

# Washington University Law Review

---

Volume 72  
Issue 2 *Issues in Employee Benefits—ERISA at Twenty*

---

January 1994

## The Effect of Anti-Discrimination Provisions on Rank-and-File Compensation

Joseph Bankman  
*Stanford University*

Follow this and additional works at: [https://openscholarship.wustl.edu/law\\_lawreview](https://openscholarship.wustl.edu/law_lawreview)



Part of the [Civil Rights and Discrimination Commons](#), and the [Labor and Employment Law Commons](#)

---

### Recommended Citation

Joseph Bankman, *The Effect of Anti-Discrimination Provisions on Rank-and-File Compensation*, 72 WASH. U. L. Q. 597 (1994).

Available at: [https://openscholarship.wustl.edu/law\\_lawreview/vol72/iss2/3](https://openscholarship.wustl.edu/law_lawreview/vol72/iss2/3)

This F. Hodge O'Neal Corporate and Securities Law Symposium is brought to you for free and open access by the Law School at Washington University Open Scholarship. It has been accepted for inclusion in Washington University Law Review by an authorized administrator of Washington University Open Scholarship. For more information, please contact [digital@wumail.wustl.edu](mailto:digital@wumail.wustl.edu).

# THE EFFECT OF ANTI-DISCRIMINATION PROVISIONS ON RANK-AND-FILE COMPENSATION

JOSEPH BANKMAN\*

Under current law, employees are not taxed on the value of employer contributions to qualified pension, profit-sharing and stock-bonus plans ("retirement plans") or on the value of certain benefits, such as reimbursement for medical expenses, provided through so-called welfare benefit plans.<sup>1</sup> Employers, on the other hand, are allowed to deduct the full cost of the contributions or benefits.<sup>2</sup> This favorable tax treatment is conditioned, however, upon compliance with certain "anti-discrimination" rules. In general, under those rules, benefits provided to highly compensated employees must also be provided to non-highly compensated ("rank-and-file") employees.

For most individuals, the desirability of the anti-discrimination rules will depend in part on the effect such rules have on the cash compensation, benefits, and perceived value of benefits provided to rank-and-file employees. Consider, for example, two polar assumptions. Under the first assumption, some portion of the cost of benefits provided to rank-and-file employees is paid out of the surplus generated to highly compensated employees and employers by the favorable tax rules. The compensation package provided under the rules is perceived by rank-and-file employees as more valuable than the all-cash compensation they would otherwise receive. Under the second assumption, the cash compensation provided to rank-and-file employees is reduced by the cost of the benefits. Rank-and-file employees prefer cash to benefits and so regard their new compensation package as less valuable than the all cash compensation they would otherwise receive. Quite clearly, in this latter case, the anti-discrimination provisions will be justified, if at all, only on paternalistic grounds or

---

\* Professor of Law and Helen M. Crocker Faculty Scholar, Stanford University. The author wishes to thank Ian Ayres, A. Mitchell Polinsky, Jeff Strnad and, especially, research assistants Ted Fikre and Eric Talley, for their contributions to the paper. This author is greatly indebted to a former student, Robert Rothenberg, whose superb seminar paper suggested that the effects of the anti-discrimination provisions deserved a closer look.

1. I.R.C. §§ 105(h), 402, 403 (1988 & Supp. IV 1992).
2. I.R.C. § 162, 404 (1988 & Supp. IV 1992).

because of the “free rider” problems posed by employees without pension or medical benefits.

Somewhat surprisingly, the effect of the anti-discrimination provisions on compensation levels has been discussed in the legal literature only in a few articles (including one by this author) and then only in summary fashion.<sup>3</sup> The subject has not been discussed at all in the economics literature. The purpose of this Article is to provide a more considered, though still quite basic, exposition of the effect the anti-discrimination provisions are likely to have on rank-and-file compensation.

In general, the analysis herein supports prior analysis: the anti-discrimination provisions are likely to reduce the perceived welfare of rank-and-file employees. However, the analysis below identifies a set of assumptions—relating to the relative value of tax-favored benefits, the ability of employers to change the ratio of rank-and-file and highly compensated workers, and the relationship between payroll costs and output—under which the anti-discrimination provisions unambiguously improve the welfare of rank-and-file employees.

This Article is divided into five parts. Part I provides an overview of the anti-discrimination provisions that govern pension and welfare benefit plans. Part II examines the effect of such provisions in industries that require a fixed ratio of highly compensated to rank-and-file workers. Part III examines the effect of the anti-discrimination rules in industries in which the ratio of highly compensated employees to rank-and-file employees may change, either because one group of employees may be substituted for another, or because automation may differentially affect one group of employees. Part IV discusses the general equilibrium and other considerations that may affect the economic analysis, including paternalistic or free rider considerations that may justify the anti-discrimination provisions even in those situations in which the provisions reduce the perceived value of compensation received by rank-and-file workers. Part V briefly notes other effects of the anti-discrimination provisions. The anti-discrimination provisions may influence a firm’s decision to expand internally or to acquire additional labor by contracting with another firm. The anti-discrimination provisions may also exacerbate the effects of technological change on employment of rank-and-file workers.

---

3. See Joseph Bankman, *Tax Policy and Retirement Income: Are Pension Plan Anti-Discrimination Provisions Desirable?*, 55 U. CHI. L. REV. 790 (1988); Bruce Wolk, *Discrimination Rules for Qualified Retirement Plans: Good Intentions Confront Economic Reality*, 70 VA. L. REV. 419 (1984).

## I. THE ANTI-DISCRIMINATION PROVISIONS

The anti-discrimination provisions under current law, while limited in number, are quite complex. In the pension area alone, a thorough explanation of those provisions might run hundreds of pages. Fortunately, for the purposes of this Article, such lengthy exposition is unnecessary. It will be sufficient, instead, to provide a summary description of the two or three most significant anti-discrimination provisions.

The single most important anti-discrimination provisions, in terms of aggregate dollar of benefit covered, are those which apply to retirement plans. In general, these provisions require that the ratio of retirement benefits to total compensation must be as great for rank-and-file employees as for highly compensated employees.<sup>4</sup> Thus, a plan which offers a highly compensated employee pension benefits equal to ten percent of salary must also offer a rank-and-file employee pension benefits equal to ten percent of salary. For the purposes of the pension provisions, a highly compensated employee is defined as: (1) an employee with a five percent or greater ownership interest in the enterprise; (2) employees who receive annual compensation in excess of \$96,386; (3) officers who receive annual compensation in excess of \$64,245; (4) and employees who receive annual compensation in excess of \$64,245 and whose compensation places them in the upper twenty percent of the organization's employees.<sup>5</sup> These figures are adjusted annually for inflation.<sup>6</sup>

The application of the anti-discrimination provisions to employee welfare benefit plans is more varied. Here, the most important anti-discrimination provisions are those covering self-insured medical reimbursement plans. In general, these anti-discrimination rules require that rank-and-file

---

4. I.R.C. § 401(a)(5) (1988). The actual rules are considerably more complex than the rule of straight proportionality might suggest. For example, the proportionality rule is weakened by the so-called "integration" provisions, which, in the case of a so-called defined contribution retirement plan, allow employer social security contributions to be treated as employer retirement plan contributions (and in the case of a defined benefit retirement plan, allow social security benefits to be treated as retirement plan benefits). I.R.C. § 401(f) (1988). On the other hand, the relaxation of the proportionality rule by the integration provisions is in some cases more than offset by the strengthening of that rule under the so-called "top heavy" provisions. These provisions limit benefits to the group of elite "key employees" (e.g., super highly compensated employees) beyond that required by the proportionality rule in cases in which the ratio of key employees to rank-and-file workers is quite high, and as a result a large proportion of total benefits go to the former group of employees. I.R.C. § 416 (1988). See generally Bankman, *supra* note 3, at 795-800.

5. I.R.C. § 414(q), 415(d) (1988 & Supp. IV 1992).

6. I.R.C. § 415(d)(1) (1988).

employees receive the same benefits as highly compensated employees.<sup>7</sup> If, for example, a plan reimburses highly compensated employees for the cost of psychotherapy, it must provide a similar reimbursement for rank-and-file employees. The term "highly compensated employee" is defined for these purposes as one of the five highest paid officers, a shareholder who owns more than ten percent of the value of the stock of the employer, or an individual who is among the highest paid twenty-five percent of all employees.<sup>8</sup>

Other anti-discrimination provisions affect the taxation of dependent care benefits,<sup>9</sup> group term life insurance benefits,<sup>10</sup> and discounts on certain employer-provided goods and services.<sup>11</sup> In general, these provisions require that benefits provided to highly compensated employees must also be provided to rank-and-file employees.<sup>12</sup>

The penalty for non-compliance with the anti-discrimination rules varies. If a self-reimbursed medical plan is found to discriminate, highly compensated employees will be taxed on the value of benefits not provided to rank-and-file employees.<sup>13</sup> In all other cases, highly compensated employees will be taxed on the full value of benefits received.<sup>14</sup>

The anti-discrimination provisions are subject to constant administrative and legislative change. For example, under former Internal Revenue Code section 89, enacted as part of the Tax Reform Act of 1986, virtually all tax-favored employee welfare benefits were subject to the same sort of anti-discrimination provisions that now apply to self-insured medical reimbursement plans.<sup>15</sup> That provision, however, had a prospective effective date and was repealed prior to the end of the taxable year in which it was to

---

7. I.R.C. § 105(h) (Supp. IV 1992).

8. *Id.* § 105(h)(5).

9. I.R.C. § 129(d) (1988 & Supp. IV 1992).

10. *Id.* § 79.

11. I.R.C. § 132(a), (j) (Supp. IV 1992).

12. Discrimination for purposes of § 79 is measured not with respect to highly compensated employees but instead with respect to the more restricted category of "key employees." I.R.C. § 79 (1988 & Supp. IV 1992). The definition of key employee for purposes of § 79 is the same as for purposes of the retirement plan provisions. *See supra* note 4. In order to qualify as non-discriminatory under the dependent care provisions of § 129, benefits must not only be made available to rank-and-file employees, but a certain percentage of total benefits must in fact be used by such employees. *See id.* § 129 (d)(8), (e)(5).

13. I.R.C. § 105(h)(1), (7) (Supp. IV 1992).

14. I.R.C. §§ 79(d)(1), 129(d)(1), 402(b)(4) (1988 & Supp. IV 1992); Treas. Reg. § 1.132-8(a)(2) (1989).

15. Pub. L. No. 99-514, § 1151(a), 100 Stat. 2085, 2494-502 (1986).

become effective.<sup>16</sup>

## II. EFFECT OF ANTI-DISCRIMINATION PROVISIONS IN INDUSTRIES WITH A CONSTANT RATIO OF RANK-AND-FILE TO HIGHLY COMPENSATED WORKERS

It is useful to begin by analyzing the effect of the anti-discrimination provisions in the special case of an industry that requires a fixed input ratio of rank-and-file to highly compensated workers. Such an industry cannot substitute rank-and-file employees for highly compensated employees, or vice-versa, or differentially replace one set of employees through automation, as the relative wage rates of the two sets of employees change.<sup>17</sup>

Consider, first, the determination of equilibrium wage rates in a world with no tax-favored benefits and (quite obviously) no anti-discrimination provisions. Assume that industry requires an equal number of highly compensated and rank-and-file workers, and that demand for the number of each set of workers is given by the function  $D = 220,000 - P_{r\&f} - P_{hce}$ , where  $P_{r\&f}$  stands for the salary of rank-and-file workers and  $P_{hce}$  stands for the salary of highly compensated workers. (Most realistic examples of fixed input ratios will produce nonlinear factor demand functions. Here as elsewhere this paper adopts linear demand—and linear supply—functions for heuristic purposes.) The supply of rank-and-file workers is given by the function  $S_{r\&f} = 5 * P_{r\&f}$ ; the supply of highly compensated workers is given by the function  $S_{hce} = P_{hce}$ . Under these conditions, supply will equal demand at 100,000 rank-and-file and 100,000 highly compensated workers.<sup>18</sup> Highly compensated workers will receive a salary of \$100,000; rank-and-file workers will receive \$20,000. Assume further that absent tax benefits employers do not provide any of the fringe benefits now subject

16. Pub. L. No. 101-140, § 203(a), 103 Stat. 830-32 (1989).

17. All industries probably have some ability to change the ratio of rank-and-file to highly compensated workers. Some industries, however, will not be able to significantly change that ratio absent dramatic changes in the relative costs of the two forms of workers. In this connection, one might think of a professional sports franchise, which employs highly paid athletes and low-paid concessionaires or other workers. A more familiar example of an industry for which substitution is difficult may be that of large law firms, which (notwithstanding automation) seem to require a relatively fixed ratio of highly paid attorneys and less well-compensated support staff.

18. Since at equilibrium,  $S_{r\&f} = S_{hce}$ ,  $S_{r\&f} = 5P_{r\&f}$  and  $S_{hce} = P_{hce}$ , then, at equilibrium,  $5P_{r\&f}$  must equal  $P_{hce}$ , and  $P_{r\&f}$  must equal  $.2P_{hce}$ . It is then possible to substitute  $.2P_{hce}$  for  $P_{r\&f}$  in the demand function, set the demand function equal to the supply of highly compensated employees, and solve for the salary of highly compensated employees ( $P_{hce}$ ). The number of highly compensated employees is then determined by the supply function ( $S = P_{hce}$ ). Similar analysis provides the salary and supply of rank-and-file employees.

to the anti-discrimination provisions.<sup>19</sup> (Highly compensated employees, in particular, may place some positive value on employer-provided benefits, but it is assumed that this premium is not great enough to justify the cost of employer plans.)

Assume now that the present tax-favored benefit provisions are passed without the corresponding anti-discrimination rules. Employer benefit plans are quite valuable to highly compensated employees. Such employees would in any event spend money on the items that now can be provided on a tax-favored basis. For example, highly compensated employees may be expected to save for retirement and spend substantial sums on medical care. To simplify the analysis, assume that the benefit plans may be treated as a single benefit and that, due to the favorable tax treatment, the first dollar of benefit provided by an employer is worth \$1.725 to highly compensated employees.<sup>20</sup> The value of each additional dollar of benefit declines at a rate of 2% for every thousand dollars of benefit, so that after an employee has \$1,000 of benefit, the marginal value of an additional \$1 of benefit is only about \$1.69 (98% of \$1.725), and after an employee has \$2,000 of benefit, the marginal value of an additional \$1 of benefit is only about \$1.66. The value of an additional \$1 of benefits does not fall below \$1 until over \$27,000 of benefits have been provided.<sup>21</sup>

Rank-and-file employees place a lower dollar value on retirement

---

19. In reality, employers may well provide some fringe benefits even absent the favorable tax rules. For example, group rates for medical and life insurance are well below individual rates. This is because individual purchase of insurance raises issues of adverse selection—demand is greater for those who expect to die sooner or use more medical care. Adverse selection is limited when insurance is purchased for a group by an employer without significant knowledge of the health of its employees. However, the purpose of this analysis is to identify the effects of the anti-discrimination provisions in those situations in which the favored benefits and provisions change behavior. It is therefore possible to assume away a “baseline” purchase of benefits.

20. In reality, of course, each benefit would be separately valued by highly compensated employees. The assumption adopted above will simplify exposition without altering any of the analytic insights of this model.

21. The value of benefits may be defined mathematically as  $U(B) = 1725 * .98^B / \ln(.98) + K$ , where  $B$  stands for the level of benefits (in thousands of dollars),  $\ln$  stands for natural logarithm and  $K$  is an arbitrary constant (here, 85384.6).

Quite obviously, any assumption as to valuation is arbitrary. The assumption that the utility of each unit of benefits declines by a constant percentage is consistent with the assumption of “constant absolute risk aversion” that is commonly used in economic modelling. The assumption that the first dollar of benefit is worth \$1.725 is consistent with the tax savings realized by an employee who receives a welfare benefit such as employer-provided medical care and who faces the following effective marginal tax rates: state income tax—1%; federal income tax—39.6%; and federal hospital insurance tax—1.45%. An employee in that situation whose medical expenses fall below 7.5% of adjusted gross income and therefore cannot be deducted would require \$172.50 in taxable salary to purchase \$100 of medical care.

benefits. Such employees are for the most part in low or zero tax brackets and do not much benefit from the tax savings. Moreover, under normal circumstances, rank-and-file employees would save a much smaller percentage of their income than highly compensated employees. Indeed, given the low wage rate specified here, and depending on the cost of living, a rank-and-file employee without other sources of income may require all her cash compensation just to pay for bare necessities such as food, rent and child care. Rank-and-file employees would also place a lower value on medical benefits, in part because such employees do not benefit much from the favorable tax treatment, and in part because, in general, such employees would not spend as much on medical care as highly compensated employees. Rank-and-file employees are less likely than highly compensated employees to spend money on items such as psychotherapy or orthodonture, or to purchase high-cost medical insurance that allows for the insured to select a physician unrelated to a health maintenance organization. As income falls below a certain level, rank-and-file employees are apt to go without any medical coverage whatsoever, as all income is spent on more immediate necessities. Assume, therefore, that rank-and-file employees value the first dollar of benefits at only \$.70, and that the value of each additional dollar of benefit declines at a rate of 10% for every thousand dollars of benefit, so that after an employee has \$1,000 of benefit, the marginal value of an additional \$1 of benefit is only about \$.63, and after an employee has \$2,000 of benefit, the marginal value of an additional \$1 of benefit is only about \$.57.<sup>22</sup>

Employers may be expected to respond to the new tax rules by giving highly compensated workers less cash salary and more tax-favored benefits. Employers should continue to replace salary with benefits until the marginal value of the benefit is less than the salary forgone. Here, that will occur after the employer has paid out \$27,000 of benefits. The \$27,000 of benefits, under the above formula, has a value to the employees of about \$36,000. In the short-term, the savings should accrue to employers, who now are able to attract the present workforce by spending only \$91,000 (\$27,000 in benefits and \$64,000 in cash) rather than \$100,000 on compensation to highly compensated employees. The employers will not provide benefits to rank-and-file employees, because such employees will value even the first \$1,000 of benefits at less than cost.

---

22. The value of benefits may be defined mathematically as  $U(B) = 700 * .9^B / \ln(9) + K$ , where  $B$  stands for the level of benefits (in thousands of dollars),  $\ln$  stands for natural logarithm and  $K$  is an arbitrary constant (here, 6643.9).



The increased profits realized from reduced payroll increase output and demand for labor. The new equilibrium can be determined by rewriting the supply curve of the highly compensated workers as  $S = P + \$9,000$ , because, given an optimal level of benefits, it will require \$9,000 less aggregate compensation to induce a given level of labor. The increased demand for labor results in a new equilibrium of 104,100 highly compensated employees earning compensation that is valued by such employees as \$104,100 and a like number of rank-and-file employees earning \$20,800. Not surprisingly, the increased demand for labor also increases employee surplus; that is, that portion of the perceived compensation above the reservation price. Rank-and-file employee surplus increases from \$1 billion to \$1.083 billion, while highly compensated employee surplus rises from \$5 billion to \$5.418 billion.

As is evident from the numbers, the tax-favored nature of fringe benefits has improved the position of not only employers and highly compensated employees, but also of rank-and-file employees who did not receive the benefits. The reason for this is that the favorable tax rules reduced payroll costs, thereby increasing demand for labor. Because the ratio of rank-and-file and highly compensated employees is fixed, demand increased as much for rank-and-file employees as for highly compensated employees. The increased demand, in turn, increased wages.

Assume now that the favorable tax provisions are coupled with anti-discrimination provisions and that these provisions require absolute equality of benefits.<sup>23</sup> The industry can now provide \$27,000 of benefits to the highly compensated employees only if it also provides that amount of benefit to the rank-and-file employees. Because rank-and-file employees value benefits at less than cost, however, employers cannot costlessly substitute benefits for cash salary and still maintain the same labor supply. Employers can optimize under the new rules by providing benefits until the marginal valuation of benefit by employees is no longer greater than the marginal cost. Here, that occurs after only about \$5,000 of benefits are paid to each set of employees. Rank-and-file employees value such benefits at \$2,700; highly compensated employees value such benefits at

---

23. The assumption of absolute equality of benefits is made for heuristic purposes. In fact, with respect to retirement benefits, which are the most significant benefits subject to the anti-discrimination requirements, the law requires only proportionate equality. *See supra* at note 4. The assumption of absolute rather than proportionate equality will overstate the costs of the anti-discrimination requirements, but will not affect the basic analytic structure of the analysis herein.

\$8,200.<sup>24</sup> In total, then, the employer provides \$10,000 of benefits valued, in the aggregate, at \$10,900. In the short-term, employers can reduce salary by this latter amount.

As in the analysis immediately above, the increased profits realized from reduced payroll increase output and demand for labor. Under the conditions described above, the industry reaches a new equilibrium supply of 100,400 highly compensated employees earning compensation that is valued by such employees as \$100,400 and a like number of rank-and-file employees earning \$22,400 valued as \$20,100.<sup>25</sup> Rank-and-file workers are better off than they were without the introduction of tax-favored benefits, but not as well off as they were when the tax-favored benefits were left undisturbed by the anti-discrimination provisions. Here, the coupling of anti-discrimination requirements with the tax-favored benefit provisions has reduced the perceived compensation of rank-and-file workers by \$700 (from \$20,800 to \$20,100). Employee surplus is similarly reduced. Rank-and-file employee surplus falls from \$1.083 billion to \$1.009 billion, while highly compensated employee surplus falls from \$5.418 billion to \$5.040 billion. The precise decline in rank-and-file compensation is, of course, a product of the supply, demand and valuation functions above. However, under all plausible circumstances, in industries that cannot alter the ratio of rank-and-file and highly compensated employees, the anti-discrimination requirements will reduce the perceived compensation of rank-and-file employees by reducing demand for labor.

### III. SUBSTITUTION OF HIGHLY COMPENSATED EMPLOYEES FOR RANK-AND-FILE WORKERS

The unambiguous results derived in the previous Part depend on the assumption that the industry subject to anti-discrimination requirements requires a fixed proportion of rank-and-file and highly compensated workers. In real life, of course, industries can often substitute rank-and-file employees for highly compensated employees and vice versa. The substitutability of different sorts of workers greatly complicates any analysis of the anti-discrimination provisions. To understand why this is so, consider again the effect of those provisions on the wage rates of any

---

24. These values may be determined by substituting 5 for  $B$  in the valuation functions described above.

25. The new equilibrium can be determined by rewriting the supply curve of highly compensated workers as  $S = P + 3200$  and the supply curve of rank-and-file workers as  $S = 5(P - 2,300)$  and solving as described in *supra* note 18.

given industry. The favorable tax treatment of benefits absent the anti-discrimination provisions increases profits in the short term. In a competitive industry, this would be expected to increase production, and all else equal, to increase employment of both highly compensated and rank-and-file employees.

However, with respect to the decision to hire highly compensated or rank-and-file workers, all else is not equal. Employers are able to provide highly compensated employees with desired tax-favored benefits and in so doing reduce the amount of total compensation paid to such employees. Rank-and-file employees benefit less from the favorable tax provisions and in general prefer cash to benefits. The favorable tax provisions can be described as a wage subsidy that increases with increasing employment of highly compensated workers. The subsidy changes the relative price of highly compensated and rank-and-file employees and causes employers to hire more of the former and less of the latter. Consider, for example, a computer manufacturer's decision whether to hire a highly compensated product quality engineer or to hire two additional assembly line workers to inspect finished goods. At the margin, the favorable tax provisions, which reduce the cost of the engineer's service, may well cause the manufacturer to hire the engineer over the rank-and-file workers.

In situations in which the kind of substitution described above is possible, the favorable tax provisions, absent the anti-discrimination requirements, have an ambiguous effect on the welfare of rank-and-file employees. The tax provisions lead to expansion of production, which generally leads to greater demand for rank-and-file workers, and hence greater pay for such workers. On the other hand, the provisions lead to substitution of highly compensated workers for rank-and-file workers. The reduced demand caused by this effect lowers the wages of the rank-and-file workers. Which of the two effects will dominate is an empirical question the answer to which will vary from industry to industry.

Consider, now, the effect on rank-and-file workers of the favorable tax provisions with the anti-discrimination provisions. Once again, there will be an income or output effect and a substitution effect. The output effect will be uniformly negative: the provisions increase the wage costs in general, and therefore reduce industry output, which in itself reduces demand for all types of labor. As evidenced by the example in Part II, so long as rank-and-file workers value benefits less than highly compensated employees, the requirement that benefits be equalized across employees means that the employer must give highly compensated employees fewer benefits than would otherwise be optimal or give rank-and-file employees

more benefits than would otherwise be optimal or both. This increases payroll costs and, all else equal, reduces output. Thus, the demand for all sorts of labor is reduced. The reduced demand causes the perceived compensation of rank-and-file (and highly compensated) workers to fall.

The anti-discrimination requirements, when coupled with the tax-favored nature of the benefit, will also produce a substitution effect, albeit of a unique nature. Here, the substitution effect will vary from firm to firm not only in intensity but in direction. The ambiguous nature of the substitution effect is due to the fact that the relative price of workers is determined not only by external markets but by the ratio of highly compensated to rank-and-file employees within each individual firm. As made evident in the examples provided below, for some firms, the anti-discrimination requirements will increase the relative cost of highly compensated employees; for other firms, the requirements will increase the relative cost of rank-and-file employees. To put the matter somewhat differently, depending on the ratio of highly compensated to rank-and-file employees, and on the value placed upon the benefits by both sets of employees, a particular firm may be able to minimize costs by substituting highly compensated for rank-and-file employees, or vice versa.

Consider, first, the position of the computer manufacturer described above under circumstances in which the cost of the anti-discrimination provisions can be most easily avoided by further reducing the proportion of rank-and-file workers. Assume that, even after substituting highly compensated employees for rank-and-file employees, the computer manufacturer retains a considerable number of rank-and-file employees. In a world without anti-discrimination requirements, the manufacturer does not receive a subsidy for the employment of such employees; that is, the manufacturer cannot realize payroll savings by furnishing such employees benefits that provide equal value at less cost. On the other hand, the employment of rank-and-file employees does not threaten the payroll savings realized from providing a benefit-rich mix of compensation to highly compensated employees. If the favorable tax provisions are coupled with the anti-discrimination requirements and the manufacturer (irrationally) wishes to make no further changes in the ratio of highly compensated to rank-and-file employees, it is faced with two alternatives. The manufacturer can retain the payroll savings attributable to highly compensated employees by retaining the present level of benefits and providing an equal level of benefits to rank-and-file employees. If, as is likely, rank-and-file employees value the benefits at less than their cost, the manufacturer must increase the total compensation to rank-and-file employees to keep the level

of perceived compensation constant. Alternatively, given the (irrational) desire to retain the present ratio of rank-and-file and highly compensated employees, the manufacturer may find it optimal to reduce the level of benefits to all employees and lose much of the savings it reaped in the world without anti-discrimination requirements. In the example in Part II, the employer could not vary the ratio of the two groups of employees and found it optimal to reduce the level of benefits from \$27,000 for highly compensated employees to \$5,000 for all employees. This response left the employer with savings of \$900 per paired employee—far less than the \$9,000 savings reaped in the world without anti-discrimination requirements.

We assume here that the manufacturer can in fact vary the ratio of rank-and-file to highly compensated employees. As a result, the manufacturer may be able to avoid both of the undesirable alternatives described above by further reducing the proportion of rank-and-file employees. To take an extreme example, suppose that the manufacturer is able to replace all of its remaining rank-and-file employees through automation, and that in the world without anti-discrimination requirements automation would increase net costs by \$500 a year per employee. Quite clearly, absent the anti-discrimination requirements, the employer would not automate. If the anti-discrimination requirements are in effect, however, the manufacturer must either pay a high level of benefits to rank-and-file employees, and increase total compensation to rank-and-file employees to offset the difference between the costs and perceived value of the benefits, or reduce the benefits to highly compensated employees, and lose some or all of the savings reaped from providing that group of employees with a high level of benefits. If the cost of the better of these two alternatives is greater than \$500 per employee, the manufacturer will automate.

In the above example, the anti-discrimination requirements might appropriately be viewed as a tax upon the continued employment of rank-and-file workers—a tax that could be avoided through automation. In other cases, this tax may be avoided by replacing rank-and-file employees with highly compensated employees. Assume, for example, that the computer manufacturer described above may replace two rank-and-file workers with one highly compensated worker at a net cost, exclusive of the effect of the anti-discrimination rules, of \$500 per year. In the absence of anti-discrimination rules, the employer will not make that substitution. In the presence of the anti-discrimination provisions, the computer manufacturer may well find it profitable to incur that cost.

In some cases, then, the anti-discrimination provisions will cause

employers to reduce the proportion of rank-and-file workers in order to retain as much as possible of the payroll savings realized from providing highly compensated (and only highly compensated) employees with tax-favored benefits. The reduced demand for rank-and-file employees will reduce the perceived compensation of those employees left in the industry.

Somewhat surprisingly, under certain circumstances the anti-discrimination requirements may also be seen to impose a cost on the employment of highly compensated employees. Consider, for example, a company, such as a chain of discount department stores, with relatively few highly compensated employees. In a world with no anti-discrimination requirements, the chain may find it advantageous to structure the pay of its highly compensated workers to include a large benefit component. This, in turn, may reduce the relative cost of hiring highly compensated workers and lead to some substitution of highly compensated workers for rank-and-file workers. Assume now that the favorable tax provisions are coupled with anti-discrimination requirements, and that the benefits are undervalued (relative to cost) by rank-and-file employees. The chain may find that under its current ratio of rank-and-file to highly compensated employees, it cannot profitably offer any benefits. The decline in perceived value (relative to cost) to rank-and-file employees from tax-favored benefits outweighs any increase in perceived value (relative to cost) to highly compensated employees. The chain may further find that it is not able to reduce its rank-and-file employees by hiring more highly compensated employees or automating. The chain will therefore eliminate its benefit plans. Highly compensated employees who were hired because of those plans will now be too costly to retain. The substitution effect present in a world with favorable benefit provisions and no anti-discrimination requirements will now work in reverse. Here, the anti-discrimination provisions have eliminated the net advantage to hiring highly compensated employees and, as a result, the proportion of rank-and-file employees in the industry will rise. All else equal, the increased demand for rank-and-file employees will lead to increased compensation of those employees.

Finally, in some cases, the substitution effect will work in different directions in the same firm or industry. A firm or industry may respond to the anti-discrimination provisions by substituting some rank-and-file employees with highly compensated employees (or by automating) and still end up reducing the level of benefits, thereby letting go other highly compensated employees.

In sum, the anti-discrimination requirements will produce an income or output effect that uniformly reduces the perceived compensation of rank-

and-file employees and a substitution effect that may either increase or decrease the perceived compensation of rank-and-file employees.

#### IV. OTHER CONSIDERATIONS

The above analysis, while a good deal more detailed than in previous articles, is still quite basic. It is useful, here, to briefly discuss three simplifying assumptions on which the analysis rests. First, all rank-and-file employees are considered to have the same welfare function with respect to benefits. The same is true with respect to highly compensated employees. In fact, rank-and-file employees will place different values upon tax-favored benefits. This different valuation may create a segmented market within each industry, with one group of firms offering a high level of benefits and another offering a low level of benefits. Second, anti-discrimination provisions that affect labor and output in one industry will affect labor and output in other industries as well. For example, provisions that cause an exodus of rank-and-file employees in one industry may cause an increase in the supply of rank-and-file employees in another industry. This, in turn, may affect the price of labor and output in the second industry, which in turn may affect the cost of raw materials in the first industry. The above analysis ignores these sorts of general equilibrium considerations. Finally, the analysis ignores the effect that the favorable tax provisions and anti-discrimination provisions have on tax revenues. In the above analysis, the favorable tax provisions increase demand for labor. Assume, however, that the tax revenue lost through those provisions is offset by higher taxes elsewhere and that those higher taxes are borne in some part by industries that take advantage of the favorable tax provisions. If that is the case, the increase in output caused by the favorable tax provisions may be offset entirely by a decrease in output caused by replacement taxes.

The above analysis also ignores, by implication, the possibility that actual employee welfare may diverge from perceived employee welfare. Rank-and-file employees may systematically underestimate the importance of retirement savings, medical coverage, or other benefits covered by the anti-discrimination provisions. If that is the case, the anti-discrimination provisions may be justified on paternalistic grounds.<sup>26</sup> The above analysis is also missing a discussion of "free rider" problems posed by employees without retirement income, medical coverage, or other benefits. The costs

---

26. See generally Bankman, *supra* note 3, at 814-821.

of employees without medical insurance, for example, may be borne in the first instance by hospitals, and then passed on to providers or consumers of health care, or to government agencies that fund medical care. The anti-discrimination provisions may reduce such negative externalities of the labor contract and be desirable even in those cases in which they reduce the welfare of rank-and-file employees.

#### V. OTHER EFFECTS

The above analysis has focused on how the anti-discrimination requirements affect the wages and perceived welfare of rank-and-file employees. The anti-discrimination requirements may affect the economy in other ways as well. For example, as suggested by the examples above, the anti-discrimination requirements encourage a homogeneous mix of employees. Indeed, the requirements have no effect on industries or firms that employ only rank-and-file workers or only highly compensated workers. A firm with a homogenous mix of employees may well pass up an opportunity to formally expand if expansion would introduce heterogeneity into its workforce. Instead, such a firm might attempt to achieve a form of de facto expansion through contract. Consider, for example, a start-up with a highly skilled and highly compensated workforce and a new product ready for manufacture. The anti-discrimination requirements will discourage the start-up from establishing its own manufacturing facilities and hiring low-paid assembly line workers. Instead, the start-up is more apt to contract out its manufacturing to a company whose workforce is predominantly rank-and-file and therefore not affected by the anti-discrimination requirements. This behavioral distortion may create significant inefficiencies when there are organizational advantages to vertical integration.

The tendency of the anti-discrimination provisions to lead to a more homogeneous workforce may also increase the sensitivity of rank-and-file unemployment to technological change. A reduction in the rank-and-file workforce due to technological advances will increase the likelihood that a firm will be able to take advantage of the favored benefit provisions. As illustrated in the above examples, once a firm has a sufficiently low percentage of rank-and-file workers to make the adoption of tax-favored benefits economically attractive, the relative cost of rank-and-file and highly compensated employees changes dramatically. Highly compensated employees become cheaper (because they value benefits above cost) and rank-and-file employees become more expensive (because they must



receive coverage and value the benefits at less than cost). The changes in relative price may induce further substitution of highly compensated employees for rank-and-file employees. In a small way then, the anti-discrimination provisions may exacerbate the problem of structural unemployment arising from so-called "technological shock."

## VI. CONCLUSION

The effect of the anti-discrimination provisions on the perceived welfare of rank-and-file employees depends on the substitutability of highly compensated and rank-and-file employees, the value each group of employees places upon a given level of benefits, and the supply and demand curves for each type of employee. In industries that require a fixed ratio of highly compensated to rank-and-file workers, the favorable tax provisions absent the anti-discrimination requirements will lead to increased demand for all types of labor, which in turn will unambiguously improve the welfare of rank-and-file workers. The coupling of the favorable tax provisions with the anti-discrimination requirements will reduce demand for labor and reduce the perceived welfare of rank-and-file employees.

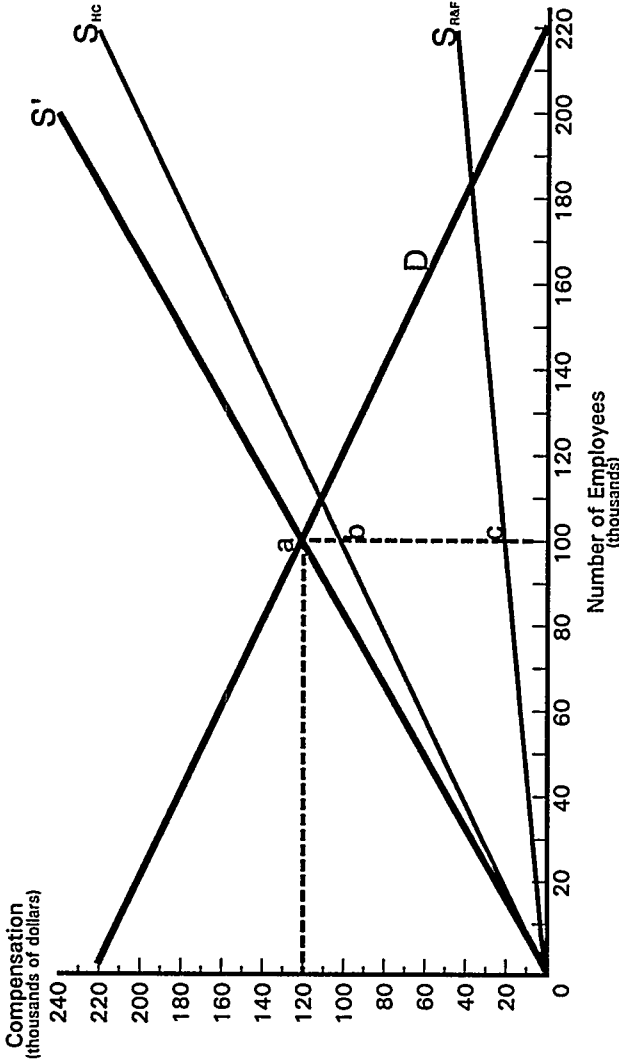
The favorable tax provisions, considered without regard to the anti-discrimination requirements, will increase output and, hence, demand for labor in industries which can substitute one group of employees for another, or change the ratio of the two groups of employees through automation. In such industries, however, the favorable tax provisions will also lead to substitution of highly compensated employees for rank-and-file employees. The net effect on the demand for rank-and-file employees (and hence on the perceived compensation or surplus of such employees) depends on whether, as an empirical matter, the income or output effect dominates the substitution effect.

The anti-discrimination provisions will also cause an income or output and substitution effect in industries that can vary the ratio of highly compensated to rank-and-file employees. The output effect will reduce the demand for labor and thereby reduce the perceived compensation of rank-and-file employees. The substitution effect is ambiguous. Some industries or employers will respond to the anti-discrimination requirements by further reducing the proportion of rank-and-file workers. This additional reduction in demand for rank-and-file workers will further reduce the perceived compensation of such workers. Other industries or employers will respond to the anti-discrimination requirements by reducing or eliminating the level of tax-favored benefits offered. This, in turn, will reduce or eliminate the

substitution effect that takes place in the world without anti-discrimination provisions. Employers will hire fewer highly compensated workers, and more rank-and-file workers, than would be the case if the anti-discrimination requirements did not exist. Under these circumstances, the anti-discrimination requirements will produce a substitution effect that increases demand for, and perceived compensation of, rank-and-file workers.

In sum, there is one set of circumstances under which the anti-discrimination requirements will unambiguously improve the welfare of rank-and-file employees: the industry must be able to vary the proportion of highly compensated and rank-and-file workers; the anti-discrimination requirements must reduce (rather than increase) the substitution of highly compensated workers for rank-and-file workers that would otherwise take place; and rank-and-file workers must benefit more from the reduced substitution than they would from the increased demand for labor present in a world without the anti-discrimination provisions. Under all other assumptions described herein the anti-discrimination provisions will reduce the perceived compensation of rank-and-file workers.

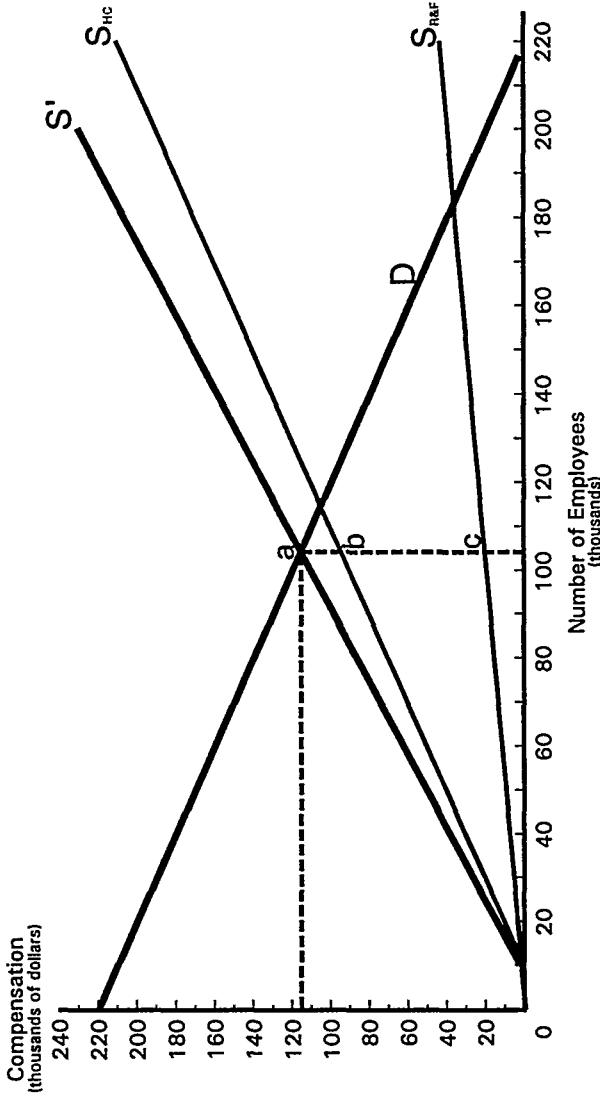
**DIAGRAM 1: LABOR SUPPLY MODEL  
NO TAX-FAVORED BENEFITS**



$S'$  and  $S''$  represent the respective supply curves for highly compensated and rank-and-file employees, each as a function of the salary paid to that employee group.  $S'$  and  $D$  represent the supply and demand curves for each group of employees as a function of the total salary paid out to all employees.

Point  $a$ : 200,000 total employees will receive total compensation of \$120,000.  
 Point  $b$ : 100,000 highly compensated employees will receive compensation of \$100,000.  
 Point  $c$ : 100,000 rank-and-file employees will receive compensation of \$20,000.

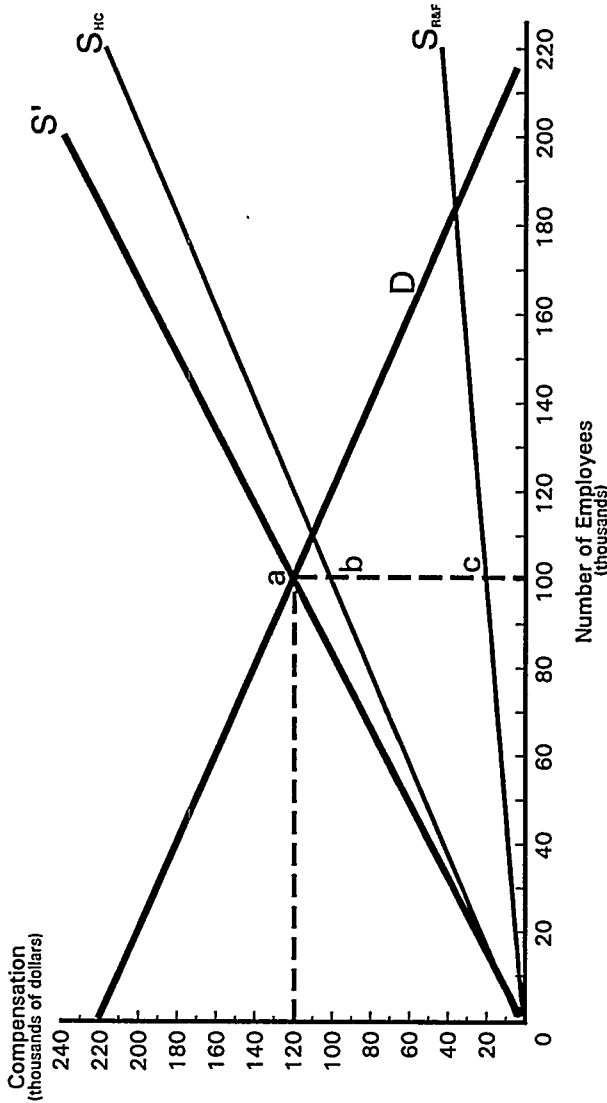
**DIAGRAM 2: LABOR SUPPLY MODEL  
TAX-FAVORED BENEFITS AND  
NO ANTI-DISCRIMINATION PROVISIONS**



$S_x$  and  $S_{x'}$  represent the respective supply curves for highly compensated and rank-and-file employees, each as a function of the salary paid to that employee group.  $S'$  and  $D$  represent the supply and demand curves for each group of employees as a function of the total salary paid out to all employees.

Point a: 208,200 total employees will receive compensation of \$115,900 valued at \$124,900.  
 Point b: 104,100 highly compensated employees will receive compensation of \$95,100 valued at \$104,100.  
 Point c: 104,100 rank-and-file employees will receive compensation of \$20,800.

**DIAGRAM 3: LABOR SUPPLY MODEL  
TAX-FAVORED BENEFITS AND  
ANTI-DISCRIMINATION PROVISIONS**



S<sub>hc</sub> and S<sub>raf</sub> represent the respective supply curves for highly compensated and rank-and-file employees, each as a function of the salary paid to that employee group. S' and D represent the supply and demand curves for each group of employees as a function of the total salary paid out to all employees.

Point a: 201,000 total employees will receive compensation of \$119,600 valued at \$120,600.  
 Point b: 100,500 highly compensated employees will receive compensation of \$97,500 valued at \$100,500.  
 Point c: 100,500 rank-and-file employees will receive compensation of \$22,100 valued at \$20,100.

TABLE 1  
EMPLOYEES' VALUATIONS OF TAX-FAVORED BENEFITS  
AND THE OPTIMAL LEVEL OF BENEFITS  
WITH NO ANTI-DISCRIMINATION PROVISIONS

HIGHLY COMPENSATED EMPLOYEES				RANK-AND-FILE EMPLOYEES			
Total Level of Benefits to Employees	Total Value of Benefits to Employees	Marginal Cost to Employer	Marginal Value of Benefits to Employees	Total Level of Benefits to Employees	Total Value of Benefits to Employees	Marginal Cost to Employer	Marginal Value of Benefits to Employees
\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
\$1,000	\$1,708	\$1,000	\$1,708	\$1,000	\$664	\$1,000	\$664
\$2,000	\$3,381	\$1,000	\$1,674	\$2,000	\$1,262	\$1,000	\$598
\$3,000	\$5,021	\$1,000	\$1,640	\$3,000	\$1,601	\$1,000	\$538
\$4,000	\$6,629	\$1,000	\$1,607	\$4,000	\$2,285	\$1,000	\$484
\$5,000	\$8,204	\$1,000	\$1,575	\$5,000	\$2,721	\$1,000	\$436
\$6,000	\$9,747	\$1,000	\$1,544	\$6,000	\$3,113	\$1,000	\$392
\$7,000	\$11,260	\$1,000	\$1,513	\$7,000	\$3,466	\$1,000	\$353
\$8,000	\$12,743	\$1,000	\$1,482	\$8,000	\$3,784	\$1,000	\$318
\$9,000	\$14,195	\$1,000	\$1,453	\$9,000	\$4,070	\$1,000	\$286
\$10,000	\$15,619	\$1,000	\$1,424	\$10,000	\$4,327	\$1,000	\$257
\$11,000	\$17,014	\$1,000	\$1,395	\$11,000	\$4,559	\$1,000	\$232
\$12,000	\$18,382	\$1,000	\$1,367	\$12,000	\$4,767	\$1,000	\$208
\$13,000	\$19,722	\$1,000	\$1,340	\$13,000	\$4,955	\$1,000	\$188
\$14,000	\$21,035	\$1,000	\$1,313	\$14,000	\$5,124	\$1,000	\$169
\$15,000	\$22,322	\$1,000	\$1,287	\$15,000	\$5,276	\$1,000	\$152
\$16,000	\$23,583	\$1,000	\$1,261	\$16,000	\$5,413	\$1,000	\$137
\$17,000	\$24,819	\$1,000	\$1,236	\$17,000	\$5,538	\$1,000	\$123
\$18,000	\$26,031	\$1,000	\$1,211	\$18,000	\$5,647	\$1,000	\$111
\$19,000	\$27,218	\$1,000	\$1,187	\$19,000	\$5,746	\$1,000	\$100
\$20,000	\$28,381	\$1,000	\$1,163	\$20,000	\$5,836	\$1,000	\$90
\$21,000	\$29,521	\$1,000	\$1,140	\$21,000	\$5,917	\$1,000	\$81
\$22,000	\$30,638	\$1,000	\$1,117	\$22,000	\$5,990	\$1,000	\$73
\$23,000	\$31,733	\$1,000	\$1,095	\$23,000	\$6,055	\$1,000	\$65
\$24,000	\$32,806	\$1,000	\$1,073	\$24,000	\$6,114	\$1,000	\$59
\$25,000	\$33,858	\$1,000	\$1,052	\$25,000	\$6,167	\$1,000	\$53
\$26,000	\$34,889	\$1,000	\$1,031	\$26,000	\$6,215	\$1,000	\$48
<b>\$27,000</b>	<b>\$35,888</b>	<b>\$1,000</b>	<b>\$1,010</b>	\$27,000	\$6,258	\$1,000	\$43
\$28,000	\$36,888	\$1,000	\$990	\$28,000	\$6,298	\$1,000	\$39
\$29,000	\$37,858	\$1,000	\$970	\$29,000	\$6,331	\$1,000	\$35
\$30,000	\$38,809	\$1,000	\$951	\$30,000	\$6,362	\$1,000	\$31

TABLE 2  
EMPLOYEES' VALUATIONS OF TAX-FAVORED BENEFITS  
AND THE OPTIMAL LEVEL OF BENEFITS  
WITH ANTI-DISCRIMINATION PROVISIONS

Level of Benefits to Each Group of Employees	Total Value of Benefits to Highly Compensated Employees	Total Value of Benefits to Rank-and-File Employees	Marginal Value of Benefits to Highly Compensated Employees	Marginal Value of Benefits to Rank-and-File Employees	Total Marginal Value of Benefits to Both Groups	Total Marginal Value of Benefits to Both Groups
\$0	\$0	\$0	\$0	\$0	\$0	\$0
\$1,000	\$1,708	\$684	\$1,708	\$684	\$2,000	\$2,372
\$2,000	\$3,381	\$1,262	\$1,674	\$598	\$2,000	\$2,271
\$3,000	\$5,021	\$1,801	\$1,640	\$538	\$2,000	\$2,178
\$4,000	\$6,629	\$2,285	\$1,607	\$484	\$2,000	\$2,092
<b>\$5,000</b>	<b>\$8,204</b>	<b>\$2,721</b>	<b>\$1,575</b>	<b>\$436</b>	<b>\$2,000</b>	<b>\$2,011</b>
\$6,000	\$9,747	\$3,113	\$1,544	\$392	\$2,000	\$1,936
\$7,000	\$11,260	\$3,466	\$1,513	\$353	\$2,000	\$1,866
\$8,000	\$12,743	\$3,784	\$1,482	\$318	\$2,000	\$1,800
\$9,000	\$14,195	\$4,070	\$1,453	\$286	\$2,000	\$1,739
\$10,000	\$15,619	\$4,327	\$1,424	\$257	\$2,000	\$1,681
\$11,000	\$17,014	\$4,559	\$1,395	\$232	\$2,000	\$1,627
\$12,000	\$18,382	\$4,767	\$1,367	\$208	\$2,000	\$1,576
\$13,000	\$19,722	\$4,955	\$1,340	\$188	\$2,000	\$1,528
\$14,000	\$21,035	\$5,124	\$1,313	\$169	\$2,000	\$1,482
\$15,000	\$22,322	\$5,276	\$1,287	\$152	\$2,000	\$1,439