Employment Effects of Reducing Capital Gains Tax Rates in Ohio

William Melick
Kenyon College

Eric Andersen
American Action Forum

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Executive Summary

Entrepreneurial activity is a key driver of job creation, and entrepreneurs and their financiers are especially sensitive to capital gains taxes. As a result, a cut in the capital gains tax rate should be expected to stimulate job creation to some degree. We measure the magnitude of this effect by examining the treatment of capital gains across the 50 states over roughly the past 40 years. Our results suggest that a complete elimination of the taxation of capital gains realized by Ohio taxpayers would lead to the creation of 40,000 new jobs. Applying this estimate to proposals currently under discussion suggests a somewhat smaller effect.

Introduction

Few would dispute the notion that entrepreneurship is a key to economic growth (See, for example, Baumol, Litan and Schramm (2007)) and there is a substantial body of theory and evidence, summarized in Gentry (2010), that links entrepreneurial activity to the taxation of capital gains. Researchers have documented a variety of ways in which reductions in capital gains tax rates make it easier for entrepreneurs to conduct business, whether the reductions mitigate the asymmetric taxing of profits as opposed to losses (Gentry (2010)), lower the cost of capital obtained through initial public offerings (Guenter and Willenborg (1999)) or reduce distortions associated with firms remaining privately held to avoid taxes (Calvacanti and Erosa (2007)).

Given the strong link between capital gains taxation and entrepreneurial behavior, policy makers have often reduced capital gains tax rates to spur economic activity, in particular investment and job creation. Unfortunately, the literature has not kept pace with policy, offering little guidance on the magnitude of gains in investment or employment that might be expected from a cut in capital gains tax rates. We partially fill this void by providing empirical evidence on the change in employment that might be expected from a reduction in capital gains tax rates. By exploiting the difference in capital gains tax rates across the fifty states, as well as the fact that nearly a dozen states changed their tax rates on capital gains during the last decade, we are able to come up with a robust estimate regarding the effects of capital gains tax rates on job creation. We find conclusive evidence that high capital gains taxes reduce job creation, and estimate that Ohio's proposed legislation that would eliminate the tax entirely for most of the state's taxpayers would be expected to create roughly 40,000 jobs.

I. Capital Gains Taxation and Economic Activity

Following the changes in the federal taxation of capital gains during the 1980s, much empirical academic work focused on the relationship between capital gains tax rates and revenues. That literature is nicely summarized by Bogart and Gentry (1995) who find, in agreement with most other authors, that reductions in capital gains tax rates do not lead to increases in capital gains tax revenues. Their work is

important in that they are the first to use variations in the tax treatment of capital gains across states to help identify the effects of changes in capital gains tax rates.

Other authors have made use of the variation in states' treatment of capital gains to answer broader questions regarding the effect of capital gains rate cuts on economic activity. Gompers and Lerner (1998) find that entrepreneurial activity is sensitive to the taxation of capital gains. In particular, they find that a reduction in capital gains tax rates is associated with an increase in venture capital funding in a state – consistent with the hypothesis that a lower capital gains tax rate encourages entrepreneurs to obtain venture capital funding to start their businesses. Gentry (2010) updates and confirms these findings.

It does appear that the tax treatment of capital gains is an important factor in entrepreneurial activity. Gentry and Hubbard (2003) find that asymmetries in taxation are important considerations in whether individuals become self-employed or actively manage a business. Cullen and Gordon (2007) argue that cutting the capital gains tax rate would encourage entrepreneurial activity. Finally, Gentry (2010) uses the Federal Reserve's triennial Survey of Consumer Finance dataset to document the importance of actively managed business assets in household portfolios. Previous work based on IRS data on capital gains *realizations*, for example Auerbach (2007), gave the impression that entrepreneurial assets are a small part of the capital gains tax base. Gentry (2010 page 14) documents that this in fact is not the case, since "Total unrealized capital gains on active business assets are almost six times larger than the total unrealized capital gains on directly-held stock." Clearly, there is scope for tax policy to influence entrepreneurial decision making.

Somewhat surprisingly, there are no attempts of which we are aware to relate changes in the taxation of capital gains to job creation. We take two approaches in an initial effort to understand capital gains taxation and employment. First, we construct a careful statistical exercise that takes advantages of state variation in the treatment of capital gains, a la Bogart and Gentry (1995), Gompers and Lerner (1998) and Gentry (2010), to identify the effect of a cut in the capital gains tax rate on employment. Second, as an informal cross-check, we simply compare employment in states that offer preferential

treatment for capital gains to those that do not. Both methods yield consistent results suggesting that a reduction in capital gains tax rates will boost employment.

II. Formal Regression Analysis

To conduct our formal analysis we need a measure of the capital gains tax rate by state for a number of years. There are two "gold standard" datasets available for this purpose. The first makes use of the work of Bakija (2009) while the second is taken from the TAXSIM model hosted at the National Bureau of Economic Research and described in Feenberg and Coutts (1993). Bakija calculates the combined federal and state capital gains tax rate faced by a taxpayer with income greater than 200,000 constant 2007 dollars for each state for every year from 1969 through 2007. The data from TAXSIM is an update of the method used by Gompers and Lerner (1998) to calculate the combined capital gains tax rate from 1978 through 2009 based on taxpayers with more than 500,000 in constant dollars of income.[1] For the years of overlap, the two methods report capital gains tax rates that are quite similar, differing on average by less than 0.63 percentage points.

To the two tax rate variables we also add variables measuring private employment by state from 1969 through 2009 and total population by state from 1969 through 2009. Table 1 presents summary statistics for the dataset. Private employment in the 50 states and the District of Columbia averages a bit more than 2.1 million in our sample. As measured by the TAXSIM data, combined state and federal capital gains tax rates range from a low of 15.35 percent in the nine states that did not tax income in 2008 and 2009 to a high of 39.20 percent in New York in 1977.

Our regression specification is given by equation (1)

$$(1) \qquad \Delta \ln\left(\text{PrivEmp}_{i,t}\right) = \beta_0 + \beta_1 \cdot \Delta \ln\left(\text{Pop}_{i,t}\right) + \beta_2 \cdot \Delta \text{CapGainRate}_{i,t} + \sum_{t=1}^{T} \alpha_t \cdot Y_t + s_i + \varepsilon_{i,t}$$

where Δ represents the change in the variable from the preceding year, i indexes the i[th] state and t indexes the t[th] year and Y_t is a dummy variable that takes the value 1 in year t and 0 otherwise. That is, in

[1] Details on this TAXSIM calculation are available at http://www.nber.org/~taxsim/state-rates/.

this specification the change in private employment in a state for a given year is driven by changes in population in that state and year, changes in the capital gains tax rate in that state and year, and unspecified U.S. economy-wide developments in that year. The coefficient of interest is β_2, where a negative value would indicate that a cut in the capital gains tax rate would increase private employment. We use a difference specification to avoid any problems with non-stationary variables and we allowed for up to three lags on each of the variables before arriving at this preferred specification. The log-linear specification is standard in the literature in part as it offers a natural interpretation of how a percentage point change in the capital gains tax rate translates into a percentage change in the variable of interest, in our case employment. We do not include many control variables as the main point of the regression is not to provide a complete explanation of the evolution of private employment but rather to focus on the effect of the capital gains tax rate on employment. The absence of control variables is only problematic if an omitted variable happens to be highly correlated with the changes in the capital gains tax rate. Given the inclusion of dummy variables for each year and a choice as to the treatment of the individual state effects, the s_i, we do not think the estimate for β_2 is likely to suffer from omitted variables bias.

When estimating equation (1), we must decide how to treat the term s_i. In a fixed effects estimation, this term captures the unique, time-invariant features of state i, for example its geography, its history of policies and regulation and so on. In a random effects estimation s_i is treated as part of a composite error-term along with $\varepsilon_{i,t}$ - a random perturbation that is shared by all years observed for a given state. Finally, in a pooled Ordinary Least Squares estimation, s_i is ignored. Fixed effects estimation estimates each state's s_i in order to control for possible correlation between s_i and the capital gains tax rate in state i that might bias the estimate of β_2. Random effects estimation accounts for the correlation across time in a state's error term, treating s_i as an unknown random perturbation that cannot be estimated but that is shared in common across all years for a given state.

The top panel of Table 2 presents estimates for β_2 from equation 1 across all three treatments and using both the Bajika and TAXSIM tax rates. In all cases, standard errors are calculated using methods that are robust to clustering by state. As can be seen, the estimate of β_2 is remarkably consistent regardless of the estimation method or capital gain tax rates used. Statistical significance is largest for the Bakija given its longer sample. The uniformity of results is reassuring, providing a measure of confidence in the findings. The bottom panel of Table 2 then translates these estimated coefficients on capital gains tax rates into estimated numbers of new jobs created in Ohio if the state tax on capital gains were completely eliminated, that is dropped from the current 5.9 percent to 0.0 percent. These estimates are determined by the log-linear specification in equation (1). We envision the capital gains rate falling by 5.9 percentage points, multiply this decrease by the estimated β_2 coefficient, and then translate the effect from the change in the natural logarithm of employment to the change in employment. Reading across the last row in the bottom panel of Table 2 we arrive at the conclusion that exempting capital gains from the Ohio income tax would likely increase private employment in Ohio by somewhere in the neighborhood of 40,000 jobs. Given current private employment in Ohio of over 5.5 million, this amounts to a 0.7 percent increase in private employment.

III. Informal Numerical Analysis

As a cross-check on the formal econometric analysis, we also compare the evolution of private employment over the past 20 years in states with preferential capital gains treatment to those states with no preferential treatment, excluding those states that do not tax income. That is, we split the income-taxing states and the District of Columbia into groups based on whether or not they taxed capital gains as regular income or gave them special breaks and then averaged normalized employment (1990 = 100) for the two groups in each year. As can be seen in Figure 1, private employment has grown much more rapidly in the nine states providing preferential capital gains treatment [AR, HI, MT, NM, ND, RI, SC, VT, and WI] than in the other 33 income-taxing states. Ohio's employment history is also shown; unfortunately it lags behind both the state averages. Obviously, this informal method does not offer the

controls or the measures of statistical reliability as in our formal method, but it does provide a nice cross-check or reality check to our employment estimate. The statistical work would have little credibility had it been the case that private employment grew more slowly in states that provided capital gains preferences.

IV. Calibrating to Current Proposals

The estimates shown in Table 2 are predicated on the complete elimination of the taxation of capital gains in Ohio. However, policy proposals currently under discussion are more complicated, involving limits on the size of the capital gain that is exempt from taxes as well as restrictions on the uses to which the capital gains realization are put. These subtleties make it even more difficult to estimate the impact of the changes on private employment in Ohio. Tabulations from the 2007 Survey of Consumer Finance presented in Gentry (2010) show that the mean unrealized capital gain for households with active business assets (his definition of entrepreneurs) amounts to roughly $730,000 with a median unrealized gain of $45,000. This large discrepancy between the mean and median values suggests some very large unrealized capital gains, likely well above the proposed $10 million threshold.[2] While home bias in portfolios may be commonplace across international borders, it is unlikely that investors have much of a home bias across state borders. This suggests that the restrictions on the use to which the realized capital gains may be put will also likely bind. Clearly any prudent approach would trim the employment effects found in Table 2.

[2] Unfortunately, Gentry (2010) does not provide any data on the distribution of the unrealized capital gains.

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Figure 1

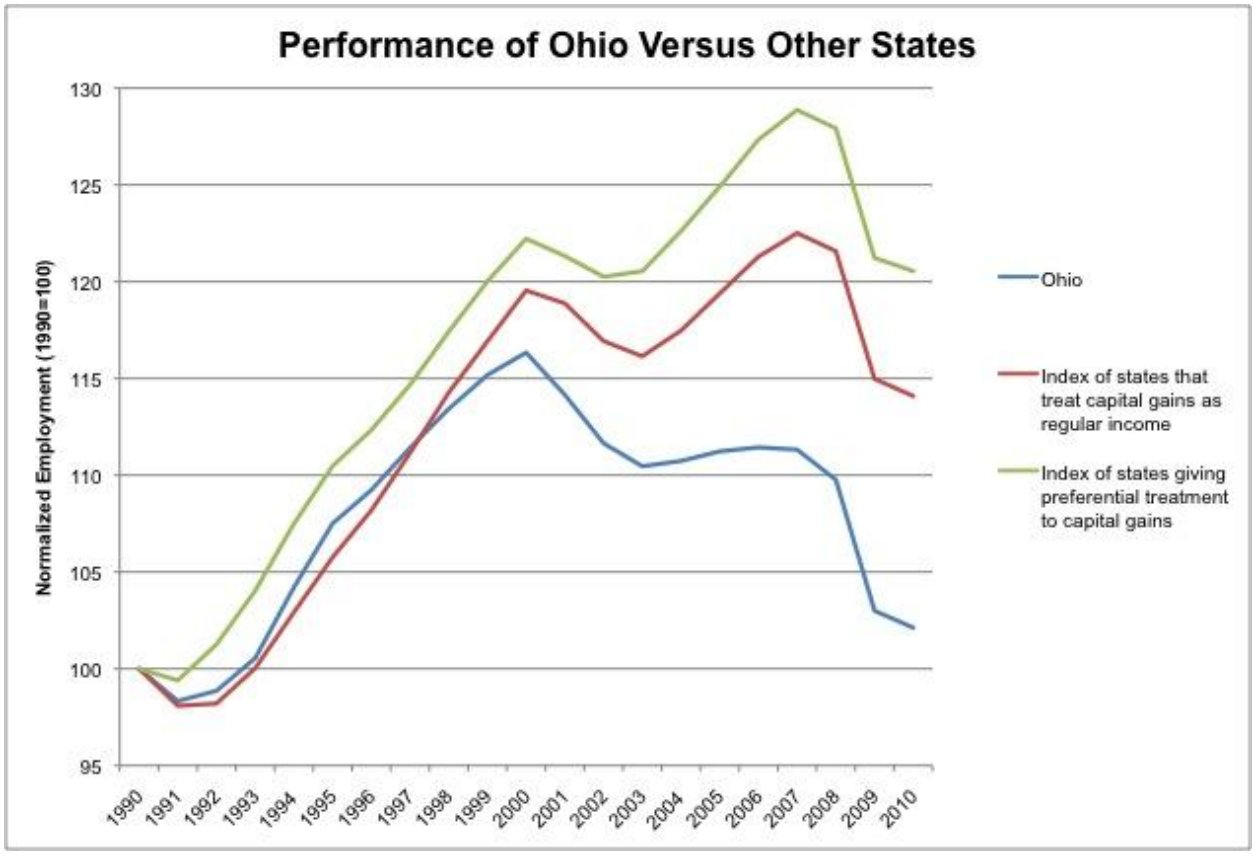
Performance of Ohio Versus Other States
Normalized Employment (1990=100)
130
125
120
115
110
105
100
95
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
Ohio
Index of states that treat capital gains as regular income
Index of states giving preferential treatment to capital gains

Table 1 Descriptive Statistics					
	Observations	Average	Std. Deviation	Minimum	Maximum
State Private Employment	2091	2169092	2489562	72272	18013866
State Population	2091	4928771	5456232	296000	36961664
Combined State and Federal Capital Gains Tax Rate (TAXSIM)	1683	26.03	5.78	15.35	39.20
Combined State and Federal Capital Gains Tax Rate (Bakija)	1989	25.25	5.19	17.05	36.84

Table 2 Estimation Results and Job Estimate						
	Bakija Tax Rates			TAXSIM Tax Rates		
	Fixed	Random	Pooled	Fixed	Random	Pooled
	Effects	Effects	OLS	Effects	Effects	OLS
Coefficient	-0.00128	-0.00127	-0.00130	-0.00115	-0.00104	-0.00103
t-Statistic	-1.90	-1.79	-1.73	-1.37	-1.23	-1.16
Significance Level	6.4%	7.4%	8.4%	17.7%	21.7%	24.7%
Observations	1938	1938	1938	1581	1581	1581
Change in Ohio Tax Rate	-5.9	-5.9	-5.9	-5.9	-5.9	-5.9
Percentage Change in Private Employment	0.76%	0.75%	0.77%	0.68%	0.62%	0.61%
New Jobs	41998	41639	42722	37631	34130	33785