

Capital Gains in Arizona

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(preliminary research, comments welcome, dennis.hoffman@asu.edu)

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Summary

- Fluctuations in capital gains income have resulted in significant year to year fluctuation in individual income tax collections in the State of Arizona. Gains grew steadily in the late 1990s and fell off sharply in 2001 and 2002. The pattern of individual income tax collections mimicked these gyrations in capital gains.
- National evidence suggests that 2004 was a strong capital gains year. Evidence from Arizona suggests that it was a very strong year for capital gains income. The IRS releases national capital gains data and data by state with considerable lag. The 2003 will not be released until August of 2005.
- A model of capital gains behavior suggests that the flow of revenue from capital gains can be explained by indexes of financial market activity and from the pace of economic activity in the real estate sector.
- Considerable uncertainty must be assigned to any forecasts made from a capital gains model since
 - Changes in capital gains rates may influence behavior.
 - The pace of capital gain realization may change over time.
 - Data limitations exist so several forms of economic models tend to explain “in sample” behavior quite well, but lead to different forecast scenarios.
 - The primary determinants of the model, equity prices and real estate market activity are inherently volatile.
- Under a very plausible scenario for equity market and real estate activity in the next several years, capital gains income will continue to be an important component of Arizona individual income tax collections. Without sharp reductions in equity market prices or real estate activity, a significant portion of the increase in collections observed in the spring of 2004 will remain a part of the individual income tax base, as capital gains realization continues to occur.
- Explaining the pace of capital gains activity will be an important challenge for individual income tax forecasters over the next several years.

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It is increasingly clear that the role of capital gains income is a very important in explaining individual income tax revenue flows nationally and especially in Arizona. This issue first came to light with the circulation of a paper entitled *The Looming Fiscal Threat from Falling Stock Prices*, published by Economy.com in February 2001. The approach taken in the Economy.com paper is to model realized capital gains as functions of movements in the US stock market and the US housing market. Economy.com noted in 2001 that the positive contributions to revenue flows provided by capital gains was about to end and indeed that many states would experience sharp declines in tax collections. The model performed quite well despite the fact that determining when individuals choose to realize capital gains is a speculative exercise.

The lessons from the Economy.com framework can be applied to the current cycle. Evidence now suggests that individual income tax flow in FY 2005 in Arizona is substantially greater than predicted by ordinary employment and personal income driven models. The logical source of the activity is acceleration in capital gains income. First and foremost, estimates suggest that a considerable amount of collections activity occurred due to capital gains from ordinary sources (e.g. sale of financial assets). Evidence from state tax administrators around the nation indicates significant increases in estimated and final payment flows this spring. Some administrators speculate that capital gain realization may be a significant factor. Indeed, reductions in the capital gains rate to 15% may have fueled the pace of gain realization. However, the individual income tax collections activity showed more growth than might have been expected from a solid year from Wall Street activity. Anecdotal evidence suggests that real estate transactions created a number of taxable events this past year. While there are a number of ways to defer taxable gains on an investment property, some sellers would likely have reported capital gains income from the sale of real estate in 2004. There are 3 distinct reasons for this

- The capital gains tax rate is only 15% at the Federal level
- Some sellers may have exceeded the \$250,000 (\$500,000 for MJ) cap on capital gains exclusions from the sale of a principle residence
- Small consortia of investors, organized in LLC's, cannot execute 10-31 exchanges to defer capital gains. Incomes from these small business enterprises is reported on individual income tax forms

But, if capital gains are the source of the additional money, can a model be developed to explain this behavior and predict future flows of capital gain money? Indeed, under the scenario described above, such a model must contain elements of financial asset gains and real estate gains.

Consider a simple regression framework where capital gains in the US are determined primarily by equity market activity and capital gains in Arizona are determined by both US capital gains (e.g. conceptually on a “share” of the total pie basis) and state housing activity.

Any number of structural forms for these regressions can be estimated. Data are available from 1982 through 2002 for US capital gains and data exist from 1988 to 2002 for AZ capital gains. SP500 index data are readily available on a daily basis. The data used for this exercise are annual averages of the S&P500 index. Housing for Arizona is a broad aggregate of nominal activity, the dollar value of new and resale real estate transacted in a given year in the metro Phoenix region. This activity does not capture all the activity statewide but it does clearly reflect the trend in activity. The primary inputs for this exercise are depicted in Figure 1 and all data are tabulated in the index. Both primary input variables experienced substantial growth over the sample period.

Figure 1
Arizona Real Estate Activity and the S&P Index
(S&P: annual average of daily figures, Restate: aggregate nominal real estate transactions)

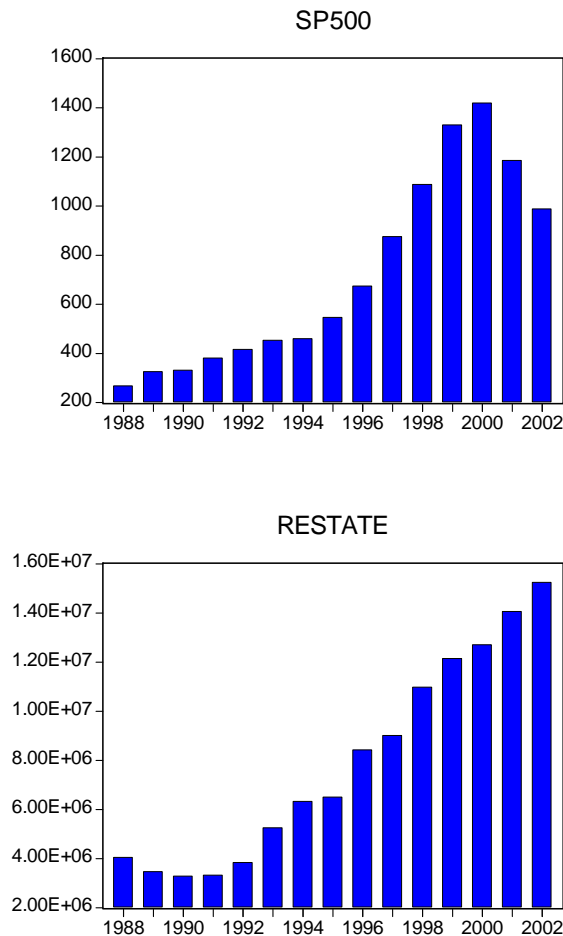
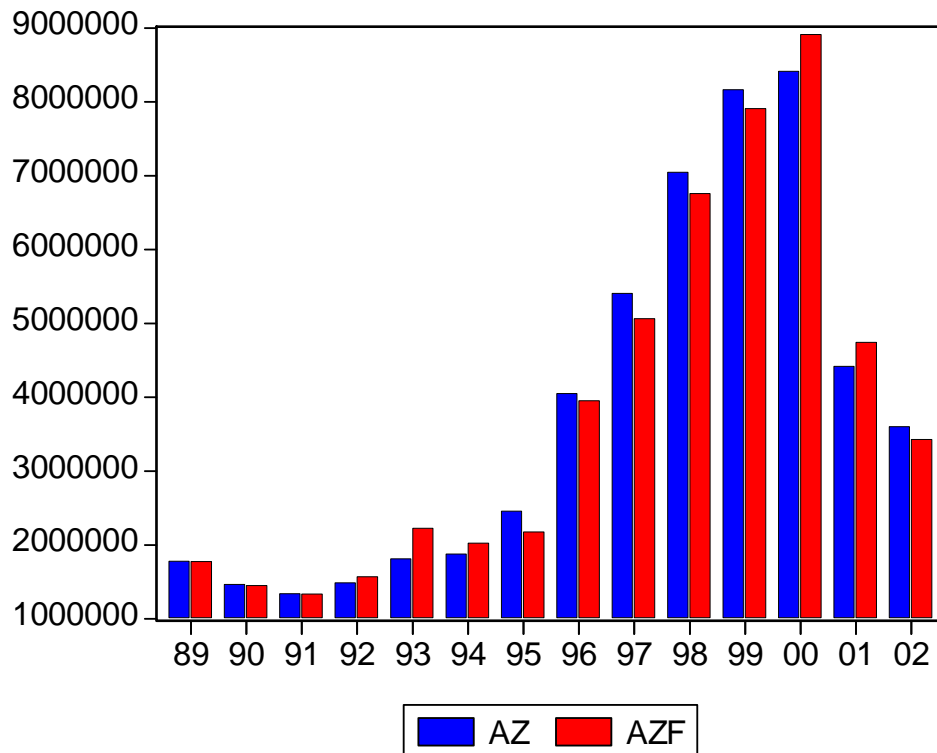


Figure 2 depicts the “in sample” performance of a model that explains Arizona capital gains collections as a function of US capital gains collections and a measure of housing activity in the state. The model performs well over the sample period and the inclusion of both variables add to the explanatory power of the model. The model explains the surge in capital gains that fueled the massive individual income tax collections in the state in the late 1990’s. It also explains the sharp downturn observed in 2001 and 2002

Figure 2

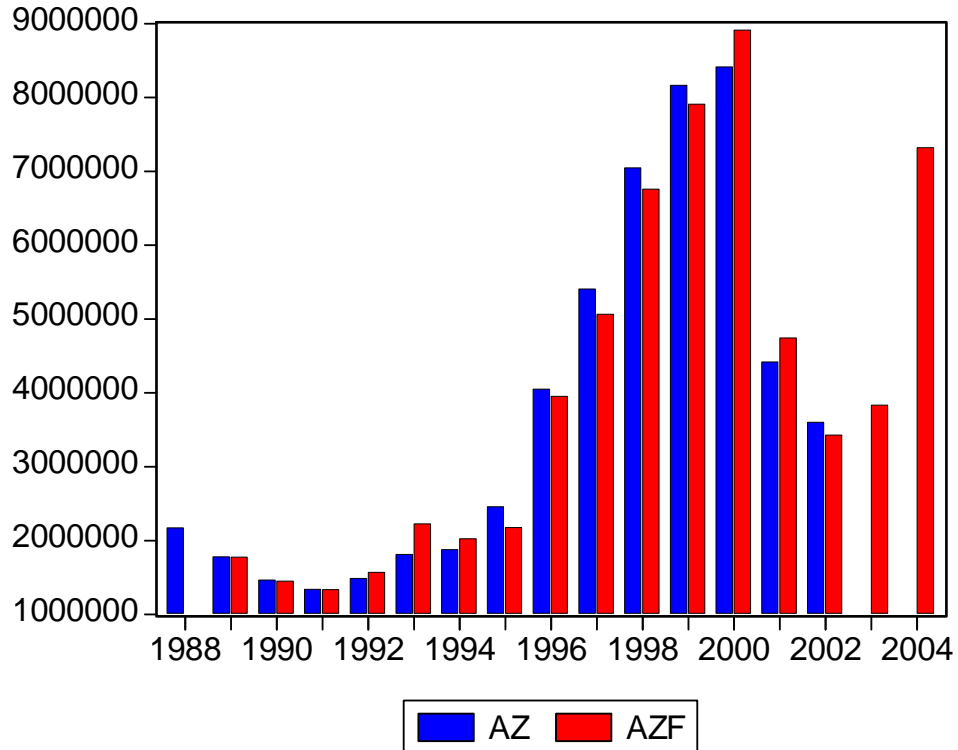
Explaining Capital Gains in Arizona
(Actual and Predicted capital gains income for AZ, in thousands of current dollars)



Data for the S&P500 and for housing activity are readily available for Arizona for 2003 and 2004. Figure 3 depicts Arizona actual capital gains and projected capital gains from the model from 1995 through 2004 using these observations. The model predicts a substantial surge in capital gains in 2004 for the state, a one year increase of about \$3,500,000,000 that is approximately twice as large as any prior year increases observed even in the robust growth of the late 1990s.

Figure 3

Capital Gains Projections
(actual and predicted capital gains in az, thousands of current dollars)



In Figure 4 the shares of the capital gains projections are disbursed between activity associated with national numbers and activity associated with Arizona real estate. The Figure suggests that at the height of capital gains activity in Arizona a relatively small portion is explained by the real estate variable, but it gained considerable importance in 2003 and 2004 – explaining the robust flow of revenue on the spring of 2004 and the huge flow of collections in the spring of 2005.

Figure 3a
Forecast Error Bands and Statistical Uncertainty

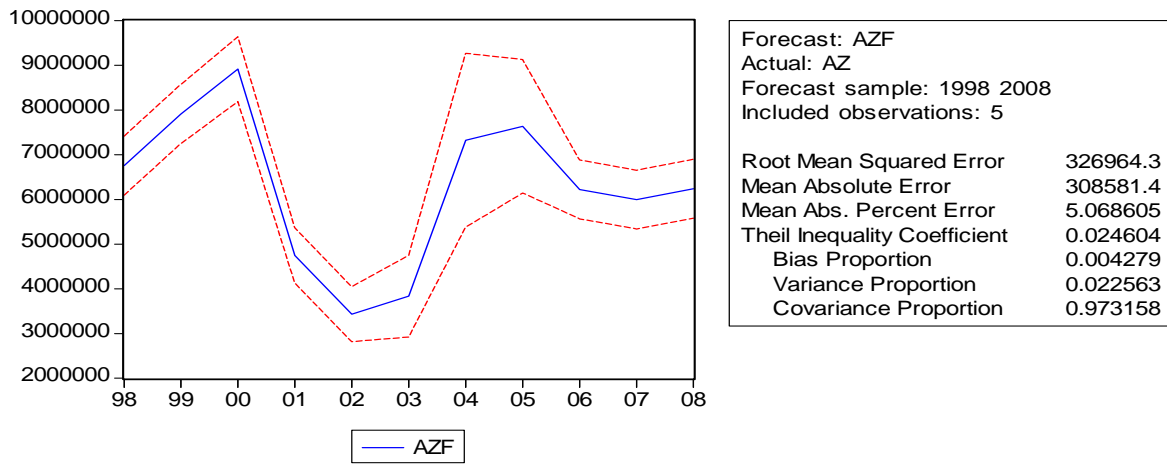
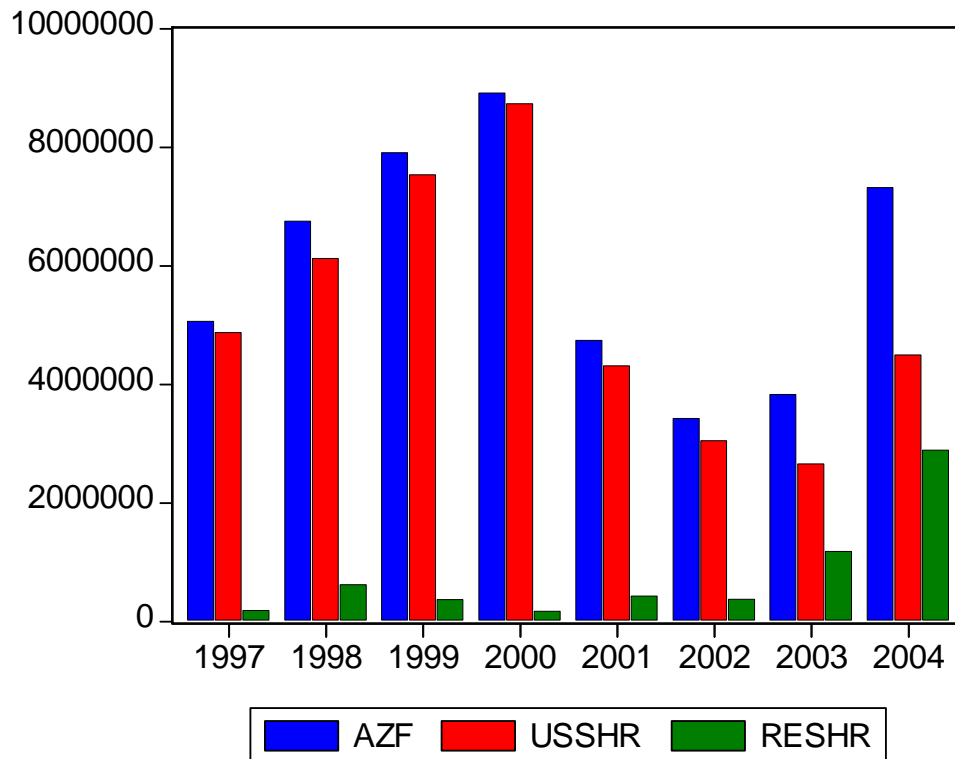


Figure 3a provides an indication of the degree of uncertainty regarding these “out-sample” forecasts. Projections for 2004 are about \$7.3b with confidence bounds spanning \$5.3b to \$9.3b. Moreover, several models explain capital gains behavior equally well and yield different forecasts. However, all models suggest that the increase in capital gains from 2003 to 2004 (at \$3.5b or more) was the greatest one year gain in the sample. The models also uniformly agree that 2005 will be a strong capital gain year as well with slight reduction in gains going forward under the most likely scenarios for stock market and real estate patterns over the next few years.

Figure 4

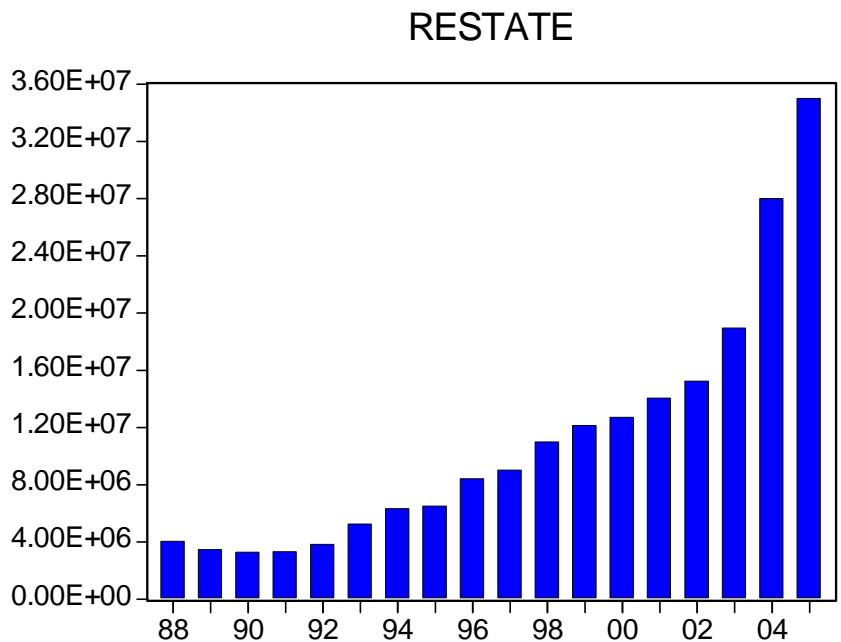
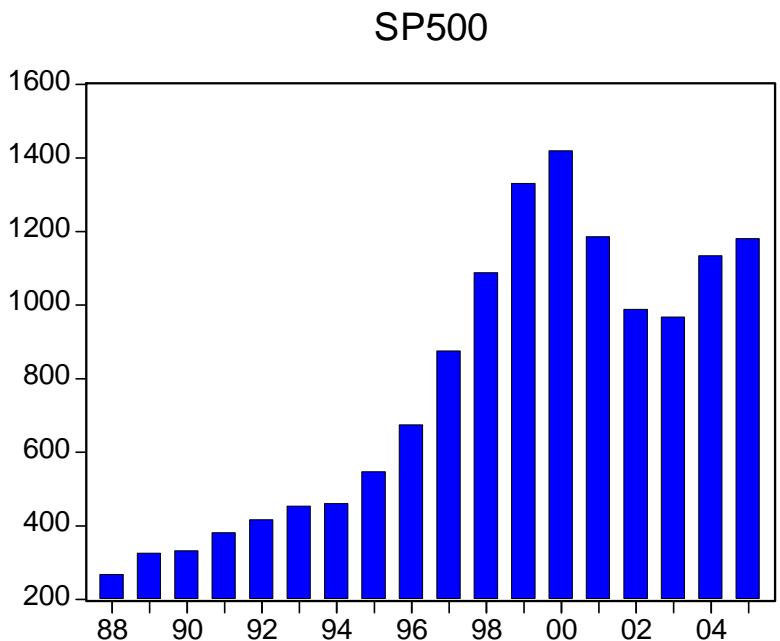
Predicted Capital Gains and Shares Due to SP500 and Real Estate



So what lies ahead in 2005 and what can we expect to receive from capital gains when collections arrive in the spring of 2006? The model was simulated using conservative assumptions about the pace of stock market and housing activity. The scenario is depicted in Figure 5. The scenario is consistent with an SP500 level of 1180 for 2005 so the S&P500 would have to end the year in the 1200-1225 range. Nominal housing activity (the combination of price appreciation and property transacted) is projected to increase just about 25% in this scenario – adding to the record numbers observed in 2004. At this point (May 2005) these numbers look reasonable.

Figure 5

(S&P: annual average of daily figures, Restate: aggregate nominal real estate transactions)

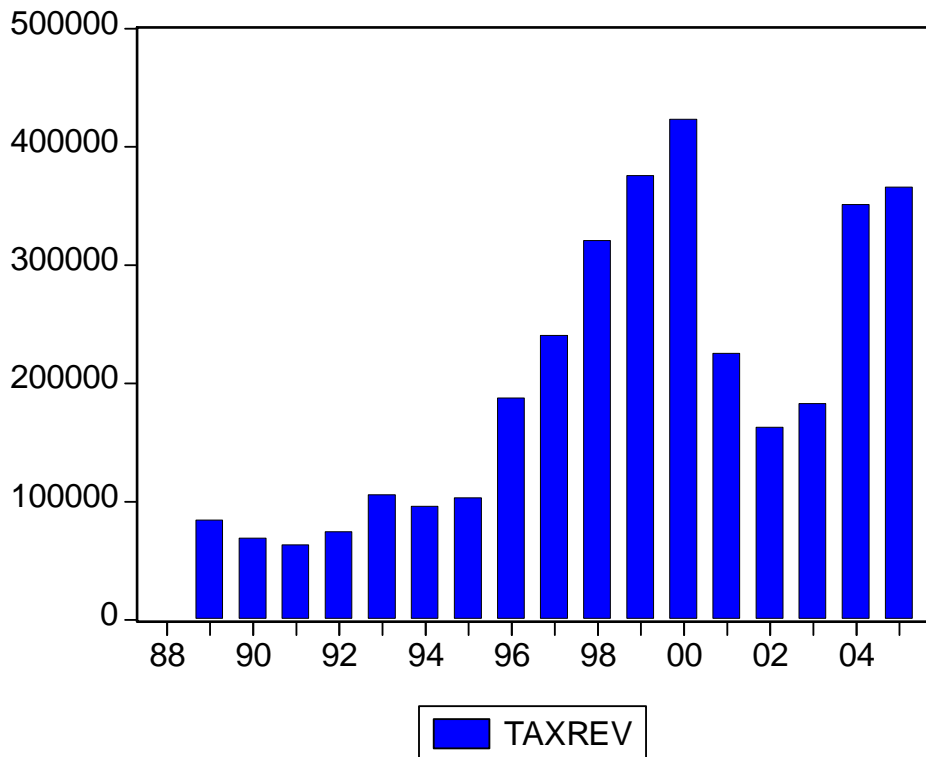


The model predicts a slight increase in capital gains for Arizona for 2005, but gains that will continue to add significant revenues to the Arizona individual income tax collections. For perspective on the approximate amount of revenue that these capital

gains represent, assume that capital gains income is earned by generally high income residents and is taxed at 5%. Figure 6 displays the forecasted contributions of capital gains to revenues that accrue in Arizona. The forecasts explain the sharp decline in collections in FY2002 and FY2003, the rebound in FY2004 caused by the elimination of capital gains erosion, and then the sharp increase in collections this spring. The scenario also suggests that collections from capital gains will be strong in the spring of 2006, but that the state will not see the magnitude of the percentage increases in capital gains observed in the spring of 2005. But, 2004 is clearly not a “one-time” event.

Figure 6

Income Tax Revenues Due to Capital Gains
(Thousands of current dollars)



This analysis should be viewed with caution. It reflects taxpayer behavior in realizing capital gains through a very volatile period for equity and housing prices. However, the analysis does suggest that this activity does indeed have a significant impact on revenues collected in the State of Arizona.

Future Scenarios

Using a simulation of S&P500 and Real Estate activity in the next several years, the pace of capital gains activity can be predicted using the model. Figure 7 depicts the scenario for stock index and Real Estate activity.

Figure 7
Future Scenarios

(S&P: annual average of daily figures, Restate: aggregate nominal real estate transactions)

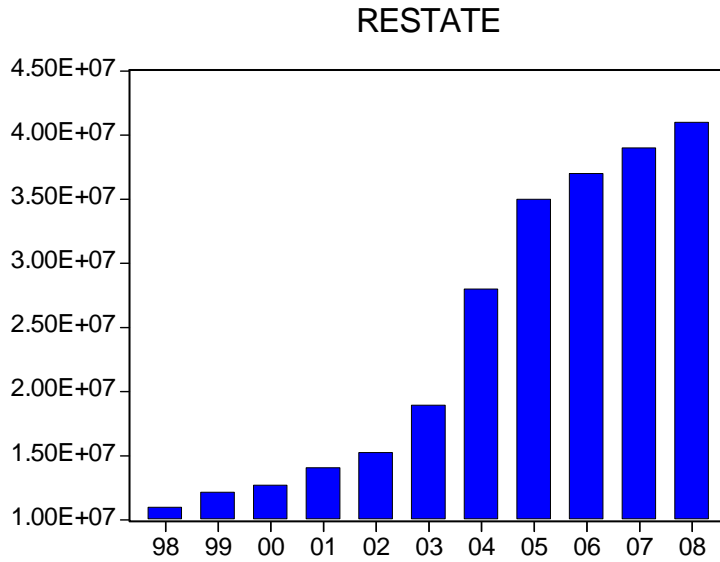
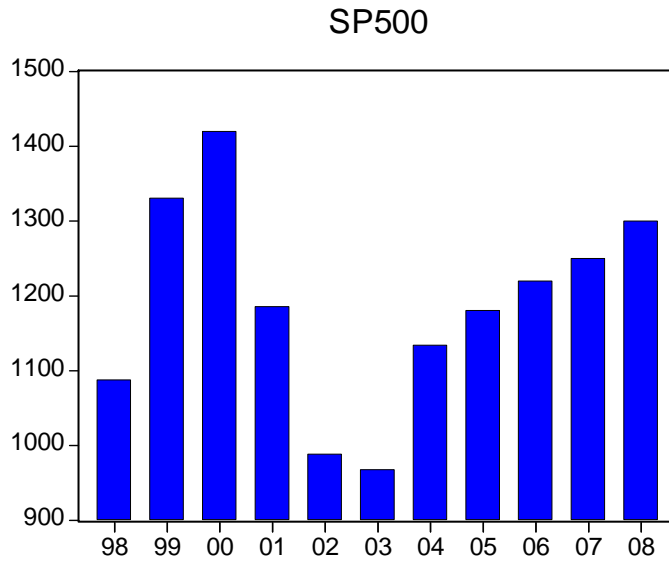
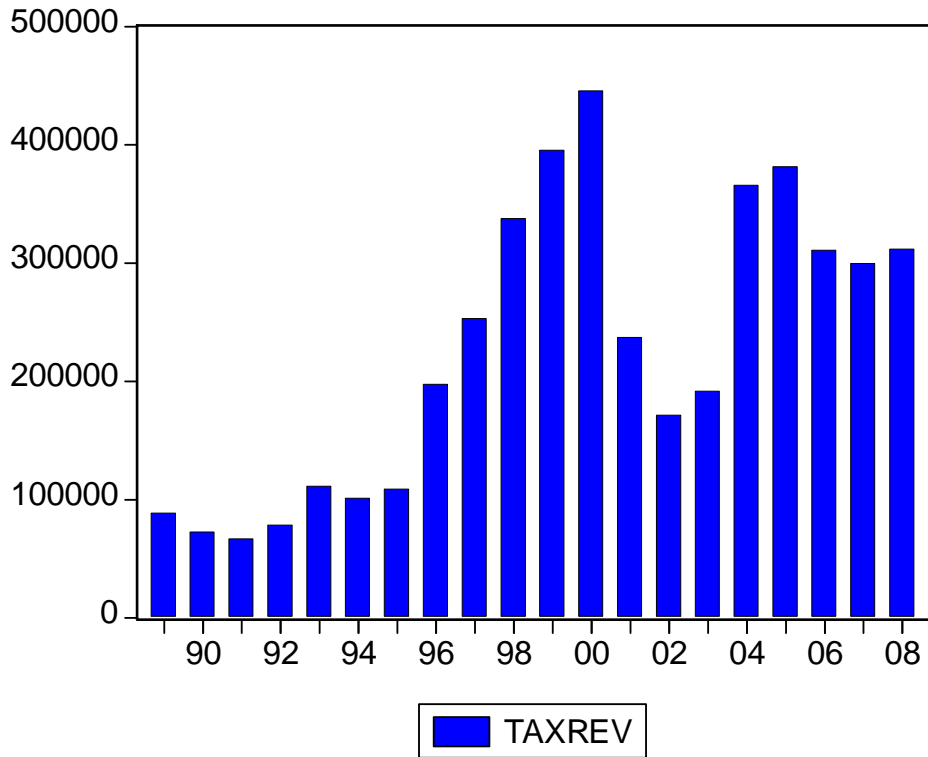


Figure 8

Tax Revenue Associated with Capital Gains
(Thousands of current Dollars)



The individual income tax collections induced by this activity is depicted in Figure 8. The slowing of growth in equity and real estate market activity will act as a drag on capital gains income and individual income tax collections, but the projected declines pale in comparisons with the declines observed in 2001 and 2002. Clearly, sharp declines in equity and real estate markets would portend a steeper slump in capital gains activity. Alternatively, more robust activity in the financial or real estate sectors will produce accelerated collections. Simulations based on more pessimistic or more optimistic scenarios are easily produced by the model.