THE IMPACT OF STATE CORPORATE TAX RATE CHANGES ON STATE ECONOMIC PERFORMANCE

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ABSTRACT

This study investigates the relationship between state corporate income taxes and state economic performance from 1989-2012. The aim of this study is to determine if changes in statutory state corporate tax rates and the top state statutory tax rates have any impact on state economic performance. The paper's empirical specifications come to two conclusions: the top statutory rate has little impact on income and employment and states that increase corporate taxes do so at the expense employment and income. The literature on state tax policy and the difficulty researchers have had in coming to a consensus is also discussed. **JEL classification:** H25, H71

INTRODUCTION

One of the most contentious issues in the last 30 years in state and local public finance is the relationship between state and local tax and spending policy and state economic performance. This study estimates the impact that statutory corporate income tax increases and decreases have on personal income, total employment and non-farm private employment. What is unique about this study is that is focuses not on average or marginal tax rates but on statutory tax rates. This approach was useful since policymakers directly control statutory rates.

This paper begins with a brief review of the (vast) literature on the subject of the relationship between state and local taxation and economic performance. The next section presents some theoretical background to support the paper. Following this is a section describing the data and the empirical model of the paper. Then the results are presented and discussed. Finally, the conclusion discusses the implications of the results and discusses avenues for future investigation.

LITATURE REVIEW

There is a huge literature on the relationship of state and local taxes have economic performance. While this literature has been somewhat contentious, the

consensus is that state and local taxation hinders state economies.

As expected with a literature this large, there have been several excellent literature reviews. Bartik (1992) reported that while the earliest research on the topic was mixed and uncertain, the more recent (that is, recent in 1992) suggested that higher taxation had a negative impact on state economies. Wasylenko (1997) reported that the literature suggested that higher taxes had a small but significant impact on location decisions for businesses.

Despite the seeming consistent results that higher taxes hinder economic performance, the literature continued to investigate the impact of state and local taxation. The most relevant studies of the early literature were studies such as Helms (1985), Mofidi and Stone (1990) and Carroll and Waslenko (1994). These studies centered on using a technique first seen in Helms (1985) that used a panel specification to isolate the effects of changes individual fiscal categories (property taxes, education spending, et. al. for example.) This technique was able to isolate the impact that an increase or decrease in taxation or spending would have on economic performance.

However, even these well-designed, influential studies did not satisfactorily answer the question of state and local taxation's effect on state economies. Duncan (1997) and Wasylenko (1997) thought the results of the literature were very fragile and that there were perhaps many problems with the empirical conclusions of the literature. Most researchers in this area agreed that since fiscal variables were difficult to define properly and that there existed many endogenity problems within the specifications authors were using it would be difficult to have much confidence in the results of the literature.

Pjesky (2006) highlighted the problems in these well-designed studies by replicating several of them and then varying the time-period and the dependent variable. Pjesky (2006) found that the seemly consistent results of the literature disappeared if you used different time- periods. Pjesky's results gave great credence to the views of many, including McGuire (1992), who stated that the conclusions of the literature on state and local taxation were so delicate policymakers should not use them when considering tax policy.

Yet despite this controversy, the published results of authors continued to be very consistent regardless of what specification and what time-period was used. Bartik (1991) reported that the elasticity of tax increases seems to be between -0.1 and -0.6, which means that if state and local governments increased taxes by 10 percent, economic activity would decline by 1 to 6 percent. These results were consistent with much of the literature up to that point and have remained consistent for much of the literate since then. For example, a recent paper (Funderburg, et. al., 2013) that studied the effects of targeted tax cuts on manufacturing industry found that a reduction in taxation of 10 percent would result in an increase in "value added" of 3.5 to 5.3 percent. Therefore, from Helms (1985) which studied the impact of broad changes in tax policy to Funderburg et. al. (2013) which studied targeted tax cuts the estimates of the effects of taxation are surprisingly uniform.

Reed (2008) provided some insight into the conflicts of the literature. Reed's (2008) study tested the robustness of the results of the literature on state and local fiscal policy's impact on economic performance. Specifically, Reed (2008) tested the results of previous research on state and local taxation by varying estimation procedure specification, time-period, time interval, and control variables. Reed found that the level of taxation was inversely related to state per captia income even if the

revenue is spent as general expenditures.

THEORETICAL BACKGROUND

Most papers (Helms (1985), Mofidi and Stone (1990), Barkik (1991), Carroll and Waylenko (1994), for example) on this subject have used average tax rates or some measure of tax collections, usually in the form of the ratio of tax collections to personal income. Researchers have used this measure for many reasons, including ease of calculation and the fact that the ratio of taxes collected to income should somehow capture the magnitude of the tax had on the economy.

Many government agencies, including the U.S. Census and the Bureau of Economic Analysis, collect data on state personal incomes and tax collections (as well as expenditures.) The availably and the precision of the data made tax collections as a proportion of income a very attractive choice for researchers.

In addition, the size of the tax bite from citizens' income should be a good proxy for how much influence the tax has on many decisions that determined the health of a state's economy.

There were many problems, however, with using average tax rates as a measure of how much impact a tax had on economic activity. First, most economic theory focused on marginal tax rates as the driver of people's behavior. Average tax burden may inadequately capture the dynamics of how firms and households made decisions that translate into employment and income.

A better approach would be to focus on a measure of taxation that policy makers control directly and one that firms and households might respond to directly, namely statutory rates. If policymakers are to be informed about effective ways to influence the economic outcomes in their states, research should study directly the mechanisms policymakers control. Shuai and Chmura (2013) take this approach in their study that estimates the effects of tax changes on various measures of state economic performance.

Not only does using statutory tax rates have the advantage that Shuai and Chumra (2013) identify, but using statutory rates might suffer from a lesser amount of endogentity. One of the problems associated with the relationship between fiscal policy and economic performance using a measure of average tax rates (that is, tax collections as a ratio of income) is that during the business cycle, average tax collections are almost certain to go down while in booms average tax collections are likely to go up. Research that uses statutory rates and changes in statutory rates avoids this problem.

DATA AND MODELS

The primary focus of this study was the impact of statutory corporate income tax changes on economic performance. Therefore, it was necessary to tabulate the changes that states have made to their corporate income taxes. These changes were gathered from the National Tax Foundation and from Heider and Ljungqvist (2014).

Table 1 lists the states that decreased their corporate income taxes, states that increased their corporate income taxes, states that both decreased and increased

corporate income taxes and finally states that made no changes to their corporate income tax structure during the 1989-2012 time period.

In total, there were 43 tax increases and 76 tax decreases from 1989-2012. Eight states cut their corporate income tax rates during this period, five states increased their corporate income tax, 19 states (including the District of Columbia) both increased and decreased corporate income taxes and 19 states made no changes in corporate income taxes.

These changes took many forms. For example, Colorado and West Virginia consistently reduced statutory rates over the period. Ohio moved away from taxing corporate income to taxing gross receipts. Many states, such as Montana, passed temporary surcharges on corporate income and then repealed them. Several states (Nevada, South Dakota, Washington, and Wyoming) do not tax corporate profits at all. Texas is unique in that before 2008 it taxed corporate profits through its franchise tax but after 2008 that tax was replaced with a "margin" tax. The most aggressive state (in terms of numbers of changes) at both cutting and increasing taxes was Connecticut. Connecticut cut taxes 10 times and increased taxes 5 times during the period.

Statutory rates varied quite a bit among states that have a corporate income tax. One of the biggest differences among states is the number of brackets. Approximately half of states have a single rate at which corporate income was taxed, while others have multiple rates giving their corporate tax structure an implicit progressivity. Alaska, for example, had 10 different brackets in 2012 ranging from 1% (levied on income from $0 to $10,000) to 9.4% (levied on incomes above $90,000.) Some states, such as Iowa, levied different taxes on financial institutions. Others, such as Montana, levied a minimum tax.

In short, statutory rates and statutory rate structures are very complex and unique for each state. Because of this, the data used in this study to control for the level of taxation includes only the top basic statutory rate.

The rest of the data used in this study were growth rates in total personal income, total employment, total private, non-farm employment and population. These data were gathered from the Bureau of Economic analysis. Descriptive statistics are presented in Table 2.

The challenge was to formulate a specification that both minimizes the endogeneity problem and emphasizes a variable that policymakers control. Such a specification will have variables that focus on statutory tax rates as opposed to some measure of average tax collections. (Shuai and Chumura, 2013)

The following is the first specification:

$$Y_s = \beta_0 + \beta_1 X_{1s} + \beta_2 X_{2s} + \beta_3 X_{3s} + \beta_4 X_{4s} + \varepsilon_s \quad (1)$$

Y_s = Percentage Growth in Personal Income, Total Employment, or Non-Farm Private Employment from 1989-2012,
X_{1s} = Percentage Growth in Population from 1989-2012,
X_{2s} = Number of Years State Corporate Taxes Were Increased from 1989-2012,
X_{3s} = Number of Years State Corporate Taxes Were Decreased from 1989-2012,
X_{4s} = Top State Statutory Corporate Tax Rate in 2000,
s= 50 states and Washington D.C.

Equation (1) is a cross-sectional specification that estimates the relationship between the economic performance of states and corporate income tax levels and changes. The left hand side variables are measures of economic performance: growth in total personal income, growth in total employment and growth in non-farm private employment.

Growth in personal income was the first variable on economic performance chosen because it is the ultimate measure of how much economic activity is changing over time. The two measures of employment were added because one would think that of all taxes that states levy on economic activity, the corporate tax would have the most direct impact on job creation.

Both total employment and non-farm private employment are investigated because the corporate income tax may have a different impact on private non-farm employment than total employment. Population growth is an important control variable in this context. It is widely known that population (and more specifically the available workforce) is a large factor in both the supply and the demand for labor, so we would expect that population growth would be closely tied to employment growth and therefore must be included to better isolate the relationship between the policy variables and the economic performance variables.

The variables measuring corporate income taxes during the study were the primary concern in the econometric analysis. X_2 and X_3 are variables that indicate how many years within the time-period of 1989 to 2012 states increased or decreased corporate income taxes.

Finally, a variable measuring the top statutory rate at which corporate income was taxed in each state in the year 2000 was included. This variable controlled for how high the level of taxation in each state was.

Equation (1) was a very good first pass at evaluating the relationship between corporate taxes and economic performance, but the question at hand would benefit from an approach that was able to associate the timing of the tax cuts/tax increases with contemporaneous changes in employment and income growth. Equation (2) controlled for the timing of tax cuts/increases and was similar to Shuai and Chumura (2013):

$$Y_{s,t} = \beta 0 + \beta 1 X1_{s,t} + \beta 2 X2_{s,t} + \beta 3 X3_{s,t} + \beta 4 X4_{s,t} + \beta 5 X5_{s} + \beta 6 X6_{t} + \varepsilon_{s,t} \qquad (2)$$

$Y_{s,t}$ = Percentage Growth in Personal Income, Total Employment, or Non-Farm Private Employment from year t-1 to year t,
$X1_{s,t}$ = Percentage Growth in Population from year t-1 to year t for state s,
$X2_{s,t}$ is an indicator variable = 1 if state s increased the corporate income tax in year t, 0 otherwise,
$X3_{s,t}$ is an indicator variable = 1 if state s decreased the corporate income tax in year t, 0 otherwise,
$X4_{s,t}$ = Top State Statutory Corporate Tax Rate in year t for state s,
s= 50 states and Washington D.C.,
t=1990 to 2012.

The growth variables are defined similar to what is described for equation (1), the major difference being that this is a panel data set as opposed to a cross-sectional dataset. Therefore, instead of variables that measure growth from the beginning to

the end of the entire time period, the variables measured yearly changes in each variable for each state.

In addition, the tax variables were defined differently. The tax cut/increase variables were now indicators of a tax cut/increase in a specific year. This specification allowed the model to associate directly the timing of the tax change with the change in the economic performance variable.

RESULTS

Table 3 reports the results of the estimation of equation (1). The estimation method was ordinary least squares. Since there were three measures of economic performance (left hand side variables) equation (1) was estimated three times. Not surprisingly, the relationship between population growth and personal income growth and both measures of employment growth were positive and significant.

Tax increases seemed to be particularly harmful for income and employment growth. In all three specifications, the coefficient was negative. In the personal income and employment growth specifications, the p-values on the coefficient for the variable on the number of tax increases were 0.047 and 0.041 respectively indicating a high degree of confidence that the number of tax increases were associated with lower income and employment growth. The p-value on the tax increase variable in the non-farm, private employment growth specification was 0.069, which is higher than the usual standard of 0.05, but is still significant at the 0.1 level.

The results concerning tax cuts were much less certain. While the signs on the coefficient for the tax cutting variable were all negative, as expected, none of them were statistically significant by any conventional measure. In the personal income, employment growth and non-farm, private employment growth specifications, the p-values on the coefficients for the tax cut variable were 0.25, 0.35, and 0.63 respectively.

Finally, there were the estimates on the top statutory tax rate on corporate income. The signs on the coefficient of this variable are negative, as one would expect, indicating that higher statutory tax rates are detrimental to economic performance. However, one cannot conclude that the relationship is significant based on the p-values of 0.15, 0.36 and 0.54, respectively.

Equation (2) was estimated three times for each of the three left hand side variables. For the second and third estimations, the tax variables were lagged either one or two years to investigate the possibility that changes in taxes will have a delayed impact on economic performance.

The estimation included fixed time and state effects (as indicated in equation (2)) and was performed using a generalized least squares procedure that calculated robust standard errors to correct for the possibility of heterogeneity and autocorrelation. The results of the estimation of equation (2) are presented in Table 4.

Not surprisingly, again, population growth was positive and significant in every specification. The coefficient on the tax increase indicator variable was negative and significant in all the models where the tax variables were not lagged. In every other specification (that is, when the tax variables are lagged one or two periods) the coefficient is negative but not statistically significant.

The coefficient on the tax decrease indicator variable is borderline significant

at the 10% level (with p-values of 0.15, 0.097 and 0.096 on personal income growth, employment growth and private non-farm employment growth respectively) in the specifications with no lag. For the specifications with one lag, the coefficients are positive but insignificant. For the specifications with two lags, the coefficients were negative, which is unexpected, but the coefficients were not significant.

The coefficients on the top tax bracket were negative in seven of the nine specifications, but the p-values were always high, at least 0.31, indicating that there is no relationship between the top statutory corporate income tax bracket and personal income growth and employment.

The inferences from the estimation of Equation (2) were: 1) tax increases had significant, contemporaneous, negative effects on income and employment 2) tax decreases had perhaps significant, contemporaneous, positive effects on income and employment and 3) overall corporate tax levels had no impact on employment and income.

The explanation for this was that business must have responded negatively to tax increases more than they responded positively to tax decreases. When a state increases taxes, businesses responded by taking actions that reduce overall employment and income in that state. When a state decreases taxes, business responded by taking actions that increase overall employment and income in a state, but not nearly as much. This result is consistent with Heider and Ljungquist (2014) which estimated the relationship between state corporate taxation and capital formation. Heider and Ljunquist (2014) found a similar asymmetric response in the amount of leverage firms had. Firms react significantly to tax increases, but do not react much to tax decreases.

The effects of the tax policy wore off quickly. The coefficients on the lagged variables were not significant and the coefficient on the top tax bracket was always insignificant. The economy adjusted to different tax policies rapidly.

CONCLUSION

This paper concluded that statutory corporate income tax increases had significant negative effects on personal income, total employment, and non-farm private employment in the U.S. States. In addition, corporate income tax decreases had a positive effect on employment and income, but these effects were not statistically significant.

Using panel data from 50 states and Washington D.C. and a time period from 1990-2012, it was shown that states that increased taxes saw concurrent decreases in employment and income. States that decreased corporate income taxes saw very little change in economic activity.

Readers should be warned in interpreting this study too broadly. The research on state (and local) taxation and spending's relationship on economic growth has been a very contentions issue in economics. Generations of economists have investigated the issue and have not reached conclusions about what, exactly, is the best fiscal policy for state and local governments.

In 1992, Theresa McGuire assessed the state of the literature in the following way:

"My conclusion…is that we are uncertain about the about the effects of

> economic development policies, including broad state fiscal policy, on economic growth. How does this conclusion translate into policy? My message to policy makers is that the effect of state and local tax policy is so uncertain that concern over this issue should not be the driving force in general policy decisions." (McGuire, 1992 p. 458.)

What Professor McGuire meant was that, at the time, economists' estimates on the impact of increasing or decreasing taxes were so uncertain that policymakers should not use the research as the main consideration when formulating tax policy. This sentiment is not true anymore in the context that it was true in 1992. At that time, all the research on taxation and spending stood on shaky ground: there was much uncertainty brought about by endogenity and specification issues that made robust estimation impossible.

If one looks at the whole literature, the conclusion is undeniable: even controlling for a wide array of variables and using a wide variety of methodologies, a vast majority of studies have concluded that tax increases harm state economies. This makes McGuire's assertion questionable in the context of the research today.

However, the author of this study thinks that McGuire's sediment (that has been shared by many economists who study state and local public finance) is still true today, but for a different reason. State and local fiscal policy is a very complicated mechanism. Policy makers have a multitude of ways to raise and spend money. How do we design and implement a package of policies that represents a better way for the government to do its business?

While the literature today is fairly certain that tax policy matters, and that higher taxes are harmful, the literature is not informative as to exactly what is the best package of taxes and spending to have to increase economic activity.

This study's place in the literature should reinforce this opinion. Increases in corporate incomes hinder growth in personal income and employment, but this study does very little to say what total package of taxes and spending a state should have.

Investigation along the lines of this paper is still fruitful. The relationship between broad measures of fiscal policy and economic performance is still a largely not understood and more empirical study is necessary.

In addition to that, more attention needs to be paid to the larger issue on institutional design. What is the best mix of taxes and spending for a given state? How do policymakers more effectively administer the programs that take money from citizens and spend it on their behalf? In other words, how do policymakers design systems of taxation that harms us the least and how do we spend the money in a way that helps us the most?

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TABLE 1. SUMMARY OF STATE CORPORATE INCOME TAX CHANGES, 1989-2012

States That Decreased Corporate Income Taxes	States That Increased Corporate Income Taxes	States That Both Decreased and Increased Corporate Income Taxes	States That Made No Change In Corporate Income Tax Changes
Arizona	Alabama	Arkansas	Alaska
Colorado	Illinois	California	Delaware
Minnesota	Michigan	Connecticut	Florida
New York	Oklahoma	District of	Georgia
North Dakota	Tennessee	Columbia	Hawaii
Ohio		Idaho	Indiana
Texas		Kansas	Iowa
West Virginia		Kentucky	Louisiana
		Maine	Maryland
		Massachusetts	Mississippi
		Missouri	Nevada
		Montana	New Mexico
		Nebraska	South Carolina
		New Hampshire	South Dakota
		New Jersey	Utah
		North Carolina	Virginia
		Oregon	Washington
		Pennsylvania	Wisconsin
		Rhode Island	Wyoming
		Vermont	
Data from the National Tax Foundation and Heider and Ljungqvist			

TABLE 2. SUMMARY STATISTICS

Year	Population Growth	Income Growth	Total Employment Growth	Private, Non-Farm Employment Growth (Percent)	Proportion of States That Increased Taxes	Proportion of States That Decreased Taxes	Average Top Statutory Tax Rate
1990	0.90	5.39	1.73	1.77	0.098	0.059	6.68
1991	1.35	3.11	-0.06	0.00	0.118	0.078	6.79
1992	1.44	5.26	1.01	1.00	0.078	0.098	6.76
1993	1.43	3.20	2.28	2.66	0.039	0.118	6.78
1994	1.36	4.63	2.82	3.52	0.020	0.137	6.75
1995	1.26	3.96	2.49	3.05	0.000	0.078	6.70
1996	1.16	5.24	2.10	2.54	0.000	0.020	6.69
1997	1.11	4.49	2.18	2.54	0.020	0.059	6.70
1998	1.05	6.13	2.33	2.61	0.000	0.059	6.66
1999	1.03	3.71	1.73	1.92	0.020	0.098	6.63
2000	1.01	6.73	2.26	2.40	0.000	0.098	6.63
2001	0.85	4.87	0.10	-0.02	0.039	0.059	6.60
2002	0.87	1.46	-0.05	-0.22	0.078	0.000	6.57
2003	0.81	3.29	0.56	0.67	0.059	0.020	6.57
2004	0.96	5.04	1.93	2.34	0.020	0.020	6.51
2005	0.94	4.51	2.03	2.43	0.000	0.059	6.48
2006	1.00	6.08	2.10	2.21	0.020	0.039	6.46
2007	1.01	4.72	2.18	2.41	0.000	0.078	6.43
2008	0.97	3.61	0.04	-0.15	0.039	0.078	6.50
2009	0.90	-3.17	-2.83	-3.50	0.059	0.059	6.52
2010	0.83	2.00	-0.69	-0.91	0.000	0.039	6.50
2011	0.67	5.55	1.65	2.22	0.020	0.098	6.51
2012	0.72	3.50	1.73	2.17	0.039	0.000	6.53
Data from the Bureau of Economic Analysis, the National Tax Foundation, and from Heider and Ljungqvist (2014)							
Note: Data are simple averages of state data so the numbers will not agree with national aggregates							

TABLE 3. CROSS-SECTIONAL ESTIMATES FROM EQUATION (1)

	Right Hand Side Variable		
Left Hand Side Variable	Personal Income Growth, 1989-2012	Employment Growth, 1989-2012	Private, Non-Farm Employment Growth
Population Growth, 1989-2012	1.43 (6.59) [0.00]	0.73 (11.67) [0.00]	0.73 (8.37) [0.00]
Number of Tax Increases, 1989-2012	-9.69 (-2.04) [0.047]	-2.88 (-2.11) [0.041]	-3.59 (-1.86) [0.069]
Number of Tax Decreases, 1989-2012	2.62 (1.18) [0.25]	0.61 (0.95) [0.35]	0.44 (0.49) [0.63]
Top Tax Bracket, 2000	-2.52 (-1.45) [0.15]	-0.47 (-0.93) [0.36]	-0.44 (-0.62) [0.54]
Constant	198.05 (12.11) [0.00]	19.26 (4.09) [0.00]	25.66 (3.88) [0.00]
Observations	51	51	51
Adjusted R^2	0.63	0.82	0.70
t-statistics in parenthesis, p-values in brackets			
Data from the Bureau of Economic Analysis, the National Tax Foundation, and from Heider and Ljungqvist (2014)			

TABLE 4: PANEL ESTIMATES FROM EQUATION (2)

Right Hand Side Variable	Left Hand Side Variable								
	Personal Income Growth			Employment Growth			Private, Non-Farm Employment Growth		
	Lag(0)	Lag(1)	Lag(2)	Lag(0)	Lag(1)	Lag(2)	Lag(0)	Lag(1)	Lag(2)
Population Growth	1.78 (6.17) [0.00]	1.42 (4.34) [0.00]	1.62 (4.63) [0.00]	1.14 (7.39) [0.00]	1.16 (6.05) [0.00]	1.31 (6.30) [0.00]	1.21 (6.50) [0.00]	1.22 (5.33) [0.00]	1.36 (5.40) [0.00]
Tax Increase	-0.88 (-2.69) [0.01]	-0.25 (-0.65) [0.52]	-0.31 (-0.86) [0.40]	-0.66 (-2.11) [0.04]	-0.35 (-1.49) [0.14]	-0.04 (-0.17) [0.87]	-0.79 (-2.13) [0.038]	-0.30 (-1.04) [0.30]	0.10 (0.33) [0.74]
Tax Decrease	0.54 (1.46) [0.15]	.26 (0.52) [0.61]	-0.39 (-1.22) [0.23]	0.36 (1.69) [0.097]	0.15 (0.75) [0.46]	-0.19 (-1.28) [0.21]	0.43 (1.69) [0.096]	0.17 (0.71) [0.48]	-0.24 (-1.31) [0.20]
Top Bracket	-0.07 (-0.29) [0.77]	-0.07 (-0.30) [0.76]	-0.00 (-0.02) [0.99]	-0.06 (-0.85) [0.40]	-0.02 (-0.32) [0.75]	0.08 (1.02) [0.31]	-0.06 (-0.68) [0.50]	-0.02 (-0.31) [0.75]	0.10 (1.01) [0.32]
Constant	3.344 (3.32) [0.00]	4.09 (2.77) [0.01]	3.46 (2.19) [0.03]	0.54 (0.96) [0.34]	0.24 (0.45) [0.65]	-0.60 (-1.03) [0.31]	0.64 (0.93) [0.36]	0.39 (0.61) [0.54]	-0.57 (-0.81) [0.42]
N	1224	1173	1122	1224	1173	1122	1224	1173	1122
R Squared	0.15	0.11	0.12	0.25	0.23	0.23	0.19	0.17	0.18
t-statistics in parenthesis, p-values in brackets									
Data from the Bureau of Economic Analysis, the National Tax Foundation, and from Heider and Ljungqvist (2014)									