

## **Regulatory Rules and Estimating Economic Growth: Two Perspectives on Expensing Stock Options**

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The inspiration for this session came from a discovery I made shortly after assuming my current position as Under Secretary of Commerce for Economic Affairs. I came to the Economics and Statistics Administration at the U.S. Commerce Department from a position as a Commissioner at the Securities and Exchange Commission. In that position, I had been a regulator—charged with protecting investors, maintaining fair, orderly, and efficient markets, and facilitating capital formation. In my present position I am charged with fostering, promoting, and developing the foreign and domestic commerce. Specifically, among other duties, I oversee two of the major statistical agencies, the Census Bureau and the Bureau of Economic Analysis (BEA). I did not expect much substantive overlap between the two roles.

What I discovered was that I was wrong. I was surprised to learn that an issue that I had grappled with at the SEC – expensing of stock options - was an issue that BEA also grappled with, but from very different perspectives. I was particularly surprised to learn that decisions made by the SEC regarding the expensing of stock options affected the estimates of gross domestic income (GDI). At the SEC, we had spent significant time and effort trying to determine the appropriate way to value the options that were to be expensed. However, I have to admit, I do not remember any discussion of the potential impact on the measurement of growth of the economy. I am here today to share what I've learned about this topic from these two very different perspectives.

I will set the stage by describing the two perspectives. I will start with a short discussion of what the issues regarding stock options were at the SEC and how they were resolved. Then I will switch to the BEA perspective and describe how GDI is estimated. Then I will explain how the two relate — that is, how changes in accounting and tax rules have caused employee stock options to affect the GDI estimates. Finally, I will point out some other reporting issues that may also affect, in some way, the National Income and Product Accounts (NIPAs).

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## **Expensing of stock options from the perspective of the SEC**

One of the roles of the SEC is to set the standards for the financial reports of public companies filed with the Commission. The development of the accounting standards, known as Generally Accepted Accounting Principles, or GAAP, is delegated to the Financial Accounting Standard Board, or FASB. Both the SEC, through the Office of the Chief Accountant, and the FASB, had been grappling with whether and how stock options should be treated as an expense in companies' income statements since well before I joined the Commission in 2002. In the interest of time, I will not go into the history of and the arguments about expensing and valuation of stock options. There are plenty of other places to read about that, including an excellent paper by my co-panelist, S.P. Kothari. Suffice it to say that a decision was made that after the first quarter of the first fiscal year beginning after June 15, 2006 (December 15, 2006 for smaller filers), public companies had to include the fair value at grant date of stock options as a line item expense on their income statements as the options vest.

Stock options give employees the right to purchase a specified number of shares of their employer's common stock at a specified price (usually at the market price at the grant date, what is known as "at-the-money") over a specific period of time (typically ten years). Usually employees cannot exercise their options until they become vested, typically three years after the grant date. Stock options became an extremely widespread component of compensation in the 1990s, partly as a way to align managers' incentives with shareholders' interests; partly as a way for cash-strapped technology companies to compete for talent; and partly as a rational response by corporations to a \$1 million limit on the tax deductibility of executive salaries legislated in 1993 – something that Christopher Cox, the SEC Chairman has famously suggested "deserves pride of place in the Museum of Unintended Consequences" (Cox, 2006). The popularity of stock options as compensation appears to have waned a bit in recent years for a variety of reasons, likely including the expensing requirement.

Even though most employee stock options are granted at-the-money and so have zero intrinsic value (that is, market price minus exercise price), they have positive value at the grant date, because of the volatility value of the option. That is, the higher the volatility of the underlying stock price, the greater the probability of future appreciation in the value of the stock and the chance of higher proceeds if the option is exercised. Proceeds of most employee stock options are not taxable to employees until they are exercised. When stock options are exercised employers can deduct the proceeds from their income for tax purposes.

Until the mid-1990s, companies only had to book as compensation expense stock option grants with positive intrinsic value – hence the popularity of at-the-money (as opposed to in-the-money) option grants. From the mid-1990s through 2005, companies had the option (sorry about the pun) to continue expensing intrinsic value or they could expense fair value, but in any event they had to report the pro forma impact of the fair value of their stock option grants on their bottom line in the footnotes of their financial reports.

Increasing numbers of companies voluntarily recognized the fair value of stock options in their financial statements, largely in response to the financial reporting scandals of the early part of this decade. Now GAAP requires all companies to start (by 2007) to recognize in their financial and proxy statements the fair value of options at the grant date as compensation expense over the vesting period (during which employees are expected to earn their options).

Under SEC requirements, fair value for employee stock options could be based on the Black-Scholes formula or a lattice model. Alternatively, a market price could be used – if one were available. The Black-Scholes formula and the lattice model methods both use assumptions about the volatility of the underlying stock price and the expected length of time between grant and exercise (employees typically do not hold on to their options for the entire life of the options) to arrive at an estimate of the option value, and both give approximately the same value for simple sets of assumptions. The lattice model, which traces through possible option values depending on likely stock price movements (which in turn depend on the volatility of the underlying stock price), is much more flexible than the Black-Scholes formula, because it can accommodate more complex patterns of expected employee stock exercise behavior (for example, an assumption about the likelihood of exercise depending on how much the stock price had appreciated could be incorporated into a lattice model but not in a Black-Scholes formula). Some financial services companies are attempting – with SEC encouragement-- to devise products that mimic the restrictions placed on employee stock options in order to determine an actual market value rather than a model-based value for such options (see, for example, Rosen, 2007, p. 40).

Other regulatory changes affecting employee stock options were implemented to address certain abuses, such as backdating option grants to establish a lower exercise price than the current market price, which makes the options more valuable to employees, or backdating option exercises (to a date when the market price of the underlying stock was lower) to evade taxes on the proceeds. The Sarbanes-Oxley Act and subsequent SEC rules in 2002 required more timely reporting of stock option grants, especially for officers and directors, which has helped deter backdating. As a further check against stock option abuses, the SEC approved in 2003 revised rules governing the listing standards of the major stock exchanges to require shareholder approval of most stock-based compensation plans (White 2007).

### **How BEA develops GDI estimates**

To follow up on stock option issues from the SEC perspective, I am going to delve down into the weeds related to BEA's estimates of gross domestic income (GDI), which is one of the key measures of economic growth estimated by the BEA.

National income is earned in a wide variety of ways—there are wages and salaries, proprietors' earnings, rents, interest income and profits. And there is a variety of other

types of labor income, including payments for fringe benefits, bonuses—and stock options. Stock options are, after all, income to the employees that receive them and (in a fundamental sense) a cost of doing business to the companies that issue them. The challenge is how to measure that income and that cost.

BEA does not produce one single definitive quarterly GDI estimate, but many “vintages” of GDI estimates for each quarter. As I will discuss later, what BEA knows about stock options and when BEA knows it matters for the accuracy of the successive vintages of GDI estimates. Thus, to understand the stock options story one must understand a bit about how a single quarter’s GDI estimate goes from being an “advance quarterly estimate” to the five year comprehensive revision estimate.

The first three vintages are released soon after the end of the quarter: “advance” estimates, which are released about one month after the end of the quarter; “preliminary” estimates one month later; and “final” estimates one month after that. Then, in the following July, BEA publishes its “annual revision” of the preceding three calendar years’ quarterly estimates, drawing on a more detailed and comprehensive annual set of estimates. Thus, each quarter’s estimates go through three annual revisions. There are also “comprehensive revisions” about every five years, using the most complete Census data available and incorporating major methodology changes, if any.

The decision to publish multiple revisions for each quarter reflects a compromise between providing timely estimates based on less-than-complete data and providing increasingly accurate estimates with lags that reflect the availability of better and more complete data. But when revisions result in large changes they create headaches for the statistical agencies and the users of the data.

BEA’s preferred data for GDI estimates are administrative data – quarterly unemployment insurance data from the states for wages and salary disbursements and annual IRS tabulations of corporate income tax returns for corporate profits. These data provide high coverage rates of workers and corporations, high shares of income received, and apply consistent (over time and across firms) and well-specified definitions of income components. But these data take a lot of time to collect and tabulate, and a lot of adjustments still have to be made to the data to conform to National Income and Product Account standards. The quarterly unemployment insurance wage and salary disbursement data do not get incorporated into GDI estimates until the preliminary revision of the *following* quarter (in other words, five months after the end of the quarter in question). Therefore, for early GDI estimates, BEA uses data from a less comprehensive (but timelier) monthly survey that only includes regular earnings for production or non-supervisory employees. As a result, BEA has to estimate the wage and salary disbursements to non-production and supervisory employees as well as irregular payments – such as commissions and bonuses and proceeds from the exercise of stock options – that account for a large share of earnings of highly compensated employees (Moylan 2007).

It takes even longer for annual IRS tabulations of corporate income tax return data to be incorporated into the GDI estimates. Preliminary annual IRS data are not incorporated until the second annual revision and final IRS data not until the third annual revision. In the interim, BEA extrapolates estimates of corporate profits from the SEC's GAAP-based corporate financial reports. When the IRS data become available, the GAAP numbers can be reconciled with tax-based numbers.

### **Employee Stock Options and GDI Estimation**

BEA currently uses the tax rules to reflect employee stock options in estimates of employee compensation and corporate profits. In principle, proceeds from the exercise of stock options are included in compensation estimates for the quarter in which exercise occurs, and the proceeds are excluded from corporate profit estimates for the same quarter. Note that this means that stock option compensation is not recognized until some time – possibly years – have passed after employees actually receive the options. This anomaly creates a problem for the reconciliation of the National Income with National Product accounts. It also means that any divergence between accounting and tax profits creates a headache for BEA, because BEA—as I will explain—initially uses GAAP measures but ultimately uses tax accounting to measure the value of options.

To give some idea of how the tax and accounting rules diverge in their treatments of employee stock options, IRS data (Boynton, et al., 2006) show that corporations deducted \$40 billion more in stock option proceeds than they expensed in employee stock option grants in 2004 (the latest year corporate tax data are publicly available) For data years before tax return information is available, BEA makes an estimate of the annual expense that would be deducted on corporate tax returns for the value of stock options exercised during that year, using information from footnotes of individual corporate financial reports to the SEC from the largest 100 firms. Adding an adjustment for this expense to the reported financial data has likely reduced the disparity between the accounting and tax numbers. (This adjustment is made to avoid double-counting because the option exercise is getting reported as compensation but is not getting deducted from corporate profits.) In 2004, expensing of stock option grants in financial reports was still effectively voluntary. Now that options have to be expensed as they are vested, the official IRS reconciliation between tax and accounting treatments of employee stock options may show less of a gap in future years, although there can still be large differences between fair value when granted and market value when exercised.

The lags in tax-based wage and salary disbursements and corporate income tax data create two sets of problems: problems arising from lags in incorporating wage and salary disbursements data into GDI estimates; and problems arising from lags in incorporating corporate income tax data into GDI estimates.

The first problem arises from the fact that the early quarterly estimates of GDI wage and salary disbursements do not reflect actual data on the proceeds from the exercise of stock

options, because the monthly payroll survey on which interim compensation estimates are based do not include such irregular payments (which must be estimated). Therefore, GDI estimates could be temporarily misestimated to the extent that there is an imbalance between estimates of stock option proceeds embedded in both compensation and profit estimates. Five months later, revised estimates for the quarter incorporate the state unemployment insurance agencies' data on wage and salary disbursements, including the proceeds from the exercise of employee stock options, which can have very large impacts on GDI estimates (Moynan 2007). For example, Figure 1 shows that in 2006, wage and salary disbursements in the advance estimates were understated by nearly \$80 billion (annualized), or about one percent in the first quarter, and overstated by \$110 billion in the second quarter (Kunze 2007). It is likely that options accounted for a large share of these revisions, but we cannot quantify their impact because options proceeds and other irregular payments are not reported separately in the state unemployment insurance program wage and salary data.

A second measurement problem arises because of the unavailability of separate estimates of stock option compensation in the unemployment insurance data: those data provide no basis for making a corresponding adjustment to corporate profits in the preliminary GDI estimates. Until the 2003 comprehensive revision of the national accounts, GDI was probably somewhat overstated with respect to employee stock options because no adjustment was made to reflect the impact of stock option exercises on corporate profits until the second annual revision (when IRS data on corporate profits – net of proceeds from exercise of stock options – became available to BEA). In Figure 2, you can see how BEA's estimates of corporate profit growth for the late 1990s and early 2000s were revised sharply downward after IRS data became available. A substantial portion of the revision likely can be attributed to the effect of the exercise of stock options. Comparing the ballooning of S&P 500 accounting profits to the pre-Annual Revision estimates shown in Figure 2 gives you an idea of the magnitude of adjustments to accounting information BEA makes to obtain something approximating tax-based corporate profits measure pending the receipt of IRS corporate profits data.

For the 2003 comprehensive revision, BEA developed a methodology for estimating proceeds from the exercise of employee stock option based on the pro forma impacts on compensation and profits of stock option grants reported in the footnotes of corporate financial reports (see Mead, et al., 2004); such estimates are used in the first annual revision and then are superseded by IRS data on corporate income (which is net of stock option proceeds). Now that stock option grants have to be expensed, BEA likely will have to make further adjustments to accounting-based profits to make them conform to tax-based profits, and it may consider switching from tax-based to accounting-based measures of stock option compensation.

## **Conclusion**

As you can no doubt see, the activities of the SEC do not overlap with those of the BEA. One is a regulatory body and the other's mission is to measure the economy. But, the

independent decisions made at the SEC do have implications for BEA and the statistics that it produces. Stock options are only one example. There are other financial reporting standards that have the potential to affect the National Income and Product Accounts. For example, potential pension accounting changes may eliminate smoothing and increase volatility of profits. Also, the recent announcement by the SEC that foreign companies operating in the U.S. that use international financial reporting standards (IFRS) do not have to reconcile to GAAP may create other anomalies. The SEC makes such changes to help make corporate financial reports more meaningful for investors and less burdensome for companies. Nevertheless, given the unintended consequences of potential impacts on the NIPAs, it is important for both the statistical agencies and the NIPA data users to be aware of such changes and their possible impact on the measures.

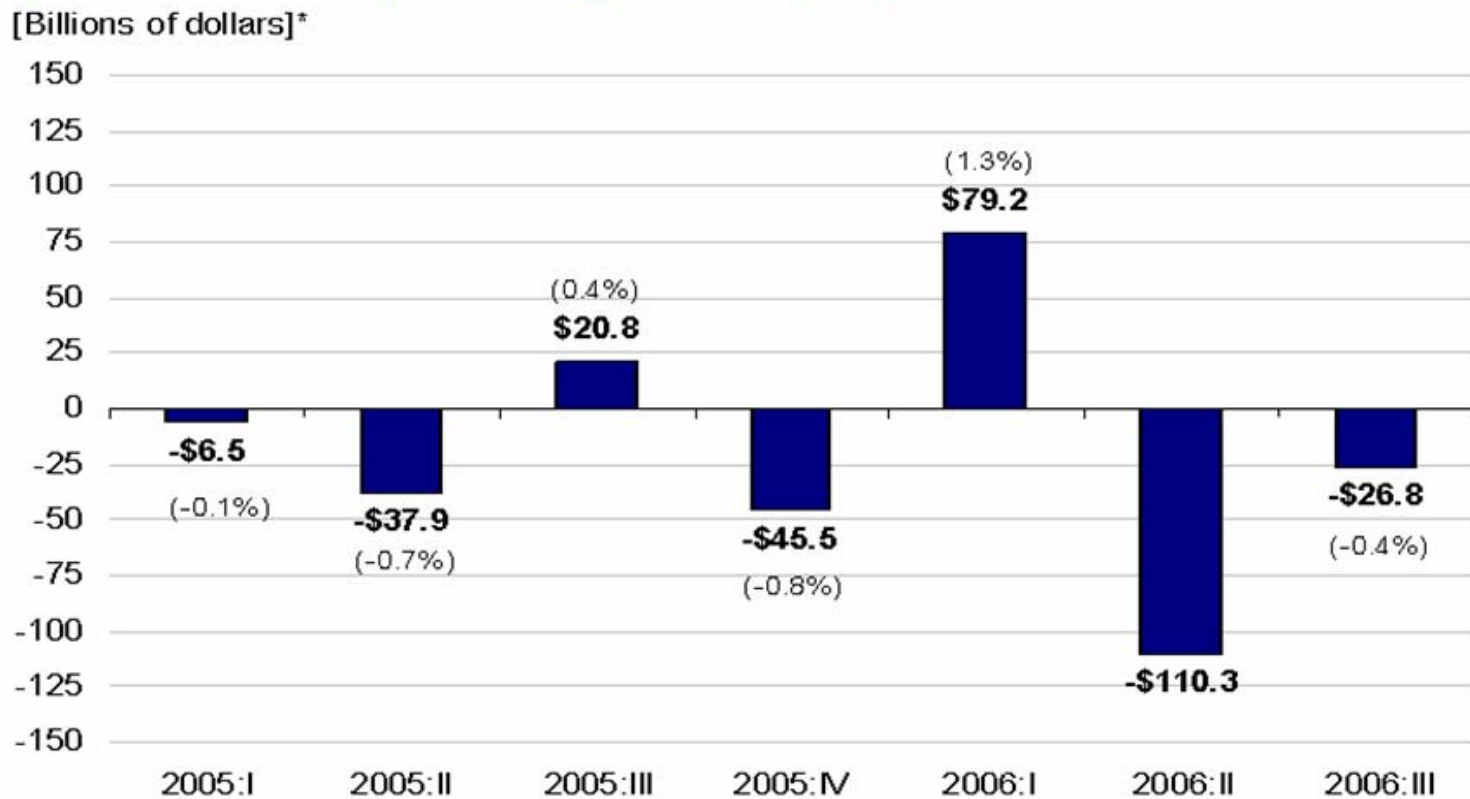
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Figure 1

## Quarterly wage and salary revisions

### Impact of incorporating unemployment insurance data

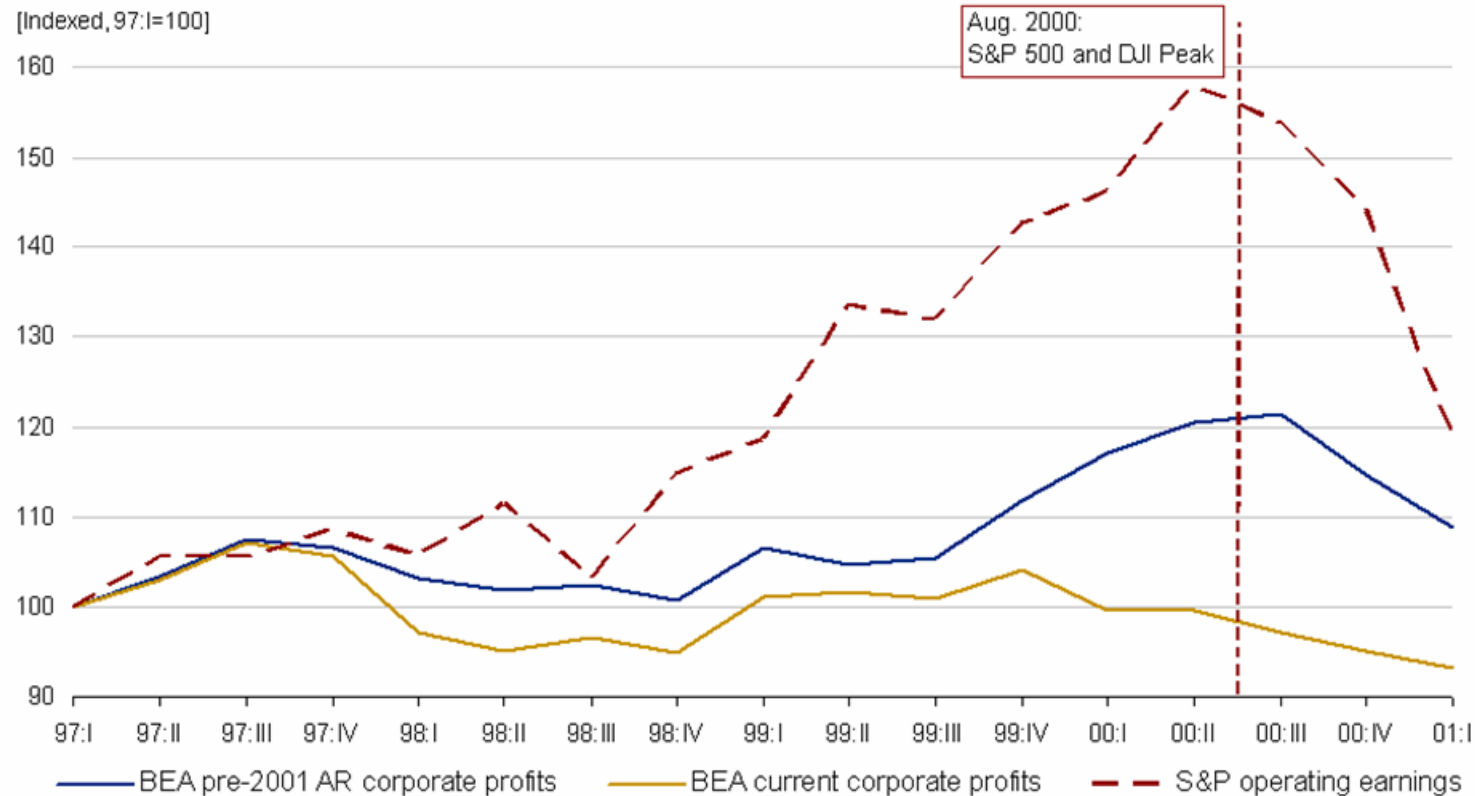


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Figure 2

## Effect of revising BEA corporate profit estimates using IRS corporate income tax data



Note: "pre-2001 AR" refers to corporate profits estimates made prior to BEA's 2001 Annual Revision of Gross Domestic Income estimates.

