GENERATING JOBS & INCOME THROUGH A CAPITAL GAINS TAX REDUCTION

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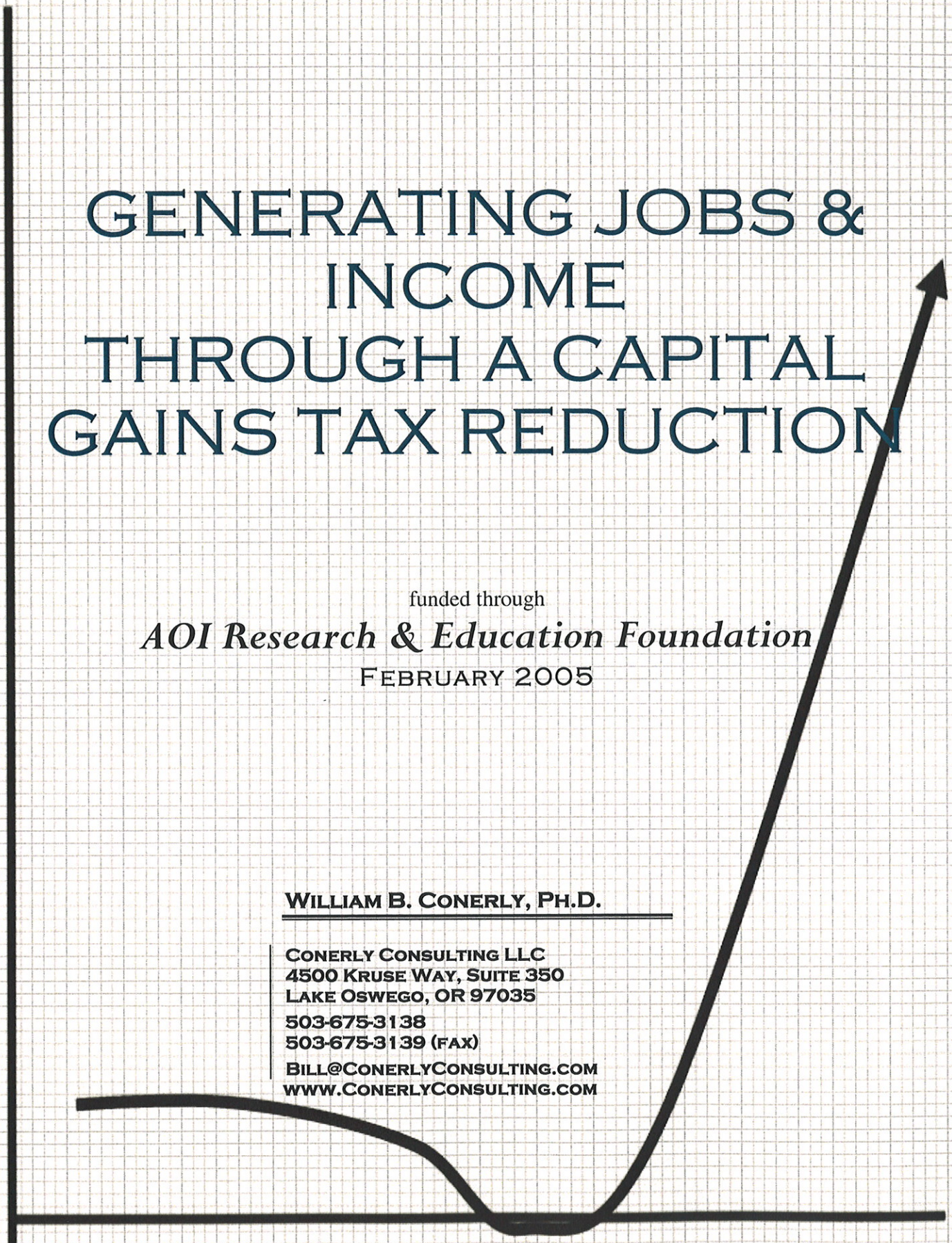

EXECUTIVE SUMMARY

- Oregon's capital gains tax rate is the third highest in the nation. Oregon's tax rate on capital gains was once one fifth of the federal rate, but is now three fifths of the federal rate. [State capital gains taxes are paid by over 31,000 low income taxpayers, who probably are senior citizens selling assets to maintain their standard of living.]

- High taxes on capital gains reduce employment growth in Oregon. A tax rate cut from 9% to 4.5%, phased in over five years, would increase annual employment growth from about 25,600 jobs per year expected in the state forecast, to about 31,500 jobs per year, for a net gain averaging 5,900 new jobs each and every year. This would accumulate to a total gain of 59,000 jobs over 10 years.

- Cutting Oregon's capital gains tax rate in half would boost personal income and personal income per capita. The capital gains tax cut would increase the growth of inflation-adjusted personal income. In the tenth year of a phased-in tax cut, personal income would be $1,500 higher per person than it otherwise would be. [Although the regular income tax rate also reduces economic growth, a separate role for the capital gains rate can be identified through statistical analysis.]

- Venture capital investment in Oregon is inhibited by the capital gains tax rate. The proposed tax rate reduction to 4.5%, after it is fully phased in, would increase venture capital in Oregon by $300 million per year, on average. Venture capital investment in Oregon per capita is now just 44 percent of the national average; it would exceed the national average if the tax rate were lowered.

- Short-term revenue effects from capital gains tax cuts would be more than offset by economic benefits and a strong economic base. Revenue calculations that incorporate the stimulative economic effects of the tax cut show that Oregon general fund revenue would be virtually unchanged in the early years, and would be significantly higher in later years. A lower capital gains tax rate would also keep some people from moving out of state before selling businesses, farms or other assets for large gains. Wage earners across the board would benefit from the capital gains tax cut.

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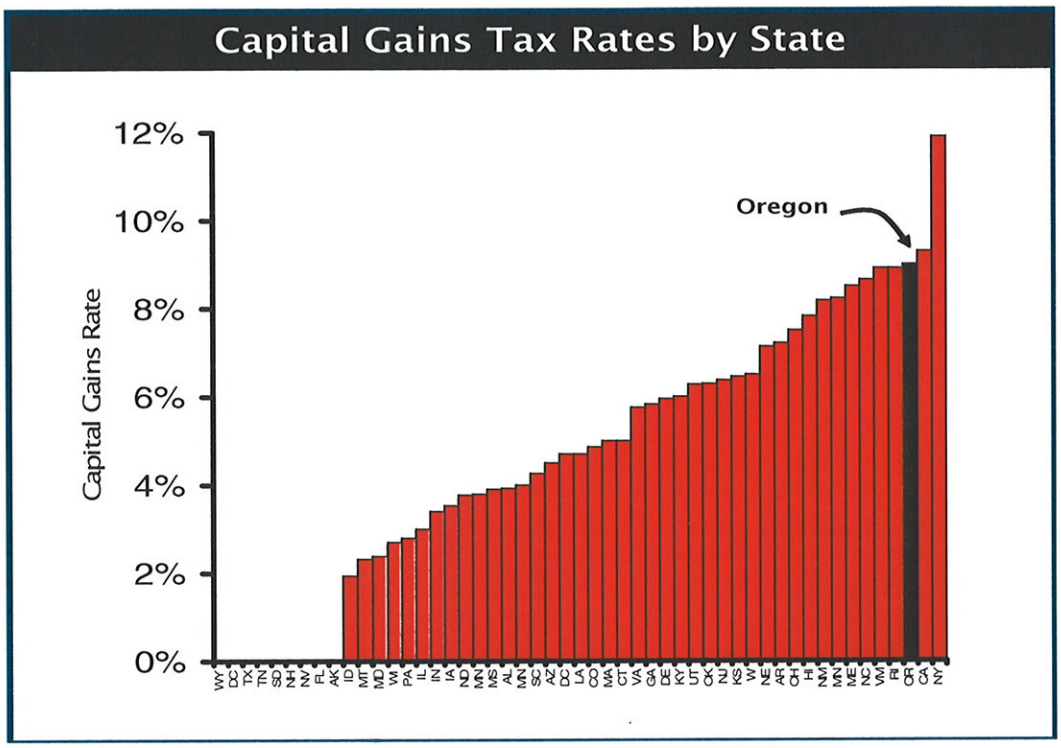
1. Introduction

Oregon has one of the highest tax rates on capital gains. Our 9% rate is the third highest in the nation, behind only New York and California (chart 1.1). Although federal tax rates on capital gains have been cut, Oregon steadfastly maintains its tax rate. Whereas Oregon's rate was once only one fifth the federal rate, it is now three

Chart 1.1

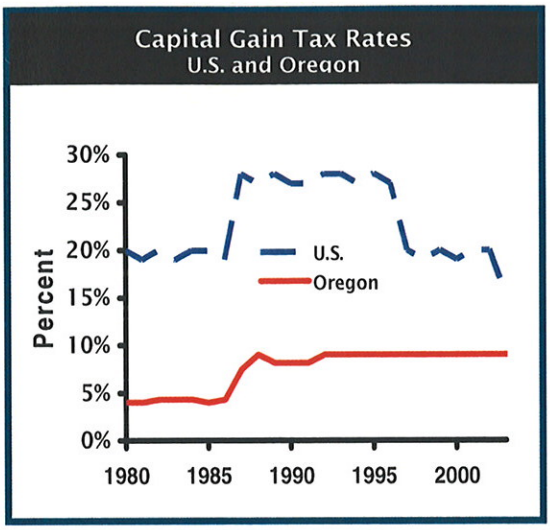


fifths of the federal rate (chart 1.2). What does this tax do to the economy of Oregon? Four years ago, the Associated Oregon Industries Foundation commissioned a report by Conerly Consulting LLC, "Capital Gains in Oregon: Economic Effects of a Tax Cut." That study drew upon research by both academics and business economists. The research was both theoretical and empirical, focusing largely on national and international data. That report used the body of research to draw implications for Oregon.

The present report blazes new trails in understanding the effects of the capital gains tax. We draw upon detailed state-by-state data on tax rates and economic growth. This is, we believe, the first time state-by-state data has been examined with an eye to the effects of the capital gains tax. With data on 50 states and the District of Columbia,

observed over a 27-year time span, we have 1,377 observations to analyze. We exploit both state-to-state variation and changes within a state over time.

Chart 1.2



The results show that higher tax rates on capital gains have a strong, negative effect on economic growth. This negative effect persists whether measuring employment growth or real personal income growth. This effect is strong enough that a cut in the capital gains tax rate would pay for itself by stimulating economic growth.

Capital Gains Are Different

One of the points made in our previous report was that capital gains are different from ordinary income. Without completely repeating the analysis presented before, we highlight several of the key differences:

- Some capital gains are due to inflation instead of, or in addition to, gains in purchasing power.

- The capital gains tax, in combination with the corporate income tax, constitutes double taxation.

- The capital gains tax has an especially harmful effect on investment and thus on long-term growth.

As a result of these features, Federal Reserve Chairman Alan Greenspan has testified before Congress on the subject:

> **"...its major impact ... is to impede entrepreneurial activity and capital formation....While all taxes impede economic growth to one extent or another, the capital gains tax is at the far end of the scale. I argued that the appropriate capital gains tax rate was zero."**[1]

This report is organized as follows: The remainder of this section discusses who has capital gains. Section 2 presents our research on the effects of the capital gains tax on economic growth. The following section presents research on venture capital

investment and the capital gains tax. Then Section 4 contains our estimates of the budgetary impact of a capital gains tax reduction. Following that we discuss who benefits from a capital gains tax cut. We conclude in Section 6.

Who Pays Capital Gains in Oregon?

About 139,000 Oregonians showed capital gains on their tax returns in 2002, the most recent year for which data are available.[2] Another 163,000 had capital losses that year, for a total of 302,000 Oregonians reporting the sale of capital assets in a given year. That constitutes 21 percent of all full-year tax returns. Many Oregonians own capital assets that they do not sell in a given year, so these data are entirely consistent with the estimate made in our previous report that more than half of all Oregonians own assets subject to the capital gains tax.

Table 1.1 below shows basic facts about income and tax returns for tax year 2002. The breakdown by income grouping shows that capital gains are recognized by people in all income classes.

Table 1.1

Income and Capital Gains: Full Year Tax Returns

AGI Level ($000)	All Returns				Returns with Capital Gains					
	Number of Returns	Adjusted Gross Income ($0000)	Percent of AGI	Average AGI ($)	Number of Returns	Percent of All Returns with Capital Gains	Total Capital Gains ($000)	Percent of Capital Gains	Average Capital Gains ($)	Avg. Cap Gains as % Avg AGI
0 - 20	529,248	4,163,884	6.7%	7,868	31,266	22.5%	175,878	6.2%	5,625	71.5%
20 - 60	585,533	21,591,314	34.6%	36,875	48,409	34.8%	224,611	7.9%	4,640	12.6%
60 - 100	214,254	16,290,176	26.1%	76,032	31,470	22.7%	283,190	10.0%	8,999	11.8%
100 - 250	90,130	12,456,309	20.0%	138,204	22,245	16.0%	584,819	20.6%	26,290	19.0%
250 - 500	10,133	3,378,962	5.4%	333,461	3,806	2.7%	350,833	12.4%	92,179	27.6%
500 +	3,673	4,480,225	7.2%	1,219,773	1,726	1.2%	1,219,349	43.0%	706,459	57.9%
Total	1,432,971	62,360,870	100.0%	43,519	138,922	100.0%	2,838,680	100.0%	20,434	47.0%

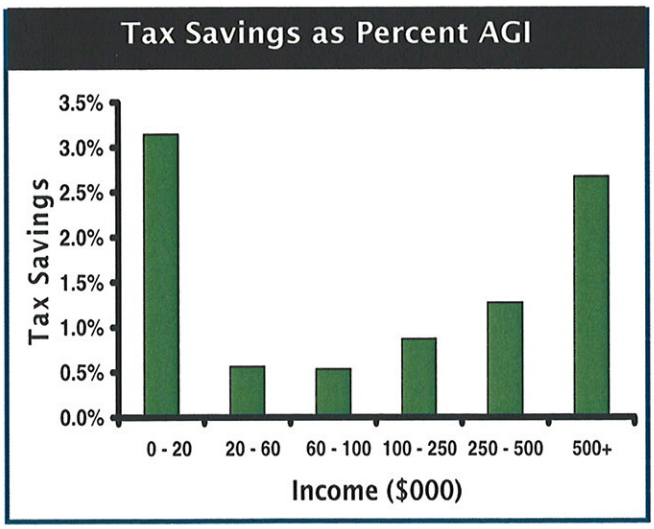
For taxpayers in the lowest income levels who have capital gains—about 31,000 Oregon families—the gains are a major source of their income. For this group, their capital gains average $5,600 per year. This is a major contribution to the income of

people earning less than $20,000 per year. On average, people in this income category have only $7,900 in total income per year. Of the low-income families who have capital gains, those gains probably make a significant difference in their standard of living.

Although Oregon does not publish detailed breakdowns of capital gains taxes by age of taxpayer, there is data from national surveys that show a clear pattern of accumulation of capital assets as people age, followed by a selling off of assets after retirement.[3] Thus, it's likely that Oregon's low-income taxpayers who have capital gains are mostly senior citizens on limited incomes who sell assets to meet basic needs, such as food and health care.

The largest numbers of taxpayers with capital gains are in the middle class. The $20,000 - $60,000 income range included 48,000 taxpayers with capital gains, while the $60,000 to $100,000 income range included 31,000 capital gains taxpayers. Higher income brackets had far fewer returns with capital gains, though the dollar amount of the gains was, of course, much higher.

Chart 1.3



One way to gauge the impact of a capital gains tax cut by income class is to look at the static effects of a tax cut relative to income. We computed for each income class the tax cut, assuming the taxpayer is paying the average effective tax rate on capital gains. (The Legislative Revenue Office estimates that the statutory maximum rate on capital gains of 9.0% yields revenue equal to 8.5% of all capital gains, because a few taxpayers are in lower tax brackets. LRO also estimates that, after the proposed tax cut, the effective tax rate would be 4.25%.) The chart "Tax Savings as a Percent AGI" (chart 1.4) shows the tax savings, divided by average AGI for each income class. It is readily apparent that the capital gains payers who have the lowest income, those with $20,000 or less annual income, receive the largest benefit as a percentage of their income. This is because they have relatively low income compared to their capital gains.

So far the statistics presented have overstated the capital gains of high-income families. The data we have examined look at an "annual snapshot." The data says nothing about past income or gains. So imagine a person who has worked hard to build up a business, such as a beauty salon. The owner has had a moderate income, but over time has come to own her business, including the building it is in. Upon retirement, she sells her building and business at a substantial gain. This is her nest egg for retirement. The year that she sells, she is an upper-income taxpayer. This is true even if she never previously earned as much as the statewide median income, and never again will have above-median income. But, in the year of her sale, she looks like a fat cat.

2. Growth Impacts

States vary widely in their personal income tax rates and treatment of capital gains income. As a result of this diversity, it is possible to determine the effects of lower tax rates on capital gains by assessing the experience of states that have low rates.

Studies cited in our previous report showed that reducing the capital gains tax rate nationally would stimulate capital spending. Two different empirical studies showed that the national economy would generate additional labor income after a capital gains tax cut.

Previous research also has demonstrated that capital investment stimulates a state's economy, in much the same way that capital spending helps the national economy.[4] That research did not, however, explain why some states had more investment and others less.

The closest analogy to America's varying tax rates on capital gains is Switzerland's experience. The Swiss federal government did not tax capital gains until recently, but some of the cantons (regional governments) have in the past. Several of them ended entirely their taxation of capital gains in the mid 1990s. A study of growth rates across Switzerland found that in the eight cantons that eliminated capital gains taxation, economic activity increased beyond the experience of the other cantons. Furthermore, the cantons that eliminated the capital gains tax did not lose revenue, because the resulting economic growth more than made up for the direct revenue loss.[5]

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Econometric Results

We have found that capital gains taxes levied by states have significant effects on state growth rates. The details of the econometric analysis are contained in Appendix A. To summarize, we utilized a technique called pooled time-series cross-section regression. We used this technique to identify the effect of capital gains tax rates on employment growth and real personal income growth. (The next section will discuss this technique's application to venture capital investment.)

The basis for the conclusions is a set of data covering 50 states plus the District of Columbia over a 27-year time span. This period includes not only variation from state to state, but also a good bit of variation within many states. That within-state variation is based on statutory increases or decreases in the capital gains tax rates. In addition, state laws linking revenue to federal tax law also induce variation. Over the time period studied, only eight states had no change in their capital gains tax rate. We calculated the difference, for each state, between its highest tax rate of the period, and its lowest tax rate. The average state had a 3.74 percentage point difference, indicating great experimentation by states. In short, this is a rich database in terms of the variety of experience contained within it.

Table 2.1

Economic Effects of Maximum Tax Rate on Capital Gains			
Annual percent change in:	Percentage point of tax rate	For a 4.5 percentage point reduction	Compound growth rate, 1990-2003
Employment	0.091	0.4	1.7
Real personal income	0.092	0.4	3.3

The effect of the capital gains tax on employment is to reduce annual growth by 0.091 percentage points for every percentage point of tax rate. Thus, the proposed tax rate reduction to 4.5% would increase the average employment growth rate by 0.4 percentage points per year. Since 1990, employment growth has averaged 1.7 percent per year; that could have been 2.1 percent if our capital gains tax rate had been lower.

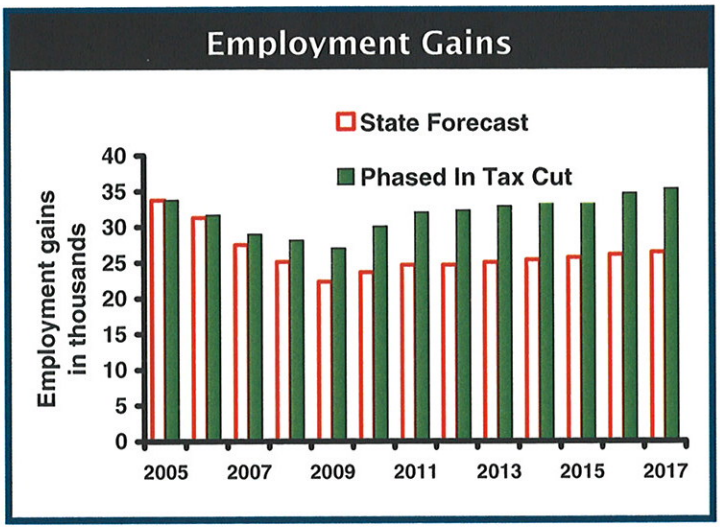
An extra 5,900 Oregonians would find work every year due to the capital gains tax cut

In terms of numbers of jobs, the most recent state economic forecast calls for job growth from 2006 through 2015 to average 25,600 jobs per year. This forecast is conditional upon our present 9.0% tax rate on capital gains. If, instead, that tax rate were gradually lowered to 4.5% by 2010, then employment growth in Oregon would likely be 31,500 jobs per year. In other words, an extra 5,900 Oregonians would find work every year due to the capital gains tax cut.[6]

The chart "Employment Gains" (chart 2.1) shows annual growth in employment in the state forecast,[7] and gains that would accrue from a phased-in tax cut. The phased tax cut reflects the following: ½% in 2006, 1% in each of 2007 through 2010, resulting in a tax rate of 4.5% in 2010. To show the long-run job gains from the tax cut, the state forecast was extended at the same growth rate as in the last years of the forecast.

In the 10th year of the tax cut, personal income for every man, woman and child in the state would average about $1,500 higher than without the tax cut.

Chart 2.1



Adding jobs is good, but personal income is a broader measure of economic activity. Personal income includes not only wage income, but also dividends, interest, rent, proprietors' income and transfer payments. We adjusted personal income for inflation, using the personal consumption price index.

The effect on personal income growth is almost identical to the effect on employment growth, even though personal income is a much broader measure of economic growth.

Based on revenue calculations developed in Chapter 4, table 2.2 shows the cost-per-job. Note that negative numbers are costs; positive numbers show net revenue gains per job:

Table 2.2

Cost-per-Job by Year	
Year	Dollars
2006	$321
2007	$227
2008	-$93
2009	-$179
2010	-$121
2011	-$59
Post 2012	All Positive

Converting from annual percentage growth to the level of income, and using the state population forecast, in the 10th year after Oregon begins phasing in the tax cut, personal income for every man, woman and child in the state will average about $1,500 higher than without the tax cut.

Personal income is a pre-tax concept, so tax savings do not directly change the data. Capital gains are not included in personal income, so the data is not affected by taxpayers choosing to realize their gains more frequently.

Will this growth of income lead to greater consumption spending by Oregonians? Common sense says that consumers will spend more as their incomes rise. Consumers may also react to a tax cut by choosing to invest more, spending less now. Unfortunately, we do not have state-by-state data on consumer spending to resolve this issue. However, given the simulative effects of investment spending, it's unlikely that all of the increased income would be invested. More likely, there would be both an increase in consumer spending and an increase in savings and investment as a result of the tax cut. [1]

Comparison with OTIM Results

The Oregon Tax Incidence Model was simulated to look at the capital gains tax cut proposal within HB 2505 of the 2003 legislative session. An OTIM simulation showed a net gain of about 2,200 jobs over five years. This estimate is a good bit less than the additional 19,000 jobs that our analysis indicates would be added over the same time period. The key difference is the economic model that we employed. OTIM assumes that a change in the tax structure creates a one-time shift in the economic equilibrium. It takes about five years to reach the new equilibrium. In contrast, we find evidence that a change in the tax structure has a lasting change in the rate of growth of the economy. Our work corroborates the work of Razin and Yuen cited in our earlier report, which found a continuing stimulus to economic growth from a reduction in

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[1] **Is it Capital Gains or the Regular Income Tax Rate?**

From a statistical standpoint, this analysis raises the question of whether the effects discovered so far are due to the tax rate on capital gains or the regular income tax rate. Across states, tax rates on capital gains are highly correlated with tax rates on regular income. It is possible that the capital gains tax rate is simply a proxy for the regular income tax rate. To examine this possibility, we conducted several statistical tests which are described in the first appendix. Even when the effect of the regular personal income tax rate is taken into consideration, the tax rate on capital gains still has a significant effect, approximately equal to the estimate presented above.

capital income taxation. Their estimated effect is much larger than what we report, though they were unable to simulate their model with relatively large changes in tax rates.[8] Thus, we find a greater long-term response than OTIM does because of the continual investment that occurs because of the tax cut.

3. Venture Capital

The tax rate on capital gains plays a small but significant role in the level of venture capital within a state. Certainly venture capital is influenced by a wide variety of factors, including historical accident of location and proximity to research universities. In our previous paper, we cited research at the Harvard Business School, which found that the capital gains tax rate affected venture capital.[9]

A reduction in the capital gains tax rate to 4.5% could lead to an additional $300 million of venture capital invested in Oregon annually.

We now look for an effect of state capital gains tax rates on venture capital funding. We put venture capital data on a per capita basis. Then we conducted the same type of analysis as we had for the employment and personal income effects. Details are in the appendix.

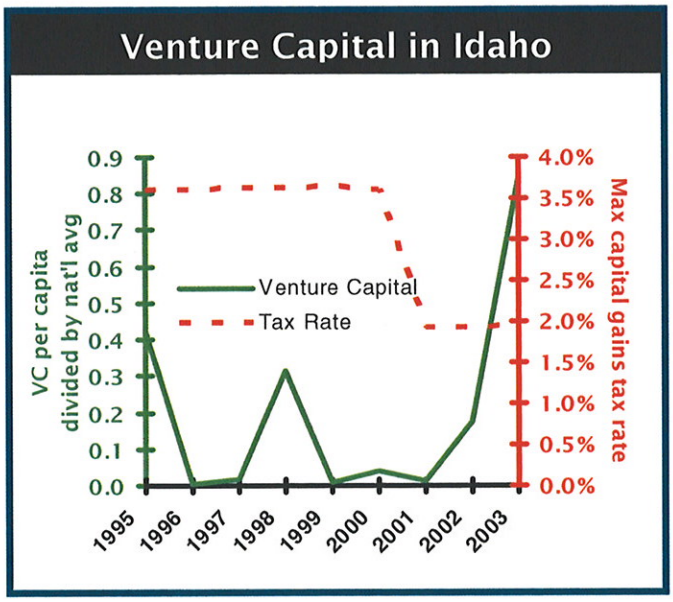
The result shows that annual venture capital per capita averages $23 per person higher for every one percentage point drop in the capital gains tax rate. This effect is large on a state such as Oregon, which receives far less than the national average venture capital per capita. Even if the estimate is overly optimistic, it indicates that Oregon could make a major gain in venture capital funding through a reduction in its capital gains tax rate.

With three million people in the state, a reduction in the capital gains tax rate to 4.5% could lead to an additional $300 million of venture capital in Oregon. This is an average effect. It is likely to be higher during periods of strong venture capital investing, and lower during periods of venture capital weakness, as we are currently in. Even if less than $300 million, however, it would constitute a very strong boost.

Oregon's venture capital per capita is only 44 percent of the national average. It would take much less than $300 million to put us up to the national average.

Although our conclusions were formed using data from all 50 states and the District of Columbia, two examples illustrate the effect on state venture capital funding from changes in capital gains tax rates. Idaho cut its capital gains tax rate in 2001, and subsequently saw a rebound in venture capital, with its best year ever in 2003 (chart 3.1).

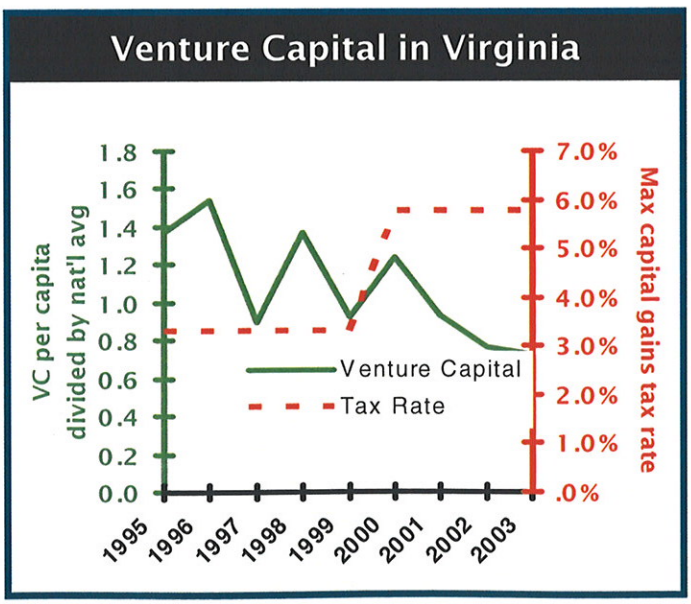
Chart 3.1



Virginia, on the other hand, raised its capital gains tax rate and saw a steady decline in venture funding. Note that our measure is Virginia's venture capital per capita divided by the national average. The decline from 2000 through 2003 is not merely the national decline in venture capital; it is Virginia losing share to other states.

Some have questioned any linkage between capital gains taxes and venture capital on the grounds that many investors in venture capital funds are not taxable entities. They are, instead, pension funds or charitable foundations. This concern is unfounded. First, the data speaks plainly that venture capital is influenced by capital gains tax rates. Whether everyone understands why it occurs is irrelevant.

Chart 3.2



However, there is good reason to expect capital gains tax rates to influence venture capital, even from non-taxed entities. Except at the height of the dot-com boom, venture capital funds have not provided the first dollar of investment in a new venture. Typically, the founders contribute what savings they have. They next bring in investments from family and friends. If they show some positive results, they attract angel investors. All of these —

founders, family, friends and angels — are taxable investors. They provide the start-up capital necessary to get the venture to the stage where venture capital funds can invest. Even if the venture capital funds are not concerned with taxes, they find more start-ups ready for them in states with low or no capital gains tax rates.

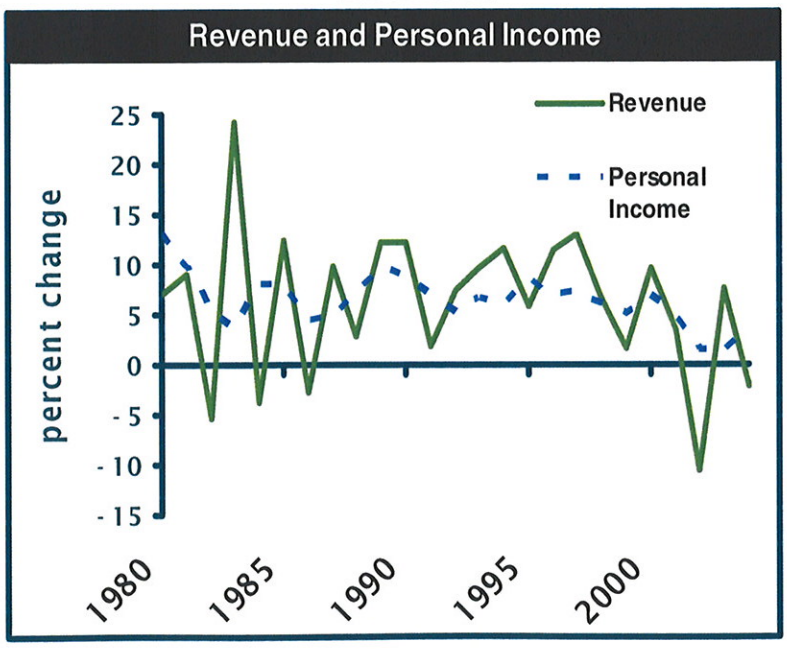
4. Revenue

A tax cut can either reduce government revenue or increase government revenue, depending on the degree to which the tax cut stimulates activity which in turn generates tax revenue. In the preceding section we documented that reducing the capital gains tax rate would stimulate economic growth, and we quantified the magnitude of the effect. Two other issues are relevant to the revenue analysis. We must determine the sensitivity of tax revenue to the economy. We must also look at the rate at which capital assets are sold, which depends on the tax rate. Finally, we will pull these issues together to simulate state general fund revenues with a tax cut.

The relationship between the economy and tax revenue is called the elasticity of revenue. When gauged against personal income, elasticity is defined as the percentage change in revenue divided by the percentage change in personal income.

The chart "Revenue and Personal Income" (chart 4.1) shows the annual percentage changes in both concepts. (The revenue series excludes kicker and pension refunds, to show the underlying potential for revenue change.) Note how much more volatile revenue is than personal income.

Chart 4.1



A very thorough study of tax elasticity recently has been completed by a team of economists at the University of Tennessee at Knoxville.[10] They studied all states, using state-of-the-art econometric techniques designed to distinguish between short-run and long-run effects. They concluded that Oregon's short-term elasticity is only 0.1 when income is growing, though considerably larger when income declines. The 0.1 elasticity means that a ten percent increase in personal income generates only a one percent

change in revenue in the same year. In the long-term, however, they found Oregon's elasticity to be 1.54 (when adjusted for changes in the effective tax rate, as through kicker refunds). The speed of adjustment is about one year, they determined, so that a ten percent increase in personal income one year triggers a 15.4 percent increase in revenue the next year.

The second step is to adjust capital gains realizations to account for the more rapid turnover of assets in a lower tax rate environment. Following the discussion of the earlier paper, we select elasticities from Auten, Burman and Randolph.[11] These are in the middle of the elasticities estimated in the academic literature. A fuller discussion of this issue appears in our earlier paper.

The revenue simulation begins with static revenue losses, calculated with the methodology of the Legislative Revenue Office. Our simulation then estimates faster personal income growth, by 0.092 percent for every percentage point of tax cut, as discussed earlier. Then we adjust revenue using a same-year elasticity of 0.1, and a previous-year elasticity of 1.54.[12] As discussed earlier, the assumption for the phased-in implementation is that the tax rate is reduced by .5% in tax year 2006, another 1% in each of 2007 through 2010, resulting in a 4.5% tax rate in 2010. Most taxpayers are on a tax year from January 1 through December 31, so our tax year is the same as a calendar year. For revenue effects, though, we will use fiscal years.

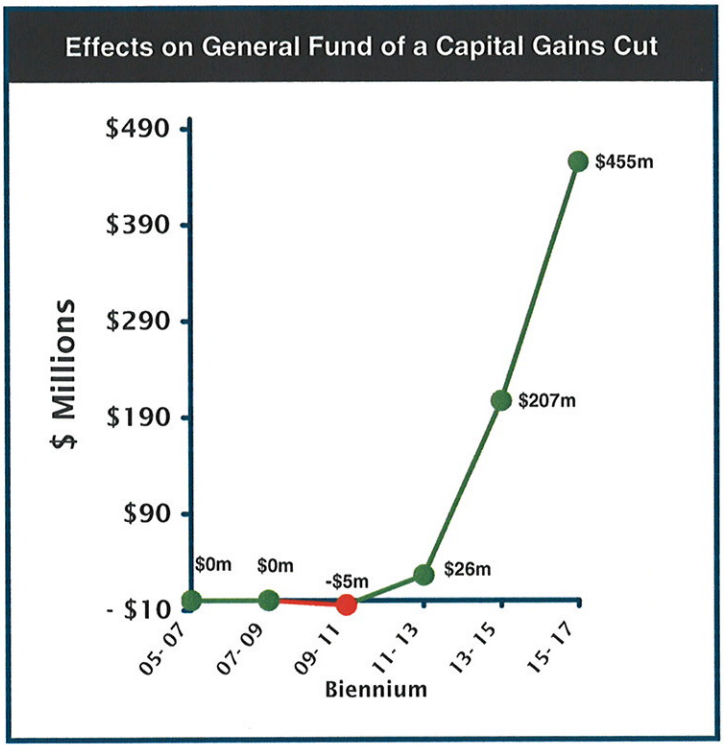
Table 4.1 and Chart 4.2 "General Fund Effects of a Capital Gains Cut" shows the fiscal year revenue effects, which are defined as projected revenue minus the state revenue forecast, so that only differences from the state forecast are shown. The data in biennial format are in the table, "General Fund Effects of a Capital Gains Cut." More details are shown in Appendix 2. The negative numbers, such as -$5 million for the 2009-2011 biennium, show that the tax cut costs the general fund revenue. The positive numbers, such as the $455 million for the phased-in tax cut in the 2015-2017 biennium, indicate that the general fund has more revenue than it would without the tax cut.

Table 4.1

General Fund Effects of a Capital Gains Tax Cut	
Biennium	$ Millions
05-07	0
07-09	0
09-11	-5
11-13	26
13-15	207
15-17	455

The tax cut costs the state a tiny amount of revenue beginning a few years into the future. The economy expands and, over time, generates greater revenue than in the absence of the tax cut. The tax cut, then, is an investment in the future.

Chart 4.2



This estimate of the short-run impact of the tax cut is much more favorable than our analysis of four years ago. There are several reasons for the difference. First, this tax cut is phased in, so static revenue effects are more gradual. Second, our model shows a small but sustained improvement in economic conditions starting in the year of the tax cut. Third, we are now using the assumptions used by the Legislative Revenue Office regarding the timing of revenue effects of a capital gains tax cut. The LRO has concluded that tax collections in fiscal year 2006, for example, depend on tax rates and capital gains in tax years 2004 and 2005. As a result, the economic stimulus gets started before the revenue effect starts. The small negative numbers in the early years are due to the small increment of growth each year. After 10 years, that small annual increment adds up to a substantial benefit, but in the early years, the benefit is only enough to offset the revenue loss.

These revenue calculations are conservative in that they ignore two elements that would tend to increase revenue, but are hard to estimate. The first is higher asset values because of the lower tax rate. Our earlier report cited studies which had found asset prices tended to rise because of a decline in capital gains tax rates. We estimated that prices of Oregon real estate, businesses and farms would rise by about four and one-half percent due to a cut in the capital gains rate from nine percent to four percent. It is difficult to translate a change in asset prices into a change in capital gains at the macro level. It is also difficult to tell how much of the capital gains realized by Oregon taxpayers constitute sales of property located in Oregon versus stocks or

mutual funds located outside the state. If capital gains located in Oregon are half of all capital gains taken (a rough estimate developed in our previous paper) and if the tax basis on gains is approximately half of the realized asset sale (a hypothesis), then price appreciation of assets could trigger about $10 million in year in revenue beyond what is estimated in the chart above.

The second revenue loss not included in our calculations is from taxpayers who move out of Oregon before realizing large capital gains. The magnitude of this loss is not known, but we can tell that it is large. Using data provided by the Oregon Department of Revenue, we developed the following table:

Table 4.2

Oregon Taxpayers with Net Capital Gains		
	Annual Average 1993-2002	
Taxpayers moving to Clark Co. WA during tax year		337
Total net Capital Gain reported	$	44,130,129
Average net Capital Gain	$	114,017
Average net Capital Gain in the prior year	$	20,058

The data for capital gains are gains in the year in which the taxpayers moved across the Columbia River. The information was developed using part-year tax returns, and thus only captures people's gains in the same year that they moved. Even with the limitations of the data, it's clear that people are averaging $114,017 in gains the year they move out of Oregon, compared to $20,058 in the prior year. A significant number of these people are likely to have moved across the river simply to avoid Oregon's 9% capital gains tax. There also are people who moved from Oregon into other parts of Washington State, or to Nevada or another state without an income tax. A number of Oregonians move to Arizona, which has a 4.5% tax rate on capital gains. Looking at all filers moving out of Oregon, it appears that we may be losing out on $5 million of tax revenue annually, just from those who realize large gains the same year that they move. Other people will move in one year and realize their capital gains in the following tax year. A person who moved to Vancouver, Washington in November, then

sold her business in February, would not show up in the table above. The number of such people probably equals or exceeds the number who realize their gains the same year that they move.

Both asset appreciation and movement outside of Oregon to avoid our tax are hard to quantify, but there is no doubt that these things occur. They both would mitigate the static revenue loss from a reduction in the capital gains tax.

Sensitivity Analysis

The general fund revenue estimates are subject to some uncertainty based upon estimated elasticities used in the calculations. To asses the magnitude of the uncertainty, we conducted several alternative calculations. They are shown in the table, "Sensitivity Analysis" (table 4.2)

Table 4.3

Sensitivity Analysis

FY	Standard Assumptions	Immediate Tax Cut Out in 2006	Alternate Realizations Elasticity's	Alterative Revenue	Alternative Economics
2006	0	2	0	0	0
2007	1	-37	21	0	-1
2008	-1	-35	39	-5	-8
2009	-2	-2	29	-12	-18
2010	-2	37	14	-20	-32
2011	-2	81	2	-31	-50
2012	28	130	-18	-14	-42
2013	76	187	11	19	-18
2014	131	249	62	59	11
2015	193	319	119	103	44
2016	262	396	183	152	80
2017	339	481	254	208	121
Biennium Ending					
2007	0	-35	21	21	-1
2009	0	-37	68	68	-26
2011	-5	118	16	16	-82
2013	26	317	-8	-8	-60
2015	207	568	180	180	55
2017	455	877	437	437	202

The alternate scenarios are as follows: "Standard Assumptions" presents the simulation results described in the preceding section.

"Immediate Tax Cut in 2006" assumes that tax rates move immediately to 4.5% in tax year 2006.

"Alternate Realizations Elasticities" uses different estimates of how capital gains tax cuts influence the turnover of assets and thus total capital gains. Instead of base case elasticities of -1.98 short-term and -1.65 long-term, we use estimates from Burman and Randolph of -6.42 short-term and -0.18 long-term.[13] This is a more recent study than the one we cited, but its estimated elasticities are outside the range typically estimated. Their short-term effect is relatively large, and their long-term effect is relatively small.

"Alternate Revenue Elasticity" uses another estimate of the relationship between personal income and general fund revenues. Our preferred estimate is 1.54, whereas the LRO often uses an estimate of 1.2. Their figure is consistent with Oregon's experience from 1990 through 2000, which reflects an elasticity over this period of 1.17.[14] In this alternative calculation, we used 1.17.

"Alternate Economic Impact" uses a different estimate of the stimulus to the economy from a capital gains cut. We begin with our estimated effect, and then lower it by one standard deviation. Under this assumption each percentage point of capital gains tax relief increases the annual growth rate of personal income by 0.0561 percent, rather than 0.0921, which is our best estimate of the effect.

These alternatives all result in fairly mild short-term budget costs and substantial long-term benefits. In no scenario is the budget cost more than $82 million in a biennium. In that worst case scenario, the shortfall is in the 2009-2011 biennium. The tax cuts have begun to impact revenue, but economic growth has not yet boosted the economy enough to generate higher revenue. This is still a benign picture, though. The immediate impact on the 2005-2007 budget is a mere one million dollars. The worst impact is pretty far in the future. The ultimate impact is a positive $202 million added to the general fund over and above what it otherwise would have been.

These alternate scenarios were shown to illustrate the degree to which the analysis depends on critical assumptions. Our best estimate continues to be the "Standard" scenario, in which the short-term budget loss is negligible and the long-term impact is very beneficial to both the Oregon economy and the Oregon budget.

5. Who Benefits From Capital Gains Tax Reduction?

The subject of who benefits was discussed at length in our earlier paper. The key difference today is that we now know the stimulus to the economy will be greater than previously estimated. The broad economic growth that will result from the tax cut will benefit all Oregonians.

Criticism of a capital gains cut often focuses on benefits to the rich. Benefiting the rich isn't bad if the poor and middle class also benefit. They do, in this case.

The OTIM analysis of a capital gains tax cut shows that all household income groups benefit. Even the lowest-income households, those with incomes under $14,525 per year, show some improvement. The OTIM results, remember, probably underestimate the total economic stimulus from the model, especially in the out-years of the tax cut. As a result, working class families will do even better than OTIM estimates. The bottom line is that everyone in the state is better off from the capital gains tax cut.

The OTIM work is comparable to two empirical studies cited in our earlier paper. These demonstrated that a national capital gains tax cut would increase labor income, benefiting workers. In the words of David Wyse, one of the economists looking at the proposed tax cut, "The capital gains cut helps most people and hurts no one."[15]

The bottom line is that everyone in the state is better off from the capital gains tax cut.

The claim that a capital gains tax cut will benefit only the rich is based on a number of fallacies. First, of course, is ignoring the economic stimulus from the tax cut.

The second fallacy is ignoring the widespread holdings of capital assets. In our earlier report, we cited a Congressional Budget Office study, based on the 1992 Survey of Consumer Finances, which showed that 48.5 percent of all households own assets subject to the capital gains tax.[16] These are not only stocks, but also farms, real estate other than the primary residence, small businesses and mutual funds. At that time, 7.7 percent of all households owned mutual funds. The most recently published Survey of Consumer Finances, however, finds that 17.7 percent of all families own mutual

funds.[17] At this time, it's almost certainly the case that more than half of our families own assets subject to the capital gains tax.

The third fallacy of the criticism is focusing on income in the same year as the gain. A middle-class family which owns a small business may have had average income for years. Then they decide to retire and sell the business. Many small business owners will receive no pension, and they have no retirement account. Their nest egg is the business itself. They sell the business to finance their retirement and in that one year, they are high income. The proceeds from the sale of the business, however, must tide them over for the rest of their lives. This story could be retold about farmers or middle-class families who own rental property.

The fourth fallacy is ignoring families who are young. Ownership of capital assets increases with age, of course. The Federal Reserve's Survey of Consumer Finances clearly shows that pattern. The implication is that many young families who do not today own stocks or small businesses or investment real estate will someday own these assets. Cutting the capital gains tax rate will benefit them in the future, and it's terribly misleading to claim that this tax cut does nothing for them.

6. Conclusion

Oregon's capital gains tax, the third highest in the nation, lowers our economic growth below its potential. The harm is felt by job-seekers unable to find employment, and to job-holders whose wages would be higher in a more robust labor market. Lowering the state's capital gains tax rate would stimulate growth of jobs and inflation-adjusted personal income per capita. General fund revenue would be little changed in the early years, due to the phased-in cut. In a few years, however, revenues will rise because of the faster-growing economy. Oregonians will have higher incomes, on average. Venture capital will be more plentiful for local start-ups, part of the process of stimulating investment, and thus the economy.

In the simplest terms, benefits would accrue to Oregonians across the board. In the words of economist David Wyse, "The capital gains cut helps most people and hurts no one."

Appendix 1

Econometric Results

Data Sources:
For tax rates, we use a set of maximum tax rates for both wages and capital gains, state by state, from 1978 through 2003, compiled by the National Bureau of Economic Research.[18] Each rate is the effective tax rate on an additional $1000 of income earned by a married family with a total income of $250,000. These tax rates are based on a detailed analysis which includes not only statutory tax rates, but also phase outs of deductions, integration with the federal tax code, etc.

Employment data are from the U.S. Bureau of Labor Statistics, non-agricultural wage and salary employment.[19]

Personal income data are from the U.S. Bureau of Economic Analysis.[20] We adjusted personal income for inflation, using the U.S. personal consumption expenditures chain-type price index, also from the BEA.[21]

Venture capital data are from the PricewaterhouseCoopers/Venture Economics/National Venture Capital Association MoneyTree™ Survey.[22] We put the venture capital data on a per capita basis, using annual population estimates from the U.S. Census Bureau.

Data definitions:

EMP: annual percent change of employment for a state in a year
PIPCTCH: annual percent change in real personal income
RTCG: maximum tax rate on capital gains in a state in a year
RTW: maximum tax rate on wages in a state in a year
RTPref: difference between tax rate on wages and capital gains: RTW - RTCG
VCPop: Venture capital per capita
Dummy variables indicate states and years.

Econometric techniques
The basic idea is to estimate an equation which says that an economic variable such as state employment growth is a function of tax rates. We use a technique known as pooled time-series cross-sectional regression. We employ the covariance model approach to this technique.[23] The result will be an estimate of the effect on annual employment growth of a change in the tax rate.

The time period is annual, from 1978 through 2003 except for venture capital analysis, as noted below. The geographic coverage is all 50 states and the District of Columbia, except in where noted.

Results

Equation 1

Dependent variable:
Y = EMP
Independent variables:
RTCG, dummy variables for years and states

OLS estimation results

Parameters	Estimate	t-value	Standard Error
RTCG	-0.09064	-2.518	0.03599

estimates for constant term and dummy variables omitted.

Effective sample size (n):	1377
Variance of the residuals:	2.542657
Standard error of the residuals (SER):	1.594571
Residual sum of squares (RSS):	3302.911774
(Also called SSR = Sum of Squared Residuals)	
Total sum of squares (TSS):	8139.544633
R-square:	0.5942
Adjusted R-square:	0.5702
Overall F test: F(77,1299) = 24.70	

Equation 2

Dependent variable:
Y = PIPCTCHG
Independent variables:
RTCG, dummy variables for years and states

OLS estimation results

Parameters	Estimate	t-value	Standard Error
RTCG	-0.09210	-2.557	0.03601

Effective sample size (n):	1377
Variance of the residuals:	2.541609
Standard error of the residuals (SER):	1.594242
Residual sum of squares (RSS):	3301.549545

(Also called SSR = Sum of Squared Residuals)
Total sum of squares (TSS): 8132.947092
R-square: 0.5941
Adjusted R-square: 0.5700
Overall F test: F(77,1299) = 24.69

Is It the Capital Gains Rate?
To separate out the possible effects of the regular tax rate versus the capital gains tax rate, we first take the simplest approach, using both rates in the regression. This risks a multicollinearity problem, if course, as the correlation between the two is 0.70.

Equation 3
Dependent variable:
Y = EMP
Independent variables:
RTCG, RTW, dummy variables for states and years

OLS estimation results

Parameters	Estimate	t-value	Standard Error
RTCG	-0.05359	-1.420	0.03774
RTW	-0.11712	-3.156	0.03711

Effective sample size (n): 1377
Variance of the residuals: 2.525241
Standard error of the residuals (SER): 1.589101
Residual sum of squares (RSS): 3277.762908
(Also called SSR = Sum of Squared Residuals)
Total sum of squares (TSS): 8139.544633
R-square: 0.5973
Adjusted R-square: 0.5731

Overall F test: F(78,1298) = 24.68

This equation presents less strong evidence of a separate effect of the capital gains tax, but multicollinearity means that the coefficients are not estimated as accurately as they should be.

Our next step is to look at a specification less prone to multicollinearity. We perform our regression of employment with two independent variables (in addition to the dummies): the maximum tax rate on wage income, and the capital gains preference, defined as the tax rate on wage income minus the tax rate on capital gains. These two variables are less correlated than tax rates on capital gains and regular income. The correlation is still positive (0.60), indicating that states with high regular income tax rates tend to have a tax preference on capital gains.

Equation 4 shows a very strong effect from the regular income tax rate, -0.17 percent of employment growth per percentage point of tax rate, and statistically significant. The effect of the capital gains preference is smaller than our earlier estimates and not quite statistically significant (84% confidence that it is not equal to zero). The absolute value of the coefficient on the capital gains tax preference is about equal in this equation to the estimated coefficient on the capital gains tax rate in Equation 3.

Equation 4
Dependent variable:
Y = EMP
Independent variables:
RTW, RTPref, dummy variables for years and states

OLS estimation results

Parameters	Estimate	t-value	S.E.
RTW	-0.17026	-3.884	0.04383
RTPref	0.05315	1.412	0.03764

Effective sample size (n): 1377
Variance of the residuals: 2.525284
Standard error of the residuals (SER): 1.589114
Residual sum of squares (RSS): 3277.817989
(Also called SSR = Sum of Squared Residuals)
Total sum of squares (TSS): 8139.544633
R-square: 0.5973
Adjusted R-square: 0.5731

Overall F test: F(78,1298) = 24.68

This model, however, is not fair to the hypothesis. States that have no income tax at all show up with a zero preference for capital gains. Thus, their very healthy climate appears in the data as fairly hostile to capital gains. To deal with this deficiency, we compute this regression using data only for states with a personal income tax. Multicollinearity is still a potential problem; in this set of data, the correlation between the two independent variables is 0.59. Equation 5 yields estimates of the effect of capital gains similar to our initial estimates. Thus, we get substantially the same result whether we examine the capital gains tax rate by itself, or whether we look at a capital gains tax preference in states with a personal income tax. We conclude that

our initial estimate, which utilizes all available data, is the best possible estimate of the effect of a change in the capital gains tax rate.

Equation 5

Dependent variable:
Y = EMP
Independent variables:
RTW, RTPref, dummies

Data limited to states with personal income taxes.

OLS estimation results

Parameters	Estimate	t-value	Standard Error
RTW	-0.09957	-2.331	0.04272
RTPref	0.08323	2.329	0.03573

Effective sample size (n):	1136
Variance of the residuals:	1.884781
Standard error of the residuals (SER):	1.372873
Residual sum of squares (RSS):	2007.292123
(Also called SSR = Sum of Squared Residuals)	
Total sum of squares (TSS):	5821.313662
R-square:	0.6552
Adjusted R-square:	0.6325

Overall F test: F(70,1065) = 28.91

Venture capital

The regression for venture capital is generally in the format as the other equations. The data set is much shorter; only from 1995 through 2003. This time period includes only one complete business cycle. The dependent variable is the level of venture capital invested per capita. If the hypothesis about an effect of the capital gains tax is accurate, then higher *levels* of investment are the stimulus for higher *rates* of economic growth.

Equation 6

Dependent variable:
Y = Vcpop
Independent variables:
RTCG, dummy variables

OLS estimation results

Parameters	Estimate	t-value	Standard Error
RTCG	-22.67081	-2.715	8.34891

Effective sample size (n):	459
Variance of the residuals:	10056.532244
Standard error of the residuals (SER):	100.282263
Residual sum of squares (RSS):	4012556.365277
(Also called SSR = Sum of Squared Residuals)	
Total sum of squares (TSS):	10491233.230235
R-square:	0.6175
Adjusted R-square:	0.5610

Overall F test: F(59,399) = 10.92

Appendix 2

Calculation of Revenue Effects of a Capital Gains Tax Cut

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
		Cap. Gains Base Case				Cap. Gains Tax Cut						Personal Income						Revenue				
TY	FY	Cap Gains	Stat. Rate	Eff. Rate	Collec-tions	Stat. Rate	Eff. Rate	Collec-tions	Static Loss	Inc. in Gains	Inc. in CG Coll	Base Fcst	%ch	% ch Boost	Tax Cut PI	%ch	%diff	Base GF Rev	Alt GF Rev	Gain from Ec.	Total Diff	Cumu-lative
		$ millions		%	$ millions	%	%	$ millions	$ millions			$ billions	%	%	$ billions	%	%	$ millions	$ millions	$ millions	$ millions	$ millions
TY	FY	TY	TY	TY	FY	TY	TY	FY	FY	TY	FY	FY	FY	FY	FY	FY	FY	FY	FY	FY	FY	FY
2001	2001	2,908.2	9.0	8.5		9.00	8.5					98.1			98.1			5,238	5,238	0	0	
2002	2002	2,481.8	9.0	8.5		9.00	8.5					99.5	1.5	0.00	99.5	1.5	0	4,329	4,329	0	0	0
2003	2003	2,779.6	9.0	8.5	220.0	9.00	8.5	220.0	0	0	0	101.0	1.5	0.00	101.0	1.5	0	5,038	5,038	0	0	0
2004	2004	2,890.8	9.0	8.5	229.9	9.00	8.5	229.9	0	0	0	105.0	4.0	0.00	105.0	4.0	0	4,922	4,922	0	0	0
2005	2005	3,411.1	9.0	8.5	243.4	9.00	8.5	243.4	0	0	0	111.0	5.7	0.00	111.0	5.7	0	5,277	5,277	0	0	0
2006	2006	3,684.0	9.0	8.5	278.9	8.50	8.0	278.9	0	152	0	117.2	5.6	0.05	117.3	5.7	0.04	5,364	5,364	0	0	0
2007	2007	3,923.5	9.0	8.5	307.3	7.50	7.1	294.3	13	465	9	124.4	6.1	0.14	124.6	6.3	0.17	5,704	5,709	5	1	1
2008	2008	4,198.1	9.0	8.5	328.4	6.50	6.1	282.4	46	802	28	131.9	6.0	0.23	132.4	6.3	0.39	6,091	6,108	18	-1	0
2009	2009	4,533.9	9.0	8.5	351.0	5.50	5.2	262.8	88	1,197	45	139.6	5.9	0.32	140.6	6.2	0.70	6,453	6,494	41	-2	-2
2010	2010	4,919.4	9.0	8.5	378.2	4.50	4.3	241.1	137	1,659	59	148.0	6.0	0.41	149.6	6.4	1.09	6,819	6,895	76	-2	-4
2011	2011	5,263.7	9.0	8.5	410.0	4.50	4.3	215.7	194	1,628	68	157.1	6.1	0.41	159.4	6.6	1.49	7,229	7,353	124	-2	-6
2012	2012	*5,632.1*	9.0	8.5	440.1	4.50	4.3	220.0	220	1,742	70	166.5	*6.0*	0.41	169.6	6.4	1.88	7,655	7,833	178	28	22
2013	2013	*6,026.3*	9.0	8.5	470.9	4.50	4.3	235.4	235	1,864	73	*176.5*	*6.0*	0.41	180.5	6.4	2.28	8,108	8,346	238	76	97
2014	2014	*6,448.0*	9.0	8.5	503.9	4.50	4.3	251.9	252	1,995	78	*187.1*	*6.0*	0.41	192.1	6.4	2.68	8,589	8,894	305	131	229
2015	2015	*6,899.3*	9.0	8.5	539.1	4.50	4.3	269.6	270	2,134	83	*198.3*	*6.0*	0.41	204.4	6.4	3.08	9,099	9,479	379	193	422
2016	2016	*7,382.2*	9.0	8.5	576.9	4.50	4.3	288.4	288	2,284	89	*210.2*	*6.0*	0.41	217.5	6.4	3.49	9,642	10,103	462	262	684
2017	2017	*7,898.9*	9.0	8.5	617.2	4.50	4.3	308.6	309	2,444	95	*222.8*	*6.0*	0.41	231.5	6.4	3.89	10,218	10,770	553	339	1,023

Critical values:	
Effect of tax rate on personal income growth:	0.0921
Effect of tax rate on employment	0.0906
Short-term revenue elasticity (for increases):	0.10
Long-term revenue elasticity:	1.54
Capital gains realizations elasticities, short term:	-1.98
Capital gains realizations elasticities, long term:	-1.65

Notes on Table

Column A: TY: Tax Years are used for Capital Gains income forecast; they also apply to the tax rate columns.

Column B: FY: Fiscal Years; used for revenue and personal income columns

Column C: Cap Gains: Capital gains realized; forecast through 2011 from the Oregon Economic and Revenue Forecast, December 2004; forecast for later years based on annual percent change forecast of 2011.

Column D: Stat. Rate: Statutory maximum tax rate on capital gains.

Column E: Effective Rate: Effective rate is the estimated result of dividing tax revenues by the tax base, which in this case is total capital gains. The effective rate is lower than the statutory rate because some taxpayers are not paying taxes at the maximum rate. The effective rate is estimated by the Legislative Revenue Office (LRO).

Column F: Collections: Estimated collections in a fiscal year are based on capital gains and effective tax rate in prior years. The general format is, for example, that collections in FY 2006 are equal to 0.25 times effective tax rate in TY 2004 times capital gains in TY 2004, plus 0.75 times effective tax rate in TY 2005 times capital gains in TY 2005. This estimate of time lags is from the LRO.

Column G: Stat. Rate: Hypothetical new maximum tax rate if new legislation is passed.

Column H: Eff. Rate: Effective rate of the new maximum tax rate. Following the assumptions used by the LRO in static impact analyses, this is assumed to maintain the ratio of 8.5 to 9.0.

Column I: Collections: Actual fiscal year collections, using the formula from Column F, applied to the hypothetical tax rates.

Column J: Static Loss: The difference between collections with the new rates, column I, and collections under current law, column F, before considering any offsetting effects, such as increased asset turnover and stimulus to the economy.

Column K: Inc. in Gains: Increase in capital gains because of the lower rate. This is based on the estimated elasticities of revenue with respect to tax rates cited in the text: -2.00 short-term and -1.65 long-term-term. The percentage change in tax rates is calculated using effective rates for federal plus state capital gains. The effective federal rate is assumed to be 8.5 divided by 9.0 times the 15% maximum federal rate. The ratio of 8.5 to 9.0 follows the assumptions used by the LRO in estimating Oregon's effective rate.

Column L: Inc. in CG Coll: The increase in capital gains collections from the higher level of capital gains. The collections formula used in columns F and I is applied to the increase in gains in column K.

Column M: Base Fcst: Personal Income forecast through 2012 from the Oregon Economic and Revenue Forecast, December 2004. Further years are forecast based on the 2012 growth rate.

Column N: %ch: The annual percentage change in personal income.

Column O: % ch Boost: The increase in personal income growth caused by the cut in taxes: calculated as the difference in maximum tax rates multiplied by the growth factor estimated in our econometric equation, 0.0921.

Column P: Tax Cut PI: Personal income in Oregon assumed the tax cut is enacted.

Column Q: %ch: Percent change in column P, tax cut personal income.

Column R: %diff: Percentage difference between personal income in the tax cut scenario and personal income in the base forecast.

Column S: Base GF Revenue: Forecast general fund revenue from the Oregon Economic and Revenue Forecast, December 2004.

Column T: Alt GF Rev: General fund revenue if the economy has been stimulated by the capital gains tax cut. Calculated using the percentage difference in column R multiplied by the revenue elasticity of 1.54

Column U: Gain from Ec.: Gain in general fund revenue from the stronger economy: column T minus column S.

Column V: Total Diff: Total difference in general fund revenue due to the tax cut, equal to the static tax loss, column J, plus the gain from increased capital gains realizations, column L, plus the gain from a stronger economy, column U.

Column W: Cumulative: Cumulative gain or loss in general fund revenue from the tax cut.

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[23] We used an F test to verify that the covariance approach was superior to ordinary least squares.

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