacturing

employment (NAICS code) from 1997-2006. The overall predictive power of the models is

similar to the earlier years (adjusted $R^2$ of 0.73 for the pooled model, increasing to 0.99 when

controlling for state and year effects). The overall interpretation of these results is also similar to

the findings for the earlier years. While the coefficient on *SUTRATE* is again strongly positive

for the pooled model, it is significantly negative in the fixed-effect specification (both $p < .05$)

and loses statistical significance when controlling for both state-specific and year effects. The

coefficients of *MACHINE* and *MATERIALS* are positive and statistically significant in the pooled

model and in both of the fixed-effect model specifications (all $p < .05$), indicating that SUT

exemptions are associated with higher levels of manufacturing employment both across and

within states. Thus, elements of the SUT base appear to have a positive influence on

manufacturing employment in later years, whereas the effect of the SUT rate is inconsistent.

The other tax system factors do not demonstrate a consistent relationship with

manufacturing employment. One exception is that the coefficient for *PERRATE* is negative in

both the pooled model and when controlling for state and temporal effects ($p < .05$). For the

other tax control variables, the coefficients on *COMBINE*, *PAYFAC*, and *INCENT* are all

statistically significant in the predicted direction for the pooled model, but either lose statistical

significance or switch signs when controlling for state and temporal effects. In the more recent

model specification for manufacturing employment, the coefficient for *PAYFAC* is negative in

the pooled model ($p < .10$), but is strongly positive in the two-way fixed-effects model ($p < .01$).

Overall, these findings provide further evidence that the cross-state relationship of favorable tax

system factors with high levels of manufacturing employment is not present within states (i.e.,

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when controlling for state-specific and/or temporal effects). However, the presence of SUT exemptions appear to be beneficial for increased manufacturing employment in more recent times.

Additional sensitivity analyses examine the robustness of these findings. The interpretation of the presented results does not change under the majority of the alternative analyses.[26] One additional analysis substitutes a measure of state SUT reliance (a state's overall SUT revenue as a proportion of total personal income, Carroll and Wasylenko, 1994; Harden and Hoyt, 2003) for the SUT rate.[27] When controlling for state and temporal effects, this measure has a positive relationship with manufacturing employment in the earlier years (in line with the effect of the SUT rate), but has a *negative* relationship with employment in the later years (1997-2006). This suggests that heavier state reliance on SUT in more recent years is associated with decreased statewide manufacturing employment.[28]

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[26]The sensitivity tests for the employment models were similar to the sensitivity tests conducted for the specifications of capital expenditures. First, analyses were conducted using data from only the 39 states that impose both the SUT and corporate income tax. Second, analyses were rerun using only the 13 states that impose a single statewide rate for all years of the sample. Third, further analysis used a binary measure of exemptions (between those fully taxing and those offering some degree of exemptions). Fourth, tests considered the effect of the product between the state's SUT rate and its exemptions for machinery or materials. In all cases, these sensitivity analyses did not change the interpretation of the reported results.

[27] These two measures are very highly correlated (correlation coefficient = 0.69) and hence are not included in the same model due to multicollinearity concerns.

[28] Supplemental analysis considers the effect of *only* including year fixed-effects (i.e., year dummy variables) for all of the capital expenditure and employment models. The model results for all SUT test variables and other tax system factors were inferentially identical between the year fixed-effect specifications and the pooled models. The only exception was that whereas the coefficient on *PAYFAC* did not have a statistically significant relationship in the pooled model of manufacturing employment for 1997-2006, the coefficient was significantly negative when controlling for year effects ($p < .06$, two-tailed).

*Practical Effect*

The study's findings also provide information regarding the relative economic influence of the different tax incentives. All models of capital expenditures and manufacturing employment examined these dependent variables in logarithmic form. Thus, analysis of the coefficients of the independent variables included in these equations represents the percentage change in the dependent variable due to a unit change in each independent variable. Across all model specifications, the economic influence of the applicable tax variables is relatively small, particularly when controlling for state and time effects.

For example, Table 11 indicates that for manufacturing employment for 1997-2006, the coefficient on *MACHINE* when controlling for state-specific and temporal is 0.043. As this variable was measured at three different levels, this means that a change within a state from fully taxing machinery to offering limited exemptions, or between offering limited exemptions and fully exempting the purchase, would increase state manufacturing employment by 0.043%. Given that the average state manufacturing employment was 322,729 jobs during this period, this means that an increase in the level of SUT exemptions for machinery would result in an addition of less than140 manufacturing jobs for the average state per year.[29] Similarly, Table 7 indicates that the coefficient on *MACHINE* for new capital expenditures from 1983-1996 was 0.051. With the average statewide value of new capital expenditures at approximately $1.96 billion across the sample period, this implies that the average state would experience an addition of less than $1 million in new capital expenditures due to a change between these levels of exemptions. The

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[29] Across the different presented models, many of the coefficients measuring SUT exemptions reached statistical significance. However, an inspection of the size of the coefficients shows that their economic influence is small, particularly when controlling for state and time effects. This finding is in line with intraregional studies that have shown a negligible economic influence for SUT exemptions on employment within distressed areas (see Buss, 2001).

seemingly small practical effects of SUT exemptions may be a result of states' adoption of exemptions as a means of protecting existing industries or in response to tax competition from other states (e.g., Omer and Shelley, 2004). While elements of the SUT system are only a small part of a very complex process, the relatively small size of economic development growth due to these SUT elements when controlling for state and year effects may give policymakers pause.

## Discussion

### *Summary of Findings*

Overall, the study's results suggest that SUT exemptions are more important than the SUT rate itself in encouraging economic development in the manufacturing sector. Hypothesis 1 examined whether SUT factors have influenced capital expenditures by manufacturers. Results from state-level panel data from 1983-2006 do not demonstrate that higher SUT rates have hampered manufacturers' capital expenditures. Instead, results suggest that the level of SUT exemptions for manufacturers' purchases of machinery and materials had a positive effect on the level of capital expenditures for the 1983-1996 period, but played a more negligible role in the 1997-2006 period. Since the number of states offering SUT exemptions has increased since the 1980s, perhaps the marginal influence of these incentives has declined. This could be evidence of a "race to the bottom" (Goolsbee and Maydew, 2000; Gupta and Hofmann, 2003; see also Fox and Murray, 2004) that is present in both the SUT arena as well as in the corporate income tax realm.

Hypothesis 2 investigated the effect of SUT factors on manufacturing employment. Again, higher state SUT rates did not act as a deterrent to increases in manufacturing employment; SUT exemptions were more important. Among all states, exempting

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manufacturers' purchases of machinery has a statistically significant positive effect for all sample years, whereas exempting purchases of materials also has an influence on employment during the 1997-2006 period. This finding is in line with the conclusion that the tax *base* has a more important role in facets of economic development than the tax rate itself (Gupta and Hofmann, 2003). However, the practical effect of SUT exemptions on both measures of economic development appears small.

### *Limitations*

The results of this study should be interpreted in conjunction with its limitations. First, due to the switch from SIC to NAICS for industry classification for the manufacturing sector, the dependent variables of capital expenditures and employment in the manufacturing sector were not measured in the same manner across all sample periods. However, separate analyses were conducted from 1983-1996 and for 1997-2006, which also enables the investigation of whether any independent variables were of greater importance in different periods. Second, data on "new" capital expenditures is available for the earlier period, whereas the later period used "new and used" capital expenditures. While capital expenditures on used structures are still subject to SUT, this change may present difficulties in comparing between sample periods for this variable. Third, the measurement of the SUT variables is also imprecise. No two states offer identical SUT exemptions for manufacturers, as many differ in their definitions of the manufacturing process itself and in when the production process begins; thus, much subjectivity exists in classification of the SUT treatment of transactions. However, data on SUT exemptions was drawn from a third-party source that had independently classified the tax treatment for these transactions across the sample period, and additional analysis used alternative measurement schemes. Fourth, a host

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of additional factors may have influenced manufacturers' capital expenditures or employment; however, all results are presented in conjunction with controls for state-specific and temporal effects. Finally, results may be subject to potentially endogeneity. While this study did not use instrumental variables, the study's use of lagged independent variables and fixed-effect models does help address this concern.

## *Conclusion*

The results of this study are important for academics and policymakers alike. The findings suggest that state SUT exemptions may play a role in fostering increased capital expenditures and employment within the manufacturing sector, but that the SUT rate itself does not. The lack of importance for the SUT rate parallels the findings of other studies that have found that the corporate income tax rate itself has a limited role in economic development (e.g., Goolsbee and Maydew, 2000; Gupta and Hofmann, 2003). Indeed, in the pooled model specifications, SUT rates are *positively* related to capital expenditures and manufacturing employment - suggesting that states with higher levels of economic development in the manufacturing sector also have higher SUT rates; thus, high SUT rates are not a deterrent to manufacturers. This also could be because SUT exemptions for purchases of materials and machinery/equipment are specifically tailored for the manufacturing sector. Thus, these industry-specific incentives play a more important role.

This study makes several contributions to the taxation literature. First, this study indicates that SUT exemptions have had an influence on capital expenditures and employment. The study addresses the concerns raised by Bartik (1989), who argued that targeted SUT exemptions, such as those available for manufacturers, could be a useful platform for examining the influence of

SUT. Thus, the findings add to the literature on how SUT affect businesses (e.g., Petroni and Shackelford, 1999) in terms of these aggregate measures. Second, this study addresses a number of corporate income tax factors in conjunction with the SUT factors. Interestingly, when controlling for state and year effects, little evidence exists that favorable corporate income tax treatment has a beneficial influence on within-state economic development. Overall study results provide further evidence that many tax system changes meant to affect economic development may not have the desired effect (Fox and Murray, 2004).

Finally, the results of the study are particularly important for policymakers. In the ongoing economic recession, policymakers have placed increased attention on the balance between using the tax code to stimulate economic development and satisfying their own revenue needs (e.g., Brunell, 2008). The results of this study provide information of how SUT exemptions may influence business activity.

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## STUDY TWO: USE TAX VERSUS INDIVIDUAL INCOME TAX COMPLIANCE

### Introduction

Taxpayer non-compliance is a significant problem in the United States. Estimates of the annual "compliance gap" at the federal level run to nearly $345 billion, signifying an immense difference between tax owed under provisions of the tax law and taxes actually paid (Mazur and Plumley, 2007). The problem of taxpayer non-compliance is so serious that Weisbach and Plesko (2007, p. 110) comment, "…tax compliance and administration are the biggest and most important unanswered questions" in taxation research.

Taxpayers that underreport their tax liabilities are considered non-compliant. This non-compliance may be attributable to ignorance (underreporting due to unawareness of proper tax treatment) or tax evasion (deliberate underreporting). While ignorance has not been a frequent topic of prior research, tax evasion has been extensively studied. Early studies of tax compliance focused on economic models of tax evasion (e.g., Allingham and Sandmo, 1972). However, pure economic models fail to account for all causes of taxpayer compliance (Andreoni et al., 1998) and do not explain why taxpayers comply at rates higher than predicted by these pure economic models (Alm et al., 1992; Korobow et al., 2007). Recent research has recognized the importance of *non-economic factors* in explaining tax compliance.

One significant non-economic factor is the social psychological construct of *social norms*, which are collectively understood standards of social behavior that influence individuals' actions (Cialdini and Trost, 1998). Social norms of tax compliance have been found to influence individuals' federal income tax compliance decisions (e.g., Cowell, 1990; Alm et al., 1995; Wenzel, 2004; Bobek et al., 2007b; Korobow et al., 2007). Another non-economic factor which

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may influence individual tax compliance is the *tax setting*; for instance, income tax compliance may be different based on the specific income or expense item (e.g., Bobek and Hatfield, 2003; Wenzel, 2004) or between taxpayers in different countries (e.g., Alm et al., 1995**;** Bobek et al., 2007b). However, these prior tax compliance studies of non-economic factors are united in their examination of *income tax* compliance; in particular, "there is a large literature on individual compliance with the income tax, but little work on compliance with other taxes" (Alm et al., 2004, p. 210). Thus, the general findings about income tax compliance may not apply to other types of taxation. One important example of this is state use tax. Like income tax, *state use tax* compliance requires taxpayers to self-report, but overall use tax compliance rates are abysmal and result in billions of dollars a year in lost taxation revenue (Hass, 2004; Bruce et al., 2009).

The primary purpose of this study is to extend prior research by comparing taxpayer compliance across two different tax settings: federal income tax and state use tax. Specifically, this study examines whether social norms, detection mechanisms, and/or ignorance explain potential differences in compliance rates across different settings, and assesses the relative importance of these explanatory factors. This study also investigates whether social norms vary between different tax settings. These relationships are explored with a three-by-two between-subjects experimental design eliciting taxpayers' responses to hypothetical compliance scenarios across different tax settings (use tax, income tax on a gain, and income tax on cash income) and detection mechanisms (present or absent).

Based on the final sample of 148 experienced taxpayers, the results indicate that both social norms and tax compliance behavior differ across tax settings. Specifically, taxpayers in the study had social norms that were more favorable toward tax compliance in a federal income tax setting (i.e., cash income reporting) than in a state use tax setting. Taxpayers also displayed

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higher compliance intentions for federal income tax than for state use tax. Results indicated that these differences in compliance intentions were at least partially due to differences in social norms across different tax settings. Interestingly, some differences in social norms and compliance intentions were also observed between different *income tax* settings, despite the fact that both were income tax items that represented equal monetary payments and relied fully on self-reporting. Overall, the results indicate that the tax setting has an important influence on the social norms of tax compliance and on tax compliance behavior itself.

The results of this study contribute to the tax compliance literature in several important ways. First, this study extends individual taxpayer compliance research to a non-income tax (state use tax), and demonstrates that some explanatory factors have a varying influence across different tax settings. This provides additional evidence that individual tax compliance behavior is context-specific and is influenced by the applicable tax setting (e.g., Bobek and Hatfield, 2003). Second, the importance of social norms in this study provides support regarding the significance of non-economic factors in tax compliance behavior (Andreoni et al., 1998). Future tax compliance researchers should therefore be precise in their examination of tax compliance settings and the associated explanatory variables. Finally, the results suggest that policymakers seeking to improve tax compliance rates may need to focus on specific tax settings to successfully influence compliance.

The remainder of this chapter is organized as follows. The second section develops hypotheses. The third section details the research method. The fourth section presents results. The fifth section concludes.

## Theory and Prior Research

### *Background on Tax Setting*

While prior tax compliance studies have almost uniformly examined the income tax (e.g., Andreoni et al., 1998; Alm et al., 2004), understanding compliance with other tax settings is also important. One alternative tax setting is sales and use taxation (SUT), which constitutes states' largest source of revenue (U.S. Census Bureau, 2008). Understanding SUT compliance is critical given the recent economic downturn and state governments' increased emphasis on enforcing existing tax laws. In a review of the literature, Andreoni et al., (1998) implied that SUT compliance could have different antecedents than income tax compliance, but that this area has not been extensively investigated. This may be especially true for individual *use taxes*. Consumers are typically responsible for paying use tax in their state on property purchased remotely or out-of-state on transactions that either are not originally subject to sales tax, or are originally subject to a differential (lower) sales tax rate (Due and Mikesell, 1994). While retailers collect sales taxes at the time of a sale, retailers do not collect use taxes; instead, individual consumers entirely self-assess and pay the use tax to the appropriate governmental agency.

Most states have imposed use taxes for decades, but compliance among individual consumers has historically been almost nonexistent (Goolsbee, 2000).[40] Within the past decade, however, the rise in electronic commerce has fueled states' concern with individuals' non-compliance with use tax laws. Indeed, due to increases in online sales, the Multistate Tax Commission estimated that approximately $15 to $17 billion per year is lost due to individual non-compliance with the state use tax (Haas, 2004). State revenue departments have responded

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[40] Business taxpayers are routinely audited for compliance with both sales and use tax provisions (see Alm et al., 2004), but identifying the use tax due from individual taxpayers has historically been difficult.

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with increased compliance mechanisms, amnesty programs, and taxpayer education, but overall compliance is still around 1%.[41] This low compliance rate may stem from economic factors such as a lack of sufficient enforcement by state revenue departments (Huefner and Hibschweiler, 2004). Given the importance of non-economic factors such as social norms in explaining income tax compliance, however, these factors may also play a role in explaining why use tax compliance rates are so low. Thus, understanding the social norms of tax compliance is an integral part of targeting the compliance gap.

### *Social Norms Theory*

The social psychology theory of *social norms* posits that human behavior can at least partially be explained by understanding the social norms governing a specific action. The construct of *social norms* refers to, "rules and standards that are understood by members of a group, and that guide and/or constrain social behavior without the force of laws" (Cialdini and Trost, 1998, p. 152). Social norm theorists predict that social norms will influence individuals' behavior to the extent that individuals seek to "…act effectively, to build and maintain relationships with others, and to maintain self-image…." (Cialdini and Trost, 1998, p. 152). Social norms include expectations both of society in general (either general societal expectations or observations of others' behavior) and those of close personal connections (either arising from ourselves or close others). Thus, individuals are driven to conform to applicable social norms held for a given behavior (Cialdini and Trost, 1998). Legal scholars posit that when laws are aligned with social norms, compliance will be higher because the law will enforce existing social

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[41] The individual use tax compliance rate of 1% is in stark contrast to the estimates that around 68% of income not subject to withholding or informational reporting is reported to the Internal Revenue Service (National Tax Advocate, 2005).

sanctions (Cooter, 2000). Social norms may therefore have an important influence on tax compliance decisions, and may serve to curb non-compliance when the tax law and social norms of tax compliance are aligned.

Social norms originate from internal values, close personal connections, and society in general; all may influence behavior. Norms for behavior include *personal norms,* which concern individuals' own expectations for behavior, and *subjective norms*, which pertain to expectations from valued or close others (Cialdini and Trost, 1998). Personal norms arise from self-internalized values and reflect private ethical or moral standards of behavior (Schwartz, 1977); thus, individuals are likely to comply with personal norms to preserve self-worth and to avoid negative self-images (Schwartz, 1977; Cialdini and Trost, 1998). Subjective norms are the perceptions of perceived "important" individuals, such as close friends or family members, and arise from individuals' perceptions of *whose* opinions are important and *what* constitutes those opinions or expectations. Individuals are likely to comply with the expectations of those close to them when they value the relationship or perceive the referent "other" as similar to themselves (Cialdini and Trost, 1998).

Another broad category of social norms concerns general societal expectations and individuals' perceptions and observations of others' behavior (Cialdini and Trost, 1998). Both types concern society at large; *injunctive norms* refer to societal expectations of appropriate behavior, whereas *descriptive norms* pertain to the actual behavior of others. Similar to personal and subjective norms, injunctive norms also consist of perceived expectations of behavior; however, injunctive norms arise from a much broader definition of societal "others." Individuals are likely to follow injunctive norms to garner social approval by others or to avoid social sanctions. Like subjective norms, individuals are even more likely to be attuned to injunctive

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norms if they see the source as similar to themselves or wish to foster a positive relationship with the originating group (Cialdini and Trost, 1998). In contrast, descriptive norms do not concern expectations, but are "…derived from what other people *do* in any given situation" (Cialdini and Trost, 1998, p. 155). Descriptive norms are particularly powerful in influencing individuals' behavior in new, ambiguous, or uncertain situations (Cialdini and Trost, 1998).

Prior tax researchers have primarily investigated the *influence* of social norms on tax compliance behavior (e.g., Davis et al., 2003), but have devoted less attention to understanding the composition of the social norms of tax compliance *themselves*. Social norms originate as a means of describing and explaining different types of human behavior and differ depending on the behavior described. Thus, norms governing different types of behavior will vary, even if the types of behavior have communalities (Cialdini and Trost, 1998). One difference in behavior concerns the *tax setting*. Individuals' tax compliance behavior is not a simple decision, but spans multiple types of taxes (e.g., income or use tax) and decisions within a particular type of tax (e.g., the amount of an income or deduction item to report). Each setting is also rooted in a different set of laws. Given that different tax settings constitute different types of behavior, this leads to the first hypothesis:

$H_1$: Social norms of tax compliance will differ based on the tax setting.

### *Factors in Tax Compliance Intentions*

One reason that understanding the differences in social norms across different tax settings is important is due to their influence on individuals' tax compliance decisions. Prior tax compliance research (e.g., Andreoni et al., 1998) has focused on both economic (e.g., detection rates) and non-economic (e.g., social norms) causes of *tax evasion* (i.e., purposeful

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underreporting). *Economic factors* focus on the monetary consequences of tax evasion, including the risk of detection and the severity of punishment (Allingham and Sandmo, 1972). *Social norms of tax compliance* are individuals' standards of acceptable behavior regarding compliance with tax laws. Individuals' non-compliance behavior may also be attributable to *ignorance* (unawareness of proper tax treatment). Thus, economic factors (such as the presence or absence of a detection mechanism), social norms, and ignorance may all affect tax compliance intentions. Moreover, differences in these factors may explain differences in tax compliance intentions across diverse tax settings. Figure 1 depicts the experimental model of the hypothesized relationships; the influence of each variable is discussed in the sections below.

*Economic Factors and Compliance*

One important set of factors that can influence taxpayers' compliance are *economic* factors pertaining to the probability of *detection* and the *penalty* if caught. Simply stated, the economic theory of tax evasion predicts that tax compliance is more likely to the extent that the economic consequences of not complying, such as detection and punishment, are higher. One of the earliest theoretical models of income tax evasion was the work of Allingham and Sandmo (1972), who used theory on the economics of crime to predict that as rational, utility-maximizing individuals, taxpayers' compliance behavior is influenced by both the penalty rate and the probability of detection. Allinghm and Sandmo (1972) predicted that increasing the penalty rate tends to increase the amount of income declared and decrease the amount of income tax evasion, whereas increasing the detection probability also decreases evasion. Thus, policymakers can increase penalties and increase audit expenditures to reduce potential non-compliance. The simple model of Allingham and Sandmo has been highly influential in subsequent empirical

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studies of tax evasion (Sandmo, 2005), including studies of taxpayer compliance in laboratory settings (Alm and Jacobson, 2007).

Researchers have built upon Allingham and Sandmo's (1972) basic theoretical model in explaining taxpayer compliance. For example, while Allingham and Sandmo (1972) only examined the actual probability of detection, subsequent work has found that the *perceived* probability of detection is more pertinent to taxpayers' compliance decisions (e.g., Carnes and Englebrecht, 1995). Even with these modifications, however, pure economic models of tax compliance vastly over-predict rates of non-compliance and fail to explain current levels of income tax compliance (Korobow et al., 2007). Economists have remarked that examinations of tax compliance should therefore incorporate non-economic contextual factors (Andreoni et al., 1998; Slemrod, 2007). Social norms constitute one such important non-economic variable.

### *Social Norms and Compliance*

Prior tax researchers have investigated how individuals' social norms of tax compliance influence their tax compliance decisions. These prior studies have considered the influence of different types of social norms. Tax compliance researchers have found that both *personal* and s*ubjective* norms affect individuals' propensity to comply with income tax laws. One component of personal norms concerns moral obligation. Individuals with higher levels of moral obligation (personal norms) are more likely to be compliant (e.g., Hanno and Violette, 1996; Bobek and Hatfield, 2003). Similarly, ethical beliefs regarding tax compliance (e.g., Kaplan and Reckers, 1985; Reckers et al., 1994) and individuals' level of moral reasoning (e.g., Kaplan et al., 1997) affect compliance intentions. The social influence of peers (subjective norms) also influences compliance behavior (Hanno and Violette, 1996; Bobek and Hatfield, 2003), including both

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hypothetical and actual compliance behavior (Webley et al., 2001). More recently, Blanthorne and Kaplan (2008) concluded that subjective norms influence compliance behavior via their direct influence on ethical beliefs.[42]

Several prior analytical studies have examined the influence of broader, nebulous social norms. Davis et al., (2003) demonstrated analytically that social forces interact with enforcement to determine society's level of compliance, with the social norms governing tax compliance (the risk that an individual will suffer some type of social stigma by cheating) interacting with whether society is initially compliant or non-compliant (see also Cowell, 1990). Likewise, Korobow et al., (2007) demonstrated in an analytical model that sharing compliance information among networked agents actually *reduced* levels of societal compliance. Experimental results have mirrored these models, finding that nearly all individuals cheat when non-compliance is established as the general social norm (Alm et al., 1999). Similarly, an archival study of cross-country compliance found that audits are only effective for societies with general social norms encouraging compliance, not for those in which cheating is the norm (Bergman and Nevarez, 2006).

Fewer studies have examined the joint influence of *both* personal and subjective norms along with broader societal expectations; however, evidence from studies that have jointly examined these influences suggests that personal and subjective norms play a stronger role. Survey data on actual tax compliance behavior indicated that personal norms had the strongest

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[42] While social norms originating from personal and peer expectations are important antecedents of tax compliance behavior, they are insufficient in fully explaining this behavior. For example, stronger personal norms help to reduce cheating behavior, but are insufficient to eliminate all tax evasion unless there is also reduced opportunity for non-compliance (Bobek and Hatfield, 2003); thus, economic variables are still important. Personal norms regarding specific tax evasion behavior are also influenced by individuals' general ethical orientation (Henderson and Kaplan, 2005).

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influence on compliance, and that general social norms were influential for individuals that identified more strongly with the referent group (Wenzel, 2004). Moreover, Wenzel (2005) established that personal norms (ethics) directly influence tax compliance, but that the influence of social norms on tax compliance is more complex. Similar relationships emerge in cross-country studies, as Bobek et al., (2007b) demonstrated that personal and subjective norms have a much stronger influence on tax compliance intentions[43] than do injunctive and descriptive norms.

*Ignorance and Compliance*

Most economic and non-economic factors (such as social norms) focus on explaining the willful underreporting of tax liabilities (tax evasion). However, another reason for taxpayer non-compliance may be due to *ignorance*, as this factor is likely responsible for significant amounts of revenue loss (Everson, 2006). Increasing economic sanctions (such as audits or penalties) or improving social norms will not influence compliance if taxpayers are genuinely unaware of their tax responsibility.[44]

According to Manly et al., (2005), non-compliant taxpayers may be truly unaware of their filing responsibility or may not understand the appropriate tax treatment for a specific item. In addition to the ineffectiveness of economic sanctions, Manly et al., (2005) also argued that

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[43] *Compliance intentions* refer to taxpayers' intended behavior in a tax compliance situation. Behavioral intentions and actual behavior are theoretically linked when the individual perceives some degree of control in the situation. Since individuals may be uncomfortable disclosing their actual behavior or suffer from retrospective recall, studies of behavioral intentions may be preferable (Ajzen, 1991; see also Bobek et al., 2007b). Moreover, a joint investigation of actual tax compliance behavior and behavioral intention indicated that 'hypothetical evaders' (reporting an intention to engage in tax evasion) and 'actual evaders' (those who reported having actually evaded income taxes in the past) had similar motivational and attitudinal measures, but differed on perceived opportunity to evade (Webley et al., 2001).

[44] Distinguishing between unintentional and intentional non-compliance is particularly difficult in analyses of archival data (Slemrod, 2007), which gives experimental and survey methodologies an advantage in investigating this phenomenon.

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ignorant taxpayers would not be motivated by guilt; thus, personal norms would also be ineffective at explaining all non-compliance behavior. Instead, such taxpayers may need education or some other type of external stimulus to properly comply (Manly et al., 2005). Thus, studies of non-compliance should distinguish between ignorance and tax evasion to truly understand the root causes of these behaviors.

*Differences in Tax Compliance Intentions*

Differences in economic factors, social norms, and ignorance may explain differences in tax compliance intentions across diverse tax settings. First, individuals are more likely to evade taxes if faced with a lower probability of being detected (e.g., Allingham and Sandmo, 1972). Thus, *economic factors* such as the existence of a detection mechanism may also explain low individual use tax compliance. For example, state revenue departments have historically placed little emphasis on enforcement and detection of state use taxes for individual consumers (Huefner and Hibschweiler, 2004). Thus, differences in compliance rates between individual income and use tax may be due to the lack of detection mechanisms for the latter. The compliance rate differences between these types of taxes might be reduced if both types of non-compliance had similar detection opportunities.

Second, as non-economic factors such as social norms are useful in explaining income tax compliance (e.g., Wenzel, 2004, 2005; Bobek et al., 2007b), these factors may also play a role in explaining why compliance rates differ across settings. This is in line with the finding that social norms account for differences in income tax compliance across different countries (Bobek et al., 2007b). The historically low use tax compliance rates could be affected by the fact that when cheating is the norm in a society, the odds that an individual will comply with tax laws

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decline significantly (Alm et al., 1999; Davis et al., 2003). Thus, taxpayers may be less likely to comply with use tax laws than individual income tax requirements with the reasoning that "no one else is doing it, so why should I?" In particular, *descriptive norms* could be particularly negative toward tax compliance behavior when there is widespread societal non-compliance.

Finally, it is also possible that compliance rates differ between tax settings due to *ignorance.* Historically, very few individuals have paid state use tax; "noncompliance [with use tax] is widespread so the [online] transactions are, effectively, tax-free" Goolsbee (2000, p. 561). Moreover, states' increased compliance and education programs are relatively recent innovations (see Huefner and Hibschweiler, 2004; Nellen, 2007). Tax compliance may be lower for state use tax than for federal income tax simply because of a lack of knowledge about the latter. Even within the income tax, a significant portion of non-complying taxpayers are ignorant of the proper taxation treatment (Everson, 2006). While the idea of ignorance has been overlooked in most prior tax compliance researcher, taxpayers must first be aware of the appropriate tax treatment before they can fully comply. Thus, taxpayers that are less familiar with the tax laws for a particular tax setting may be less likely to comply.

Collectively, differences in economic factors, social norms, and ignorance may drive differences in individual tax compliance across different tax settings. In other words, when controlling for these factors and their interactions with the tax setting, the presence of a different tax setting (e.g., a different type of tax law) in and of itself would not have a significant effect on tax compliance. This leads to the second and third hypotheses:

**H₂**: Tax compliance intentions will differ across tax settings.

**H₃:** The tax setting will interact with social norms, economic factors, and ignorance, such that differing tax compliance intentions across tax settings will be accounted for by differences in social norms, economic factors, and ignorance.

## Research Method

This study uses a three-by-two between-subjects experimental design to test the hypothesized relationships. The use of an experimental design is an appropriate research technique when studying non-economic factors that influence taxpayer compliance (Alm and Jacobson, 2007).

### *Participants*

This study uses experienced taxpayers as participants. Students enrolled in introductory accounting classes at a large southeastern university recruited eligible participants. Following Bobek et al., (2007a, p. 99), eligible participants were defined as "*non*-accounting students over the age of 25 who are U.S. citizens or residents" and that had previously filed a U.S. federal income tax return. These undergraduate students received extra-credit points for supplying: (1) names and e-mail addresses for eligible participants and (2) a signed statement that the potential participants had agreed to give their email addresses and met the defined eligibility criteria. Students' extra-credit points were awarded for identifying eligible participants and were not related to the actual completion of the study by these participants.

Based on this recruiting technique, 272 possible participants were contacted via email.[45] Out of the possible participants, 167 individuals responded; the responses of 148 participants could be used in the final analysis. This resulted in a usable response rate of 54.5%.[46]

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[45] Two e-mail addresses bounced and were not deliverable.

[46] Out of the 19 participants that could not be included, two participants did not indicate whether they had ever filed a federal income tax return, two participants did not complete the actual experimental task, and 15 failed the manipulation check addressing whether the scenario dealt with federal income or state use taxes.

Table 12 reports the sample demographics regarding the final sample of 148 participants. Comparison of the sample to U.S. census data indicates that the sample was older (68% between the ages of 45 and 64) and had a higher proportion of females (65%) than the national population. Participants were also slightly better educated and had a higher income than the overall national population. The majority of participants typically used a paid preparer to prepare their tax return (51.5%), corroborating prior U.S. tax research (e.g., Bobek et al., 2007b). The additional analysis section of the paper considers the influence of demographic variables; with the exception of income, no demographic variables influenced the results.[47]

E-mail reminders were sent to participants after one week and "final reminders" were emailed after two weeks. Comparison of early (before any reminders) and late respondents allows for the consideration of non-response bias. These groups only differed on the party responsible for tax return preparation, with late respondents significantly more likely to use a paid preparer (46% compared to 66%, $p < .05$). However, as this demographic variable was not related to any of the study's dependent variables, this suggests that few insights are lost due to potential non-response bias.

*Experimental Task*

The experimental task consisted of a hypothetical tax compliance scenario. This scenario varied across the experiment's six treatment conditions, in which both the tax setting (state use tax, federal income tax on a gain, and federal income tax on income received in cash) and the

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[47] The majority (nearly 87%) of participants resided in the state of Florida. Thus, most participants lived in a state that imposes use taxes. From a practical consideration, the state of Florida is particularly vulnerable to erosion in its SUT collections due to individual non-compliance with the use taxes (the Florida Chamber of Commerce estimates that uncollected use taxes were approximately $3 billion in 2006 (www.flchamber.com)). Participants that resided in Florida compared to other states did not significantly vary in any of the study's independent or dependent variables.

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detection mechanism (present or absent) were manipulated. Participants were randomly assigned to one of these six conditions. All participants completed the study entirely in a computerized, online environment, allowing respondents to complete the experiment on their own time and in a natural setting (Bryant et al., 2004).[48] Cell sizes for each of the six treatment conditions ranged from 22 to 26 participants.

The manipulation for "tax setting" consisted of three hypothetical tax scenarios: two for individual federal income tax (a gain on the sale of a painting and cash receipts for service income) and one for state use tax (an out-of-state purchase of jewelry).[49] All scenarios were designed as situations with high opportunities for tax evasion, whereby the taxpayer has the ability to *passively* evade taxes via underreporting; all scenarios also required equal monetary payments. Table 13, Panel A reproduces the text of these dilemmas. The first income tax dilemma consisted of a taxable gain (a concept used in prior tax research, e.g., Kaplan et al., 1997 and Henderson and Kaplan, 2005). Based on feedback from pilot-testing, a second individual income tax scenario was developed to control for potential differences among different types of federal income tax underreporting dilemmas. This consisted of the receipt of service income in cash (a concept used in prior tax research, e.g., Kaplan et al., 1997). The final scenario pertained to a state use tax dilemma; like the other dilemmas, it was designed to convey an underreporting dilemma whereby the taxpayer could passively evade taxes.

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[48] The study was initially pilot-tested in both online and paper-based forms; responses did not differ due to form. This corroborates evidence suggesting that studies using in-laboratory and out-of-laboratory online settings yield similar results (e.g., Alexander et al., 2006).

[49] Both income tax scenarios were specified as pertaining to *federal* income tax to ensure comparability with prior research.

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The second manipulated variable pertained to the presence or absence of a detection mechanism. The presence or absence of a detection mechanism is not related to the taxpayer's responsibility to pay the tax liability, but affects the probability of detection in the event of evasion. No additional information was provided for the "absence" of a detection mechanism condition. The presence of a detection mechanism consisted of an external notification to a taxing authority of an event that may have triggered a tax liability. Table 13, Panel B reproduces the text of the detection mechanism manipulations.

The instrument contained manipulation check questions to assess whether participants perceived the correct type of tax (federal income or state use), and whether participants in the "detection mechanism present" condition perceived higher detection risks than those that lacked this information. Fifteen participants (14 in scenarios concerning federal income tax) answered the manipulation check incorrectly and were excluded from the study's analysis. To test the effectiveness of the manipulation of the detection mechanism, participants indicated their perceived likelihood that they would be audited in a similar situation if they failed to report the event, ranging from 1 (unlikely) to 7 (very likely). The means and standard deviations in response to this question for the "present" versus "absent" detection mechanism conditions were 4.35 (1.95) and 3.52 (1.80), respectively, and were significantly different at $p = .008$ (two-tailed), indicating an effective manipulation.

*Experimental Procedures*

Participants were e-mailed a link to an online questionnaire corresponding to one of the six experimental conditions. Participants first provided general demographic information and answered questions assessing their *familiarity* with different types of taxes. Next, participants

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read information regarding the hypothetical tax compliance scenario (i.e., one of the six experimental conditions). They then responded to manipulation check questions regarding the questionnaire and answered questions regarding how they and others would behave in a similar situation, including their own *behavioral intentions*. Participants then responded to questions assessing their *social norms*; items measured personal, subjective, injunctive, and descriptive norms for the specific scenario in question and for the type of tax (income or use) in general. Finally, participants responded to questions measuring their attitudes, including their attitude toward the additional money, political ideology, fear of being audited, opinions regarding *ignorance* of types of taxes, and perceptions of fairness for the specific type of tax. Additional analysis reported in the text considers the effect of these attitudes on compliance intentions; with the exception of one of the measures of fairness, none significantly affected the results. Appendix B contains a copy of the experimental questionnaire.

The study's questionnaire was pilot-tested multiple times. First, several experienced taxpayers provided extensive feedback regarding the clarity of the scenarios and the questionnaire items. Second, a sample of 62 experienced taxpayers completed the questionnaire either online or in a paper-based form; as there were no differences in responses based on form, a decision was made to use an online questionnaire for the study's actual data collection. Based on these pre-testers, the tax compliance scenarios were revised to provide more information, the third scenario of "receipt of cash income" was added, and changes were made to some of the questionnaire items. Third, a sample of 97 experienced taxpayers completed the online questionnaire under normal experimental conditions. Based on their feedback, some wording changes were made to the questionnaire's items and to the scenarios. Finally, to ensure that there were no issues with the final version of the questionnaire, 25 students in a graduate accounting

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class completed the final version of the (paper-based) questionnaire in-class; no further changes were made to the questionnaire. Information gathered from the two samples of experienced taxpayers indicates that taxpayers felt that they could respond truthfully to the questionnaire's items (average of 6.65 on a 1-7 Likert scale with 7 = "strongly agree").

### *Measurement of Variables*

The primary dependent variable is *taxpayer compliance intentions*. As modified from Henderson and Kaplan (2005) and Bobek et al., (2009), this variable was measured as the response to, "Placed in a similar situation, do you think you would report [the event] and pay the $500 in taxes?"[50] Participants answered on a 7-point Likert-type scale with "very unlikely" and "very likely" as the anchors. The mean (standard deviation) of responses across all experimental conditions was 4.70 (2.26).[51]

Two of the hypothesized independent variables, ignorance and social norms, are measured. The construct of *ignorance* is measured with two questions. First, prior to viewing the case scenario, participants indicated their *familiarity* with the tax laws governing the type of tax scenario in question.[52] On a 7-point scale ranging from "not at all" (1) to "very" (7), the mean responses for familiarity were relatively low for individuals in the use tax (2.04) and gain (mean

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[50] "The event" was stated as "the purchase" in the use tax condition, "the gain" in the gain scenario, and "the cash receipts" in the cash receipts scenario. While taxpayers' own behavioral intentions were of primary concern, questions also assessed participants' opinions of the likelihood of compliance of the *average U.S. taxpayer* and the *hypothetical taxpayer* in the scenario.

[51] Thirty-two percent of participants indicated that they would be "very likely" to report the taxable event if they were placed in a similar situation, suggesting that the majority of participants might not be completely compliant.

[52] Participants across all experimental conditions answered questions regarding their familiarity with the tax laws governing each of the three types of scenarios (prior to receiving information on the hypothetical tax scenario). Analysis indicated that participants were equally familiar with the tax laws governing the different scenarios across the cell treatments. Only participants' responses to their familiarity with the tax laws governing the scenario that they evaluated were used for the study's analyses.

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of 2.34) scenario, and were statistically significantly higher for those in the cash receipts scenario (3.32, $p < .01$, two-tailed). Second, after viewing and answering questions regarding the case scenario, participants also indicated whether "most people do not know they are responsible for paying…" tax on the type of tax scenario in question; the 7-point scale ranges from 1 (strongly disagree) to 7 (strongly agree) and addresses participants' perceptions of *widespread ignorance.* Participants were statistically significantly more likely to view that there was widespread ignorance regarding use tax responsibility (mean of 5.95, $p < .001$) than of taxes due on gains (mean of 4.24) or cash receipts for services provided (mean of 4.29).

The measure for *social norms* is modified from the tax compliance scale of Bobek et al., (2009), which developed a scale measuring the four distinct types of social norms identified by Cialdini and Trost (1998). This scale included items measuring all categories of social norms of tax compliance (personal, subjective, injunctive, and descriptive) based on prior tax compliance research on social norms. Each category included items governing both general (i.e., assessing general tax compliance for either income or use tax) and specific (i.e., pertaining to the hypothetical tax compliance scenario) social norms. All items were coded such that higher scores indicate more favorable social norms toward tax compliance.

Following the process used in Bobek et al., (2009), these items were subjected to factor analysis to obtain an overall measure for each of the four types of social norms. To obtain separately interpretable factors reflecting each of the four types of social norms, Principal Components Analysis using Varimax (orthogonal) rotation was used. The initial factor analysis was conducted on 26 items. Eleven of these items were eliminated due to their poor loading (less than 0.60) on any factor. To identify distinct factors matching the four types of social norms, three items (two items measuring personal norms and one item measuring subjective norms)

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were deleted due to their loading onto a factor primarily composed of different types of social norms. The final scale resulted in twelve items.

Table 14 reports the final results of the factor analysis, including the item loadings and percentage of the variance explained for each factor. Four distinct factors were extracted, each corresponding to the type of social norm identified by Cialdini and Trost (1998) and measured by Bobek et al., (2009). Collectively, the four factors explained 78% of the data's variance. Factor 1 contained questions representing *subjective norms* (e.g., most people you know would disapprove if you….) and explained 49% of the variance; Factor 2 represented *personal norms* (e.g., would you feel guilty if you….) and explained 12% of the variance; Factor 3 represented *descriptive norms* (e.g., what percentage of U.S. taxpayers would….) and explained 9% of the variance; and Factor 4 represented *injunctive norms* (e.g., would most people feel justified if they…) and explained 8% of the variance. The orthogonal *factor scores* for each of these four factors were retained as the measure of the four distinct types of social norms.

## Results

### *Hypothesis 1: Social Norms*

Hypothesis 1 investigates whether social norms differ based on the tax setting. The initial analysis uses multivariate analysis of variance (MANOVA) to examine whether participants' social norm factor scores varied based on the tax setting contained in the hypothetical tax compliance scenario. Table 15, Panel A presents the results of this MANOVA analysis using the factor scores of the four different types of social norms as dependent variables (all considered simultaneously). The results reveal that participants exhibited statistically significant differences ($p = .001$, two-tailed) in social norms depending on the tax setting.

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Table 15, Panel B presents descriptive statistics and results of separate analysis of variance (ANOVA) on each social norm factor score separately. Inspection of the mean factor scores for each tax setting (with higher scores indicating more favorable social norms toward tax compliance) shows that participants in the different experimental conditions did not vary in their overall subjective norms (Factor 1) or injunctive norms (Factor 4). The ANOVA results for personal norms (Factor 2) show a marginally statistically significant difference ($p < .10$, two-tailed) in *personal norms* based on the tax setting. Examination of the mean factor scores between the different types of taxation indicates that this difference is because individuals exhibited significantly lower personal norms related to complying with the use tax on out-of-state purchases than with income tax on cash receipts ($p < .05$, two-tailed). Thus, participants' standards for behavior resulting from their internalized values are more favorable toward compliance for paying income tax on income received in cash than for paying use tax on out-of-state purchases.

Finally, the ANOVA results for descriptive norms (Factor 3) show a strongly statistically significant difference ($p < .001$, two-tailed) in *descriptive norms* based on the tax setting. Analysis of the mean factor scores for the three different tax settings indicates that descriptive norms for the use tax and gain scenario are both significantly lower ($p < .001$, two-tailed) than descriptive norms associated with the cash receipts scenario. As descriptive norms measure perceptions of *actual* situational behavior, participants perceived that actual tax compliance would be substantially lower for those two scenarios than for income tax on cash receipts.[53]

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[53] Results were inferentially identical when also controlling for the presence of a detection mechanism. This result is in line with the finding that taxpayer subjective norms are equivalent between groups with high or low evasion opportunities (Blanthorne and Kaplan, 2008).

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Overall, results indicate that participants judged descriptive norms (what others actually do in a situation) lower for both the use tax and the income tax due on a gain than for the income tax associated with cash receipts. Participants' personal norms (their internalized values) were lower for the use tax than for income tax associated with cash receipts. This provides preliminary evidence that individuals' social norms differ based on the tax setting.

### *Hypothesis 2: Differences in Compliance Intentions*

Hypothesis 2 addresses whether tax compliance intentions differ based on varying tax settings. Analysis controls for the *tax setting* as well the presence of a *detection mechanism* (since both factors were manipulated in the experimental design). Table 16, Panel A reports descriptive statistics of tax compliance intentions based on the condition assignments of tax setting (use tax, gain, or income) and detection mechanism (absent or present). These descriptive statistics indicate that in the absence of a detection mechanism, taxpayers have significantly higher tax compliance intentions in the cash receipts scenario (mean of 5.72) than in either the use tax (mean of 3.73) or gain (mean of 3.83) scenarios ($p < .01$, two-tailed). When a detection mechanism is present, then the use tax scenario (mean of 4.27) is significantly lower than the cash receipts (mean of 5.60) scenario ($p < .05$, two-tailed), but the gain scenario (mean of 4.92) is not significantly different from either of the other two. These descriptive statistics show that participants are consistently less likely to pay use tax on an out-of-state purchase than income tax on cash receipts for services.

Table 16, Panel B reports the results of ANOVA analysis on the effect of both condition assignments on tax compliance intentions. These results indicate differences among tax compliance intentions based on the tax setting ($p < .001$, two-tailed). However, no differences

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emerged due to detection mechanism ($p > .15$). Tukey HSD post-hoc analysis indicates that the difference in tax setting is due to differences between the cash receipts scenario and both of the other two scenarios (both $p < .01$, two-tailed). When controlling for the two manipulated variables, the model is significant ($p = .002$), but the relatively modest adjusted $R^2$ (9.1%) indicates that other variables can help to explain tax compliance intentions.

Alternative analysis (tables not shown) considers participants' assessment of the *compliance intentions of the hypothetical taxpayer in the scenario*. The presence or absence of a detection mechanism did not affect participants' likelihood assessments; however, the tax setting did have a strong effect ($p < .001$, two-tailed). Moreover, post-hoc analyses indicate that differences existed among all three types of tax scenarios (for all comparisons, $p < .03$, two-tailed). Specifically, participants viewed the hypothetical taxpayer as the least likely to comply in the use tax scenario (overall mean of 2.93 on a 1-7 likelihood scale), followed by the gain scenario (mean of 3.95) and the cash receipts scenario (mean of 4.86). Thus, while participants were only less likely to comply in the use tax scenario than in the cash receipts scenario, they were likely to view that *others'* compliance in the use tax scenario would be less than in *both* income tax situations.

Overall, Hypothesis 2 predicts that individuals' tax compliance intentions will differ based on the tax setting. Results show that individuals' tax compliance intentions are lower for paying use tax and income tax on gains than for paying income tax on cash receipts. Moreover, assessments of others' behavioral intentions are lower for the use tax scenario than for both of the income tax scenarios. This illustrates that tax compliance intentions differ based on the tax setting.

*Hypothesis 3: Accounting for Differences in Tax Compliance Intentions*

Given the difference in tax compliance intentions based on the tax setting, Hypothesis 3 investigates *why* such differences occur. Table 17 reports the results of an analysis of covariance (ANCOVA) model of tax compliance intentions that includes the tax setting as a fixed factor, while controlling for the presence of a detection mechanism, the two measures of ignorance (familiarity and widespread ignorance), and the four social norm factors. The model also includes interaction terms between the tax setting (scenario) and the detection mechanism, the tax setting and the ignorance measures, and the tax setting and the social norm factors. In other words, the model contains several moderators (detection, ignorance, or social norms) for the tax setting; these moderators control for the varying level of influence that such factors might have on tax compliance based on the particular tax setting.

The expectation is that differences in these constructs will account for differences in tax compliance intentions based on the tax setting. The results support this prediction, as the "tax setting" variable is no longer statistically significant when controlling for these other constructs ($p > .40$, two-tailed; see Table 17).

The findings also suggest that differences in tax compliance intentions are due to differences in *social norms*. Subjective norms (Factor 1), personal norms (Factor 2), and descriptive norms (Factor 3) are all strongly statistically significant in explaining tax compliance intentions ($p < .001$, two-tailed). However, injunctive norms are not related to tax compliance intentions.[54] The interaction term between descriptive norms and the tax setting is also statistically significant ($p < .05$, two-tailed), indicating that descriptive norms influence

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[54] Alternative analysis substitutes some of the injunctive norm items that were not retained by the factor analysis; results are inferentially identical. Thus, injunctive norms do not appear to be related to tax compliance intentions in these contexts.

taxpayers' tax compliance intentions differently based on the tax setting. The ignorance measures, detection mechanisms, and interactions with the tax setting all fail to achieve statistical significance in this overall model. The overall model has an adjusted $R^2$ of 0.622, a large improvement over the earlier specification.

Further analysis explores the effect of these variables and the interaction terms. Separate regression analyses were conducted on tax compliance intentions for each of the three sub-samples of the different tax settings (see Table 18). Table 18 displays the results of the analyses for the separate sub-samples. Several interesting findings emerge. First, subjective norms (Factor 1), personal norms (Factor 2), and descriptive norms (Factor 3) are related to tax compliance intentions for all three scenarios; however, the effect of *descriptive norms* is lessened for the cash receipts scenario ($p < .05$, two-tailed, compared to $p < .001$, two-tailed, for the other two scenarios). Descriptive norms are the most salient in "a novel or ambiguous situation" (Cialdini and Trost, 1998, p. 155). This result is consistent with the finding that participants demonstrated substantially greater familiarity with laws on the cash receipt of income than the other two scenarios ($p < .01$), as reported in the Measurement of Variables sub-section. Second, participants' self-reported *familiarity* of the applicable tax laws affects their tax compliance intentions in the use tax scenario ($p < .05$, two-tailed). This implies that increasing participants' familiarity with use tax laws could improve compliance. However, this relationship does not emerge with the gain or cash receipts scenarios.[55] Finally, the model explaining use tax

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[55] Additional analysis substitutes whether participants have *ever been in a similar position* to the scenarios for their self-reported familiarity of the tax laws governing such scenarios. This variable is only statistically significant in the cash receipts scenario, where participants had *lower* tax compliance intentions if they received cash payments for services more frequently ($p < .01$, two-tailed).

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compliance explains a larger proportion of the variance (adjusted $R^2$ of 0.733) than the model of the gain scenario (adjusted $R^2$ of 0.553) or the cash receipts scenario (adjusted $R^2$ of 0.382).

Supplemental analysis (tables not shown) investigates the causes of differences in perceptions of *others'* compliance intentions. Similar to results for individuals' tax compliance intentions, when controlling for social norms, detection mechanisms, ignorance, and the interactions thereof, the "tax setting" factor is no longer statistically significant. ANCOVA analysis finds that *descriptive norms* and assessments of *widespread ignorance* are both related to the assessments of third-party compliance intentions (both $p < .02$, two-tailed).

Overall, Hypothesis 3 predicted that social norms, detection mechanisms, and ignorance would account for differences in tax compliance intentions between tax settings. The results partially support this, as descriptive norms explain compliance in the use tax and gain scenario, while familiarity is related to compliance in the use tax scenario, but not in either of the income tax scenarios. The presence of a detection mechanism, however, is not statistically significantly related to compliance.

### *Additional Analyses*

Several additional analyses consider the effect of additional variables on the study's results. First, while no differences emerge in individuals' compliance intentions due to the presence or absence of a detection mechanism, additional analyses consider whether participants' *perceptions of detection risk* (perceived likelihood that they would be audited if they did not report the tax) influences their behavioral intentions. Prior tax research has indicated that the *perceived* probability of detection is more salient to taxpayers' compliance decisions than the actual detection risk (e.g., Carnes and Englebrecht, 1995). When separately examining the results

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for each type of tax and substituting "perceived detection risk" in for the manipulated "detection mechanism" variable, results are changed for the *cash receipts* scenario. As displayed in Table 19, in this condition, perceived detection risk is positively related to compliance intentions ($p <$ .05, two-tailed), while descriptive norms (Factor 3) are no longer significantly related to this dependent variable. The adjusted $R^2$ for this tax scenario also improves from 0.382 to 0.457 with this substitution. Results for the other two tax scenarios remain unchanged. Perceived detection risk does not have a statistically significant effect on tax compliance intentions in the overall analysis ($p < .30$, two-tailed). This suggests that the perceived risk of audit has the greatest influence on tax compliance intentions for cash-based income, and provides further evidence that descriptive norms do not influence taxpayers' behavior for this tax setting.

Second, additional analysis considers the influence of demographic and control variables. The addition of the demographic variables does not change the overall interpretation of the results.[56] Two variables have a statistically significant effect on tax compliance intentions beyond the effect of the study's independent variables: income and fairness. As shown in Table 20, both of these control variables remain statistically significant when adding the significant variables from Table 17. Specifically, participants that perceived the use or income tax system as "fair to most people" had higher compliance intentions ($p < .05$, two-tailed); supplemental analysis finds that the connection exists for those evaluating both scenarios in the *income tax system*, but not for the use tax system. Another interesting result is that participants with *higher*

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[56] Differences in tax compliance intentions due to the type of tax scenario were not due to demographic differences. Alternative analysis first assesses the effect of demographic and other control variables (age, gender, income, education, political ideology, fear of being audited, use of a paid preparer, and attitude toward additional money) on tax compliance intentions to develop a "baseline" measure in which to compare the effects of the hypothesized variable. Next, the manipulated "tax setting" measure is added to the baseline model to test whether compliance intentions differ based on the tax setting. The tax setting variable is statistically significant ($p < .01$, two-tailed), indicating that differences in tax compliance intentions based on the tax setting are not due to demographic factors.

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reported incomes had higher compliance intentions ($p < .06$, two-tailed); supplemental analysis finds that this pattern is driven by participants in the gain condition. This finding contradicts recent archival and experimental economics research that has found a negative connection between income and compliance rates (e.g., Johns and Slemrod 2008; Alm et al., 2009), and suggests that this previously documented association may be due to differences in tax rates or evasion opportunities between the groups. However, given that the adjusted $R^2$ improves only slightly when including these additional demographic variables (from 0.622 to 0.653), demographic characteristics may not have a strong influence on tax compliance decisions.

## Conclusion

### *Summary of Findings*

Overall, the study's findings suggest that taxpayers view compliance differently under different tax settings. Hypothesis 1 examines whether social norms associated with tax compliance differ based on the tax setting. Analysis of the four types of social norms (Cialdini and Trost, 1998) shows that individuals' personal norms of tax compliance (internalized values) are higher for paying income tax on cash receipts than for paying use tax on out-of-state purchases. Individuals also have significantly higher descriptive norms (perceptions of what others would do in a particular situation) for paying income tax on cash receipts than for paying income tax on gains *or* for paying use tax on out-of-state purchases.

Hypothesis 2 studies whether a difference emerges in compliance intentions based on the tax setting. Results show that participants are more likely to comply with reporting cash income subject to income tax than in reporting out-of-state purchases subject to use tax or gains subject

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to income tax. However, supplemental analysis reveals that participants viewed *others* as less likely to comply in paying use tax than for both of the income tax scenarios.

Finally, Hypothesis 3 investigates which explanatory factors account for these differences in compliance intentions. Results suggest that social norms play an important role in individuals' compliance. In particular, *descriptive norms* account for some of the differences in tax compliance across different tax settings, as these norms have a stronger influence on compliance with the use tax and income tax on gains than on income tax levied on cash receipts. Furthermore, participants' self-reported familiarity with use tax laws influences their compliance intentions for this scenario, whereas perceived detection risk is only significant in the cash income scenario.

*Limitations*

The study's results should be evaluated in conjunction with its limitations. First, this study uses a hypothetical case scenario to evaluate participants' tax compliance intentions. Participants' responses may not reflect their actual behavior. However, prior studies have shown a connection between hypothetical and actual compliance behavior (Webley et al., 2001). Second, 15 of the participants failed the manipulation check and were excluded from the analysis; however, this equates to an overall failure rate of less than 10% and suggests that few additional insights were lost from these participants. Third, individuals may not have been comfortable admitting that they would engage in tax evasion behavior due to social desirability bias. In pilot tests, however, participants strongly agreed that, "I felt that I could respond truthfully to the questions asked" (average of 6.65 on a 1-7 Likert scale with 7 ="strongly agree"). Fourth, the study's sample was not drawn from a random sample of U.S. taxpayers; in

particular, the study had a higher proportion of female, older participants than would be expected in the national population. While only income influenced tax compliance intentions beyond the effect of the study's independent variables, generalizations to the overall population should be made within caution.

### *Discussion*

The results of this study offer important implications to taxation researchers and policymakers. First, this study adds to the growing body of work suggesting that tax compliance behavior may differ based on the situation (e.g., Bobek and Hatfield, 2003). However, this prior research on individuals' tax compliance has almost universally examined the income tax to the exclusion of other types of taxes (see Andreoni et al., 1998). This study is the first to compare behavioral compliance intentions for the use tax compared to the individual income tax; results indicate that antecedents of use tax compliance may be different from other types of taxation compliance. Moreover, the results show that differences exist even for the same *type* of reporting decision (i.e., passively evading taxes via underreporting). These results suggest that understanding the underlying causes of tax compliance behavior is complex and that future researchers should consider antecedents of compliance within *particular* tax settings (Ajzen and Fishbein, 1980).

Second, this study demonstrates the varying influence of social norms, detection mechanisms, and ignorance on tax compliance across different settings. Prior literature that has examined the influence of social norms has studied this from an income tax perspective, which could explain why descriptive norms (what others actually do in a given situation) have appeared to be of little consequence to behavior (e.g., Wenzel, 2004; Bobek et al., 2007b). This study

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demonstrates that descriptive norms are of particular importance in novel compliance situations. Moreover, whereas increased familiarity with specific income tax laws does not appear to affect compliance intentions in the study, increased familiarity with use tax laws does. This suggests that the influence of ignorance is context-specific.

Finally, this study offers information to policymakers seeking to remedy the problems of tax compliance, an issue that has become increasingly relevant in the recent economic downturn. The results of this study show that *social norms* play a more important role than do economic factors; governmental attempts to change social norms may be more effective than increased audit rates. State revenue departments could continue efforts at increasing awareness of the use tax, but may not be successful in reaching critical levels of compliance without changed social norms (see Davis et al., 2003). Future researchers should therefore consider how societal norms toward tax compliance could be changed.

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# STUDY THREE: ANTECEDENTS OF THE ADOPTION OF THE STREAMLINED SALES & USE TAX AGREEMENT

## Introduction

The current sales and use tax (SUT) system in the U.S. is riddled with complexity. Current estimates are that the U.S. has over 7,500 state and local SUT jurisdictions, leading to enormous compliance costs for vendors operating in multiple jurisdictions (Tower et al., 2006). This complexity is compounded by the fact that the U.S. Supreme Court has ruled that vendors are only required to collect SUT on sales in jurisdictions in which the vendors have a physical presence.[1] Thus, most SUT systems suffer from the inherent complexity of applying an archaic tax structure to an increasingly mobile economy, along with potentially billions of dollars in lost SUT revenue from remote sales (Bruce et al., 2009).

Part of the reason for the vast complexity across SUT systems is that governments independently developed their SUT systems without attempting to coordinate their systems with other jurisdictions. A significant turning point occurred in 2000 with the development of the Streamlined Sales Tax Project (SSTP), a cooperative state effort "to simplify and harmonize their sales and use tax regimes" (Hellerstein and Swain, 2004, p. iii). Nearly all state governments imposing the SUT have worked together on this venture with the goal of simplifying the administration and enhancing compliance of SUT (Duncan and Luna, 2007). The SSTP's attempt at voluntary coordination of the SUT system among state governments is groundbreaking.

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[1] *Quill Corp. v. North Dakota*, 504 U.S. 298 (1992). Taxpayers are required to pay compensating use taxes on purchases normally subject to SUT in which an out-of-state vendor is not required to collect SUT, but in actuality, most of these remote sales are effectively tax-free due to consumers' non-payment of use tax (Fox and Swain, 2007).

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Ultimately, the longer-term goal of the SSTP is to induce "Congressional authorization for streamlined states to collect tax from remote vendors" (Fox and Swain, 2007, p. 626). Thus, proponents of the SSTP hope that cooperative state action will ultimately lead to federal legislative intervention that enables states to collect SUT from remote vendors that may lack physical presence within the state (Fox et al., 2008).[2] While such federal legislative action has so far been unsuccessful, recent media reports have suggested that federal action is again being contemplated, in part due to the involvement of the SSTP (McCullagh, 2009).

To achieve these efforts, the SSTP drafted the Streamlined Sales and Use Tax Agreement (SSUTA), which is a "blueprint" for state tax legislation that brings about the streamlining movement's goals (Hellerstein and Swain, 2004).[3] Individual state legislatures may pass conforming legislation in line with the SSUTA's provisions. As of 2009, the SSUTA's Governing Board consists of 19 "fully conforming" states that have passed and implemented legislation in line with all provisions of the SSUTA, and three "associate member" states that have achieved substantial compliance with these provisions in their state statutes.[4]

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[2] In *Quill Corp. v. North Dakota*, 504 U.S. 298 (1992), the U.S. Supreme Court ruled that a remote seller only had a responsibility to collect SUT in a jurisdiction to the extent that the seller had a physical presence within the jurisdiction. Part of the Court's reasoning was that requiring a seller to comply with the thousands of SUT jurisdictions across the nation would impose an undue burden on interstate commerce. The Court also ruled that Congressional action could overturn this decision. Thus, the streamlining movement aims to simplify SUT systems and the collection process with the goal of lobbying Congress to enact legislation that would enable states to collect SUT from remote sellers.

[3] The SSUTA went into effect on October 1, 2005, after at least 10 states with 20% of the population levying sales tax were deemed to be in compliance with the SSUTA. For member states, the effective date of the SSUTA triggered the beginning of the amnesty program for businesses and launched a centralized registration point for retailers.

[4] The 19 fully conforming states are: Arkansas, Indiana, Iowa, Kansas, Kentucky, Michigan, Minnesota, Nebraska, Nevada, New Jersey, North Carolina, North Dakota, Oklahoma, Rhode Island, South Dakota, Vermont, Washington, West Virginia, and Wyoming. The three associate member states are: Ohio, Tennessee, and Utah. Fully conforming states are those that have been deemed in full compliance with the SSUTA. Associate members are those that are not currently in compliance with the SSUTA, but are scheduled or expected to be in compliance soon.

While initial naysayers doubted that states would be able to cooperatively coordinate their SUT systems, the number of states that have collaborated to achieve greater uniformity and simplicity has been remarkable. Legislative changes under the SSUTA include increased interstate uniformity, centralized vendor registration, simplification of reporting procedures, and, controversially, destination-based sourcing rules for conforming members (taxing a sale at the point of its final destination, rather than at the origin).[5] States that have adopted the terms of the SSUTA have amended state tax laws such that their SUT systems align with the tax system provisions outlined by the SSUTA to increase uniformity in areas such as administration of SUT, base definitions, or sourcing rules. In addition to changing their state tax structures, conforming members of the SSUTA offer amnesty as an incentive for vendors that choose to voluntarily collect sales taxes in all member states, even if such vendors lack a physical presence within the state. Appendix C contains a summary of the major changes brought about by the SSUTA, most of which are aimed at simplified compliance and administrative rules for vendors.

Understanding what induces a state to conform to the SSUTA provisions is important in explaining the roots of state tax policy change and collective state action and in understanding the future trajectory of the SSUTA. Swain and Hellerstein (2005) suggest that state interest groups have influenced SSUTA adoption, although this proposition has not been empirically tested. States with higher SUT rates were more likely to agree earlier to *participate* in the SSTP,

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(www.streamlinedsalestax.org). Wisconsin has petitioned to be admitted as an associate member effective July 1, 2009, and as a fully conforming member as of October 1, 2009.

[5] On December 12, 2007, the Streamlined Sales Tax Governing Board voted to change its policy regarding sourcing rules, in response to the difficulty faced by many states in implementing changes in sourcing policy. States are now permitted to use origin-based sourcing for intrastate sales, or taxing a sale at the point of origination of the sale, but such states will not be "full members" of the SSUTA until January 1, 2010 or until five other states use intrastate origin-based sourcing under the SSUTA, whichever occurs later (www.streamlinedsalestax.org). Destination-based sourcing continues to be required for all interstate sales.

but it is unclear whether this same relationship would also hold true for the *adoption* of the SSUTA (Cameron, 2004). Further investigation is necessary to truly understand the antecedents of states' adoption.

The purpose of this study is to empirically examine the factors, including interest group strength, that influence a state's decision to adopt legislation conforming to the provisions of the SSUTA. This is investigated through a cross-sectional empirical model. A secondary purpose is to examine the political strategies and tactics used by various interest groups in states that either have or have not conformed to the SSUTA. Examination of strategies and tactics is conducted through a case study analysis of a conforming state (Kansas), a non-conforming state (Texas), and an associate member state (Tennessee), all of which have faced substantial controversy in their move toward SSUTA conformance.

Results of the empirical model show that states with a higher SUT rate are more likely to adopt provisions of the SSUTA. Moreover, states with a larger number of taxing jurisdictions were marginally less likely to adopt these provisions. Higher Republican support among voters increased the odds of adoption, while pre-SSUTA origin-based sourcing was not an across-the-board deterrent to adoption. Case study results complement the findings of this model, as business interests were not as important as those of local governments and state revenue departments. While the presence of origin-based sourcing did not emerge as a roadblock to SSUTA adoption in the empirical model, it was a matter of considerable debate in the states examined in the in-depth case study. In particular, local government concerns over the change in sourcing requirements were ultimately more influential than small business concerns over the cost of the sourcing change, and the strong advocacy role of state revenue departments was important in achieving adoption. These results supplement the empirical model and suggest that

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the strength and involvement of *governmental* interest groups is particularly important in taxation policy adoption.

The results of this study contribute to the literature in several important ways. First, this study extends work on political strategies (Hillman and Hitt, 1999) to the field of SUT, in which the investigation of the intricacies of intrastate interest groups and strategies is relatively rare (Anderson et al., 1989 is an exception). Second, this study sheds light on why and how states have been able to implement the changes required to comply with the SSUTA, suggesting that changes in sourcing requirements are not an inherent deterrent to adoption, but that supportive governmental interest groups are critical. Third, understanding the importance of *governmental* interest groups and their role in influencing tax policy changes contradicts the notion that *businesses* are the predominant interest group in influencing tax policy changes (e.g., Salamon and Siegfried, 1977; Quinn and Shapiro, 1991; Suarez, 1998). All of these findings have important implications in understanding upcoming policy changes, including the possibility of new consumption taxes (e.g., Deloitte, 2008) and other types of inter-jurisdictional tax policies.

The remainder of this chapter is organized as follows: the second section presents theoretical development. The third section presents the research method and results for the cross-sectional empirical model. The fourth section provides the research method and results for the qualitative case study. The fifth section concludes.

## Theoretical Development
### *Theories of State Tax Policy Adoption*

Theoretical models of state policy innovation fall in two primary categories: *diffusion models* and *internal determinants models* (Berry and Berry, 1999). Diffusion models of adoption

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predict that a state's adoption of a new tax or other policy is due to the emulation of similar behavior in other states. In comparison, internal determinants models of adoption posit that intrastate political or economic factors influence a state in adopting a particular policy (Berry and Berry, 1999). These are complementary, not competing, models; many studies investigate both diffusion and internal determinants variables. As a type of policy innovation, states' adoption of new tax policies can be studied through these theoretical lenses.

*Diffusion models* of state tax policy adoption include both regional diffusion and tax competition theory. *Regional diffusion theory* predicts that states are more likely to adopt the policies of neighboring and/or similar states (Berry and Berry, 1999). In the SUT realm, Georgia counties were more likely to adopt a local-option sales tax if neighboring counties had already adopted this tax (Sjoquist and Wallace, 2003). In contrast, *tax competition theory* is a special case of regional diffusion theory – states use taxation policies to compete for resources; therefore, jurisdictions are more likely to adopt tax policies of *competing* jurisdictions. Tax competition theory has been influential in explaining the adoption of SUT policies, such as the actions behind states' adoption of selective cigarette and gasoline sales taxes (Rork, 2003) and changes in Tennessee's county-level sales tax rates and bases (Luna, 2004). These diffusion models of policy adoption are particularly important when analyzing either pooled or time-series data.

*Internal determinants* models of state tax policy adoption examine intrastate characteristics, such as economic or political factors, that influence a particular state's decision. *Economic or fiscal factors* include elements from a state's economy that may induce or preclude state policy change. For example, policy changes may be influenced by the level of urbanization (e.g., Berry and Lowery, 1987) or unemployment (e.g., Goolsbee and Maydew, 2000). A state's

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fiscal health may also influence policy adoption. Poor fiscal health is strongly linked to an increase in the probability of adoption of a new revenue source (Berry and Berry, 1992), whereas a fiscal crisis may make a state's policy officials more receptive to taxation policy changes in general (Vines et al., 1994).

Certain *political factors* may also make tax policy adoption more feasible. The political party of both state governmental leaders as well as voters may influence the types of policies adopted. States with a Republican governor are more likely to adopt taxation policies that favor corporate taxpayers (Klassen and Shackelford, 1998). States with a progressive state and local tax system are unlikely to be controlled by the Republican Party (Chernick, 2005). In more recent years, Tennessee counties with a larger proportion of Republican voters were more likely to have implemented a local option sales tax increase (Luna et al., 2007).[6] Other political variables may also be of importance. For example, single-party control of the governor and the upper house (i.e., the state senate) may make policy changes more feasible (Gilligan and Matsusaka, 2001), whereas state policy changes are more likely in election times (Berry and Berry, 1990).

Another category of internal determinants that is particularly important for studies of state tax policy adoption concerns *tax system factors*. Simply stated, the existing tax structure within a jurisdiction will influence its decision to adopt an innovation. For example, a county's sales tax or property tax capacity (i.e., the relative ability to generate additional sales or property

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[6] Luna et al., (2007) suggest that this result might be due to the fact that higher-income taxpayers may be more likely to vote Republican, and may therefore prefer increases in sales taxes as opposed to other taxes due to their the regressive nature of the tax.

tax revenue) has influenced a county's decision to raise its sales tax rate to the state-mandated legal maximum level (Luna et al., 2007).

Overall, internal determinants models are informative when studying adoption with either cross-sectional or pooled data. One particular type of internal determinant pertains to the power of various *interest groups*, as the strength of a state's interest groups may also affect policy innovation. Thus, states, adoption of new tax policies can be studied from the perspective of *interest group theory* (Stigler, 1971; Peltzman, 1976; Becker, 1986; Vines et al., 1994).

### *Interest Group Theory*

Interest group theory predicts that governmental policy adoption, including taxation, is dependent upon the relationship between the strength of competing interest groups, which may be due to factors such as the interest group's wealth and/or constituent base. Interest groups that are able to transfer wealth and other resources to politicians thus influence the political process and engage in these actions to ensure the adoption of policies that serve their own economic advantage (Peltzman, 1976; Vines et al., 1994).

Taxation is one type of policy adoption that competing interest groups seek to influence. Specifically, some interest groups use their political influence to seek lower taxation (Becker, 1983, 1985). One influence on a government's taxation policies is therefore the comparative strength and political influence of competing interest groups such as differing entities and/or differing individual constituencies.

Interest group theory has been particularly useful in explaining state taxation policies. Vines et al., (1994) found lower state corporate taxation rates in states with a higher degree of business group strength. The same general finding of the importance of interest groups holds true

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for other types of taxation, including property taxes (e.g., Hunter and Nelson, 1989) and tobacco, gasoline, and freight excise taxes (e.g., Salamon and Siegried, 1977; Hunter and Nelson, 1992; Trogdon and Sloan, 2006; Decker and Wohar, 2007). Likewise, general state sales taxes are lower when constituents have a greater ability to form opposing interest groups (Anderson et al., 1989). States with heavier reliance on SUT, as proxied by higher SUT rates, are also more likely to be early participants in the SSTP (Cameron, 2004). These studies suggest that interest group theory is a useful lens to study state taxation. However, less is known about *how* interest groups are able to influence taxation policy outcomes.

### *Political Strategy Formulation*

Understanding how certain interest groups are able to successfully influence state taxation policy outcomes requires examining the formulation and execution of political strategies by these entities. One useful framework for understanding political strategies is the Hillman and Hitt (HH, 1999) model of political strategy formulation. Prior accounting researchers have used the HH framework to help explain the relationship between political involvement and corporate environmental performance (e.g., Cho et al., 2006; Kassinis and Vafeas, 2006), corporate influences on professional regulation (e.g., Roberts et al., 2003), and corporate influence on new federal taxation policy development (e.g., Roberts and Bobek, 2004).

The HH framework focuses on general approaches to political strategy, the levels of participation, and the specific strategies and tactics used by organizations. Organizations may adopt either a transactional (specific issue) or relational (long-term) *approach* to political strategy; relational strategies are more likely when organizations are dependent upon government policies. Entities may choose either an individual (solo) or collective (cooperative) *level of*

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*participation*. An individual approach is often chosen when policy outcomes are narrowly tailored toward a particular interest group, whereas a collective approach is more common if an organization has fewer financial or intangible resources.

Depending upon their general political approach, interest groups may utilize informative, financial incentives, and/or constituency building *strategies* to achieve their goals. The use of *informative strategies* implies the strategic use of information aimed at legislators, such as through testifying at political hearings. *Constituency-building strategies* attempt to develop constituent support for policy issues, such as through grassroots campaigns to the public to communicate with decision makers. *Financial incentive strategies* involve the use of pecuniary benefits to achieve financial rewards, such as via direct political or political action committee (PAC) contributions. Thus, the HH framework is a useful tool for understanding how economic interest groups may seek to influence the policy process, including the formulation of state taxation policy.

### *Research Questions*

States' adoption of the SSUTA may be examined through the prism of interest group influence (a type of internal determinants' model). In one of the most pertinent papers on the SSUTA, Swain and Hellerstein (2005, p. 612) write, "Though not a startling conclusion, the progress, contours, and detours of streamlining can be explained largely by traditional interest group politics…" Both state revenue departments and larger corporations have tended to favor this measure, whereas smaller businesses and local jurisdictions have raised concerns about the effects of enactment. Adoption of the SSUTA has been relatively uneventful in states without a

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large opposition, but that progress has slowed when faced with resistance from opposing interest groups (Swain and Hellerstein, 2005).

Both state revenue departments and multi-state corporations are united in their support for the SSUTA, albeit for different reasons. State governments stand to benefit from collecting tax from remote vendors and from the reduction in administrative costs. Indeed, states with higher SUT rates are more likely to be early participators in the SSTP (Cameron, 2004). Moreover, many larger corporations are already routinely involved in multi-jurisdictional transactions, and simplifying the administration of the SUT could greatly reduce their compliance costs (Robinson, 2006). "Main street" retailers could also improve their competitive position with the reduction of the gap in SUT compliance requirements between "brick and mortar" and remote retailers.

However, per Swain and Hellerstein (2005), both smaller businesses and local jurisdictions have expressed concerns over the manner in which greater uniformity leads to SUT system changes. These interest groups have especially raised concerns about the potential detrimental outcomes from changing sourcing requirements. Many smaller businesses currently operate on a pure intrastate basis; businesses previously using origin-based sourcing could therefore be threatened with dramatically increased complexity if required to use destination-based sourcing.[7] Moreover, local jurisdictions may stand to lose revenue as a result of this

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[7] As required by SSUTA, destination-based sourcing requirements dictate that sales that are delivered or shipped to the location of the customer must be sourced to their destination (e.g., the consumer's place of business or residence), rather than to the point of origin (e.g., the vendor's location). For example, a consumer residing in Unincorporated County (imposing a 5% SUT rate) that orders a pizza from a pizza parlor in Nearby Town (imposing a 6% SUT rate) would pay 5% tax on the pizza if it was delivered to his place of residence. The increased complexity in SUT reporting requirements for businesses that deliver products to additional locations could raise SUT compliance costs.

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change, particularly for jurisdictions containing businesses with large amounts of remote sales.[8]

Pressure raised by these interest groups in some jurisdictions has forced state legislatures to

delay the adoption of some of the SSUTA's provisions (Swain and Hellerstein, 2005).

The degree to which specific interest groups have influenced states' decisions to adopt

the provisions of the SSUTA is an untested empirical proposition. Moreover, it is empirically

unclear whether states that have been unable to enact proposed legislation to conform to the

provisions of the SSUTA have stronger interest group opposition (such as smaller businesses)

than in other states, or instead whether the supportive interest groups (such as larger

organizations) were not as powerful in these states. This leads to the following research question:

*Research Question 1:* Did the strength of opposing and/or supportive interest groups affect states' adoption of the provisions of the SSUTA?

Also unclear is *how* these interest groups have used political strategies to work toward

their desired policy outcomes, and what specific types of tactics and strategies have been used by

these groups. Understanding the strategies used by groups in both conforming and non-

conforming states can illuminate the reasons behind the success or failure of different interest

groups, and can provide guidance over strategies for successful adoption of other types of inter-

jurisdictional tax policy changes (e.g., Deloitte, 2008). Such strategies can be interpreted in terms

of the HH framework, which helps categorize interest groups' political behavior. Thus, the

study's second research question investigates:

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[8] States previously using origin-based sourcing required all sales for SUT purposes to be sourced to the origin (e.g., the vendor's location). Under a switch to destination-based sourcing, jurisdictions containing businesses that make large volumes of intrastate deliveries may lose SUT revenue. One of the key reasons for the SSUTA's requirement of destination-based sourcing was to develop uniform requirements on which jurisdiction had the right to tax a transaction.

*Research Question 2:* What was the general approach to political action, level of participation, and types of political strategies in states that are conforming or not conforming to the provisions of the SSUTA?

## Research Question 1: Research Methods and Results

### *Research Methods*

Research Question 1 examines whether states that have conformed to the SSUTA by adopting its provisions had differences in opposing and supportive interest group strength compared to non-adopting members. This is studied via a cross-sectional empirical model of the 45 U.S. states that impose a state-level SUT.[9] Ideally, this research question would be investigated using panel data, as states have been deemed fully conforming members of the SSUTA in multiple years (i.e., 2005 onward). However, due to data availability issues, only a cross-sectional investigation of states considered fully conforming members as of January 1, 2009 can be conducted at this point in time. This limitation is partially assuaged by the fact that the majority of adopting states were voted fully conforming members of the SSUTA in 2005.

### *Empirical Model and Variable Definitions*

To investigate Research Question 1, the following empirical model is proposed:

$$\text{SSUTA} = a + bX + cC + \acute{\epsilon} \tag{3}$$

where SSUTA is a dummy variable measuring whether a state has adopted the provisions of the SSUTA and is a member of the SST Governing Board (taking a value of 1 if adopted and 0 otherwise), $X$ is a vector of test variables measuring interest group theory factors, and $C$ is a

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[9] Alaska, Delaware, Montana, New Hampshire, and Oregon are excluded, as these states do not impose a state-level SUT. Moreover, Washington D.C. does impose a SUT, but is excluded due to data availability concerns and to enhance comparability among the states.

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vector of control variables that includes tax system, fiscal, and political controls that may affect state tax policy decisions. Table 21 describes the variables, measurement, expected signs, and data sources used to estimate the above equation.

The *dependent variable* SSUTA measures whether a state has adopted the provisions of the SSUTA and is a member of the SST Governing Board as of January 1, 2009. At this point, states are fairly evenly divided into adopters and non-adopters; 19 states have been deemed conforming states that were full adopters of the SSUTA (full members) and three states are considered to be in substantial compliance (associated members); all 22 states are members of the SST Governing Board. Given that the model is limited to 45 observations, no distinction is made between fully conforming members (19 states as of January 1, 2009) and associate members (three states) in the presented analysis, although additional analysis considers these differences.

This study uses three *interest group theory test variables* to assess the relationship between the strength of opposing or supportive interest groups and SSUTA. First, the independent variable BUSRATIO measures the proportion of large businesses compared to small businesses within the state. Specifically, this is the percentage of state employment by businesses with 500 or more employees, divided by the percentage of state employment by businesses with 20 or fewer employees. This variable is examined as a ratio between large and small businesses to conserve a degree of freedom.[10] Next, following Cameron (2004), STATESUT is a proxy for the strength of state revenue departments, and is measured as the 2007 state SUT rate; this measure offers more stability than the proportion of state government collected from SUT and

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[10] Inferentially identical results were obtained when examining these proxies separately.

ensures comparability with prior literature. Finally, LOCALJUR is the proxy for the strength of local jurisdictions within a state. LOCALJUR is measured as the number of total jurisdictions within a state imposing an additional local general SUT. As suggested by Swain and Hellerstein (2005), BUSRATIO is expected to have a positive relationship with SSUTA, as states with a greater proportion of large businesses compared to small businesses are expected to be more likely to have adopted this policy. STATESUT is also expected to have a positive relationship, while LOCALJUR is expected to have a negative relationship.

Other controls that may influence a state's adoption of the SSUTA are also included. These controls are limited to internal state determinants; diffusion factors are not examined given the cross-sectional nature of the data analysis. ORIGIN is a *tax system control* that measures whether states utilized origin-based SUT sourcing (for states that have adopted the SSUTA, this variable is measured prior to their adoption). The SSUTA requires that states utilize destination-based sourcing for determining the appropriate SUT rate on a taxable sale; thus, states that instead use origin-based sourcing would need to make more legislative changes to fully adopt the SSUTA provisions and may be less likely to adopt (Hellerstein and Swain, 2004). Although in December 2007 the SSTP Governing Board voted that states could use origin-based sourcing for intra-state sales as conforming members of the SSUTA, this provision does not apply until at least five states have reached this threshold or January 1, 2010, whichever is later. Thus, a state's use of origin-based sourcing is still an impediment to adoption for the period of this study.

SUTLOSS is a *fiscal stress control*, measured as the "low" estimate of 2008 state and local revenue losses arising solely from e-commerce as a percentage of 2003 total state tax collections, as developed in the updated estimates by Bruce and Fox (2004). States are more likely to make taxation policy changes in times of fiscal stress (Berry and Berry, 1992; Vines et

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al., 1994). Thus, states with greater SUT revenue losses are expected to be more likely to adopt the provisions of the SSUTA.

Finally, REPUBLIC is a *political control*. Following Luna et al., (2007), REPUBLIC is measured as the percentage of Republican voters in the most recent (2004) Presidential election for which data is available. The Republican Party is generally associated with pro-business taxation policies, but it is unclear in this instance whether Republicans would support the interest of larger or smaller corporations; thus, the expected sign of this variable is ambiguous.

## *Results*

### *Descriptive Statistics*

Table 22 displays descriptive statistics for the variables used in the model for both adopting (i.e., Governing Board members) and non-adopting states. Panel A provides information on the differences in interest group, fiscal, and political factors between adopting and non-adopting states; Panel B contains the frequency of the use of pre-SSUTA for these two groups.

Panel A shows that on average, adopting states have fewer interstate SUT jurisdictions than non-adopting states (LOCALJUR). Due to the small sample size, this is the only difference between the two groups that reaches statistical significance ($p < .10$, two-tailed). While differences are not statistically significant, adopting states also have higher SUT rates (STATESUT), but, in contrast with predictions, show weaker relative large business to small business strength (BUSRATIO) as compared to non-adopting states. Adopting states also display stronger voter support for Republican candidates (REPUBLIC), but show comparable degrees of revenue loss due to e-commerce (SUTLOSS). Panel B demonstrates that surprisingly,

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substantially more adopting states had pre-SSUTA origin-based sourcing (ORIGIN) than did non-adopters.

*Method of Analysis for Empirical Model*

A dichotomous logit model is used to test the influence of interest groups on states' adoption of the SSUTA. The basic approach for testing this research question is to determine whether interest group strength explained states' adoption of the provisions of the SSUTA, when controlling for tax system, fiscal stress, and political factors. Before analyzing logistic regression results, non-parametric (Spearman) correlations among the independent variables were examined.[11] As shown in Table 23, none of the correlations exceeded 0.45, indicating that multicollinearity was not likely a problem.[12]

The empirical model is estimated using logistic regression; parameters of this model are estimated using maximum likelihood estimation. The overall model fit is assessed using a log likelihood chi-squared statistic; overall model fit is statistically significant (chi-squared = 20.174, $p$=.003; Log Likelihood = -42.187). Furthermore, the Nagelkerke $R^2$ is 0.482. The model correctly predicts 80.0% of all adoptions, as compared to a naïve model (which predicts no adoptions) of 51.1%. This improvement is evidence of some degree of predictive accuracy. The current model performs stronger in classifying adoptions (86.4%) than non-adoptions (73.9%). The results of the logistic regression analysis are shown in Table 24.[13]

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[11] Non-parametric (Spearman) correlations are examined due to the small sample size of the model.

[12] Furthermore, the variance inflation factor (VIF) for each variable in the model fell below 3.0.

[13] Sensitivity tests considered this dependent variable in two alternate ways: treating the three "associate member" states as non-adopters, and excluding the associate members from the empirical model. When treating the associate members as non-adopters, the overall model remains statistically significant ($p$ = .021) and accurately predicts over 73% of adoptions. The coefficients for STATESUT ($p$ < .05, two-tailed) and REPUBLIC remain statistically

The results of the model also provide information regarding the individual coefficients. The coefficients for the interest group theory variable BUSRATIO[14] and the fiscal control variable SUTLOSS[15] were both statistically insignificant and will not be discussed further. The coefficients for both of the remaining interest group variables were statistically significant and were in the expected direction. The estimated coefficient for STATESUT was statistically significant ($p < .05$, two-tailed) and positive, indicating that states with higher state SUT rates were more likely to have conformed to the SSUTA's provisions. This is in line with the finding of Cameron (2004) that states with higher SUT rates were more likely to be early participants in the SSTP project. Similarly, states with increased numbers of local sales tax jurisdictions ($p < .10$, two-tailed) were less likely to have adopted these reforms, suggesting that increased complexity via the number of taxing jurisdictions is a deterrent to adoption.[16] Taken together, these results suggest that the features of the state and local SUT regime within a state are likely to drive adoption, rather than facets of the business community.

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significant ($p < .10$, two-tailed). When excluding the associate members from the empirical model, the overall model remains statistically significant ($p = .008$) and accurately predicts over 76% of adoptions. The coefficients for STATESUT and REPUBLIC both remain statistically significant ($p < .05$, two-tailed), as does ORIGIN ($p < .10$, two-tailed), although again, the sign is in the opposite direction than anticipated. This suggests that increased SUT rates and Republican support were among the most robust factors in predicting adoption.

[14] Sensitivity tests substituted the cut-offs of 100 employees (large businesses) and 10 employees (small businesses), as well as the percentage of a state's total *receipts* earned by these categories of businesses. Inferentially identical results were obtained, as none of these variables were statistically significant in explaining a state's adoption of the SSUTA.

[15] Sensitivity tests substituted the "high" estimate in the updated Bruce and Fox (2004) study, as well as the initial estimated 2006 state revenue losses in SUT as a proportion of total state taxes originally developed by Bruce and Fox (2001). Results are inferentially identical, and neither of these variables approaches statistical significance.

[16] Additional analysis substitutes the *proportion* of a state's taxing jurisdictions for the total number of taxing jurisdictions. When examining the ratio of (jurisdictions imposing the SUT/governmental units in the state), the coefficient is negative and statistically significant ($p < .03$, two-tailed), and the predictive power of the model remains high. This demonstrates that the strength of local governmental jurisdictions, rather than the pure size of the state, is the driver of adoption. However, under this specification, the 2007 SUT rate is no longer statistically significant; substitution of the 2006 SUT rate in this model specification does yield a marginally statistically significant result for this variable ($p < .10$, two-tailed).

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The coefficients for two of the control variables, ORIGIN and REPUBLIC, are statistically significant as well (both $p < .05$, two-tailed). The coefficient for REPUBLIC is positive, indicating that states with an increased number of Republican voters are more likely to adopt the SSUTA provisions. In more recent years, areas with increased Republican voters have been more apt to increase local option SUT (Luna et al., 2007). The coefficient for ORIGIN was unexpectedly positive, as states that used origin-based sourcing in 2003 (i.e., prior to adoption of SSUTA changes) were more likely to adopt. This surprising finding is in line with descriptive statistics for adopting and non-adopting states; 54.5% of adopting states had an origin-based sourcing system at the beginning of 2003, whereas only 34.8% of non-adopters had this system. This finding appears to be driven by the fact that the three "associate members" of the SSUTA that have partially conformed (Ohio, Tennessee, and Utah) have all been faced with roadblocks in their implementation issues due to problems with sourcing (Collins and Iafrate, 2005; Swain and Hellerstein, 2005). When treating these three associate members as non-adopters, the coefficient for "origin" is no longer statistically significant. Still, this result suggests that despite the lack of progress made in large states with origin-based sourcing (e.g., California or Texas), the existence of origin-based sourcing was not an across-the-board deterrent to adoption.

Overall, results show the importance of governmental interest groups to the adoption of the SSUTA, particularly that of state government as proxied by the state SUT rate. However, this macro-level analysis does not consider the challenges faced in individual states or in *how* competing interest groups used political strategies to achieve desired policy results.

### *Research Methods*

Research Question 2 is investigated using a case study approach to analyze the political strategy formulation of interest groups in three states: a fully conforming state (Kansas), an "associate member" state (Tennessee), and a non-adopter (Texas). The case study approach is particularly applicable for examining contemporary phenomenon and provides a richer portrait of the real-life context than could be provided through an empirical model (Yin, 1993). Case studies are also appropriate for investigating *actual* practices, as well as "how" and "why" questions; "*storytelling*" is central in presenting the findings from such studies (Cooper and Morgan, 2008). Thus, this case study approach is appropriate for its ability to provide details of the specific challenges faced by each state, as well as richer information on *how* interest groups influence state taxation policies.

#### *Case Selection*

While researchers may have a variety of reasons for selecting individual cases within a case study, one rationale for this selection concerns "maximum variance" cases. According to Cooper and Morgan (2008, p. 165), "Maximum variance cases provide valuable insight into a specific problem or theory by selecting cases that are different with respect to some dimension…" The examination of differing outcomes in state SSUTA adoption is an important dimension. Thus, to determine whether interest groups' political strategy formulation varied in states that conformed or did not conform to the SSUTA provisions, this case study focuses on an in-depth analysis of three states: Kansas, Texas, and Tennessee. All three states have faced substantial controversy in their move toward SSUTA conformance (Swain and Hellerstein,

2005), particularly with political pressure by opposing interest groups due to changes in sourcing requirements. However, this political pressure has led to different outcomes in these states. The case study selection of three maximum variance cases therefore enables an understanding of the reasons behind the success or failure of different interest groups within individual states, as well as how the tactics used by these interest groups were executed.

Appendix C contains a summary of the legislative changes seen in each state beginning with the time in which the model legislation of the SSUTA was formally adopted in November 2002, and continuing through early 2009. The first state, Kansas, is chosen as an example of a state that is a fully conforming member of the SSTP, having successfully implemented the provisions of the SSUTA, despite business outcry over the change in sourcing requirements that threatened to derail the state's progress toward adoption (Swain and Hellerstein, 2005). The second state, Texas, is chosen as a state that has also faced political pressure in its movement toward adopting the SSUTA's provisions (Texas House Research Organization, 2004), and that as of 2009, has been unable to successfully implement these changes. The third state, Tennessee, represents a state that initially passed conforming SSUTA legislation, but has continued to delay its implementation due to pressure from local governments and small businesses (see Hubbard and Young, 2005) and is currently an associate member. These different states provide a setting to examine the forces behind these differing outcomes.

*Data Sources*

One of the facets of a case study is the use of multiple pieces of evidence (Yin, 1993). This case study examines primary and secondary archived documents regarding responses in Kansas, Texas, and Tennessee to the states' attempts at adopting the provisions of the SSUTA.

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This examination begins when the model legislation of the SSUTA was first formally proposed in November 2002 and continues through 2008. Multiple electronic sources are used to develop a comprehensive set of data sources for the analysis. As shown in Table 25, the data sources for these three states pertain to the legislative histories of SSUTA-related legislation, pertinent legislative committee meeting minutes, a wide array of secondary sources, and when applicable, campaign finance data.[17] All data sources are publicly available.

## *Results*

Data obtained for the case study are analyzed in several steps. First, information from these data sources is assembled to form a summary of the legislative history of each state's process toward achieving SSUTA conformance; see Appendix D for highlights of the legislative history for each state. Next, the information gathered is analyzed separately for each state by first identifying the interest group involved in the policy formulation process, indicating whether these interest groups' actions favored or opposed state adoption of the SSUTA, and analyzing the arguments used by interest groups within each state. Then, the information gathered about each interest group is categorized by using the HH framework as an organizing taxonomy through which to interpret the information gathered (Roberts et al., 2003). For each category of interest group (state governments, local governments, small businesses, and large businesses) within each state (Kansas, Texas, or Tennessee), the results qualitatively identify the general political approach (transactional or relational), level of participation (individual or collective), and the

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[17] State revenue departments and governmental representatives from local jurisdictions were some of the most active interest groups in terms of support or opposition to this adoption; however, such interest groups do not make financial campaign contributions. Thus, the campaign contributions of eligible interest groups identified in the document search were obtained.

specific types of political strategies used (informative, constituency-building, and/or financial incentive).

The classification of these characteristics was made based on the definitions of the elements of the framework developed in the original HH model, and in the summary of the HH model discussed by Roberts et al., (2003). Interest groups in which the majority of involved entities possessed an ongoing legislative agenda or extensive participation in other policy issues (e.g., committee hearing testimony) were described as possessing a *relational* political approach; a *transactional* political approach described interest groups in which most participating entities lacked these elements. Likewise, an *individual* level of participation was used for interest groups in which most involved entities were individual firms or municipalities; interest groups with a *collective* level of participation were dominated by associations of firms or municipalities (e.g., chambers of commerce or municipal leagues). Activity aimed directly at legislatures, such as lobbying and testimony at committee hearings, was classified as evidence of *informative* political strategies. Tactics aimed directly at the general public (i.e., not at legislatures), such as press conferences, advocacy advertising, or articles in trade publications, were treated as *constituency-building* strategies. Financial campaign or PAC contributions, along with evidence of paid lobbyists or lobbying expenditures, were classified as *financial incentive* strategies. Taken together, these results show the importance of the executive branch (i.e., involvement of the governor) and municipalities, and provide evidence that a relational, collective strategy had the greatest influence on outcomes.

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*Kansas*

Table 26 provides an overview of the primary interest groups involved in Kansas and their position toward adoption. In Kansas, the state government (both the department of revenue as well as the Governor's office), large businesses, and local governments all supported the state's adoption of the SSUTA. This support was primarily driven by financial considerations – state and local governments saw the SSUTA as a way to increase revenues (through the collection of additional SUT revenues and the creation of a local use tax[18]), while large businesses perceived the simplification requirements as a way to minimize complexity across taxing jurisdictions. Small businesses initially viewed the SSUTA as a way to maximize fairness between "brick and mortar" and online retailers, but later opposed the move due to the costs of making the changes. Thus, the move toward adoption of the SSUTA can be characterized as a battle pitting small businesses against the other interest groups.

The state of Kansas was one of the original states participating in the SSTP; it was one of four states chosen to engage as a "pilot" for assessing the tax collection software necessary to collect SUT from the SSTP project (Bauman et al., 2001). Thus, when legislation was introduced by the Kansas legislature in the 2003 session, it was greeted very favorably. The Kansas governor supported the project, as did nearly all parties testifying at the public hearings surrounding this act. Indeed, at the initial House and Senate legislative testimony in spring 2003, representatives from the state government, local governments, and business interests all overwhelmingly supported that Kansas amend its state laws to be in conformance with the

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[18] Kansas was one of the few pre-SSUTA states that did not impose a local *use* tax. SSUTA-conforming legislation required *both* sales and use taxes to apply to local option taxes to create consistency in the tax treatment of transactions. Thus, local governments in Kansas were particularly enthusiastic about adopting the SSUTA.

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SSUTA. However, most discussion centered on the *benefits* of the SSUTA, and ignored the legislative *changes* that would be necessary to make adoption a success (in particular, a change from origin-based sourcing to destination-based sourcing).

With the focus on the long-term outcomes of SSUTA, all pertinent interest groups initially supported this move. Joan Wagnon, Secretary of Revenue at the Kansas Department of Revenue (KDOR), described that adoption would help *collect additional (i.e., lost) SUT revenue*, as the act responded to "concerns about the loss of tax revenue on remote sales" and would help "eliminate the advantage" of remote retailers.[19] Similarly, Lewis Ebert, the head of the Kansas Chamber of Commerce and Industry (KCCI), stated that the organization supported the adoption of the SSUTA for *simplification* purposes, as "the current system for collecting and remitting sales tax is very burdensome and complex…" and adoption would aid "companies large and small."[20] KCCI also appealed to reasons of *fairness*, arguing that if the SSUTA was adopted, "Kansas retailers will be on a level playing field with vendors that do not have nexus in the state and are not required to collect sales tax."[21] Local governments were in favor of these changes, particularly due the *new local use tax* established as a result of the SSUTA adoption. The Kansas League of Municipalities stated that the SSUTA "…[met] the League's objectives because it establishes a compensating use tax for cities and counties…"[22]

The unified support of all interest groups led to a joint conference committee report recommending the adoption of these changes, shifting the effective date up a year to July 1,

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[19] Kansas Senate Committee on Assessment and Taxation Meeting Minutes, January 22, 2003

[20] Kansas House Committee on Taxation Meeting Minutes, March 25, 2003

[21] Kansas Senate Committee on Assessment and Taxation Meeting Minutes, February 17, 2003

[22] Kansas Senate Committee on Assessment and Taxation Meeting Minutes, February 18, 2003

2003, so that Kansas could be one of the earliest adopters of the SSUTA with a guaranteed seat on the SSTP's Governing Board (Rothschild, 2003). HB 2005, including the shift to destination-based sourcing, was passed by both legislative chambers and signed into law by Governor Kathleen Sebelius in May 2003.

In June 2003, KDOR notified retailers that they would need to begin using destination-based sourcing for SUT purposes within the next month. The resulting outcry from small businesses making deliveries was in sharp contrast to the lack of attention paid to this issue in the initial discussion of the SSUTA adoption. Hundreds of retailers flooded KDOR in opposition of this new requirement, citing the *cost of the sourcing change* as their major contention (Lawhorn, 2003). So strong was the opposition that KDOR soon notified all retailers of an informal six-month grace period, supported by Governor Sebelius. Even with this delay, the Governor's office continued to stress the importance of SSUTA adoption, appealing not only to the *collection of additional revenue*, but "more importantly", issues of *fairness*. Adopting the SSUTA was portrayed as "a way of leveling the playing field between our retailers on Main Street and those who market by catalogue or internet sales" (Kansas Governor's Office News Release, 2003). Thus, actions by small businesses resulted in an implementation delay, but state governmental interest groups remained committed to conforming to the SSUTA.

Over the next two years, small businesses in Kansas continued to fight to keep Kansas from continuing in the SSTP movement, while the state executive branch (i.e., the offices of the Governor and the Department of Revenue) and local governments continued to press for the implementation of changes. Dominated by small businesses, the KCCI and other local chambers of commerce targeted both legislators and constituents alike, arguing for a repeal of the SSUTA. Ken Daniel of the National Federation of Independent Businesses (NFIB) highlighted the *cost of*

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*sourcing change*, as "…84% of NFIB members requested the destination sourcing provisions of the SSTP be changed," and stating that "destination sourcing will harm 30,000 small businesses."[23] Appeals to the cost of the sourcing change by small businesses dominated discussion throughout the remainder of 2003 and 2004. Such entities also argued that Kansas's move toward SSUTA conformity might not result in the collection of lost SUT revenue because the agreement by itself *did not guarantee Congressional action* that would allow states to collect sales taxes on sales by remote vendors[24] – instead, the agreement centered on voluntary compliance (using amnesty as an incentive).

While the overwhelming majority of interest groups testifying during this period were small businesses opposing the change, the state executive branch and local governments continued to support adoption. Most appeals by these groups were revenue-centered – concerning *collecting additional SUT and local use tax revenue* – but references to *fairness* and the common rhetoric of "leveling the playing field" emerged as well.[25] Thus, while the Kansas House passed a bill in March 2004 that delayed adoption of the SSUTA until Congressional action, the bill did not make it through the Senate. Instead, the chambers ultimately both passed SB 147 in May 2004, which delayed SSUTA implementation until January 1, 2005.

The push by Kansas's small businesses to halt adoption of the SSUTA continued into 2005. With the full implementation of destination-based sourcing at the beginning of 2005, Kansas petitioned for membership to the SSTP as a fully conforming state. However, in February

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[23] Kansas Joint Committee on Assessment and Taxation Meeting Minutes, October 9, 2003

[24] E.g., Kansas Chamber of Commerce and Industry testimony by Lew Ebert, Kansas Joint Committee on Assessment and Taxation, October 9, 2003

[25] E.g., Kansas League of Municipalities testimony by Larry Baer, Kansas Senate Committee on Assessment and Taxation, February 18, 2004

2005, the Kansas House narrowly rejected a resolution aimed at jeopardizing participation with the SSTP. Even with the defeat, the Kansas House Taxation Committee continued to hold hearings on delaying adoption of the SSUTA, with small businesses citing the increased software and compliance *costs* as a reason for the delay.[26] Meanwhile, KDOR and municipalities appealed to *additional revenue,* as "SSTP is the future and would provide the sales tax base needed to fund Kansas education, health care, as well as other future needs".[27]

Small businesses were ultimately defeated in this battle, and Kansas's adoption of the SSUTA remained in force. The positive influence of the SSUTA on many local, rural governments' finances (e.g., Courtwright, 2004) may have drowned out the concerns of small businesses. Instead, when the SSUTA went into effect in October 2005, Kansas was a fully-conforming Governing Board state. The state continued to make required technical changes to remain in compliance (e.g., HB 2171), and was re-certified in 2008 by the SSTP as still being firmly in compliance.

The story of Kansas's move toward SSUTA adoption and compliance was a product of competition between small businesses and representatives of governments at both the state and local level. The role of large businesses in this struggle is somewhat muted. While large businesses in Kansas were supportive of the SSUTA conformity due to its *simplification* and enhanced *uniformity* across taxing jurisdictions,[28] their position was not in the limelight in Kansas's road to adoption.

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[26] E.g., William Brannan, Schendel Pest Control, Inc., Kansas House Committee on Taxation Meeting Minutes, March 2, 2005

[27] Joan Wagnon, Kansas Department of Revenue, Kansas House Committee on Taxation Meeting Minutes, March 3, 2005

[28] E.g., Kansas House Committee on Taxation Meeting Minutes, March 22, 2007

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Tables 27 and 28 detailed information on the political strategies of these interest groups in Kansas's adoption of the SSUTA. Several findings emerge to explain why governmental interest groups were successful in Kansas. First, interest groups with a *relational* (long-term) presence were more successful. As shown in Table 27, state and local governments (as well as larger businesses) that were involved in the SSUTA adoption process all had a relational presence, as characterized by their legislative involvement on multiple issues during the time in which the SSUTA was enacted. Small businesses were the lone group with a predominantly transactional (issue-specific) presence, and they were a relatively late entry into the debate. Many of the small businesses that were the most affected by the cost of the sourcing change were those that had not previously been involved in the legislative process (Malashock, 2004; Montaque, 2004). Not surprisingly, Hillman and Hitt (1999) predict that entities with a relational presence are typically more successful in influencing the legislative process. Secondly, governmental entities primarily participated with a *collective* strategy. At the state level, KDOR and the Kansas Governor's Office presented a united front, while the Kansas League of Municipalities and Kansas Association of Counties represented the interests of cities and counties. While this type of collective action still existed via some of the business associations that represented small business interests, the vast majority of these small businesses fought a lone battle, such as through contacting KDOR (Lawhorn, 2003), meeting with legislators at forums (Malashock, 2004), and testifying at public hearings (Kansas House and Senate committee meeting minutes). Thus, collective action may have been more influential in the policy-making process.

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Finally, while large businesses had little involvement in committee hearings and made little appeal to the public at large about the SSUTA, state governments, local governments, and small businesses were all extensively involved in this regard. As detailed in Table 28, these three interest groups used extensive *informative* tactics through their ongoing testimony regarding the adoption of SSUTA at legislative committee hearings throughout 2003 through 2007; all also used *constituency-building* tactics via communication with the public at large regarding their position toward the SSUTA via publications, newspaper columns, interviews, and policy statements. While governmental entities were unable to make *financial* contributions toward legislators, local governmental associations had a number of paid lobbyists registered with the State of Kansas, as did many municipalities and counties that listed adoption of the SSUTA as part of their "legislative agenda." In contrast, not a single individual small business that testified in opposition of the SSUTA made financial contributions and none had paid lobbyists.[29] Overall, the concerns of small business owners over the cost of the sourcing change from this agreement were likely drowned out by those that had stronger political connections, presented a united front, and had greater resources, despite the fact that small businesses used similar tactics as did other groups. Thus, while the opposition from small business owners was strong enough to delay the initial implementation of the SSUTA, the unified support of representatives of state and local governments ultimately prevailed.

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[29] The largest campaign contributions from an opposing entity for the period of 2003-2007 were from KCCI; these totaled slightly under $160,000. The next largest campaign contributions from an opposing entity during this time period were from the NFIB, which totaled slightly over $13,000. Other opposing associations (e.g., Wichita Independent Business Association) were substantially lower, and none of the individual small businesses made any type of campaign contribution. By comparison, Boeing and Sprint were two of the few large organizations that supported the SSUTA in committee hearing meetings; Boeing's total contributions were around $138,000, whereas Sprint totaled slightly under $80,000.

*Texas*

Table 29 summarizes the Texas interest groups involved in the struggle over SSUTA adoption. Initially, the Texas Comptroller's Office and large businesses favored adoption due to the hope of additional SUT revenue and simplification, respectively. However, many local governments opposed SSUTA adoption due to intrastate shifting of revenue that could occur with the change to destination-based sourcing, while small businesses opposed the sourcing change due to the increased cost of compliance. The Texas Comptroller's Office later opposed adoption due to concerns over the sourcing change, particularly due to the potential redistribution of revenue. Unlike Kansas, the Texas Governor's office had little formal involvement or communication in the move toward adoption of the SSUTA. Overall, the concerns of municipalities came to dominate Texas's stagnation in the process of SSUTA adoption.

Texas was one of the strongest early supporters of the SSTP movement. Texas was "involved from the very beginning" and was "very interested in being a part of this [streamlining movement]".[30] Indeed, the model legislation developed in the SSUTA was primarily based off Texas's existing SUT code. State Senator Troy Fraser reported that the SSTP "adopted the Texas model" by using the Texas SUT system as a "blueprint," and that there was only "one minor change" required for Texas to be in compliance with the SSUTA.[31] This "minor change" was the change from origin-based sourcing to destination-based sourcing, which ultimately proved to be the Achilles heel of Texas's conformance efforts.

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[30] Joan Wagnon, President of the Streamlined Sales Tax Governing Board, U.S. House Subcommittee on Commercial and Administrative Law Meeting Minutes, December 10, 2007

[31] Transcript of Senate Finance Committee, April 23, 2003

Legislators in Texas introduced conforming legislation to the House and Senate in the 2003 session. Bill sponsors were aware that the shift to destination-based sourcing would have some consequences, but initially only focused on a specific municipality: Round Rock, Texas, home to the headquarters of Dell Computers. Under existing origin-based sourcing rules, Round Rock was allocated all of the sales tax revenue on Dell sales made within Texas. Revenue from the local-option sales tax comprised around 60% of the city's overall operating budget, with sales attributable to Dell accounting for the majority of this amount (Texas House Research Organization, 2004). Moreover, in 1993, Round Rock had negotiated a tax incentive package with Dell in which the city refunded a portion of the sales tax to Dell; the city had also leveraged a portion of its bonds on future sales tax revenues attributable to Dell sales (Texas House Research Organization, 2004). Round Rock reported that the adoption of destination-based sourcing would devastate the city; if the sourcing requirements were to occur, the town would lose $20 million in revenue a year.[32] Consequently, State Senator Fraser referred to the problems with the *intrastate shift in revenue* resulting from the destination-based sourcing change as the "Dell problem".[33]

The problems of the intrastate revenue shift were not limited to Round Rock, but extended to rural communities with a high proportion of distribution centers (Matthews, 2005). In hearings regarding Texas's adoption of the SSUTA conforming legislation, nearly a dozen cities spoke in opposition of the plan due to a decrease in SUT collections, all due to the detrimental effects of the *shift in intrastate revenue*.[34] For example, the city of Carrollton

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[32] Transcript of Senate Finance Committee, April 23, 2003

[33] *Id.*

[34] Transcripts of House Ways & Means Committee, April 9, 2003, and Senate Finance Committee, April 23, 2003

reported that adoption of the SSUTA would result in a reduction of over 40% of their SUT revenue, whereas the mayor of the City of Farmers Branch reported that the change could lead to at decrease of around 20%. Within the Comptroller's Office, Eleanor Kim, the Assistant Director of Tax Administration, reported that the state had attempted to study the magnitude of the sourcing change across the state, but the data did not exist.[35]

In contrast to Kansas, in Texas, large (multistate) businesses had a heavier role in the initial debate over the role of the SSUTA, while small businesses were not in the limelight. Large businesses supported the adoption of the SSUTA for reasons of *simplification* and *fairness.* Chuck Courtney of the Texas Retailers Association stated that they "whole-heartedly support the bill" for reasons of *fairness* between online and bricks and mortar retailers.[36] Representing JCPenney and Eckerd Drugstore, Wayne Zakrzewski argued that even with the lack of Congressional action, the simplification benefits for inter-state retailers would greatly decrease their cost of compliance.[37] Interestingly, Dell Corporation itself was not involved in the debate.

Due to the concerns raised by local governments, in May 2003, the Texas legislature unanimously passed HB 2425, changing the sourcing of taxable *services* to destination-based. The sourcing of sales of tangible personal property remained unchanged. The change to destination-based sourcing for taxable services was to be effective July 1, 2004 (Kidd, 2003). The hope expressed by Texas legislators was that Texas would have greater latitude in adopting the provisions of the SSUTA because it was a "key state" in the agreement (Kidd, 2003).

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[35] Transcript of the Senate Finance Committee, April 23, 2003

[36] Transcript of House Ways & Means Committee, April 9, 2003

[37] *Id.*

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Even the change in the sourcing of services would prove difficult. Immediately prior to when these changes were scheduled to go into effect, the Texas Comptroller's Office posted a report stating that this sourcing change was being delayed indefinitely due to concerns over the effects on local governments and small businesses. Specifically, the Comptroller's Office reported, "several members of the Texas legislature as well as many business owners around the state have raised concerns about the significant and far-reaching effects of these changes" (Kidd, 2004, p. 6). The implications of these changes on *local* SUT was still unknown; therefore, "at the request of key legislative leaders," Texas decided to delay the implementation of the SSUTA changes indefinitely (Kidd, 2004, p. 6). In other words, concerns over the *cost of the sourcing change* and the *intrastate allocation of SUT revenue* pushed Texas to indefinitely delay SSUTA adoption.

Local governments in particular were in favor of the delay. The Texas Municipal League (TML) reported that most cities within Texas were opposed to the adoption of the SSUTA now that they understood that conformance required changes to intrastate sales. The TML viewed the sourcing change as leading to "long-term budgetary chaos, dramatic revenue losses for larger cities, and overall net losses from shipping taxable goods into unincorporated areas where no municipal sales taxes would be collected" (House Research Organization, 2004, p. 9). These concerns were echoed in a 2005 study by the Comptroller's Revenue Analysis Section indicating that destination-based sourcing would redistribute approximately $160 million in local sales tax (Texas Comptroller's Office, 2006). Thus, Texas cities and the TML withdrew their support of the SSUTA.

This delay was never reversed. Supporting interest groups within Texas made little attempt at persuading opposing groups, but instead worked to change the structure of the overall

SSUTA. One of the original selling points of the bill was that nearly 90% of the SSUTA was based on existing Texas law, with little change necessary to achieve conformance.[38] This attitude may have been a function of Texas's size – groups in favor of the change thought it unfair that Texas should change its SUT system to accommodate the will of smaller states and that a compromise was necessary for the SSTP to continue (see Texas Comptroller's Office, 2006). In April 2006, the state of Utah proposed a compromise to the sourcing agreement to the SST Governing Board, but the measure was defeated. Thus, in May 2007, both chambers of the Texas legislature unanimously moved to return to origin-based sourcing for taxable services (HB 3319). Texas never implemented destination-based sourcing for intrastate sales.

In large part due to the problems faced by Texas, in December 2007, the SST Governing Board approved a compromise in sourcing requirements, permitting the use of origin-based sourcing for intra-state sales beginning in 2010 when at least five other states under SSUTA used this method. Local governments in Texas were supportive of this change. Round Rock Assistant City Manager David Kautz announced, "'Round Rock believes that the approved amendment provides a compromise that we have long sought and enables our intrastate origin-based sourcing rules to remain intact'" (Texas Comptroller's Office, 2007). While conforming legislation has not yet been written as of mid-2009, the removal of the destination-based sourcing requirement effectively eliminated the criticisms of small businesses and local governments (Kidd, 2007).

Tables 30 and 31 provide detailed information on the political strategies of Texas interest groups in the move over the adoption of the SSUTA. Several patterns emerge. First, the Comptroller's Office in Texas used an *individual* approach in working toward (and later against)

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[38] Testimony of Wayne Zakrzewski, Transcript of House Ways & Means Committee, April 9, 2003

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adoption, as little evidence suggests that the Governor's office was actively involved; see Table 30. Second, most business interests groups in Texas also utilized an *individual* approach; chambers of commerce were not formally involved in the initial hearings. Third, as with Kansas, local governments strongly influenced the political process, changing the tone of the debate over the adoption process to whether the SSTP project would be able to accommodate concern from Texas's cities (Texas Comptroller's Office, 2006). Local government interests were particularly strong due to their *relational* presence and the fact that *both* individual and collective entities were involved in the process.

Finally, Table 31 illustrates the types of political strategies used by each of these interest groups. First, local governments used extensive *informative* tactics such as lobbying the legislators and providing testimony at public hearings, highlighting problems with the shift of the intrastate revenue. Local government representatives also testified at the national SSTP meetings (Kidd, 2007), a strategy unseen in other states. Large businesses relied on informative tactics, but used more distant tactics (e.g., sending written statements rather than testifying in person). Small businesses and the state Comptroller's office had a limited role in their use of informative tactics. Second, governmental interest groups used *constituency* tactics via constituent publications, research publications, and statements of policy in appealing to the public at large regarding their position over the SSUTA adoption; such communication has continued through 2008 (e.g., Texas Comptroller's Office, 2008). Business interest groups made few direct appeals to the public.

Third, like Kansas, both large businesses and local governments had a strong lobbying presence; in particular, nearly all opposing cities employed paid lobbyists. While large businesses that supported the simplification provisions of the SSUTA had a strong *financial*

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presence,[39] the fact that their informative and constituency tactics were limited compared to those of local governments suggests that concerns over the shifting in intrastate revenue drowned out the potential benefits of simplification. The opposition from local governments ultimately prevailed in the battle over Texas's adoption process, and in some respects, over the direction of the SSTP as well.[40]

*Tennessee*

Table 32 presents an overview of the primary interest groups involved in Tennessee's move toward adopting the SSUTA. The positions of Tennessee's competing interest groups were similar to that seen in Texas – large businesses supported the move as a means to achieve simplification and fairness, whereas local governments and small businesses were opposed to the consequences of the sourcing change (e.g., shifting intrastate revenues and the monetary and temporal costs of sourcing changes). Unlike Texas, however, representatives from the Tennessee Department of Revenue (TDOR) were heavily involved in the project and were its primary supporters, while the Tennessee Governor was actively opposed to some of the changes of the initiative. The push from TDOR ultimately resulted in Tennessee's status as an associate member, despite active interest group opposition.

Like Kansas and Texas, Tennessee was an active early supporter of the SSTP. Representative Matthew Kisber from Tennessee was elected as one of the co-chairs of the SST

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[39] For example, Wal-Mart (which registered in favor of adopting the SSUTA) and its PACs contributed over $316,000 in campaign contributions in Texas from 2003-2007.

[40] Texas Comptroller's Office, 2007; Joan Wagnon, President of Streamlined Sales Tax Governing Board, U.S. House Subcommittee on Commercial and Administrative Law Meeting Minutes, December 10, 2007

Implementing States Committee that helped mold the model legislation of the SSUTA,[41] while

Commissioner Loren Chumley later served as a co-chair of the SST Conforming States

Committee that carried out the administrative functions of the SSUTA.[42] Thus, when legislation

to conform to the SSUTA was introduced in the 2003 session, some legislators viewed

Tennessee as a *leader* in the streamlining process. Representative Claybough commented in the

2003 session that "we do not want to lose the bill this year" because it was important that "[we]

don't stop the national momentum in Tennessee".[43]

Unlike Texas (and to a lesser extent, Kansas), Tennessee faced extensive changes in

conforming its SUT statutes to the SSUTA. Beyond the change in sourcing requirements,

Tennessee was required to remove caps on local taxes paid for goods and services, change its

telecommunication tax structure, and make all goods and services have identical treatment in the

state and local tax bases (Fox et al., 2005). The removal of "single article caps" that limited the

amount of local taxes charged on single-item purchases was particularly controversial (Sharp,

2003). Thus, TDOR strongly emphasized the role of *simplification* that would be achieved by the

SSUTA. As stated by Commissioner Chumley, "We have one of the most complex SUT laws in

the country. Truly."[44] In helping to draft legislation resulting in these base changes and removal

of caps, TDOR met with industry groups affected by the simplification provisions;

Commissioner Chumley approached such groups by asking "how can we protect your interests

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[41] Minutes of the Inaugural Meeting of the Sales Tax Simplification Governing States, November 28-29, 2001

[42] Minutes of the Streamlined Sales Tax Implementing States, November 19, 2003

[43] Transcript of the Minutes of the Senate Finance, Ways and Means Committee, May 28, 2003

[44] Transcript of the Minutes of the House Finance Budget Subcommittee, May 13, 2003

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and at the same time achieve streamlining?"[45] The role of TDOR was therefore instrumental in moving toward SSUTA adoption.

While *specific* industries that were affected by the removal of exemptions and similar simplification provisions were involved in the initial debate over the SSUTA, *general* small and large business interests did not have a prominent role. Charles Garrison of the Tennessee Chamber of Commerce stated in April 2003, "…there has been limited business involvement in drafting proposals and legislation" regarding conformance to the SSUTA.[46] Local governments also had no formal involvement in the policy formulation process. Instead, some legislators perceived that the collection of lost SUT revenue would benefit local governments as well. Representative McDaniel perceived that the potential benefits to local governments was so strong that, "…they ought to be up here in line".[47] With the push from the TDOR and legislators that adopting the SSUTA would benefit the state, both chambers adopted provisions to change Tennessee's SUT laws to be in conformance with the SSUTA (Public Chapter 357).

After conforming legislation was passed, most Tennessee interest groups viewed the measure favorably. However, some pangs of discontent emerged. One of the most ardent critics of the nationwide streamlined movement, the Direct Marketing Association (DMA), lobbied the Tennessee Tax Structure Commission in June 2003, arguing numerous reasons for opposing the SSUTA, including that the agreement did nothing to simplify the tax system and would not result in additional revenue for the state.[48] Still, other interest groups did not follow suit.

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[45] Transcript of the Minutes of the Senate Finance, Ways, & Means Committee, May 28, 2003

[46] Meeting Minutes of the Tennessee Tax Structure Commission, April 24, 2003

[47] Transcript of the Minutes of the House Finance Budget Subcommittee, May 12, 2003

[48] Minutes of the Tennessee Tax Structure Study Committee, June 26, 2003

In the 2004 session, both chambers unanimously passed technical changes to the bill and specified that the effective date of implementation would be July 1, 2005 (Public Chapter 959).

The turning point in interest groups' attitudes toward SSUTA conformance occurred in January 2005, when, in his "state of the state" address, Tennessee Governor Phil Bredesen proposed delaying the implementation of the SSUTA conformance laws due to their potential adverse effect on local governments and small businesses.[49] The position is noteworthy for its distinction from the earlier advocacy role of the TDOR – indeed, Commissioner Chumley had been appointed by Bredesen (Humphrey, 2005b). This concern was heightened the following month, when a municipality-funded study was released estimating that conforming to the SSUTA would result in a net inflow to local governments overall, but that 12 counties (in larger, metropolitan areas such as capital city of Nashville) would experience combined new outflows of nearly $15 million (Fox et al., 2005). The report touched off concerns among local governments, all citing the *shifting of local revenues* as a strong reason for opposition. The Deputy Director of the Tennessee Municipal League (TML) stated, "This is probably our biggest legislative priority this year because many of our cities have incurred debt and made investments based upon sales tax revenues that could be lost with these changes" (Flessner, 2005, p. 1). Local municipalities echoed this sentiment.

Small businesses also began voicing their concerns about sourcing changes to constituents and legislators alike. One more vocal opponent of this change was the Tennessee branch of the National Federation of Independent Businesses (NFIB), which heavily lobbied against implementing the SSUTA changes, citing the *cost of the sourcing change*, the *lack of*

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[49] Transcript of State of the State Address, January 31, 2005.

*thought* on the change, and the *lack of a Congressional guarantee*. Rob Ikard, Tennessee Director of the NFIB, stated that a recent survey had shown that "more than 81%" of members "had not heard about the upcoming changes" and that the additional burden on small business did not justify the benefits (Memphis Business Journal, 2005). After lobbying from small business and local government entities, Governor Bredesen announced in April 2005 that he recommended the state delay implementation of the streamlining changes (Nashville Business Journal, 2005). With the governor's support, a measure further delaying implementation to July 1, 2007 quickly passed both chambers with near unanimous support (Public Chapter 311).

Tennessee's move toward SSUTA conformance continued to stall after 2005. However, while Texas ultimately decided to return to origin-based sourcing, Tennessee continued to study the issue and investigate means of mitigation for entities affected by the delay. A commissioned report, released in January 2007 as a collaborative effort between TDOR, representatives from local government, and representatives from industry, recommended various mitigation strategies for local governments and small businesses.[50] This recommendation suggested that the state as a whole would continue moving forward in attempting to achieve SSUTA conformance. Still, the Governor's Office continued to oppose adoption. A member of the governor's office stated in spring 2007, "The governor wants it postponed until Congress takes up the issue," but that the office instead was "proposing to delay SSUTA for two years" (NFIB, 2007). Public Chapter 602 further delayed implementation to July 1, 2009. Despite opposition from the Governor's office,

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[50]Report on Streamlined Sales Tax Law Changes, 2007

TDOR has continued to work toward adoption of the SSUTA, applying as an associate member of the SSTP and citing the benefits of *simplification* and *modernization* of the tax system.[51]

Overall, the *shift in intrastate revenues* for local governments in Tennessee was one of primary reasons for Tennessee's delay in SSUTA implementation, as, "The sourcing complications of the local jurisdictions have been a hard bite for both chambers in Tennessee to embrace".[52] Tennessee may continue to further delay the implementation of conforming legislation, but the December 2007 compromise by the SST Governing Board will likely shift the future course of the SSUTA conformance process. This change has satisfied the concerns of the TML and other local governments (e.g., TML, 2008), suggesting that Tennessee's path toward becoming a fully conforming member of the SSUTA may ultimately be successful.

Tables 33 and 34 provide details on the political strategies and tactics of Tennessee interest groups during the battle toward SSUTA adoption. First, most of the interest groups within Tennessee involved with the SSUTA used a *relational* approach and were involved with multiple issues. This suggests that the success or failure of different interest groups was not due to discrepancies in approaches to political strategy. Next, TDOR and the Governor's office remained divided in their level of support for this issue. Unlike Kansas, where the elements of state government presented a unified front, TDOR was the driving force behind SSUTA adoption in Tennessee. It was likely the work of TDOR that kept Tennessee active in the streamlining

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[51] Tennessee SSUTA Petition for Membership, 2007. In the 2009 legislative session, the Tennessee House (HB 2275) and Senate (SB 2318) introduced legislation further delaying the effective date of SSUTA conformance to July 1, 2011. These bills were ultimately passed and signed by the Governor in mid-2009, indicating that Tennessee continues to struggle with full SSUTA implementation.

[52] Steven Rauschenberger, National Conference of State Legislatures, U.S. House Subcommittee on Commercial and Administrative Law Meeting Minutes, December 10, 2007

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process despite a governor that advocated an indefinite moratorium on involvement.[53] Part of the reason for this perseverance could be the strong influence of Commissioner Loren Chumley, who at least one representative saw as doing "an excellent job in representing Tennessee in multi-state discussions of the SSUTA" (Rep. Briley, Hubbard and Young, 2005, p. 8) and was extensively involved in developing the Tennessee legislative agenda. Third, similar to Texas, local governments were heavily involved in the process, as evidenced by both individual and collective interests.

Finally, Table 34 describes the types of political strategies used by each of these interest groups. Several interesting findings emerged. Like Texas, local government interest groups (both associations and individual municipalities) had a strong lobbying presence, suggesting *financial* support; the lobbying arm of small businesses appears restricted to the NFIB and was hence more limited.[54] However, while local government interests had a significant influence on the outcome of Tennessee's adoption, their interests did not railroad the state's move toward adoption. This is largely because of the role of TDOR within the state government. TDOR used extensive *informative* and *constituency-building* tactics, repeatedly testifying at legislative hearings and conducting extensive outreach and educational campaigns regarding the issue. This level of involvement is much stronger than what was seen in Texas, suggesting why TDOR was able to keep momentum alive for the movement. Moreover, many of the informative and

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[53] Governor Bredesen continued to rely upon Commissioner Chumley's input in formulating his position toward the SSUTA; for instance, he declined to formulate a position regarding Tennessee's 2005 bill to delay the implementation of streamlining until hearing a report from Chumley (Humphrey, 2005a). Nevertheless, the TDOR Commissioner was one of the movement's strongest advocates, whereas the governor was much more cautious.

[54] There is no record of campaign contributions from the NFIB from 2003-2007. Like all other states, the Tennessee Municipal League also did not provide any campaign contributions. Thus, two of the most vocal opponents in Tennessee were entities that had not financially contributed to political campaigns.

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constituency-based appeals by the TDOR focused on issues of *simplification* and *fairness*, rather than collecting additional SUT revenue; indeed, Commissioner Chumley repeatedly pressed the issue of simplification as the paramount goal of the SSUTA.[55] This suggests that the presence of a strong entity in advocating policy can compensate for lack of executive support and opposing interest groups.

## Discussion

### *Summary of Findings*

Overall, the study's results suggest that governmental interest groups are important to adoption of state taxation policies. Research Question 1 examined whether the strength of opposing and/or supporting interest groups affected states' adoption of provisions of the SSUTA. Results show that states with a higher SUT rate are more likely to *adopt* provisions of the SSUTA, reinforcing Cameron's (2004) finding that a higher SUT rate led to higher *participation* in the SSTP. Moreover, states with a larger number of taxing jurisdictions were marginally less likely to adopt these provisions. Higher Republican support among voters increased the odds of adoption, while (surprisingly) the use of pre-SSUTA origin-based sourcing was not a deterrent to adoption.

Research Question 2 investigated how interest groups used political strategies in states' battles toward adoption. Based on a case study of Kansas (a fully conforming state), Texas (a non-adopter), and Tennessee (an associate member), business interests were not as important as those of local governments and state revenue departments. While both small businesses and local governments opposed the change in sourcing requirements necessitated by SSUTA adoption,

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[55]E.g., Tax Structure Commission Study Meeting Minutes, February 14, 2004

local government concerns over the change in sourcing requirements were ultimately more influential than small business concerns over the cost of the sourcing change. Kansas's success as a fully conforming adopter is likely due to local government support of the measure resulting from the imposition of a new local use tax. The lack of support by the local governments in other states created much greater political pressure against adoption. Similarly, the strong role played by the state revenue department in Kansas and Tennessee ultimately led to the states' involvement as governing board members, while this role was muted in Texas. These results complement the empirical model and suggest that the strength and involvement of *governmental* interest groups is particularly important in taxation policy adoption.

### *Limitations*

The results of the study should be interpreted in light of its limitations. First, the empirical model uses cross-sectional data of 45 observations (states that impose SUT), limiting the statistical power of the tests. However, the use of logistic models is particularly applicable for smaller sample sizes and partially assuages this concern (see Maddala, 1991). Second, the empirical proxies used within the empirical model may not properly represent the underlying constructs; to mitigate this potential limitation, alternative analysis using alternative variable definitions is provided. Third, the investigation of political strategies used is limited to a case study of three states; caution should be used in interpreting beyond these cases. The examination of three different settings provides some assurance as to the general pattern of results (Cooper and Morgan, 2008). Fourth, the case study results are descriptive and qualitative. While it could be argued that the trends in the adoption process in these states are anecdotal, this develops a richer picture of states' cooperative endeavors beyond an empirical model.

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*Discussion*

The results of this study add to the literature on the factors leading to state conformance of taxation policies outside of federal preemption. This study adds to the body of work suggesting that interest groups influence state taxation policies (e.g., Anderson et al., 1989), and affect intrastate collaboration as well (e.g., Cameron, 2004). Second, despite the inability to make financial contributions, *governmental* interest groups are particularly important in state policy adoption, in contrast to the oft-ascribed role of the importance of businesses (e.g., Quinn and Shapiro, 1991; Suarez, 1998). Thus, models of state policy adoption should consider how measures would affect state or local governmental groups (e.g., Omer and Shelley, 2004).

Finally, this study has significant practical importance, as it sheds light on why and how states have been able to implement the changes required to comply with the SSUTA. While the SSUTA has achieved tremendous progress, it has been unable to move forward in many states (Fox and Swain, 2007). The results of this study suggest that strong advocacy on the part of a state's revenue department is critical. Moreover, active involvement from the governor's office is important, but lack of such involvement is not insurmountable. States wishing to adopt the provisions of the SSUTA could be successful in bringing these changes about if representatives within the state government are strongly involved; furthermore, making appeals to issues outside of the collection of additional revenue (such as fairness or simplification) may be a more successful strategy. Understanding the role of governmental interest groups has significant practical implications beyond the SSUTA itself and could be extended to proposed inter-jurisdictional tax policy changes. Indeed, the tax policy group of one of the Big 4 accounting firms recently predicted that a federally-levied consumption tax might be proposed by the new administration (Deloitte, 2008); this study suggests that the support of other jurisdictions for such

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a tax would be critical. Overall, governmental interest groups are particularly important in achieving successful cooperative state action.

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# GENERAL CONCLUSION

This dissertation examined the antecedents and consequences of SUT policy through the performance of a comprehensive literature review and the development and execution of three separate, but interrelated, empirical studies. The literature review of recent SUT studies demonstrated an array of opportunities for studies on the consequences of SUT policy for businesses and individuals alike, as well as the for the consideration of the influence of non-economic factors. Thus, this dissertation advances the SUT literature by addressing these gaps, offering important implications for academic researchers and policymakers alike.

The first study investigated whether SUT rates and/or bases influenced capital expenditures and employment within the manufacturing industry. Using state-aggregated panel data from 1983-2006, results demonstrated that SUT exemptions (i.e., elements of the SUT base) are more important than SUT rates in encouraging these indicators of economic development. This general pattern was robust for controls of state and year fixed-effects. Despite the robustness of the results, however, the practical effect of SUT exemptions on economic development remains small. The study's results demonstrate that the elements of the tax base are more important than the tax rate itself, suggesting that future taxation researchers should seek to investigate the effect of the SUT base on business activity within other industries. These results may be of interest to policymakers in their attempt to balance economic development with the collection of tax revenue.

The second study examined taxpayer compliance across tax settings (i.e., the state use tax compared to the federal income tax) and examined whether differences in detection mechanisms, social norms, or ignorance could explain these differences in compliance. Using an experimental

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methodology with 148 experienced taxpayers, results indicated that taxpayer compliance intentions differed across settings, as did social norms regarding tax compliance itself. Taxpayers in the study had social norms that were more favorable toward tax compliance in a federal income tax setting than in a state use tax setting. Taxpayers also displayed higher compliance intentions for federal income tax than for state use tax; differences in compliance intentions were at least partially due to differences in social norms across different tax settings. Overall, the results indicate that the tax setting has an important influence on the social norms of tax compliance and on tax compliance behavior itself. This study contributes to the SUT literature by examining how this tax affects individual behavior, and is one of the first to use an experimental methodology investigating the influence of non-economic factors. The study's results regarding the importance of the tax setting demonstrate the necessity of precision in tax compliance researchers' examination of tax compliance and the associated explanatory variables. Policymakers seeking to improve state use tax compliance rates may need to first address taxpayers' social norms of compliance regarding the use tax.

The third study investigated the antecedents of the adoption of the SSUTA using both a cross-sectional empirical model and a qualitative case study of three states. Results indicated that governmental interest groups played an important role in states' adoption of these SUT policies. Across the board, states with higher tax rates were more likely to adopt, as were those with fewer local taxing jurisdictions. A qualitative case study of three states with differing adoption outcomes corroborates these results, as local government and state revenue departments played a stronger role in the legislative process than did businesses. Future SUT researchers should therefore consider the role of governmental interest groups in influencing tax policy adoption. This study also contributes to the SUT field through the examination of a non-economic theory

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(interest group theory) and the triangulation of alternative research methods (qualitative case study). Finally, the study's results offer practical implications regarding understanding the adoption of the SSUTA and other inter-jurisdictional tax policy changes.

Overall, the three studies within this dissertation all advance the SUT literature by using various theoretical perspectives and methodological approaches to study the roots of SUT policy (antecedents) and the influence of SUT provisions on business and individual decisions (consequences). The empirical results all offer important public policy implications regarding the role of SUT.

# APPENDIX A: FIGURES AND TABLES
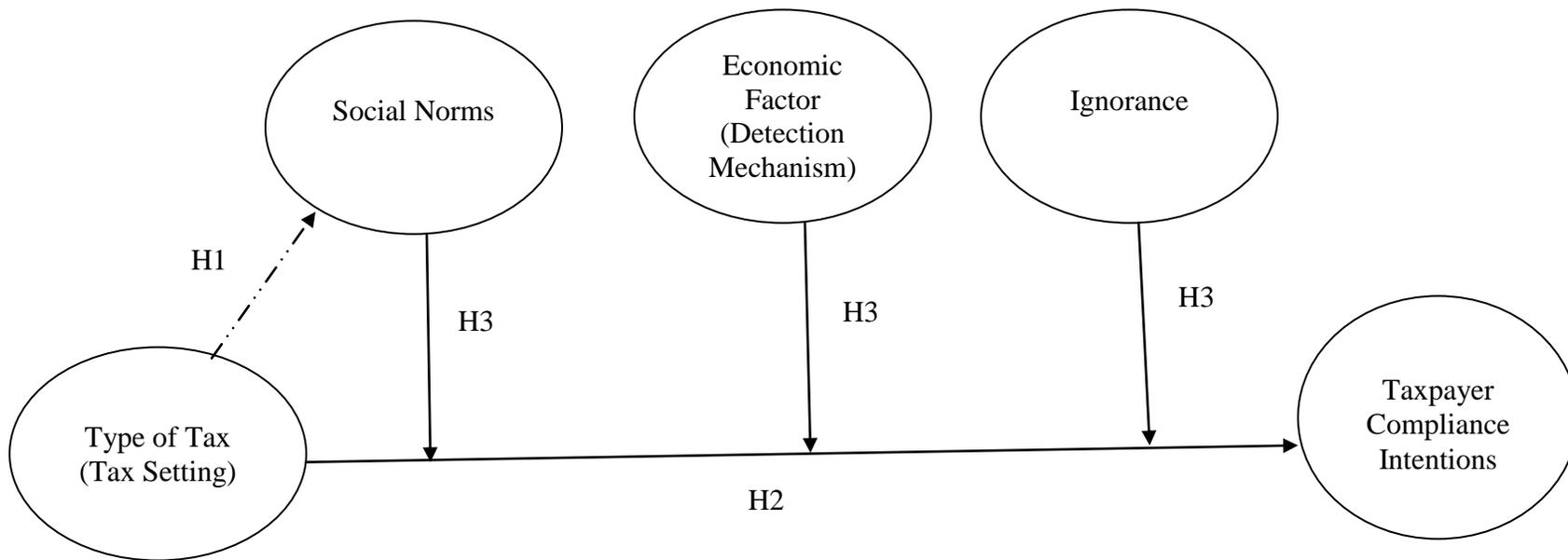
**Figure 1: Experimental Model of Hypothesized Relationships**

**Table 1: Evaluations of Existing SUT Structures**

| Author/Year | Sales & Use Tax (SUT) Component | Basis of Evaluation | Key Conclusions |
|---|---|---|---|
| Cordes et al., (2000) | Telecommunications taxes (a specific sector tax) | Efficiency, equity, and simplicity | Taxes on telecommunications have failed to satisfy the typical criteria of an effective tax. |
| Hausman (2000) | Taxes on wireless communication (a specific sector tax) | Economic efficiency effects | Wireless communication taxes have a greater economic burden than revenue benefit, and reduce demand for certain types of services. |
| Mikesell (2001) | SUT treatment of production input purchases | Principles of effective SUT systems, barriers to production input exemptions | States that do not offer broad-based production input exemptions do not operate with sound SUT principles. |
| Leskowicz (2001) | Streamlined Sales and Use Tax Agreement | Arguments by proponents and supporters | Simplification of SUT must be weighed against the feasibility of state reforms. |
| Hawkins (2002) | General SUT structures | Economic efficiency | High SUT rates coupled with retail exemptions lead to inefficiency, but results in reduced SUT paid for a majority of households. |
| Cornia et al., (2004) | Adoption of reforms of Streamlined Sales and Use Tax Agreement | Administrative feasibility, compliance costs, political constraints, current SUT systems | Many challenges may obstruct successful streamlining, but successful implementation may lead many vendors to voluntarily comply. |
| Haas (2004) | Streamlined Sales and Use Tax Agreement | Arguments by proponents and supporters | The SSUTA is likely to lead to pressure on Congress to act on state SUT issues. |
| Dye (2004) | Cyclicality of SUT revenues | Long-run growth of revenue; short-run stability of revenue | Business cycle fluctuations have different influences on states based on states' SUT rates and bases. |
| McClure (2005) | General SUT structure | Distortive outcomes | SUT systems are illogical, due to their differential treatment of goods/services, use tax collection rules, complexity, etc. |

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## Table 2: Evaluations of Proposed SUT Structures

| Author/Year | Proposed Sales & Use Tax (SUT) Component | Basis of Evaluation | Key Conclusions |
|---|---|---|---|
| Fox and Murray (1997) | Optimal SUT treatment of e-commerce | Equivalent taxation of all consumption; horizontal equity and neutrality | An ideal SUT structure that would address e-commerce issues would include destination-based taxes, Congressional "nexus," exempt business purchases, and specificity of non-taxable transactions. |
| Murray (1997) | National retail SUT | Tax evasion and tax avoidance in an "underground" economy | Tax evasion and erosion in the tax base are likely if a national retail SUT is implemented; retailers may have greater evasion opportunities than with the income tax. |
| Houghton and Cornia (2000) | Review of the National Tax Association's project on e-commerce and telecommunications | New ground broken in the National Tax Association's SUT project (e-commerce and telecommunications); political consequences | The Project identified issues such as a single-rate, destination-based sourcing, and pure state-level sourcing. Political issues may impede progress in the long term. |
| Cornia et el. (2000) | Simplification of SUT (single state-wide rate) | Evaluates administrative feasibility in five states (i.e., combined rate, political issues, allocation of proceeds) | Implementing a single sales tax rate would be administratively feasible. |
| Mikesell (2000) | SUT revenue and administration | Compliance burdens compared to uniform SUT systems | Remote vendors also need to collect SUT for SUT to continue to be an effective source of revenue. |
| Hellerstein (2000) | Nationwide state SUT of e-commerce | Constitutional and judicial limitations | Despite concerns, Congress *does* have the power to legislate issues affecting state taxation. |
| Grubert and Mackie (2000) | Optimal SUT treatment of taxing financial services | Efficiency-based argument (examining "consumption goods") | A consumption tax should only tax *consumption,* and some financial services do not meet this definition (e.g., investment, insurance, and loan services). |

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| Author/Year | Proposed Sales & Use Tax (SUT) Component | Basis of Evaluation | Key Conclusions |
|---|---|---|---|
| Jack (2000) | Optimal SUT treatment of taxing financial services, under a broad-based consumption tax. | Relative prices, distortion, administrative feasibility | If a tax on financial services is imposed, certain expenditures should not be taxed to avoid distortions. |
| Lee (2002) | Optimal telecommunication tax treatment (capital tax and SUT) | Optimal tax theory (efficiency costs), pre-existing market distortions | Property (capital) tax on telecommunications is more efficient than an SUT on telecommunications due to the existing tax on telecommunications services (labor). |
| Rousslang (2002) | Optimal SUT treatment of taxing financial services | Revenue generated from tax, price for consumers, distortion | The SUT rate on consumer goods and on financial services should generally be equivalent. |
| Russo (2005) | Proposed SUT reforms to broaden bases | Efficiency, equity, and simplicity | Base-broadening reforms have many potentially positive consequences, particularly via improved efficiency. |
| Slemrod (2006) | National retail SUT | Individual attitudes toward taxation | Individuals are much more likely to support a national retail SUT if they (mistakenly) believe the existing income tax structure is regressive. |
| Zodrow (2006) | Optimal SUT imposition on e-commerce | Administrative and compliance costs, "optimal" commodity tax transactions, equity concerns | Equal SUT treatment of traditional transactions and e-commerce is closer to "optimal" tax treatment than tax-exemption of e-commerce. |

**Table 3: Empirical Studies on the Antecedents of SUT Policy**

| Author/Year | Sector | Time Period | Type of Data | Sales & Use Tax (SUT) Component | Independent Variables (Antecedents) | Key Findings |
|---|---|---|---|---|---|---|
| Murray (1995) | Businesses | 1986-1988 | Tennessee Department of Revenue business accounts | SUT audit selection and compliance by businesses | Taxpayer information (e.g., auditors, reported gross sales); opportunities for non-compliance, including SUT ambiguities | Opportunities to cheat influence firm compliance with the SUT. |
| Ring (1999) | General | 1989 | State-level aggregated data | Consumers' share of the general sales tax (incidence of sales tax) | Household spending, SUT base, consumer expenditures | On average, consumers *directly* incur approximately 59% of the general SUT; the SUT on business purchases likely accounts for the remainder. |
| Bruce and Fox (2000) | General (focuses on retail) | 1999-2003 forecasts | National and state aggregated and forecasted data | Estimated SUT revenue losses and base declines | E-commerce sales | E-commerce sales are estimated to result in billions of dollars of lost SUT revenue. |
| Christensen et al., (2001) | General | 1999 | State- and national-level aggregated data | SUT collections and payments by businesses | Tax policy, administration, planning, and compliance | "Indirect" (non-income based taxes) are the largest tax burden for corporations, of which sales taxes are a significant component. |

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| Author/Year | Sector | Time Period | Type of Data | Sales & Use Tax (SUT) Component | Independent Variables (Antecedents) | Key Findings |
|---|---|---|---|---|---|---|
| Tannenwald (2002) | General | Various data sources used discrete and continuous periods, 1960-1999 | National aggregated data | SUT revenues | Mix of production and consumption, intangible assets, e-commerce, and interjurisdictional competition | Selective sales taxes have declined in importance due to decreased consumption of those areas. Consumption shifts have resulted in declines in SUT bases, but are not the sole cause of decline, as other factors have also played a role. |
| Sjoquist and Wallace (2003) | General | 1972-2001 | County-aggregated data from 159 Georgia counties | Local-option sales taxes | Neighbor effect, exporting of sales and property tax, demographic variables | Mimicking behavior drives Georgia counties to adopt a local-option sales tax |
| Rork (2003) | General, Cigarette, Gasoline | 1967-1996 | State-aggregated financial data | Sales tax rates of neighboring states, SUT revenue | Tax competition | The general sales tax has an immobile base (compared to mobile areas such as tobacco or motor fuel). Mobile (immobile) SUT bases have positive (negative) reactions to changes in neighbors' tax systems. |
| Alm et al., (2004) | Businesses | 1994-1996 | Firm-level data from the State of New Mexico | SUT audit likelihood, SUT compliance | Deductions, firm size, corporate status, past reporting behavior, opportunities for non-compliance | SUT auditors generally employ a systematic audit selection (e.g., target those with more deductions and variability). Firms are more likely to comply when there are fewer opportunities for cheating available. |

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| Author/Year | Sector | Time Period | Type of Data | Sales & Use Tax (SUT) Component | Independent Variables (Antecedents) | Key Findings |
|---|---|---|---|---|---|---|
| Cameron (2004) | General | 2001 (cross-sectional; used some data from 1999) | State-aggregated data | Participation in the Streamlined Sales & Use Tax Project | Negative business vitality, negative innovation capacity, SUT rates | States were more likely to voluntarily participate in the Streamlined Sales & Use Tax Project if they had higher SUT rates. |
| Luna (2004) | General | Monthly from 1977-1993 | County-level data on Tennessee's 95 counties and those in the 8 bordering states | Local sales tax rates and bases in the short- and long-run | Interjurisdictional tax competition | In both the short- and long-run, the rates of other jurisdictions influence a county's SUT rates. In the long-run, an increased sales tax rate is associated with a reduced sales tax base. |
| Chernick (2005) | General | 1977, 1985, 1991 | National, regional and state aggregated data | Progressivity of state and local tax systems, including SUT | Neighbor effect, political variables, welfare spending | States with progressive tax systems are likely to border states with regressive tax systems, and are NOT likely to be controlled by Republicans. |
| Swain and Hellerstein (2005) | General | 1997-2005 | Historical analysis of events | Streamlined Sales & Use Tax Agreement | Advent of e-commerce; political and economic forces | Despite the lack of clear-cut economic benefits, streamlining represents a collective move toward simplicity and reform. |
| Luna et al., (2007) | General | 1975-1999 | County-level data on Tennessee's 95 counties and those in the 8 bordering states | Local option sales tax rate increases | Lower sales tax capacity (1975-1984), lower property tax capacity (1985-1999), proportion of Republican voters (1985-1999) | Political and economic forces have influenced counties' adoption of the legal maximum sales tax rate; the relative importance of such factors (such as the relative ability to generate additional SUT revenue) has changed over time. |

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| Author/Year | Sector | Time Period | Type of Data | Sales & Use Tax (SUT) Component | Independent Variables (Antecedents) | Key Findings |
|---|---|---|---|---|---|---|
| Cline et al., (2007) | General | Fiscal Year 2006 | State- and national-level aggregated data | SUT payments on operating inputs and capital expenditures | Economic structure, business tax features | After property taxes, SUT payments by businesses are the largest portion of businesses' state and local tax burdens. |

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## Table 4: Empirical Studies on the Consequences of SUT Policy

| Author/Year | Sector | Time Period | Type of Data | Sales & Use Tax (SUT) Component | Dependent Variables (Consequences) | Key Findings |
|---|---|---|---|---|---|---|
| Petroni and Shackelford (1995) | Insurance | 1991 | Firm-level data from annual statements (tests at the state, group, and company level) | State premium taxes on the insurance industry (a type of selective SUT) | Organizational structure of insurers (subsidiary or license) | Organizational structure is driven by the desire to minimize both tax and regulatory costs. |
| Poterba (1996) | Retail | 1925-1939; 1947-1977 | Local-level aggregated data for select cities | State and local retail sales taxes | Prices of consumer goods (used to reflect the incidence of sales tax) | Retail sales taxes shifted into retail prices in the post-war period, but did not fully shift during the Depression. |
| Besley and Rosen (1999) | Retail | Quarterly data from 1982-1990 | Local-level aggregated data for select cities | State and local retail sales taxes | Prices of consumer goods (used to reflect the incidence of sales tax) | The incidence of the SUT differs based on the specific commodities; some are fully shifted (i.e., the after-tax price of goods increases by the amount of the sales tax), whereas others are over-shifted (i.e., the after-tax price of goods rises by *more* than the sales tax). |
| Petroni and Shackelford (1999) | Insurance | 1993 | Firm-level data from annual statements | State premium taxes on the insurance industry (a type of selective SUT) | Insurers' reported premiums | Multi-state insurance companies manage the amount of reported premiums in a state to avoid premium tax liabilities. |

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| Author/Year | Sector | Time Period | Type of Data | Sales & Use Tax (SUT) Component | Dependent Variables (Consequences) | Key Findings |
|---|---|---|---|---|---|---|
| Ke et al., (2000) | Insurance | 1993-1995 | Firm-level data from annual statements, aggregated on to a state level | State premium taxes on the insurance industry (a type of selective SUT) | Property-casualty insured losses | Higher state premium taxes lead to less insurance coverage in a state. |
| Goolsbee (2000) | Retail | December 1997 | Proprietary survey of 110,000 households | SUT rates in effect for individual purchasers | Online purchases by consumers | Consumers that live in areas with high SUT rates are more likely to make purchases online (where they avoid paying use taxes). |
| Merriman and Skidmore (2000) | Service, Retail | 1982, 1987, 1992 | State-level aggregated data | SUT rates/bases | Receipts (as a percentage of personal income) by sector, by state | Differential SUT treatment of the retail and service sector may have contributed to the decline of receipts in the retail sector and the rise of receipts in the service sector. |
| Angelini and Shaw (2004) | Retail | Unknown | Survey of college alumni | Imposition of SUT on Internet purchases | Online purchases by consumers | Most individuals would be unlikely to discontinue online purchases if required to pay SUT; this finding was the strongest among those with the greatest amount of online purchases. |

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## Table 5: Summary of Variables

| Variable | Predicted Sign | Definition | Data Source |
|---|---|---|---|
| **Dependent Variables** | | | |
| SICCAPX | N/A | The natural log of new capital expenditures for businesses in the manufacturing sector (SIC code) for a state in a given year for 1983-1996 | *Annual Survey of Manufacturers*, available hardcopy 1983-1992 and online 1993-1996 |
| NAICSCAPX | N/A | The natural log of new and used capital expenditures for businesses in the manufacturing sector (NAICS code) for a state in a given year for 1997-2006 | *Annual Survey of Manufacturers*, available online 1997-2006 |
| SICEMPL | N/A | The natural log of total manufacturing employment (SIC code) for a state in a given year for 1983-2006 | BEA's *State Personal Income* Database, 1983-1996 |
| NAICSEMPL | N/A | The natural log of total manufacturing employment (NAICS code) for a state in a given year for 1997-2006 | BEA's *State Personal Income* Database, 1997-2006 |
| **Test Variables - Sales and Use Tax (SUT) Factors – Lagged One Year** | | | |
| SUTRATE | - | A state's SUT rate in effect on January 1 of a given year | Council on State's Government's *Book of the States*, 1982-2005; CCH's *State Tax Handbook*, various years |
| MACHINE | + | Variable taking the value of 2 if fully exempted, 1 if partially exempted, and 0 if fully taxed | *Site Selection* magazine, 1982-2005 |
| MATERIALS | + | Variable taking the value of 2 if fully exempted, 1 if partially exempted, and 0 if fully taxed | *Site Selection* magazine, 1982-2005 |
| **Tax System Factors – Lagged One Year** | | | |
| CORPRATE | - | Highest state corporate income tax rate in effect | Council on State's Government's *Book of the States*, 1982-2005; CCH *State Tax Handbook,* various years |
| COMBINE | - | Indicated by a dummy variable taking the value of 1 if combined reporting (unitary), 0 otherwise | CCH's *State Tax Handbook*, 1993-2006; for earlier years, used classification of Gupta and Hofmann (2003), based on CCH's *Multistate Corporate Income Tax Guide* (various years) |

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| Variable | Predicted Sign | Definition | Data Source |
|---|---|---|---|
| THROW | - | Indicated by a dummy variable taking the value of 1 if a throwback rule, 0 otherwise | CCH's *State Tax Handbook*, 1993-2006; RIA's All States' Tax Handbook, 1982-1992 |
| PROPFAC | - | The property factor weight used in the state's apportionment formula for its corporate income tax (*used only for the model estimating capital expenditures*) | CCH's *State Tax Handbook*, 1993-2006; RIA's All States' Tax Handbook, 1982-1992 |
| PAYFAC | - | The payroll factor weight used in the state's apportionment formula for its corporate income tax (*used only for the model estimating employment*) | CCH's *State Tax Handbook*, 1993-2006; RIA's All States' Tax Handbook, 1982-1992 |
| PERRATE | - | Highest state individual (personal) income tax rate | Council on State's Government's *Book of the States*, 1982-2005 *CCH State Tax Handbook*, various years |
| INCENT | + | The number of incentives available for the manufacturing sector | *Site Selection* Magazine, 1982-2005 |
| BONUS | + | Adoption of federal bonus depreciation rules for qualifying years (*used only for the model estimating capital expenditures for 1997-2006*). | CCH's *State Tax Handbook,* 2001-2004. |
| **Non-Tax Controls – Lagged One Year** | | | |
| VALUE | + | The dollar amount, in millions, of value added by the state's manufacturing industry (measure of the size of a state's manufacturing sector); calculated as the cost of manufacturing shipments less the costs of materials, supplies, containers, fuel, electricity, and contract work, adjusted by the change in inventories. | *Annual Survey of Manufacturers*, available hardcopy 1982-1992 and online 1993-2005 |
| GROWTH | + | Percentage change in total statewide personal income | BEA's *State Personal Income Database*, 1982-2005 |

| Variable | Predicted Sign | Definition | Data Source |
|---|---|---|---|
| **Controls for Capital Expenditures – Lagged One Year** | | | |
| ENERGY | - | A state's average energy costs for the industrial sector (nominal dollars per million Btu) | U.S. Department of Energy's Energy Information Administration's *State Energy Data*, available online, 1982-2005 |
| PUBLIC | + | *Total* state direct general expenditures (in millions) | U.S. Census Bureau's *State and Local Government Finances*, 1982-2005 (hard-copy 1982-1991; online 1992-2005) |
| | | | |
| **Controls for Employment – Lagged One Year** | | | |
| STAUNEMP | - | State unemployment rate | U.S. Department of Labor's *Local Area Unemployment Statistics*, available online 1982-2005 |

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| Variable[a] | Mean | S.D. | SICCAPX | NAICSCAPX | SUTRATE | MACHINE | MATERIALS | CORPRATE |
|---|---|---|---|---|---|---|---|---|
| *SICCAPX[b]* | 13.80 | 1.31 | 1 | | | | | |
| *NAICSCAPX[b]* | 14.23 | 1.22 | N/A | 1 | | | | |
| *SUTRATE* | 4.45 | 1.80 | **0.370** | **0.386** | 1 | | | |
| *MACHINE* | 1.63 | 0.65 | **0.219** | **0.121** | **-0.076** | 1 | | |
| *MATERIALS* | 1.85 | 0.43 | **0.219** | **0.244** | **-0.107** | **0.103** | 1 | |
| *CORPRATE* | 6.69 | 3.04 | **0.103** | 0.034 | -0.036 | **0.275** | **0.135** | 1 |
| *COMBINE* | 0.27 | 0.45 | **-0.273** | **-0.288** | **-0.225** | -0.010 | -0.024 | **0.245** |
| *THROW* | 0.510 | 0.500 | **-0.158** | **-0.116** | **-0.220** | **0.206** | **0.130** | 0.022 |
| *PROPFAC* | 24.930 | 12.200 | 0.024 | **-0.131** | **-0.260** | **0.313** | **0.066** | **0.371** |
| *BONUS* | 0.110 | 0.435 | N/A | **-0.119** | **-0.078** | 0.026 | **0.062** | 0.024 |
| *PERRATE* | 5.780 | 3.548 | -0.058 | -0.022 | **-0.093** | **0.209** | 0.049 | **0.514** |
| *INCENT* | 8.300 | 2.368 | **0.261** | **0.273** | **0.250** | **0.147** | **0.166** | **0.199** |
| *VALUE* | 30482 | 34402 | **0.786** | **0.799** | **0.310** | **0.149** | **0.132** | 0.040 |
| *ENERGY* | 6.550 | 2.560 | -0.073 | **-0.207** | **0.091** | **0.070** | **-0.197** | **0.097** |
| *PUBLIC* | 10436 | 13264 | **0.647** | **0.637** | **0.276** | **0.105** | **0.149** | 0.046 |
| *GROWTH* | 5.890 | 2.627 | 0.041 | 0.001 | -0.033 | -0.024 | **-0.126** | **-0.083** |

| Variable | COMBINE | THROW | PROPFAC | BONUS | PERRATE | INCENT | VALUE | ENERGY | PUBLIC |
|---|---|---|---|---|---|---|---|---|---|
| COMBINE | 1 | | | | | | | | |
| THROW | **0.425** | 1 | | | | | | | |
| PROPFAC | **0.138** | **0.270** | 1 | | | | | | |
| BONUS | 0.047 | 0.050 | 0.038 | 1 | | | | | |
| PERRATE | **-0.078** | **0.201** | **0.334** | -0.017 | 1 | | | | |
| INCENT | **0.218** | **-0.140** | **-0.060** | **0.108** | **0.126** | 1 | | | |
| VALUE | **-0.077** | **-0.064** | **-0.149** | -0.018 | -0.042 | **0.217** | 1 | | |
| ENERGY | **0.089** | 0.005 | -0.038 | 0.045 | **0.058** | **0.095** | 0.041 | 1 | |
| PUBLIC | -0.012 | **-0.065** | **-0.129** | **0.059** | -0.017 | **0.254** | **0.887** | **0.133** | 1 |
| GROWTH | -0.004 | -0.033 | 0.032 | **-0.177** | **-0.061** | **-0.235** | **-0.084** | -0.017 | **-0.125** |

[a]See Table 5 for variable definitions. The dependent variables SICCAPX and NAICSCAPX use the natural log of their measured values and are measured in the current year; all independent variables are lagged one year.

[b]Correlations between SICCAPX and independent variables are based on 700 state-year observations; correlations greater than .075 (absolute value) are statistically significant at $p=.05$ (two-tailed).

Correlations between NAICSCAPX and independent variables are based on 500 observations; correlations greater than .088 (absolute value) are statistically significant at $p=.05$ (two-tailed).

Correlations between independent variables are based on 1,200 state-year observations; correlations greater than .057 (absolute value) are statistically significant at $p=.05$ (two-tailed).

## Table 7: New Capital Expenditures for All States, 1983-1996

| Variable | Predicted Sign | Pooled Model | | Model with State Dummies | | Model with State and Year Dummies | |
|---|---|---|---|---|---|---|---|
| | | Coefficient | T-Statistic[b] | Coefficient | T-Statistic[b] | Coefficient | T-Statistic[b] |
| *Test Variables* | | | | | | | |
| SUTRATE | - | 0.110 | 6.42** | 0.114 | 4.05** | 0.010 | 0.43 |
| MACHINE | + | 0.127 | 2.69** | 0.021 | 0.67 | 0.051 | 2.83* |
| MATERIALS | + | 0.408 | 8.48** | 0.130 | 3.30** | 0.059 | 1.65# |
| *Control Variables* | | | | | | | |
| Constant | N/A | 10.995 | 57.51** | N/A | N/A | N/A | N/A |
| CORPRATE | - | 0.014 | 1.39 | 0.001 | 0.04 | $1.39 \times 10^{-4}$ | -0.01 |
| COMBINE | - | -0.450 | -6.71** | 0.204 | 1.40 | 0.163 | 1.94# |
| THROW | - | -0.127 | -2.30* | -0.204 | -3.79** | -0.079 | -1.38 |
| PROPFAC | - | 0.009 | 4.41** | -0.004 | -1.00 | $1.38 \times 10^{-4}$ | 0.05 |
| PERRATE | - | -0.006 | -0.77 | -0.008 | -1.15 | 0.005 | 0.85 |
| INCENT | + | 0.058 | 5.40** | 0.052 | 5.99** | -0.005 | -0.71 |
| VALUE | + | $5.41 \times 10^{-5}$ | 23.73** | $1.87 \times 10^{-5}$ | 5.49** | $8.73 \times 10^{-6}$ | 2.75** |
| ENERGY | - | -0.040 | -2.68** | -0.045 | -2.70** | -0.005 | -0.31 |
| PUBLIC | +/- | $-5.45 \times 10^{-5}$ | -9.40** | $-1.34 \times 10^{-5}$ | -3.11** | $-1.85 \times 10^{-5}$ | -5.55** |
| GROWTH | + | 0.039 | 3.47** | 0.012 | 2.25* | 0.030 | 4.53** |
| | | | | | | | |
| *Overall Model Adjusted $R^2$* | | | 0.78 | | 0.96 | | 0.97 |

[a]See Table 5 for variable definitions. The dependent variable (SICCAPX) is the natural log of new capital expenditures in the manufacturing industry (SIC) for the current year. All independent variables are lagged 1 year.

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[b]All t-statistics are corrected for heteroskedasticity using robust standard errors.

#, p < .10; *, p < .05; **, p < .01 (two-tailed tests)

Model Tested: $SICCAPX_i = \acute{\alpha} + B_1 SUTRATE_i + B_2 MACHINE_i + B_3 MATERIALS_i + B_4 CORPRATE_i + B_5 COMBINE_i + B_6 THROW_i + B_6 PROPFAC_i + B_7 PERRATE_i + B_8 INCENT_i + B_9 BONUS_i + B_{10} VALUE_i + B_{11} ENERGY_i + B_{12} PUBLIC_i + B_{13} GROWTH_i + \acute{\varepsilon}_i$

## Table 8: New and Used Capital Expenditures for All States, 1997-2006

| Variable | Predicted Sign | Pooled Model | | Model with State Dummies | | Model with State and Year Dummies | |
|---|---|---|---|---|---|---|---|
| | | Coefficient | T-Statistic[b] | Coefficient | T-Statistic[b] | Coefficient | T-Statistic[b] |
| *Test Variables* | | | | | | | |
| *SUTRATE* | - | 0.091 | 3.91** | 0.009 | 0.19 | -0.319 | -0.63 |
| *MACHINE* | + | -0.009 | -0.11 | 0.081 | 1.36 | 0.067 | 1.19 |
| *MATERIALS* | + | 0.326 | 3.29** | 0.065 | 0.51 | 0.084 | 0.61 |
| *Control Variables* | | | | | | | |
| Constant | N/A | 11.878 | 28.40** | N/A | N/A | N/A | N/A |
| *CORPRATE* | - | 0.025 | 1.88# | -0.008 | -0.59 | -0.019 | -1.25 |
| *COMBINE* | - | -0.401 | -5.27** | 0.255 | 1.86# | 0.238 | 1.66# |
| *THROW* | - | 0.027 | 0.49 | 0.026 | 0.006 | 0.025 | 0.46 |
| *PROPFAC* | - | 0.004 | 1.48 | 0.008 | 4.37** | 0.005 | 2.36* |
| *PERRATE* | - | -0.007 | -0.53 | -0.007 | -0.45 | -0.010 | -0.67 |
| *INCENT* | + | 0.065 | 4.06** | -0.073 | -3.88** | -0.074 | -3.71** |
| *BONUS* | + | -0.018 | -0.22 | -0.112 | -3.40** | 0.011 | 0.26 |
| *VALUE* | + | $2.67 \times 10^{-5}$ | 18.37** | $6.85 \times 10^{-6}$ | 4.77** | $4.03 \times 10^{-6}$ | 2.62** |
| *ENERGY* | - | -0.051 | -5.50** | 0.002 | 0.25 | 0.010 | 0.78 |
| *PUBLIC* | +/- | $-1.01 \times 10^{-5}$ | -5.22** | $-4.17 \times 10^{-6}$ | -3.02** | $-1.62 \times 10^{-6}$ | -1.05 |
| *GROWTH* | + | 0.030 | 2.22* | 0.027 | 5.22** | 0.018 | 2.81** |
| | | | | | | | |
| *Overall Model Adjusted $R^2$* | | | 0.75 | | 0.97 | | 0.97 |

[a]See Table 5 for variable definitions. The dependent variable (NAICSCAPX) is the natural log of total capital
expenditures in the manufacturing industry (NAICS) for the current year.
All independent variables are lagged 1 year.

\#, p < .10; *, p < .05; **, p < .01 (two-tailed tests)

<u>Model Tested</u>: $NAICSCAPX_i = \acute{a} + B_1SUTRATE_i + B_2MACHINE_i + B_3MATERIALS_i + B_4CORPRATE_i + B_5COMBINE_i + B_6THROW_i + B_7PROPFAC_i + B_8PERRATE_i + B_9INCENT_i + B_{10}BONUS_i + B_{11}VALUE_i + B_{12}ENERGY_i + B_{13}PUBLIC_i + B_{14}GROWTH_i + \acute{\varepsilon}_i$

**Table 9: Descriptive Statistics and Correlation Matrix for Employment**

**(Pooled Sample, 1983 to 2006)**

| Variable[a] | Mean | S.D. | *SICEMPL* | *NAICSEMPL* | *SUTRATE* | *MACHINE* | *MATERIALS* | *CORPRATE* |
|---|---|---|---|---|---|---|---|---|
| *SICEMPL*[b] | 12.25 | 1.26 | 1 | | | | | |
| *NAICSEMPL*[b] | 12.11 | 1.20 | N/A | 1 | | | | |
| *SUTRATE* | 4.45 | 1.80 | **0.360** | **0.411** | 1 | | | |
| *MACHINE* | 1.63 | 0.65 | **0.229** | **0.140** | **-0.076** | 1 | | |
| *MATERIALS* | 1.85 | 0.43 | **0.175** | **0.223** | **-0.107** | **0.103** | 1 | |
| *CORPRATE* | 6.69 | 3.04 | **0.116** | 0.019 | -0.036 | **0.275** | **0.135** | 1 |
| *COMBINE* | 0.27 | 0.45 | **-0.274** | **-0.279** | **-0.225** | -0.010 | -0.024 | **0.245** |
| *THROW* | 0.51 | 0.50 | **-0.151** | **-0.134** | **-0.220** | **0.206** | **0.130** | 0.022 |
| *PAYFAC* | 23.93 | 12.20 | 0.044 | **-0.155** | **-0.194** | **0.356** | **0.062** | **0.416** |
| *PERRATE* | 5.78 | 3.55 | -0.060 | -0.052 | **-0.093** | **0.209** | 0.049 | **0.514** |
| *INCENT* | 8.30 | 2.37 | **0.218** | **0.293** | **0.250** | **0.147** | **0.166** | **0.199** |
| *STAUNEMP* | 5.79 | 2.03 | **0.121** | **0.127** | -0.034 | 0.026 | -0.022 | **-0.071** |
| *VALUE* | 30,482 | 34,402 | **0.777** | **0.808** | **0.310** | **0.149** | **0.132** | 0.040 |
| *GROWTH* | 5.89 | 2.63 | **0.077** | -0.025 | -0.033 | -0.024 | **-0.126** | **-0.083** |

| Variable | COMBINE | THROW | PAYFAC | PERRATE | INCENT | STAUNEMP | VALUE |
|---|---|---|---|---|---|---|---|
| COMBINE | 1 | | | | | | |
| THROW | 0.425 | 1 | | | | | |
| PAYFAC | 0.189 | 0.231 | 1 | | | | |
| PERRATE | -0.078 | 0.201 | 0.338 | 1 | | | |
| INCENT | 0.218 | -0.140 | -0.005 | 0.126 | 1 | | |
| STAUNEMP | -0.118 | 0.106 | 0.165 | -0.010 | -0.239 | 1 | |
| VALUE | -0.054 | -0.068 | -0.086 | -0.067 | 0.173 | 0.120 | 1 |
| GROWTH | -0.004 | -0.033 | 0.032 | -0.061 | -0.235 | -0.092 | -0.084 |

[a]See Table 5 for variable definitions. The dependent variables SICEMPL and NAICSEMPL use the natural log of their measured values and are measured in the current year; all independent variables are lagged one year.

[b]Correlations between SICEMPL and independent variables are based on 700 state-year observations; correlations greater than .075 (absolute value) are statistically significant at $p=.05$ (two-tailed).

Correlations between NAICSEMPL and independent variables are based on 500 observations; correlations greater than .088 (absolute value) are statistically significant at $p=.05$ (two-tailed).

Correlations between independent variables are based on 1,200 state-year observations; correlations greater than .057 (absolute value) are statistically significant at $p=.05$ (two-tailed).

# Table 10: Manufacturing Employment for All States, 1983-1996

| Variable | Predicted Sign | Pooled Model | | Model with State Dummies | | Model with State and Year Dummies | |
|---|---|---|---|---|---|---|---|
| | | Coefficient | T-Statistic[b] | Coefficient | T-Statistic[b] | Coefficient | T-Statistic[b] |
| *Test Variables* | | | | | | | |
| *SUTRATE* | - | 0.096 | 5.61** | 0.055 | 6.39** | 0.052 | 5.74** |
| *MACHINE* | + | 0.199 | 4.66** | 0.022 | 2.34* | 0.025 | 2.86** |
| *MATERIALS* | + | 0.258 | 5.02** | 0.002 | 0.14 | -0.008 | -0.61 |
| *Control Variables* | | | | | | | |
| Constant | N/A | 9.338 | 41.55** | N/A | N/A | N/A | N/A |
| *CORPRATE* | - | 0.032 | 2.91** | -0.011 | -1.69# | -0.006 | -0.92 |
| *COMBINE* | - | -0.542 | -6.80** | 0.036 | 1.01 | 0.035 | 1.39 |
| *THROW* | - | -0.272 | -0.46 | -0.030 | -1.95# | -0.010 | -0.41 |
| *PAYFAC* | - | 0.003 | 1.23 | 0.001 | 0.49 | 0.002 | 1.40 |
| *PERRATE* | - | -0.015 | -1.69# | 0.007 | 2.43* | 0.007 | 2.22* |
| *INCENT* | + | 0.031 | 2.68** | -0.006 | -1.82# | -0.008 | -2.31* |
| *STAUNEMP* | - | 0.043 | 3.24** | -0.020 | -7.01** | -0.026 | -5.79** |
| *VALUE* | + | $3.13 \times 10^{-5}$ | 20.31** | $-3.05 \times 10^{-6}$ | -6.10** | $-3.88 \times 10^{-6}$ | -5.94** |
| *GROWTH* | + | 0.062 | 5.26** | 0.003 | 1.21 | 0.007 | 1.94# |
| | | | | | | | |
| *Overall Model Adjusted $R^2$* | | 0.72 | | 0.99 | | 0.99 | |

[a]See Table 1 for variable definitions. The dependent variable (SICEMPL) is the natural log of employment in the manufacturing industry (SIC) for the current year.
All independent variables are lagged 1 year.

[b]All t-statistics are corrected for heteroskedasticity using robust standard errors.

#, p < .10; *, p < .05; **, p < .01 (two-tailed tests)


<u>Model Tested</u>: $SICEMPL_i = \acute{\alpha} + B_1 SUTRATE_i + B_2 MACHINE_i + B_3 MATERIALS_i + B_4 CORPRATE_i + B_5 COMBINE_i + B_6 THROW_i + B_7 PAYFAC_i + B_8 PERRATE_i + B_9 INCENT_i + B_{10} VALUE_i + B_{11} STAUNEMP_i + B_{12} GROWTH_i + \acute{\varepsilon}_i$

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## Table 11: Manufacturing Employment for All States, 1997-2006

| Variable | Predicted Sign | Pooled Model | | Model with State Dummies | | Model with State and Time Dummies | |
|---|---|---|---|---|---|---|---|
| | | Coefficient | T-Statistic[b] | Coefficient | T-Statistic[b] | Coefficient | T-Statistic[b] |
| **Test Variables** | | | | | | | |
| *SUTRATE* | - | 0.103 | 4.77** | -0.036 | -2.82** | -0.004 | -0.045 |
| *MACHINE* | + | 0.151 | 2.04* | 0.044 | 2.21* | 0.043 | 3.40** |
| *MATERIALS* | + | 0.502 | 4.96** | 0.104 | 2.98** | 0.200 | 4.26** |
| **Control Variables** | | | | | | | |
| Constant | N/A | 9.272 | 24.39** | N/A | N/A | N/A | N/A |
| *CORPRATE* | - | 0.020 | 1.65# | 0.005 | 0.75 | -0.004 | -1.28 |
| *COMBINE* | - | -0.335 | -4.30** | 0.059 | 2.46* | -0.006 | -0.26 |
| *THROW* | - | 0.008 | 0.01 | -0.001 | -0.07 | 0.010 | 0.98 |
| *PAYFAC* | - | -0.003 | -1.18 | 0.005 | 7.93** | 0.001 | 2.47* |
| *PERRATE* | - | -0.027 | -2.16* | 0.001 | 0.22 | -0.019 | -3.11** |
| *INCENT* | + | 0.073 | 4.26** | -0.032 | -6.54** | -0.011 | -3.03** |
| *STAUNEMP* | - | -0.048 | -1.65# | -0.011 | -2.35* | -0.013 | -3.27** |
| *VALUE* | + | $1.02 \times 10^{-4}$ | 17.49** | $-2.58 \times 10^{-6}$ | -3.43** | $2.26 \times 10^{-7}$ | 0.59 |
| *GROWTH* | + | 0.013 | 0.89 | 0.010 | 5.51** | 0.004 | 2.36* |
| | | | | | | | |
| ***Overall Model Adjusted $R^2$*** | | | 0.73 | | 0.99 | | 0.99 |

[a]See Table 5 for variable definitions. The dependent variable (NAICSEMPL) is the natural log of employment
 in the manufacturing industry (SIC) for the current
year. All independent variables are lagged 1 year.

[b]All t-statistics are corrected for heteroskedasticity using robust standard errors.

#, p < .10; *, p < .05; **, p < .01 (two-tailed tests)

<u>Model Tested</u>: $NAICSEMPL_i = \acute{\alpha} + B_1SUTRATE_i + B_2MACHINE_i + B_3MATERIALS_i + B_4CORPRATE_i + B_5COMBINE_i + B_6THROW_i + B_7PAYFAC_i + B_8PERRATE_i + B_9INCENT_i + B_{10}VALUE_i + B_{11}STAUNEMP_i + B_{12}GROWTH_i + \acute{\varepsilon}_i$

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**Table 12: Sample Demographics**

| Sample[a] | 2007 National Population[b] |
|---|---|
| Age<br>Under 25 = 0%<br>25-44 = 30%<br>45-64 = 68%<br>65+ = 2% | Age<br>20-24 = 10%<br>25-44 = 38.5%<br>45-64 = 34.5%<br>65+ = 17% |
| Family Income<br>Under $25,000 = 5%<br>$25,000 - $49,999 = 25.5%<br>$50,000 - $74,999 = 18.5%<br>$75,000 - $99,999 = 22%<br>Over $100,000 = 29% | Family Income<br>Under $25,000 = 17%<br>$25,000 - $49,999 = 24%<br>$50,000 - $74,999 = 20.5%<br>$75,000 - $99,999 = 14.5%<br>Over $100,000 = 24% |
| Sex<br>Male = 35%<br>Female = 65% | Sex<br>Male = 49%<br>Female = 51% |
| Education<br>Did not Complete<br>High School = 2%<br>High School Graduate =14%<br>Some College = 35.5%<br>Bachelor's Degree = 30%<br>Post-Graduate Degree = 18.5% | Education<br>Did not Complete<br>High School =16%<br>High School Graduate =30%<br>Some College =27%<br>College Graduate =17%<br>Post-Graduate Degree = 10% |
| Who Usually Prepares Tax Return?<br>Myself and/or Spouse = 41%<br>Friend/Other Family Member = 7.5%<br>Paid Preparer = 51.5% | |
| [a]Numbers are expressed as a percentage of the total sample of respondents providing information for each demographic question.<br>[b]U.S. Census Bureau: *Age* in each category is based on the proportion of adults age 20 and older; *Family Income* numbers represent the percentage of families for each category; *Education* numbers represents percentage of persons over 25 for each category. | |

## Table 13: Experimental Manipulations

### Panel A: Manipulation of Tax Setting (Scenario)

<u>**Federal Income Tax (Gain)**</u>
The Smiths sold a personal painting for more than they had originally paid for it when they bought it, and therefore sold it for a gain. Based on federal <u>income tax</u> laws (of which the Smiths are aware), taxpayers are required to pay federal income tax on these gains. Thus, gains of this type are included in taxable income just like income from other sources. The gain should be reported on the Smiths' federal <u>income tax</u> return. The amount of <u>income tax</u> due as a result of this gain is $500. The Smiths sold the painting through an online marketplace website.

<u>**Federal Income Tax (Cash Receipts)**</u>
The Smiths received payment in cash for some of the services their business provided. Based on federal <u>income tax</u> laws (of which the Smiths are aware), taxpayers who receive cash payments for services are required to pay federal income tax on these receipts. Thus, cash receipts are included in taxable income just like income from other sources. The cash receipts should be reported on the Smiths' federal <u>income tax</u> return. The amount of <u>income tax</u> due as a result of these cash receipts is $500. The Smiths were contracted for these services through an online marketplace website.

<u>**State Use Tax (Out-of-State Purchase)**</u>
The Smiths purchased some jewelry from an out-of-state seller, but the seller did not charge the Smiths sales tax on their purchase. Based on state tax laws (of which the Smiths are aware), taxpayers who do not pay sales tax on their out-of-state purchases must instead pay state <u>use tax</u>. The <u>use tax</u> is equal to the amount of sales tax that would have been charged if the purchase had been made in-state. The use tax should be reported by filing a tax return with the Smiths' state sales and use tax department. The amount of <u>use tax</u> due as a result of this purchase is $500. The Smiths purchased the jewelry through an online marketplace website.

### Panel B: Manipulation of Detection Mechanism

<u>**Absent**</u>
No information provided.

<u>**Present – Gain**</u>
The Smiths are aware that the website automatically notifies the Internal Revenue Service of any sales of this magnitude.

<u>**Present – Cash Receipts**</u>
The Smiths are aware that the website automatically notifies the Internal Revenue Service of any contracts of this magnitude.

<u>**Present – Use Tax**</u>
The Smiths are aware that the website automatically notifies the buyer's state sales and use tax department of any purchases of this magnitude.

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## Table 14: Factor Analysis of Social Norm Questions

| Item | Factor 1 Loading | Factor 2 Loading | Factor 3 Loading | Factor 4 Loading |
|---|---|---|---|---|
| Most people you know [would disapprove].... | .749 | | | |
| Your family [would disapprove].... | .781 | | | |
| Your friends [would disapprove].... | .803 | | | |
| Your co-workers [would disapprove]..... | .790 | | | |
| | | | | |
| Would you feel guilty... | | .762 | | |
| Would you feel ashamed.... | | .758 | | |
| How much of a moral obligation...do you feel to fully disclose and pay.... | | .802 | | |
| I think I should pay...taxes on all taxable... | | .789 | | |
| | | | | |
| ....What percentage of U.S. taxpayers would..... | | | .854 | |
| ...What percentage of U.S. taxpayers at your income level.... | | | .864 | |
| | | | | |
| Would most people feel justified... | | | | .865 |
| Would most people feel pleased.... | | | | .687 |

| Description | Subjective Norms | Personal Norms | Descriptive Norms | Injunctive Norms |
|---|---|---|---|---|
| Percentage of Variance Explained | 49% | 12% | 9% | 8% |

*Note: Factor loadings are a result of Varimax rotation. Items are coded so that higher scores indicate more favorable social norms toward tax compliance.*

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## Table 15: Tests of Social Norm Differences

### Panel A: MANOVA of Social Norms

| Variable | Wilks' Lambda | F-Statistic | P-Value (two-tailed) |
|---|---|---|---|
| Constant | 1.000 | 0.001 | 1.000 |
| Tax Setting (Scenario) | 0.824 | 3.288 | **0.001** |

*Dependent Variable = Social Norm Factor Scores (all tested simultaneously)*

### Panel B: Separate ANOVAs of Social Norms

#### Mean Factor Score by Tax Setting

| | Use Tax Scenario | Gain Scenario | Cash Receipts Scenario | F-Score | P-Value (two-tailed) |
|---|---|---|---|---|---|
| Subjective Norms Factor | .126 | −.086 | −.034 | 0.544 | 0.582 |
| Personal Norms Factor | **−.225*** | −.007 | **.232*** | 2.351 | **0.099** |
| Descriptive Norms Factor | **−.247**** | **−.224**** | **.486**** | 8.571 | **<.001** |
| Injunctive Norms Factor | .137 | .062 | −.203 | 1.423 | 0.245 |

*Dependent Variable = Social Norm Factor Scores (each tested separately)*

*\*Use tax and cash receipts scenarios are significantly different at p < .05 (two-tailed)*

*\*\*Cash receipts scenario is significantly different from both the use tax and gain scenarios at p < .001 (two-tailed).*

<u>Note</u>: The Social Norm scale is explained in Table 14.

## Table 16: Test of Tax Compliance Intentions Differences

### Panel A: Means (Standard Deviation) of Tax Compliance Intentions by Condition

|  | Use Tax Scenario | Gain Scenario | Cash Receipts Scenario | Row Means (Detection) |
|---|---|---|---|---|
| **No Detection Mechanism** | 3.73 (2.334) $n = 22$ | 3.83 (2.297) $n = 24$ | **5.72 (1.926)\*** $n = 25$ | 4.46  (2.347) |
| **Detection Mechanism Present** | **4.27 (2.376)\*\*** $n = 26$ | **4.92 (1.917)\*\*\*** $n = 26$ | 5.60 (2.062) $n = 25$ | 4.92 (2.169) |
| **Column Means (Tax Setting Scenario)** | 4.02 (2.347) | 4.40 (2.157) | **5.66 (1.975)\*** | 4.70 (2.260) |

\*Cash receipts scenario is significantly different from the other two scenarios at p < .01 (two-tailed).
\*\*Use tax scenario is significantly different from the cash receipts scenario at p < .05 (two-tailed).
\*\*\*Gain scenario with detection mechanism present is significantly different from the "no detection mechanism" gain scenario at $p < .08$ (two-tailed).

### Panel B: ANOVA of Tax Compliance Intentions

|  | F-Statistic | Significance Level (Two-Tailed) |
|---|---|---|
| **Tax Setting (Scenario)\*** | 8.040 | **<.001** |
| Detection Mechanism | 2.016 | .158 |
| Tax Setting x Detection Interaction | 0.987 | .375 |
| | | |
| Model Statistics: F-Statistic = 3.927 Significance Level = .002 Adjusted $R^2$ = .091 | | |

*Tax Compliance Intentions* are measured on a 7-point Likert-type scale, with 1 = "very unlikely" and 7 = "very likely" that participants would comply and pay the taxes. *Tax Setting (Scenario)* and *Detection Mechanism* represent the two manipulations.

\*Tukey HSD post-hoc analysis indicates a statistically significant difference between the cash receipts scenario and both other scenarios (the gain and the use tax scenario; both $p < .01$, two-tailed).

## Table 17: ANCOVA of Tax Compliance Intentions

| | F-Statistic | Significance Level (Two-Tailed) |
|---|---|---|
| Manipulated Variables and Interactions | | |
| Tax Setting (Scenario) | 0.846 | .432 |
| Detection Mechanism | 1.502 | .223 |
| Type of Tax x Detection Interaction | 0.505 | .605 |
| Measured Variables (Covariates) | | |
| Subjective Norms Factor | 15.899 | **<.001** |
| Personal Norms Factor | 47.882 | **<.001** |
| Descriptive Norms Factor | 27.750 | **<.001** |
| Injunctive Norms Factors | 0.783 | .378 |
| Widespread Ignorance | .007 | .932 |
| Familiarity | 2.550 | .113 |
| Interaction Terms (Covariates) | | |
| Tax Setting x Subjective Norms Factor Interaction | 0.339 | .562 |
| Tax Setting x Personal Norms Factor Interaction | 0.010 | .922 |
| Tax Setting x Descriptive Norms Factor Interaction | 4.936 | **.028** |
| Tax Setting x Injunctive Norms Factor Interaction | 0.096 | .758 |
| Tax Setting x Widespread Ignorance Interaction | .291 | .591 |
| Tax Setting x Familiarity Interaction | 1.284 | .259 |

Model Statistics:
F-Statistic = 13.750
Significance Level <.001
Adjusted $R^2$ = .622

*Tax Compliance Intentions* are measured on a 7-point Likert-type scale, with 1 = "very unlikely" and 7 = "very likely" that participants would comply and pay the taxes. *Tax Setting (Scenario)* and *Detection Mechanism* represent the two manipulations. *Social Norms Factors* are the factor scores obtained from the factor analysis described in Table 2. *Widespread ignorance* measures participants' response to "most people do not know they are responsible for paying [type of tax]…." and is measured on a 7-point Likert-type scale, with 1 = "strongly disagree" and 7 = "strongly agree." *Familiarity* measures participants' response to "how familiar are you with the …tax laws concerning [type of tax]" and is measured on a 7-point Likert-type scale, with 1 = "not at all" and 7= "very".

## Table 18: Separate Regressions of Tax Compliance Intentions

| Variable[a] | Use Tax Scenario[b] | Gain Scenario[b] | Cash Receipts Scenario[b] |
|---|---|---|---|
| | Coefficient | Coefficient | Coefficient |
| Constant | 3.074 (1.247)** | 4.281 (1.048)*** | 5.666 (1.105)*** |
| Detection Mechanism | 0.429 (.395) | 0.398 (.453) | -0.093 (.498) |
| Subjective Norms Factor | **0.719 (.172)*** | **0.795 (.232)*** | **0.919 (0.307)** |
| Personal Norms Factor | **1.253 (.174)*** | **1.379 (.267)*** | **1.165 (.269)*** |
| Descriptive Norms Factor | **1.278 (.263)*** | **1.024 (.239)*** | **0.516 (.239)* |
| Injunctive Norms Factor | -0.224 (.172) | -0.041 (.256) | -0.122 (.265) |
| Widespread Ignorance | -0.086 (.156) | -0.029 (.121) | -.154 (.137) |
| Familiarity | **0.315 (.140)* | -0.024 (.168) | 0.054 (.123) |
| | Adjusted $R^2$ | Adjusted $R^2$ | Adjusted $R^2$ |
| *Overall Model* | 0.733 | 0.553 | 0.382 |

***Statistically significant at $p < .001$ (two-tailed)
**Statistically significant at $p < .01$ (two-tailed)
*Statistically significant at $p < .05$ (two-tailed)

[a]Regression model tested separately for each tax setting (scenario), Tax Compliance Intentions = $\beta_0$ + $\beta_1$Detection Mechanism + $\beta_2$Subjective Norms Factor + $\beta_3$Personal Norms Factor + $\beta_4$Descriptive Norms Factor + $\beta_5$Injunctive Norms Factor + $\beta_6$Widespread Ignorance + $\beta_7$Familiarity

[b]Coefficients (Standard Errors) for OLS Regression Models for each Tax Setting (Scenario)

*Tax Compliance Intentions* are measured on a 7-point Likert-type scale, with 1 = "very unlikely" and 7 = "very likely" that participants would comply and pay the taxes. *Tax Setting (Scenario)* and *Detection Mechanism* represent the two manipulations. *Social Norms Factors* are the factor scores obtained from the factor analysis described in Table 2. *Ignorance* measures participants' response to "most people do not know they are responsible for paying [type of tax]…." and is measured on a 7-point Likert-type scale, with 1 = "strongly disagree" and 7 = "strongly agree." *Familiarity* measures participants' response to "how familiar are you with the …tax laws concerning [type of tax]" and is measured on a 7-point Likert-type scale, with 1 = "not at all" and 7= "very".

**Table 19: Supplemental Regression Analysis**

| Variable[a] | Use Tax Scenario[b] | Gain Scenario[b] | Cash Receipts Scenario[b] | Overall[b] |
|---|---|---|---|---|
| | Coefficient | Coefficient | Coefficient | Coefficient |
| Constant | 2.939(1.402)* | 4.879 (1.031)*** | 3.916 (1.032)*** | 4.392 (1.043)*** |
| Perceived Detection Risk | 0.238 (.151) | 0.015(.149) | **0.327 (.146)*** | 0.106 (.120) |
| Subjective Norms Factor | **0.613 (.184)**** | **0.797 (.250)**** | **0.807 (.292)**** | **0.699 (.130)***** |
| Personal Norms Factor | **1.043 (.225)***** | **1.372 (.285)***** | **1.117(.246)***** | **1.181 (.137)***** |
| Descriptive Norms Factor | **1.035 (.279)***** | **1.045 (.257)***** | 0.361(.233) | **1.214 (.261)***** |
| Injunctive Norms Factor | -0.228 (.169) | 0.002(.253) | -0.090 (.247) | -0.099 (.119) |
| Widespread Ignorance | -0.003 (.167) | -0.032 (.123) | -0.165 (.128) | -0.061 (.070) |
| Familiarity | **0.289 (.151)*** | -0.041(.174) | 0.142(.121) | 0.131 (0.76) |
| Tax Setting (Scenario) | N/A | N/A | N/A | -0.236 (.420) |
| Tax Setting x Perceived Detection Risk Interaction | N/A | N/A | N/A | 0.084 (0.089) |
| Tax Setting x Descriptive Norms Interaction | N/A | N/A | N/A | **-0.366 (.175)*** |
| | Adjusted $R^2$ | Adjusted $R^2$ | Adjusted $R^2$ | Adjusted $R^2$ |
| *Overall Model* | 0.742 | 0.544 | 0.457 | 0.647 |

***Statistically significant at $p < .001$ (two-tailed)
**Statistically significant at $p < .01$ (two-tailed)
*Statistically significant at $p < .05$ (two-tailed)

[a] *Regression model tested separately for each tax setting (scenario),* Tax Compliance Intentions $= \beta_0 + \beta_1$Perceived Detection Risk $+ \beta_2$Subjective Norms Factor $+ \beta_3$Personal Norms Factor $+ \beta_4$Descriptive Norms Factor $+ \beta_5$Injunctive Norms Factor $+ \beta_6$Widespread Ignorance $+ \beta_7$Familiarity. *Overall regression model tested (all participants),* Tax Compliance Intentions $= \beta_0 + \beta_1$Perceived Detection Risk $+ \beta_2$Subjective Norms Factor $+ \beta_3$Personal Norms Factor $+ \beta_4$Descriptive Norms Factor $+ \beta_5$Injunctive Norms Factor $+ \beta_6$Widespread Ignorance $+ \beta_7$Familiarity $+ \beta_8$Tax Setting $+ \beta_9$Tax Setting x Perceived Detection Risk Interaction $+ \beta10_9$Tax Setting x Descriptive Norms Interaction

[b]Coefficients (Standard Errors) for OLS Regression Models.

*Tax Compliance Intentions* are measured on a 7-point Likert-type scale, with 1 = "very unlikely" and 7 = "very likely" that participants would comply and pay the taxes. *Perceived Detection Risk* measures participants' response to "placed in a similar situation, if you failed to report…what do you think is the likelihood that you would be audited?" and is measured on a 7-point Likert-type scale, with 1 = "very unlikely" and 7 = "very likely." *Social Norms Factors* are the factor scores obtained from the factor analysis described in Table 2. *Ignorance* measures participants' response to "most people do not know they are responsible for paying [type of tax]…." and is measured on a 7-point Likert-type scale, with 1 = "strongly disagree" and 7 = "strongly agree." *Familiarity* measures participants' response to "how familiar are you with the …tax laws concerning [type of tax]" and is measured on a 7-point Likert-type scale, with 1 = "not at all" and 7= "very". *Tax Setting (Scenario)* is manipulated.

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## Table 20: Supplemental ANCOVA Analysis

|  | F-Statistic | Significance Level (Two-Tailed) |
|---|---|---|
| Manipulated Variables and Interactions |  |  |
| Tax Setting (Scenario) | 1.491 | .230 |
| Detection Mechanism | 1.395 | .240 |
| Type of Tax x Detection Interaction | 0.268 | .765 |
| Significant Covariates (from Table 6) |  |  |
| Subjective Norms Factor | 29.676 | **<.001** |
| Personal Norms Factor | 69.927 | **<.001** |
| Descriptive Norms Factor | 25.102 | **<.001** |
| Type of Tax x Descriptive Norms Factor Interaction | 4.041 | **.047** |
| Significant Demographic/Control Variables |  |  |
| Household Income | 3.609 | **.060** |
| Fairness | 5.699 | **.019** |

Model Statistics:
F-Statistic = 22.543
Significance Level <.001
Adjusted $R^2$ = .653

*Tax Compliance Intentions* are measured on a 7-point Likert-type scale, with 1 = "very unlikely" and 7 = "very likely" that participants would comply and pay the taxes. *Tax Setting (Scenario)* and *Detection Mechanism* represent the two manipulations. *Social Norms Factors* are the factor scores obtained from the factor analysis described in Table 2. *Household Income* consists of five self-reported quintiles for 2008 household income, ranging from 1 = under $25,000 to 5 = over $100,000; analysis only consists of those participants that provided this information. *Fairness* measures participants' responses to "….[type of tax] laws are fair to most people" and is measured on a 7-point Likert-type scale ranging from 1 = "strongly disagree" and 7 = "strongly agree."

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**Table 21: Summary of Variables**

| Variable | Predicted Sign | Definition | Data Source |
|---|---|---|---|
| **Dependent Variable** | | | |
| SSUTA | N/A | The adoption of the SSUTA provisions, represented by a dummy variable taking a value of 1 for adopting states (Governing Board members) and 0 for non-adopting states. | Meeting minutes of the Streamlined Sales Tax Governing Board and committees (2005-2007); National Conference of State Legislatures' SSUTA Compliance Chart (2007) |
| **Test Variables - Political Interest Group Theory Factors** | | | |
| BUSRATIO | + | The percentage of state employment by businesses with 500 or more employees, divided by the percentage of state employment by businesses with 20 or fewer employees. | U.S. Census Bureau's *Economic Census* (2002); U.S. Office of Small Business Administration's Office of Advocacy *Firm Size Data* (2002)* |
| STATESUT | + | The 2007 general state SUT rate. | CCH's Multistate Sales Tax Guide (2007) |
| LOCALJUR | - | The total number of jurisdictions within a state imposing an additional local general SUT. | Tax Policy Center, *Number and Type of State Jurisdictions with Local General Sales Tax* (2006) |
| **Tax System Control** | | | |
| ORIGIN | - | Origin-based SUT sourcing (measured prior to states' adoption of the SSUTA). | Report by Kansas Department of Revenue, in the Washington Department of Revenue, *Streamlined Sales and Use Tax Agreement Sourcing Study* (2003); CCH Sales Tax News (2007). |
| **Fiscal Control** | | | |
| SUTLOSS | + | Low estimate of 2008 state revenue losses from e-commerce as a proportion (percentage) of 2003 total state taxes. | Bruce and Fox (2004), *State and local tax estimated revenue losses from e-commerce: Estimates as of July 2004* |
| **Political Control** | | | |
| REPUBLIC | +/- | Percentage of Republican voters in the 2004 Presidential election. | The Federal Election Commission's *Election Results for the U.S. President* (2004) |

*The Economic Census is conducted once every 5 years; data from the 2007 Economic Census is not yet released.

## Table 22: Summary Statistics for Adoptions

### Panel A: Means and Standard Deviations

| | Adopting States (n=22) | | | Non-Adopting States (n=23) | | |
|---|---|---|---|---|---|---|
| | **Mean** | **Std. Dev.** | **Median** | **Mean** | **Std. Dev.** | **Median** |
| **Interest Group** | | | | | | |
| *BUSRATIO* | 2.472 | 0.672 | 2.574 | 2.6357 | 0.450 | 2.751 |
| *STATESUT* | 5.650 | 0.949 | 6.000 | 5.151 | 1.088 | 5.000 |
| *LOCALJUR* | 114.230 | 148.891 | 89.000 | 363.830 | 675.155 | 86.000 |
| **Fiscal Control** | | | | | | |
| *SUTLOSS* | 3.414 | 0.837 | 3.100 | 3.417 | 0.511 | 3.000 |
| **Political Control** | | | | | | |
| *REPUBLIC* | 55.240 | 9.114 | 56.040 | 51.291 | 7.897 | 51.694 |

### Panel B: Proportion of Occurrence*

| | Adopting States (n=22) | Non-Adopting States (n=23) |
|---|---|---|
| | Proportion | Proportion |
| **Tax System Control** | | |
| *ORIGIN* | 54.5% | 34.8% |

*Proportion of states in which the measured variable was assigned a "1."*

*where:*
BUSRATIO = % of state employment by business with 500 or more employees/20 or fewer employees;

STATESUT = general state SUT rate;

LOCALJUR = total number of jurisdictions imposing additional local SUT;

ORIGIN = SUT sourcing was origin-based prior to streamlining movement;

SUTLOSS = % of state revenue lost due to e-commerce; and

REPUBLIC =% of Republican voters in Presidential election.

## Table 23: Spearman Correlation Matrix
## Independent Variables in Logit Analysis

| Variable | BUSRATIO | STATESUT | LOCALJUR | ORIGIN | SUTLOSS |
|---|---|---|---|---|---|
| STATESUT | 0.226 | | | | |
| | (0.135) | | | | |
| LOCALJUR | 0.117 | -0.243 | | | |
| | (0.419) | (0.107) | | | |
| ORIGIN | 0.238 | 0.265 | 0.443 | | |
| | (0.116) | (0.079) | (0.002) | | |
| SUTLOSS | 0.149 | 0.279 | 0.056 | 0.045 | |
| | (0.328) | (0.063) | (0.713) | (0.770) | |
| REPUBLIC | -0.011 | -0.248 | 0.340 | -0.083 | 0.345 |
| | (0.942) | (0.101) | (0.022) | (0.589) | (0.020) |

*Note: Due to the small sample size (45 states that impose SUT), non-parametric correlations are presented.*

*where:*

BUSRATIO = % of state employment by business with 500 or more employees/20 or fewer employees;

STATESUT = general state SUT rate;

LOCALJUR = total number of jurisdictions imposing additional local SUT;

ORIGIN = SUT sourcing was origin-based prior to streamlining movement;

SUTLOSS = % of state revenue lost due to e-commerce; and

REPUBLIC =% of Republican voters in Presidential election.

*P-values are reported in (parentheses).*

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## Table 24: Model Results for Adoptions

## Logit Estimation Model

| Variable | Coefficient | Standard Error | Wald | p>Wald[a] | % Change in Odds |
|---|---|---|---|---|---|
| Constant | -9.052 | 4.622 | 3.835 | 0.050 | |
| **Interest Group Theory Factors** | | | | | |
| *BUSRATIO* | -0.982 | 0.742 | 1.752 | 0.186 | -37.5 |
| *STATESUT* | 1.086 | 0.521 | 4.350 | **0.037** | 296.4 |
| *LOCALJUR* | -0.003 | 0.002 | 2.734 | **0.098** | -99.7 |
| **Tax System Control** | | | | | |
| *ORIGIN* | 1.794 | 0.852 | 4.437 | **0.035** | 601.6 |
| **Fiscal Control** | | | | | |
| *SUTLOSS* | -0.509 | 0.511 | 0.992 | 0.319 | -60.1 |
| **Political Control** | | | | | |
| *REPUBLIC* | 0.133 | 0.058 | 5.260 | **0.022** | 114.2 |

## Prediction Statistics and Model Fit

| Overall Model (45 states) | | Correct Model Predictions | |
|---|---|---|---|
| $\chi^2$ | 20.174 | No Adoption | 73.9% |
| Prob. $> \chi^2$ | 0.003 | Adoption | 86.4% |
| Log Likelihood | -42.187 | All States[b] | 80.0% |
| Nagelkerke $R^2$ | 0.482 | | |

[a]All p-values are for two-tailed tests.
[b]Overall predictive accuracy of the model.

*where:*

ADOPT (Dependent Variable) = 1 if adopted SSUTA (Governing Board Members); 0 otherwise

BUSRATIO = % of state employment by business with 500 or more employees/20 or fewer employees;

STATESUT = general state SUT rate;

LOCALJUR = total number of jurisdictions imposing additional local SUT;

ORIGIN = SUT sourcing was origin-based prior to streamlining movement;

SUTLOSS = % of state revenue lost due to e-commerce; and

REPUBLIC =% of Republican voters in Presidential election.

**Table 25: Summary of Case Study Data Sources**

| Type of Archived Data | Data Source |
|---|---|
| Legislative History | National Council of State Legislatures website; Kansas Legislature website; Texas Legislature website; Tennessee Legislature website |
| Committee Meeting Minutes | Kansas House, Senate, and Joint Committee archived committee meeting minutes; Texas House and Senate archived video broadcasts of committee meetings; Tennessee House and Senate archived audio broadcasts of committee meetings |
| Streamlined Sales Tax Governing Board Committee Meeting Minutes | Streamlined Sales Tax Project website |
| Secondary sources, including trade articles, popular press articles, newspaper columns, and department of revenue and jurisdictional publications | Obtained for each state via numerous searches on electronic databases, including via ProQuest, Business Index, the Wall Street Journal index, and multiple web search engines; furthermore, obtained additional publications for involved interest groups identified in the above source. |
| Financial contribution and lobbying information (for entities identified via analysis of the above data) | Kansas Governmental Ethics Commission website, Texas Ethics Commission website, Tennessee Ethics Commission website, Tennessee Online Campaign Finance database, National Institute on Money in State Politics website |

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**Table 26: Overview of Kansas Interest Groups**

| Interest Group | Status toward changes | Primary Argument |
|---|---|---|
| State Government | Supported (including Governor) | Collection of lost sales tax revenue |
| Large Business | Supported (but not extensively involved) | Simplification |
| Local Government | Supported | Collection of lost sales tax revenue; addition of local *use* tax |
| Small Business | Opposed | Originally supported (simplification and fairness); once aware of the sourcing changes, opposed due to the cost of the sourcing change |

**Table 27: Political Strategy Formulation of Kansas Interest Groups**

| Interest Group | Approach | Level of Participation |
|---|---|---|
| State Government | Relational - involved with multiple issues | Collective - entities united within the government (e.g., department of revenue, governor's office, etc.) |
| Large Business | Relational - involved with multiple issues (although little involvement with this issue) | Individual - most collective associations appeared dominated by small business concerns. |
| Local Government | Relational - involved with multiple issues | Collective (Kansas Municipal League and Kansas Association of Counties) and individual (specific cities/counties) |
| Small Business | Associations involved with multiple issues; most individual businesses were limited to this issue. | Some collective associations (KS Chamber of Commerce, other local chambers, National Federation of Independent Businesses); majority were individual businesses. |

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**Table 28: Political Strategies used by Kansas Interest Groups**

| Interest Group | Informative Tactics | Constituency Tactics | Financial Tactics |
|---|---|---|---|
| State Government | Extensive testimony at legislative committee hearings. Appealed to collecting lost SUT, improving uniformity, and the need for Congressional action. | Publications, training sessions and newspaper interviews. Appealed to collecting additional tax and improving SUT uniformity. | None |
| Large Business | Little involvement in committee hearings. Solely appealed to simplification. | Little appeal to constituents. | Extensive financial contributions; multiple paid lobbyists. |
| Local Government | Extensive testimony at legislative committee hearings. Appealed to collecting additional tax and issues of fairness. | Publications and statements of policy to constituents. Appealed to collecting lost SUT and the increase in tax revenue from local use tax. | No financial contributions. All collective entities had multiple paid lobbyists; nearly all supporting cities/counties had lobbyists present. |
| Small Business | Extensive testimony at legislative committee hearings. Appealed to the cost of the sourcing change. | Publications for constituent, newspaper interviews and editorial pieces. Appealed to the cost of the sourcing change. | Minimal financial contributions from associations; none from individual businesses. Collective entities had multiple paid lobbyists; individual businesses did not. |

**Table 29: Overview of Texas Interest Groups**

| Interest Group | Status toward changes | Primary Argument |
| --- | --- | --- |
| State Government | Originally supported; later opposed | Supported due to collection of lost SUT revenue; later opposed due to shift in intrastate SUT revenue |
| Large Business | Supported | Simplification |
| Local Government | Opposed | SUT revenue would shift away from some municipalities due to the sourcing change |
| Small Business | Opposed | Cost of sourcing change |

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**Table 30: Political Strategy Formulation of Texas Interest Groups**

| Interest Group | Approach | Level of Participation |
|---|---|---|
| State Government | Relational - involved with multiple issues | Individual – Comptroller's Office involved; was not a pressing issue for the Governor's office |
| Large Business | Relational - involved with multiple issues | Individual |
| Local Government | Relational - involved with multiple issues | Collective associations (Texas Municipal League) and individual municipalities (especially Round Rock, TX) |
| Small Business | Transactional | Primarily individual businesses |

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**Table 31: Political Strategies used by Texas Interest Groups**

| Interest Group | Informative Tactics | Constituency Tactics | Financial Tactics |
|---|---|---|---|
| State Government | Limited testimony at legislative committee hearings. Appealed to collecting lost SUT. | Departmental and research publications. Wanted to be involved with SSTP to collect lost SUT and simplify the SUT system, but opposed due to lack of guarantees in collecting additional revenue and intrastate revenue shift. | None |
| Large Business | Some involvement in committee hearings, but primarily sent written statements. Primarily argued simplification; also raised the issue of fairness. | Little appeal to constituents. | Evidence of financial contributions; multiple paid lobbyists. |
| Local Government | Extensive testimony at legislative committee hearings. Argued the shift in SUT revenue due to the sourcing change would devastate many municipalities. | Publications and statements of policy to constituents. Again, argued the shift in SUT revenue due to the sourcing change would devastate many municipalities. | No financial contributions. Collective entity had multiple paid lobbyists; nearly all opposing cities also had paid lobbyists. |
| Small Business | Little involvement at legislative committee hearings; informal lobbying of legislative leaders. Appealed to the cost of the sourcing change. | Little communication to constituents regarding the issue. | Minimal financial contributions and no paid lobbyists from businesses identified as involved with the issue. |

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**Table 32: Overview of Tennessee Interest Groups**

| Interest Group | Status toward changes | Primary Argument |
|---|---|---|
| State Government | Revenue Department Supported; Governor later Opposed | Revenue Department: Simplification and collection of lost tax revenue; Governor: shift in intrastate revenue allocation |
| Large Business | Supported | Simplification and fairness |
| Local Government | Opposed | SUT revenue would shift away from some municipalities due to the sourcing change |
| Small Business | Opposed | Cost of sourcing change |

**Table 33: Political Strategy Formulation of Tennessee Interest Groups**

| Interest Group | Approach | Level of Participation |
|---|---|---|
| State Government | Relational - involved with multiple issues | Individual - TN Department of Revenue was the driving force behind adoption |
| Large Business | Relational - involved with multiple issues | Collective associations (e.g., TN Retail Association, E-Fairness Coalition) and individual businesses |
| Local Government | Relational - most parties are involved with multiple issues | Collective associations (Tennessee Municipal League) and individual municipalities (larger metropolitan areas) |
| Small Business | Relational - collective association involved with multiple issues | Primarily collective associations (esp. National Federation of Independent Businesses) |

**Table 34: Political Strategies used by Tennessee Interest Groups**

| Interest Group | Informative Tactics | Constituency Tactics | Financial Tactics |
|---|---|---|---|
| State Government | Extensive testimony at legislative committee hearings. Appealed to simplification and the ability to collect lost SUT revenue. | Departmental publications, research publications, and newspaper interviews. Appealed to simplification, collecting lost SUT revenues, and fairness issues. | None |
| Large Business | Some involvement with Department of Revenue meetings and task force; concerned with simplification. | In newspaper/secondary publications, appeals to simplification and fairness. | Evidence of financial contributions; many paid lobbyists. |
| Local Government | Involvement with Department of Revenue meetings and task force; lobbied legislators. Concerned with the shift in SUT revenue. | Publications, statements of policy to constituents, newspaper and other secondary publications. Again, argued the shift in SUT revenue due to the sourcing change would devastate many municipalities. | No financial contributions. Collective entities had multiple paid lobbyists; nearly all opposing municipalities also had paid lobbyists. |
| Small Business | Involvement with Department of Revenue meetings and task force; much informal lobbying of legislative leaders. Appealed to the cost of the sourcing change. | In press releases, trade publications, and newspaper articles, appealed to the cost of the sourcing change and the lack of a Congressional guarantee. | Minimal financial contributions; paid lobbyists present. |

# APPENDIX B: EXAMPLE OF ONLINE QUESTIONNAIRE

## Part 1

You are being invited to participate in a research project conducted by Amy Hageman, CPA and Donna Bobek, PhD, CPA of the University of Central Florida's Dixon School of Accounting. You will be asked to answer questions that will take about 15 minutes of your time. There are no anticipated potential risks associated with this study.

This questionnaire includes a description of a scenario that a taxpayer may encounter. After reading the scenario, you will be asked several questions regarding what you would do if you were in that situation as well as your opinions about different factors related to taxation.

Please note that this is an academic study conducted at a university to gain insight into U.S. taxpayer attitudes. As the results of this study could be helpful to tax policymakers, tax professionals and taxpayers, it is important that you answer each question in a serious and thoughtful manner. Your responses will be completely anonymous. Your name will not be collected or associated in any way with your responses, and only aggregated data will be included in any resulting publication or presentations.

You must be at least 25 years of age to participate in this study. If you have decided to participate in this project, please understand that your participation is voluntary and that you have the right to withdraw your consent or discontinue participation at any time without penalty. If you have any questions regarding this project, you may contact Amy Hageman at (407)-823-4420 or by email at ahageman@bus.ucf.edu, or Dr. Bobek at (407) 823-3082 or by email at dbobek@bus.ucf.edu. Questions or concerns about research participants' rights may be directed to the UCFIRB office, University of Central Florida, Office of Research & Commercialization, 12201 Research Parkway, Suite 501, Orlando, FL 32826-3246. The phone number is (407)-823-2901.

By clicking "continue" below, you are indicating that you understand the above and voluntarily consent to participate in the research. Thank you very much for agreeing to participate.

## Part 2

*First, please tell us a little about yourself.*

1. What is your age? _____ Years

2. What is your gender?

   ❑ Male
   ❑ Female

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3. Have you ever filed a federal income tax return in the U.S.?

☐ Yes
☐ No
☐ Not Sure

4. Have you ever paid use tax (to any state in the U.S.)?

☐ Yes
☐ No
☐ Not Sure

5. Who usually prepares your tax return (please select one)?

☐ You
☐ Your spouse
☐ Friend or other family member
☐ Paid preparer
☐ Other (please specify＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿)
☐ N/A

6. What is your highest level of education attained (please select one)?

☐ Did not complete high school
☐ High school diploma
☐ Some college coursework
☐ Bachelor's degree
☐ Post-graduate degree or certificate

7. For 2008, what was your approximate household income (before taxes)?

☐ Under $25,000
☐ $25,000 to $49,999
☐ $50,000 to $74,999
☐ $75,000 to $99,999
☐ Over $100,000
☐ Prefer not to respond

8. Which of the following describes your current employment status? Please check all that apply.

☐ Employed full-time
☐ Employed part-time
☐ Self-employed
☐ Full-time student

❑ Retired
❑ Stay-at-home parent or homemaker
❑ Unemployed (and looking for employment)
❑ Other (please specify_____ )

9. If you are currently employed or self-employed, what is your field of employment (for example, education, health care, manufacturing, etc.)? _____

10. What is your current state of residence? _____

11. Have you ever been audited by the IRS or a state or local revenue department?

❑ Yes
❑ No
❑ Unsure

## **Part 3**

*For the following questions, please select a number corresponding to how frequently you have experienced the situation.*

1. How often have you sold a piece of personal property (for example, a painting or antique) for more than you had originally paid for it (a gain)?

   |       1    |    2    |    3    |    4    |    5    |    6    |    7      |
   | Never      |         | Occasionally |    |         | Frequently |      |

2. How often have you received cash payments for services (for example, tips, housecleaning, babysitting, or lawn care)?

   |       1    |    2    |    3    |    4    |    5    |    6    |    7      |
   | Never      |         | Occasionally |    |         | Frequently |      |

3. How often have you <u>purchased</u> items online (at Amazon.com, Ebay.com, or a similar Internet retailer)?

   |       1    |    2    |    3    |    4    |    5    |    6    |    7      |
   | Never      |         | Occasionally |    |         | Frequently |      |

4.  How often have you <u>sold</u> items online (at Amazon.com, Ebay.com, or a similar Internet retailer)?

|   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Never |  | | Occasionally | | | Frequently |

*For the following questions, please select a number corresponding to your level of familiarity.*

5.  How familiar are you with the <u>income tax laws</u> concerning gains on the sale of assets used for personal use?

|   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Not at | | | Somewhat | | | Very |
| All | | | | | | Familiar |

6.  How familiar are you with the <u>income tax laws</u> concerning cash payments received for services?

|   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Not at | | | Somewhat | | | Very |
| All | | | | | | Familiar |

7.  How familiar are you with the <u>use tax laws</u> in your state concerning goods purchased online?

|   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Not at | | | Somewhat | | | Very |
| All | | | | | | Familiar |

## Part 4

## INSTRUCTIONS

The following scenario represents a taxpaying decision that an individual could face. Please read the scenario and keep the facts of the scenario in your mind when answering the questions on the following pages. It is important that you think about the scenario and answer all the questions to the best of your ability.

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## SCENARIO

David and Mary Smith have been married for 15 years and have two girls. David owns his own small business and Mary works part-time in his business. In addition to their work, the Smiths help manage their daughters' soccer teams.

The Smiths purchased some jewelry from an out-of-state seller, but the seller did not charge the Smiths sales tax on their purchase. Based on state tax laws (of which the Smiths are aware), taxpayers who do not pay sales tax on their out-of-state purchases must instead pay state use tax. The use tax is equal to the amount of sales tax that would have been charged if the purchase had been made in-state. The use tax should be reported by filing a tax return with the Smiths' state sales and use tax department. The amount of use tax due as a result of this purchase is $500.

The Smiths purchased the jewelry through an online marketplace website. The Smiths are aware that the website automatically notifies the buyer's state sales and use tax department of any purchases of this magnitude.

## Part 5

*Based on the previous information, please answer the following questions.*

1. Which type of tax does the Smiths' scenario concern?

   ❑ Federal income taxes
   ❑ State use taxes

2. What do you think is the likelihood that *the Smiths* would report the purchase and pay the $500 in taxes?

   | Very Likely | Somewhat Likely | Slightly Likely | Neutral | Slightly Unlikely | Somewhat Unlikely | Very Unlikely |
   |---|---|---|---|---|---|---|

3. Placed in a similar situation, do you think the *average U.S. taxpayer* would report the purchase and pay the $500 in taxes?

   | Very Likely | Somewhat Likely | Slightly Likely | Neutral | Slightly Unlikely | Somewhat Unlikely | Very Unlikely |
   |---|---|---|---|---|---|---|

4. Placed in a similar situation, do you think *you* would report the purchase and pay the $500 in taxes?

   | Very Likely | Somewhat Likely | Slightly Likely | Neutral | Slightly Unlikely | Somewhat Unlikely | Very Unlikely |
   |---|---|---|---|---|---|---|

5. Placed in a similar situation, if you failed to report the purchase of the jewelry, what do you think is the likelihood that you would be audited?

| Very Likely | Somewhat Likely | Slightly Likely | Neutral | Slightly Unlikely | Somewhat Unlikely | Very Unlikely |
|---|---|---|---|---|---|---|

6. Placed in a similar situation, if you failed to report the purchase of the jewelry and were audited, what do you think is the likelihood that the taxing authority would assess tax on the purchase?

| Very Likely | Somewhat Likely | Slightly Likely | Neutral | Slightly Unlikely | Somewhat Unlikely | Very Unlikely |
|---|---|---|---|---|---|---|

## Part 6

*Please indicate how likely you <u>believe</u> that either YOU or MOST PEOPLE would feel the emotions described below if either you or most people did NOT report the purchase and pay the $500 in use taxes. Please circle a selection.*

1. Would *most people* feel guilty if they did not report the purchase and pay the $500 in taxes?

| Very Likely | Somewhat Likely | Slightly Likely | Neutral | Slightly Unlikely | Somewhat Unlikely | Very Unlikely |
|---|---|---|---|---|---|---|

2. Would *you* feel guilty if you did not report the purchase and pay the $500 in taxes?

| Very Likely | Somewhat Likely | Slightly Likely | Neutral | Slightly Unlikely | Somewhat Unlikely | Very Unlikely |
|---|---|---|---|---|---|---|

3. Would *most people* feel ashamed if they did not report the purchase and pay the $500 in taxes?

| Very Likely | Somewhat Likely | Slightly Likely | Neutral | Slightly Unlikely | Somewhat Unlikely | Very Unlikely |
|---|---|---|---|---|---|---|

4. Would *you* feel ashamed if you did not report the purchase and pay the $500 in taxes?

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|            |                |          |         |          |            |          |
|------------|----------------|----------|---------|----------|------------|----------|
| Very Likely | Somewhat Likely | Slightly Likely | Neutral | Slightly Unlikely | Somewhat Unlikely | Very Unlikely |

5. Would *most people* feel justified if they did not report the purchase and pay the $500 in taxes?

|            |                |          |         |          |            |          |
|------------|----------------|----------|---------|----------|------------|----------|
| Very Likely | Somewhat Likely | Slightly Likely | Neutral | Slightly Unlikely | Somewhat Unlikely | Very Unlikely |

6. Would *you* feel justified if you did not report the purchase and pay the $500 in taxes?

|            |                |          |         |          |            |          |
|------------|----------------|----------|---------|----------|------------|----------|
| Very Likely | Somewhat Likely | Slightly Likely | Neutral | Slightly Unlikely | Somewhat Unlikely | Very Unlikely |

7. Would *most people* feel pleased if they did not report the purchase and pay the $500 in taxes?

|            |                |          |         |          |            |          |
|------------|----------------|----------|---------|----------|------------|----------|
| Very Likely | Somewhat Likely | Slightly Likely | Neutral | Slightly Unlikely | Somewhat Unlikely | Very Unlikely |

8. Would *you* feel pleased if you did not did not report the purchase and pay the $500 in taxes?

|            |                |          |         |          |            |          |
|------------|----------------|----------|---------|----------|------------|----------|
| Very Likely | Somewhat Likely | Slightly Likely | Neutral | Slightly Unlikely | Somewhat Unlikely | Very Unlikely |

9. Would *most people* be afraid they would get caught if they did not report the purchase and pay the $500 in taxes?

|            |                |          |         |          |            |          |
|------------|----------------|----------|---------|----------|------------|----------|
| Very Likely | Somewhat Likely | Slightly Likely | Neutral | Slightly Unlikely | Somewhat Unlikely | Very Unlikely |

10. Would *you* be afraid you would get caught if you did not report the purchase and pay the $500 in taxes?

|            |                |          |         |          |            |          |
|------------|----------------|----------|---------|----------|------------|----------|
| Very Likely | Somewhat Likely | Slightly Likely | Neutral | Slightly Unlikely | Somewhat Unlikely | Very Unlikely |

**Part 7**

*Assuming you chose NOT to report the purchase and pay the $500 in use taxes, indicate your <u>opinion</u> of whether the following groups would approve or disapprove of your decision. Use a scale from 1-7 with 1="definitely approve" and 7="definitely disapprove." Select "8" if the question is not applicable.*

|  | <u>Definitely Approve</u> |  |  |  |  |  | <u>Definitely Disapprove</u> |  |
|---|---|---|---|---|---|---|---|---|
| 1. Most people you know | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
| 2. Your family | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
| 3. Your friends | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
| 4. Your co-workers | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

*Please answer the following questions by circling the applicable percentage.*

5. Placed in a situation similar to the Smiths, approximately what percentage of U.S. taxpayers do you think would report the purchase and pay the $500 in taxes?

   100%   90%   80%   70%   60%   50%   40%   30%   20%   10%   0%

6. Placed in a situation similar to the Smiths, approximately what percentage of U.S. taxpayers *at your income level* do you think would report the purchase and pay the $500 in taxes?

   100%   90%   80%   70%   60%   50%   40%   30%   20%   10%   0%

**Part 8**

*Now we would like to move away from the scenario about the Smiths and ask you some more general questions about taxation, the government, society and yourself. Please just respond to each question to the best of your ability.*

1. Do you get the general impression from people you work with that they think it is acceptable for people to pay less <u>use taxes</u> than they legally owe? Please circle a number.

VERY ACCEPTABLE   1   2   3   4   5   6   7   VERY UNACCEPTABLE

2. How much of a moral obligation – that is, an obligation based on your own personal feelings of what is right and wrong – do you feel to fully disclose and pay your <u>use tax</u>? Please circle a number.

A GREAT DEAL        1   2   3   4   5   6   7        NO OBLIGATION
OF OBLIGATION                                              AT ALL

3. In your opinion, approximately what percentage of taxpayers *deliberately* pay less <u>use taxes</u> than they legally owe?

   100%   90%   80%   70%   60%   50%   40%   30%   20%   10%   0%

4. In your opinion, approximately what percentage of taxpayers *carelessly, but unknowingly* pay less <u>use taxes</u> than they legally owe?

   100%   90%   80%   70%   60%   50%   40%   30%   20%   10%   0%

5. In your opinion, approximately what percentage of the taxpayers who *do underpay* on their state <u>use taxes</u> get caught by the state taxing authority?

   100%   90%   80%   70%   60%   50%   40%   30%   20%   10%   0%

6. Using the scale below, please identify your political philosophy (circle a number).

   | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
   |---|---|---|---|---|---|---|---|
   | Very Conservative | | | Moderate | | | Very Liberal | Prefer not to respond |

7. Which of the following describes your fear of being audited? Please select a number.

   | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
   |---|---|---|---|---|---|---|
   | Very Low | | | Moderate | | | Very High |

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**Part 9**

*Please indicate your level of agreement/disagreement with the following statements.*

1. Most people in the U.S. think they should pay <u>use taxes</u> on all taxable out-of-state purchases.

   | Strongly Agree | Somewhat Agree | Slightly Agree | Neither Agree or Disagree | Slightly Disagree | Somewhat Disagree | Strongly Disagree |
   |---|---|---|---|---|---|---|

2. I think I should pay <u>use taxes</u> on all taxable out-of-state purchases.

   | Strongly Agree | Somewhat Agree | Slightly Agree | Neither Agree or Disagree | Slightly Disagree | Somewhat Disagree | Strongly Disagree |
   |---|---|---|---|---|---|---|

3. Most people think it is morally wrong to evade <u>use taxes</u> even when they know they will not be caught.

   | Strongly Agree | Somewhat Agree | Slightly Agree | Neither Agree or Disagree | Slightly Disagree | Somewhat Disagree | Strongly Disagree |
   |---|---|---|---|---|---|---|

4. Most people do not know they are responsible for paying <u>use tax</u> on out-of-state purchases.

   | Strongly Agree | Somewhat Agree | Slightly Agree | Neither Agree or Disagree | Slightly Disagree | Somewhat Disagree | Strongly Disagree |
   |---|---|---|---|---|---|---|

5. The people closest to me (for example, my family and/or my friends) think they should pay <u>use taxes</u> on all taxable out-of-state purchases.

   | Strongly Agree | Somewhat Agree | Slightly Agree | Neither Agree or Disagree | Slightly Disagree | Somewhat Disagree | Strongly Disagree |
   |---|---|---|---|---|---|---|

6. I really enjoy reducing my overall tax bill, regardless of whether it is legal or not.

   | Strongly Agree | Somewhat Agree | Slightly Agree | Neither Agree or Disagree | Slightly Disagree | Somewhat Disagree | Strongly Disagree |
   |---|---|---|---|---|---|---|

7. I think the state <u>use tax</u> system benefits the rich and is unfair to the working man and woman.

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|          | Strongly Agree | Somewhat Agree | Slightly Agree | Neither Agree or Disagree | Slightly Disagree | Somewhat Disagree | Strongly Disagree |
|----------|---------------|----------------|----------------|---------------------------|-------------------|-------------------|-------------------|

8. People who underpay their <u>use taxes</u> do so because they think the tax laws are unfair to them.

|          | Strongly Agree | Somewhat Agree | Slightly Agree | Neither Agree or Disagree | Slightly Disagree | Somewhat Disagree | Strongly Disagree |
|----------|---------------|----------------|----------------|---------------------------|-------------------|-------------------|-------------------|

9. State <u>use tax laws</u> are fair to most people.

|          | Strongly Agree | Somewhat Agree | Slightly Agree | Neither Agree or Disagree | Slightly Disagree | Somewhat Disagree | Strongly Disagree |
|----------|---------------|----------------|----------------|---------------------------|-------------------|-------------------|-------------------|

10. State <u>use tax laws</u> are necessary to keep our society running.

|          | Strongly Agree | Somewhat Agree | Slightly Agree | Neither Agree or Disagree | Slightly Disagree | Somewhat Disagree | Strongly Disagree |
|----------|---------------|----------------|----------------|---------------------------|-------------------|-------------------|-------------------|

**THANK YOU VERY MUCH FOR YOUR PARTICIPATION!**

**APPENDIX C: KEY COMPONENTS OF THE SSUTA**

Given that the changes brought about by the Streamlined Sales and Use Tax Agreement (SSUTA) are relatively recent, this appendix discusses several of the key components of the SSUTA as identified by Hellerstein and Swain (2004, p. 3-2) and Healy (2005, pp. 2-3).

- **State-level administration of SUT collections** –Vendors will only file one SUT return for each adopting state, rather than a separate return for each local jurisdiction. This return will include both state and local SUT collections. States are then responsible for distributing local SUT revenue to the local jurisdiction.

- **Uniformity in state and local tax bases** – State and local jurisdictions within a particular state must provide for equal tax treatment for sales of tangible personal property and taxable services.

- **Uniformity in major tax base definitions** – Adopting states must agree on common definitions for tangible personal property and taxable service items. However, individual states still retain the authority to deem which transactions are taxable and non-taxable.

- **Central electronic registration systems for all member states** – All adopting states offer a centralized location for vendors to register for SUT, rather than requiring separate vendor registration with each state.

- **Simplified state and local tax rates** – Adopting states are generally permitted one state-level rate; local jurisdictions within the state are permitted one local-level rate. Taxable transactions may not be taxed at different rates.

- **Uniform sourcing rules** – The SSUTA "provides a hierarchical set of sourcing rules for all sales" (Hellerstein and Swain, 2004, p. 3-7). Specifically, sales of tangible personal property (TPP) at the place of a vendor's business will continue to be sourced to that location; however, sales of taxable TPP that are delivered to the consumer's location will be sourced to the consumer (destination-based sourcing). Thus, a pizza delivery company will tax sales of pizza at the SUT rate in effect at the customer's address, rather than at the pizza company's place of business.

- **Simplified administration of exemptions** – Adopting states will have a uniform exemption certificate for vendors. Vendors will also not be held to the current "good faith" standards governing the receipt of an exemption certificate.

- **Amnesty** – Adopting states will offer amnesty for uncollected or unpaid SUT for vendors that voluntarily register to collect and remit SUT for taxable transactions made within the state.

# APPENDIX D: HIGHLIGHTS OF LEGISLATIVE HISTORY BY STATE

## KANSAS

| Time Period | Event |
|---|---|
| Spring 2003 | Kansas legislators hold hearings on adoption of the SSUTA (including destination-based sourcing), effective 2004; testimony from all interest groups is overwhelmingly positive (but contains little discussion of sourcing changes). |
| May 2003 | House (98-24) and Senate (32-7) adopt a conference committee report supporting the adoption of the SSUTA (HB 2005), changing the effective date of adoption to July 1, 2003; signed by the Governor. |
| June 2003 | Secretary of Revenue Joan Wagnon notifies retailers they will not be penalized for 6 months as long as retailers are making a "good faith" effort after massive outcry among small retailers regarding destination-based sourcing change. The Governor's Office soon releases a similar statement in support of this change, promising ongoing assistance. |
| Fall 2003 | Special Joint Committee on Assessment hears testimony on the adoption of the SSUTA provisions. |
| Spring 2004 | Kansas legislators hold hearings on delaying the adoption of the SSUTA until U.S. Congressional action is taken; numerous businesses support the delay, while municipal associations do not. (Thus, movement to delay implementation originated *after* the state's official adoption date.) |
| March 2004 | House (95-29) passes a bill delaying adoption for Congressional action (HB 2599); referred to Senate Assessment & Taxation Committee. |
| May 2004 | Senate (40-0) and House (109-11) delay the implementation to January 1, 2005 (H. Sub for SB 147); approved by the governor, although the Governor and Senate leaders are still in support of the SSUTA. |
| January 2005 | Kansas petitions for membership to the SSTP as a fully conforming state |
| February 2005 | House (62-55) narrowly rejects a resolution notifying the SSTP of Kansas's compliance issues (attempting to jeopardize participation). |
| March 2005 | Kansas legislators hold hearings on delaying the adoption of the SSUTA until U.S. Congressional action is taken; numerous businesses support the delay, while municipal associations do not. Approved by the Kansas House Taxation Committee (12-11), but does not reach the full House. |
| October 2005 | SSUTA goes into effect; Kansas is a fully conforming Governing Board state member. |
| 2006/2007 | Kansas enacts various technical change bills to remain in SSUTA compliance. |
| 2008 | Kansas is re-certified by the SSTP as still in compliance. |

## TEXAS

| Time Period | Event |
|---|---|
| Spring 2003 | Texas legislators hold hearings on adoption of the SSUTA (including destination-based sourcing); testimony from larger businesses favors this change, but numerous municipalities testify in opposition (particularly Round Rock, TX). |
| May/June 2003 | House (132-0) and Senate (31-0) adopt provisions of the SSUTA (HB 2425), which is signed by the governor; most changes are effective October 1, 2003, while destination-based sourcing changes for taxable services are effective July 1, 2004. Origin-based sourcing continues for local sales tax for tangible personal property. |
| July 2004 | Texas Comptroller's Office announces that the origin-based sourcing changes for taxable services have been indefinitely delayed. The office states that this delay was requested by key legislative leaders, citing concerns from local governments and business owners. |
| 2005 | The Comptroller's Revenue Analysis Section, with input from state and local governments, releases a study estimating that destination-based sourcing would redistribute $160 million in local sales tax. |
| November 2005 | Texas Comptroller's Office states that Texas is not a member state of the SSTP since the sourcing portion of the agreement did not simplify sales tax collection for Texas businesses. |
| April 2006 | On behalf of Texas, Utah submits a proposal to the SST Governing Board requesting that destination-based sourcing be optional for intra-state sales; the proposal is rejected 17-7. |
| May/June 2007 | House (143-0) and Senate (30-0) return to origin-sourcing for taxable services (HB 3319); signed by the governor. Thus, destination-based sourcing on intrastate sales was never implemented. |
| December 2007 | In response to problems faced by states such as Texas, the SST Governing Board changes its sourcing policy, permitting the use of intrastate origin-based sourcing (effective the later of January 1, 2010, or when five states under SSUTA use origin-based sourcing). |
| March 2008 | Texas Comptroller's Office announces that the Texas legislature may begin drafting SSUTA-conforming legislation in the 2009 legislative session. |
| 2009 | As of mid-2009, no SSUTA-conforming legislation has been introduced in the Texas legislature. |

**TENNESSEE**

| Time Period | Event |
|---|---|
| Spring 2003 | Tennessee Department of Revenue meets with government and business interests around the state to draft legislation conforming to SSUTA; develops privilege tax recommendations for industries with special SUT exemptions. |
| Spring 2003 | Tennessee Tax Structure Commission hears testimony from supporters and opponents of the SSTP. |
| May/June 2003 | Senate (29-2) and House (71-15) adopt provisions to be uniform with the SSUTA (Pub. Chp. 357), with implementation no earlier than July 1, 2004 (i.e., two quarters after the SSTP is effective nationwide); signed by the Governor. |
| May/June 2004 | Senate (31-0) and House (97-0) implement technical corrections in line with SSUTA and change the effective date to July 1, 2005 (Pub. Chp. 959); signed by the Governor. |
| January 2005 | Tennessee Governor Phil Bredesen proposes delaying the implementation of laws conforming to the SSUTA during his state of the state address. |
| February 2005 | Report on the Revenue Implications of the SSTP in TN released by the Center for Business and Economic Research (in consultation with state and local governments), estimating an overall net inflow to local governments of $29.8 million, but net outflows to 12 counties of $14.9 million. |
| April 2005 | SSTP creates "associate member" category for states. |
| May/June 2005 | Senate (31-0) and House (89-3) delay implementation of the provisions conforming to the SSUTA to July 1, 2007 (Pub. Chp. 311); signed by the Governor. |
| October 2005 | SSUTA goes into effect; Tennessee is an associate member. |
| January 2007 | Commissioned Report on Streamlined Sales Tax Law Changes released, recommending mitigation strategies for local governments and small businesses (developed with input from the state, local government, and business interests). |
| June/July 2007 | Senate (26-2) and House (82-8) further delay implementations of the provisions conforming to the SSUTA to July 1, 2009 (Pub. Chp. 602). |
| August 2007 | Tennessee petitions for associate membership under the amended SSUTA. |
| December 2007 | In response to problems faced by states such as Tennessee, the SST Governing Board changes its sourcing policy, permitting the use of origin-based sourcing (effective the later of January 1, 2010, or when five states under SSUTA use origin-based sourcing). |
| May/June 2008 | Senate (25-5) and House (62-29) pass technical corrections in line with the SSUTA, which is signed by the governor (included as part of a bill on the tax treatment of family-owned non-corporate entities). |
| June/July 2009 | Tennessee House (HB 2275) and Senate (SB 2318) pass legislation delaying the effective date of SSUTA conformance to July 1, 2011 (Pub. Chp. 530): signed by the Governor. |

# APPENDIX E: IRB APPROVAL

University of Central Florida Institutional Review Board
Office of Research & Commercialization
12201 Research Parkway, Suite 501
Orlando, Florida 32826-3246
Telephone: 407-823-2901, 407-882-2012 or 407-882-2276
www.research.ucf.edu/compliance/irb.html

# Notice of Exempt Review Status

From:    **UCF Institutional Review Board**
         **FWA00000351, Exp. 6/24/11, IRB00001138**

To:      **Amy Hageman**

Date:    **October 29, 2008**

IRB Number:

Study Title:    **Use Tax versus Individual Income Tax Compliance**

Dear Researcher:

Your research protocol was reviewed by the IRB Chair on 10/29/2008. Per federal regulations, 45 CFR 46.101, your study has been determined to be **minimal risk for human subjects and exempt** from 45 CFR 46 federal regulations and further IRB review or renewal unless you later wish to add the use of identifiers or change the protocol procedures in a way that might increase risk to participants. Before making any changes to your study, call the IRB office to discuss the changes. **A change which incorporates the use of identifiers may mean the study is no longer exempt, thus requiring the submission of a new application to change the classification to expedited if the risk is still minimal.** Please submit the Termination/Final Report form when the study has been completed. All forms may be completed and submitted online at https://iris.research.ucf.edu.

The category for which exempt status has been determined for this protocol is as follows:

2. Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey or interview procedures, or the observation of public behavior, so long as confidentiality is maintained.
   (i)     Information obtained is recorded in such a manner that the subject cannot be identified, directly or through identifiers linked to the subject, **and/or**
   (ii)    Subject's responses, if known outside the research would not reasonably place the subject at risk of criminal or civil liability or be damaging to the subject's financial standing or employability or reputation.

A **waiver of documentation of consent** has been approved for all subjects. Participants do not have to sign a consent form, but the IRB requires that you give participants a copy of the IRB-approved consent form, letter, information sheet, or statement of voluntary consent at the top of the survey.

All data, which may include signed consent form documents, must be retained in a locked file cabinet for a minimum of three years (six if HIPAA applies) past the completion of this research. Any links to the identification of participants should be maintained on a password-protected computer if electronic information is used. Additional requirements may be imposed by your funding agency, your department, or other entities. Access to data is limited to authorized individuals listed as key study personnel.

On behalf of Tracy Dietz, Ph.D., UCF IRB Chair, this letter is signed by:

Signature applied by Joanne Muratori on 10/29/2008 10:08:59 AM EST

IRB Coordinator