Treatment of Employee Stock Options in the U.S. National Economic Accounts

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U.S. companies increasingly use the granting of employee stock options as part of an overall compensation package. What was originally an executive perk is now often provided to all employees. This growth has added significance to several questions on the treatment and valuation of these stock options. What are employee stock options? How are wages and salaries and profits measured? How are these options currently treated in national economic accounts of the United States? What are the major conceptual measurement and timing issues? What are the major practical measurement and timing issues? Could a mismeasurement of these options be a source of the swing in the U.S. statistical discrepancy for the most recent years? This paper will focus on answering these questions.

What are employee stock options?

Employee stock options are the right to buy stock in the company at a company-set grant price within a particular time period, often 10 years. There is usually a minimum time limit before the individual may exercise the option, referred to as the "vesting" period. The employee must stay employed to be vested. For companies with publicly traded equity shares, the grant price is usually the market price of the stock at the time of grant.

Employee stock options are granted as part of an overall compensation package. Companies are giving employees the right to buy company stock at a company-set price in the future in exchange for lower current-period wages and salaries. In accepting lower wages, employees expect that the market value of the company stock will grow sufficiently to more than offset the wages that they could have earned without the option package. With the large increases in the stock market in the United States during the 1990's, particularly in startup information-technology companies, employees were willing to take stock options as part of a compensation package that included a lower wage than they could have obtained at a company that did not offer stock options. For employers, the cost of granting options lowers current compensation costs and generally is not charged against their profit and loss account. Because employees must remain at the firm for a minimum time period before these options may be exercised, employee retention rates may increase and compensation may be foregone if options are canceled due to employee turnover. In some cases, the granting of an option is a way of offering large incentives to key employees whose performance will affect the future stock price. There has been speculation that one reason wage increases have been moderate in the face of a very tight labor market is the proliferation of stock options.

In the United States, two major types of employee stock options have emerged: Incentive stock options (ISO's) and nonqualified stock options (NSO's). An ISO is a type of "statutory stock option." [1] Generally, statutory stock options are not taxable to the employee, or deductible by the employer, either when the option is granted or when it is exercised. With an ISO, an employer gives employees an opportunity to purchase employer stock at a fixed price during a specified time. Among the requirements, the term of these options cannot exceed 10 years, the exercise price must be equal or more than the current value of the stock, and options for no more than $100,000 worth of stock (determined at time of grant) may become exercisable in any year. When the stock is sold, the difference between the market and exercise price of the stock options is reported as a capital gain on the employee's income tax return. The

[1] Another type of statutory stock option that is less commonly used is an employee stock purchase plan option.

business cannot deduct the option in calculating taxable income. If ISO's are sold either within 2 years of grant or within 1 year of exercise, they revert to NSO tax status. This option is the most beneficial of the two options to an employee because the long-term capital gains tax rate is usually lower than the employee's ordinary income tax rate, but the cap on the value of stock that may be exercised in any year limits its use in corporate executive compensation packages. Because there is no tax benefit for a firm, this option is less beneficial to the firm.

The most prevalent stock option used is the NSO. An NSO is an offer by an employer to sell its stock to an employee for a specified price at any time during a specified period. When an NSO is exercised, a company records an expense for the difference between the exercise price and the current market price of the stock. Using financial accounting terms (rather than tax accounting terms), NSO's are often referred to as "compensatory" options, because the use of these options gives rise to compensation expenses on company books. In exercising stock options, an employee incurs a tax liability equal to the difference between the market and exercise price that is reported as wages; the company receives a tax deduction for the difference between the market and exercise price, which reduces taxes paid. Although companies take a tax deduction for employee compensation of the same magnitude as the personal taxable income, they do not need to take the deduction on financial statements.

In their annual financial statements, companies must disclose in the financial notes the stock-based employee compensation activity information at time of grant. They may follow either APB Opinion 25, an intrinsic value-based method, or beginning with 1996, financial accounting standard (FAS) No.123, a fair value-based method. Under APB Opinion 25, compensation may be measured as current market price of the stock less the grant price. This is usually zero at grant. Under FAS-123, the recommended measure of compensation is an option-pricing model, such as the Black-Scholes model, which takes into account factors such as the stock option's grant price, exercise price, expected life, volatility, and expected dividends, and the risk-free interest rate over the option's expected life. Most companies continue to use APB Opinion 25. Consequently, accounting rules for financial statements result in an understatement of compensation costs and a corresponding overstatement of profits.[1]

In addition, companies must disclose in the notes their stock option activities for the past three years. The information disclosed includes the number of shares and weighted average exercise price for shares subject to stock options at the beginning and end of the year, for optionsgranted, exercised, and canceled each year, and for the number of shares subject to stock options that are exercisable at the end of the year. What does not need to be reported is the market price of the options that were exercised during the year.

How are wages and salaries and profits measured?

Tabulations from the Bureau of Labor Statistics (BLS) for the unemployment insurance (UI) program provide the key source data for BEA's annual estimates for wages and salaries. The measure of UI wages and salaries is similar in concept to NIPA wage and salary disbursements. Thus, it is the starting point in the estimation of NIPA wage disbursements. UI wages and salaries are derived from quarterly tabulations by the state employment security agencies (ESA) that summarize data from the quarterly UI contribution reports filed by employers subject to that state's UI laws. Under most state UI laws, wages andsalaries include bonuses, tips, the cash value of meals and lodging provided by the employer, the employee exercise of certain stock options, and employee contributions to certain deferred compensation plans. Wages and salaries are measured before deductions, such as employee contributions to social insurance funds and union dues, and they reflect the amount of wages and salaries disbursed, but not necessarily accrued, during the year. BEA makes adjustments to UI-reported wage and salary disbursements to account for non-reporting and under reporting by employers. BEA generally assumes that UI wages include the exercising of NSO's, but not the exercising of ISO's, though there is also evidence that some states are inconsistent in their coverage.

The exercising of stock options and other special compensation items are not separately identifiable in the UI wage and salary tabulations. Both a strength and a weakness of UI wages and salary data is that these tabulations are derived from administrative tax records. Because virtually all private employers are covered by unemployment insurance, the UI data provide a near universal coverage of employment and payrolls of wage and salary workers. However, they also

[1] For a summary of FAS-123, see www.rutgers.edu/Accounting/raw/fasb/public/index.html.

reflect somewhat differing state UI laws, that is, what constitutes wages and salaries may not be consistently defined nor reported across states. Differences mayoccur in the definition of what are considered wages for some payments made by employers or by employees for deferred compensation and for certain types of trust funds. To better understand possible differences, BLS surveyed the state ESA's in 1998/1999 to find out what compensation-type items were treated as components of wages for their state tax reports. Although follow-up work still needs to be done, it appears that most, but not all, states define what constitutes wages and salaries consistently. In addition, although it appears that large technology firms are reporting as wages the exercise of employee stock options, it is not clear that all firms are doing so. Because the annual tax base for UI wages and salaries is capped at $7,000 per employee, states may have little incentive to follow up with firms to ensure correct reporting of special compensation items.

As with most gross domestic product (GDP) components, the most recent annual "benchmark" level is extrapolated to derive current monthly and quarterly estimates. Quarterly UI tabulations are not used in extrapolation because they are not available until six months following the end of the quarter. Instead, BEA uses an extrapolator based on employment, hours, and earnings from a BLS monthly survey, the Current Employment Statistics (CES) program; these data are available about one week following the end of a particular month. The CES-based extrapolator excludes income from bonuses, commissions, other nonregular payments, such as the exercise of stock options, and other pay not earned in the pay period concerned (e.g., retroactive pay). BEA adds a bias adjustment to the extrapolator to account for its historical under reporting of wage and salary growth.

Tabulations of Federal corporate income tax returns from the Internal Revenue Service (IRS) Statistics of Income (SOI) program provide the key source data for BEA's annual detailed industry estimates for profits. Tax accounting measures are the primary source of profits information for the NIPAs, because they are based on well-specified accounting definitions and because the tabulations are comprehensive in their coverage. The tabulations of corporate income tax returns prepared by the IRS include annual receipt and expense items and tax liabilities. Because companies may take the exercise of NSO's as a tax deduction, BEA assumes that they are generally expensed within the income statement. They are not separately identifiable on tax forms.

A shortcoming of the IRS data is their timeliness. Preliminary and final SOI estimates become available two years after and three years after the year to which they refer, respectively. Thus, preliminary tax-based profits are not incorporated into annual NIPA estimates until the second annual revision for a given year.

Financial accounting measures, although less comprehensive, are used in extrapolating the tax-return-based estimates to current periods, because they are available sooner than the tax tabulations and they are on a quarterly basis. Where data are available, the financial accounting measures are adjusted to remove items such as capital gain and loss income, foreign source income, dividend income, and nonrecurring items, which are not considered a part of current production. Because the exercising of NSO's usually does not affect book earnings, financial profits do not usually decline when NSO's are exercised. This could cause the extrapolator to misstate growth in profits relative to the tax-return based measure. Correspondingly, there is a lack of quarterly information on NSO's which is necessary to base an adjustment.

How are these options currently treated in the economic accounts of the United States?

In the U.S. national income and product accounts (NIPAs), the featured measure of GDP is based on the expenditures approach. Another estimate based on the income approach is known as gross domestic income (GDI) and is measured as the sum of the costs incurred and the incomes earned in the production of GDP, with a "statistical discrepancy" representing the differences between the two measures.

In practice, the treatment of stock options inthe NIPAs is based on their treatment in the administrative source data that are currently used to estimate components of GDI. Because ISO's are not taxable as ordinary income to the employee, or deductible by the employer, either when the option is granted or when it is exercised, these options are not treated as part of compensation of employees. For most NSO's, because the difference between the exercise price and grant price is included in the source data for wages, the NSO is included in wages at the time the option is exercised.[1] This amount is a deduction in the calculation of corporate taxable income, the source data for corporate profits (entrepreneurial income).

What are the major conceptual measurement and timing issues?

There are a number of difficult conceptual issues that need to be resolved before we can say what the treatment of stock options in the NIPAs should be. Although employee stock options are not mentioned explicitly in the section of the 1993 SNA on compensation of employees (paragraphs 7.21-7.47), they may be covered implicitly as “wages and salaries in kind” (paragraph 7.37-7.42). Are stock options compensation? There is general agreement that stock options have value and the value should be treated as compensation.

Should NSOs and ISOs, be treated differently? ISOs and NSOs are measured differently in the NIPAs because we do not have the data to do anything else, but how should they be measured in the NIPAs? The fact that they receive different tax treatment should not determine whether they are compensation or how that compensation should be measured.

How should stock options be valued and over what period should the value be recorded as compensation — at the time of, prior to vesting, prior to exercise or at time of exercise? Some analysts believe that options should be valued at grant using an option-pricing model such as the Black-Scholes method to reflect labor services rendered prior to grant. Other analysts believe that stock options are a reward for future performance, so that the value of these options would have to be spread over several time periods and annual adjustments would need to be added to the Black-Scholes valuation. Subsequent changes would be holding gains or losses. At present, BEA is limited by data source constraints in calculating these alternative measures. Data on grant of options are not available and, although included in our annual source data, measures of the value of stock options exercised are not separately identified. Most studies that try to measure the value of these options use information from footnotes of individual corporate financial reports.

In concept, because the NIPAs and the SNA record transactions on an accrual basis and use market values (or proxies thereof) for valuation, it would appear that stock options should be valued at their market value when they are granted. Lacking a secondary market, we think that, in concept, the value an option should be estimated when granted, based on fair value using an option-pricing model such as the Black-Scholes method. It is unclear whether compensation should be recorded in full when the option is granted or whether it should be recorded over the option vesting period. When the option is exercised, the difference between the issue value and the exercise value should be recorded as a holding gain or loss by the employee and as a holding loss or gain by the company. In essence, our conceptually preferred treatment is close to the accounting recommendations of FAS-123. But we currently are unable to implement our preferred treatment due to lack of source data.

[1] An NSO is taxed when it is granted if the option has a “readily ascertainable fair market value” at that time. For most NSO’s, the option does not have a readily ascertainable fair market value, so the grant of the option is not taxable.

What are the major practical measurement and timing issues?

The differences in source data used for measuring wage and salary accruals and for profits can lead to several measurement and timing problems. How does one measure the compensation of stock options and the effect of stock options on corporate profits, so that we get the income side of the accounts right? At this time, it is not clear what effects, if any, these problems have on the statistical discrepancy. BEA assumes the exercise of NSO's are included in the wage and salary tabulations. In the BLS survey of states on the composition of UI wages mentioned above, most, but not all, states said the exercising of nonqualified stock options should be treated as part of wages and salaries, but some states also included incentive stock options, which should not be included as part of NIPA wages (as presently defined). There is also the issue of how companies are actually reporting. A state may list the exercising of ISO's as part of wages, but firms may not report them as wages, since they do not have to do so for income tax reporting. Not all firms may be reporting the exercising of NSO's, although as mentioned earlier, it does appear that at least the large firms are doing so. Considerable follow up work needs to be done to verify what is actually reported in wages and to what extent, if any, these tabulations are incorrectly valued.

Timing is another possible problem and may lead to swings in the statistical discrepancy for the current time period when the corporate profits expense and wage and salary accrual from the exercise of options do not offset one another. Although options probably largely offset once the full tax-based estimates are incorporated, a possible imbalance exists before then. When the UI data become available, wages should fully reflect the inclusion of NSO's. Until that time, wages and salaries are extrapolated using the CES data. Although a bias adjustment is added to the wage and salary estimates, it may not fully reflect the growth in wages. This was the case for data year 1998, when quarterly-based estimates under reported the UI-based wages and salaries by approximately $36 billion, or by 1 percent of wages and salaries. For 1999, the two measures were about equal. For profits, there is an additional year lag for the incorporation of tax return data. So, if the exercising of stock options grows, national income may be overstated. The NIPA profits extrapolator, which is based on financial accounting, may omit a significant portion of corporate expenses from stock option exercise. So far, this has not usually been the case, but that may change.[1] Many Internet companies started providing employee stock options in the mid-1990's and did not become fully vested until the late 1990's. Employees are starting to exercise these options. For the most recent year available of corporate tax returns, which is probably also the first year that Internet company employee stock options were widely exercised, corporate profits were revised down.

Plans for the future

BEA will continue its efforts to better measure employee compensation. We need to specify the desired conceptual treatment. BEA, in coordination with the BLS, will continue to pursue the changing makeup of UI wage and salary tabulations so that we may better adjust for differences in state reporting of various special compensation-type items. As resources permit, we plan to continue research on measuring alternative treatments of employee stock options.

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[1] For nine of the last ten years, profits were revised up when tax-based data were incorporated.

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