References


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Unemployment Insurance and the Theory of Labor Demand

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1. Introduction

It is generally recognized that the unemployment insurance (UI) system creates interfirm cross-subsidies. Given imprecise experience rating, state UI tax schedules do not assure that the present value of a firm's UI tax payment will equal the benefits paid as a result of its recent experience in generating unemployment. Where interfirm differences in the UI tax have been perceived as interfirm differences in the costs of labor turnover, analyses of the incentive effects of UI have emphasized the effects of changes in UI system parameters on layoff decisions. Brechling's model (1979) implies that on the basis of the given layoff rate, the experience rating increases with an increase of either the strength of experience rating or the UI benefit rate. But, as Pencavel (1977, pp. 492-94) notes, "Although Brechling's work constitutes an indispensable step toward a more complete understanding of the payroll tax for UI, this research does not permit us to draw inferences about market behavior. Since both the behavior of workers and the interdependencies between firms are essentially ignored in this series of models, we are presented with an analysis of the payroll tax for unemployment insurance in a world with no unemployment." In contrast, another series of models (Bally, 1981; Feldstein, 1976; and Burdett and Hall, 1985) is based upon the market assumption that workers who have received firm-specific training are "captive" to be rehired after a layoff; workers are occasionally unemployed, but they are permanently attached to the firm. These models imply that layoffs are reduced by stronger experience rating and increased by higher benefits. Thus we have one approach which neglects market behavior and another that assumes a market environment which denies the possibility of a permanent layoff.

In this paper, we assume that the firm (1) expects a fluctuating pattern of product demand over its time horizon, (2) will incur UI tax costs when workers are laid off, hiring costs when new workers are employed, and administrative costs as a consequence of either increasing or decreasing average hours per worker, and (3) perceives a probability of less than one that a laid off worker will subsequently be available for rehires. This approach departs from the previous analysis in two respects: first, it bridges the gap between the Brechling and the Bally-Feldstein-Burdett and Hall models by specifying a market model which explicitly reflects the fire's concern over the long run retention of specifically trained workers; even though, ex post, a layoff may be temporary, we assume that the layoff

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decision is conditioned by the employer's apprehension that a worker may, indeed, take another job before he is recalled. Second, and perhaps more importantly, it explicitly recognizes that the layoff decision does not stand alone—it is made within the context of the general pattern of labor demand chosen by the firm. The firm's optimal choices of worker-hours, the employment stock, and average hours per worker are made jointly in each decision period over the firm's time horizon. Consequently, a change in UI system parameters will affect all other elements of the firm's demand for labor services as well as layoffs. In this paper we develop a model which allows us to determine the effects of the degree of experience rating of the UI tax and the UI benefit rate on worker-hours, employment levels, layoffs, and average hours per worker.

The model is outlined in the next section while its implications for the effects of the UI system on the various elements of labor demand are discussed in the subsequent sections of the paper. A summary of these implications is presented in the final section.

II. The Model

Assume the firm acts to maximize expected profits over "n" periods, and let \( t \) be the length of the th period in months, where \( t \) is product price in the initial period, a cyclical pattern in product demand is introduced by assuming \( P \) is \( P + P' + P'' \), etc., such that each odd-numbered period is a trough in product demand and each even-numbered period is a peak in product demand. At the beginning of each slack demand period the firm will lay off some of its workers. The firm will then replenish its employment stock, in part, by rehiring all those workers who remain unemployed at the beginning of the next peak period. Product demand is assumed to be the same in each peak period; i.e., \( P = P + P' + P'' \). The firm is assumed to operate with a fixed capital stock so that its production function is

\[
Q_t = Q(E_t H_t), \quad Q' > 0, \quad Q'' < 0.
\]

where \( Q_t \) is the firm's monthly output rate, \( E_t \) is the firm's employment stock, and \( H_t \) is the level of average hours per month per worker, all in period \( t \). Let \( k \) be all even-numbered periods such that each period \( k \) is one of peak demand. Then the employment stock in each peak period is

\[
E_k = E_{k-1} + H_k + N_k,
\]

where \( R_k \) is the number of rehires and \( N_k \) is the number of new hires, both in period \( k \). But, given that the firm desires to rehire those workers who remain available at the beginning of period \( k \), it is necessary to consider the attrition rate of laid off workers to alternative jobs over the preceding slack demand period.

Let \( j \) be for each odd-numbered period such that every period \( j \) is one of slack demand. Then, where \( B \) is the monthly UI benefit rate, let \( \alpha_j \) be the monthly Ut.

represent the monthly attrition rate. I assume \( \alpha_j \) since empirical evidence suggests that higher benefits reduce the incentive to search for a new job (see Hassel [1977] pp. 32-33). Given \( \alpha_j \), the number of workers remaining unemployed one month after a layoff is \( L_{j-1} - \alpha_j \). Assuming \( \alpha_j \) is constant over time, the number of workers remaining unemployed after \( t \) months in period \( j \), \( t_j \), is then

\[
(3) \quad t_j = (1-\alpha_j)^t - 1.
\]

It follows that the number of workers remaining unemployed after \( t \) months increases with \( B \). Moreover, assuming that the firm rehires all \( U_t \) workers in the next period, we have

\[
(2^t) \quad E_k = E_{k-1} + L_{k-1} - (1-\alpha_{k-1})t_k + N_k.
\]

The firm's total expected UI tax bill for each slack period is given by the product of the length of the period in months, the monthly UI tax bill per laid off worker, and the average number of workers unemployed over the period. Defining the degree of experience rating, \( e \), as the present value of the UI tax charge the firm expects to incur per dollar of UI benefits generated in the current period, then the firm's monthly tax per laid off worker is \( eB \). The average unemployment stock between \( t = 0 \) and \( t = t_j \) can be derived from equation (3) and may be represented as

\[
U_j = L_{j-1} - \alpha_j \left[ (1-\alpha_j)^t_j - 1 \right]
\]

and \( a_j \) are

\[
(4) \quad U_t = eB(E_t - 1)H_t.
\]

Therefore, the firm's expected UI tax bill in period \( j \), \( U_t \), is \( eB(E_t-1)H_t \). Summing over all slack periods, the firm's total UI tax bill over its fiscal horizon becomes

\[
(5) \quad HC = (E_1 - E_0)H_1 + (E_2 - E_1)H_2 + \ldots + (E_n - E_{n-1})H_n.
\]

The firm will also incur the costs of hiring new workers in each peak demand period. Letting \( C_h \) be the total lump sum cost of hiring each new worker, the hiring cost incurred by the firm in each peak period is \( C_h \). Solving equation (2) for \( N_k \) then implies that the firm's total expected hiring cost over its time horizon is

\[
(6) \quad C_h = (E_1 - E_0)H_1 + (E_2 - E_1)H_2 + \ldots + (E_n - E_{n-1})H_n.
\]

Also, assume that the firm is initially employing each of its workers at the rate of \( H_k \) hours per month. Any deviation from \( H_k \) cannot be accomplished costlessly; some reorganization and rescheduling of production will be necessary. Accordingly, let \( C_h \) represent the cost of either increasing or decreasing average monthly hours per worker from some initial level by exactly one hour such that the cost of changing average hours per month between periods \( r \) and \( s \) is equal to \( C_h H_r H_s \). Then summing over all periods, the total cost of period to period changes in average hours is given by
First consider a change in the degree of experience rating, \( \varepsilon \). An increase in \( \varepsilon \) both increases MC \(_4\) to MC \(_5\) and decreases MC \(_3\) to MC \(_2\), as shown in the figure. Stronger experience rating increases the cost of reducing the employment stock through layoffs between a given peak period and the next slack period. Hence, with a given product demand cycle, greater experience rating serves to reduce the period to period changes in the quantity of worker-hours demanded by the firm from \( E_{4j} - E_{5j} \) to \( E_{3j} - E_{4j} \).

In considering the extent to which the model is applicable, note that this conclusion would be implied under alternative assumptions regarding the wage rate the firm must pay and its perception of the product demand cycle. First, note that as well as applying directly to the firm which pays the same wage rate over its seasonal (annual) product demand cycle, it also applies to the wage-taking employer whose product demand cycle coincides with the business cycle and who pays \( W_{j}^f \) in slack periods and \( W_{j}^f \) in peak periods. This is clear from equations (16) and (16) which show that stronger experience rating will increase MC \(_4\) and decrease MC \(_3\) regardless of the wage rates taken by the firm in each period. Hence, at this implication is valid for firms which do not perceive their product demand cycles with certainty as well as for firms who do. In either case, given its knowledge of the UI system, the firm is certain that stronger experience rating will increase the cost of making periodic employment stock adjustments. Hence, regardless of whether the quantities of labor services demanded by the firm in each period are based upon certain or uncertain knowledge of the product demand cycle, the firm will respond to stronger experience rating by choosing smaller changes in worker-hours between periods than it would have otherwise chosen.

An increase in the UI benefit rate, \( B \), also affects MC \(_4\) and MC \(_2\) symmetrically. However, the wedge between MC \(_4\) and MC \(_2\) may be either expanded or contracted depending upon the relative magnitudes of two offsetting effects. On one hand, a higher benefit rate increases the UI tax cost of a change in the quantity of labor services between periods. On the other hand, higher benefits reduce the cost to laid off workers of waiting for recall, which means that more workers will be available for rehire in the subsequent peak period. This effect reduces the cost of changing the quantity of labor services between periods. A deeper explanation of these effects is properly deferred to the next section wherein the impacts of a change in an 8 on layoff decisions are discussed.

### IV. Employment Levels and Layoffs

Further analysis of the first order conditions permits determination of the separate effects of the UI system parameters on the optimal levels of the employment stock and average hours per month per worker in each period. Equations (8)-(15) were totally differentiated with respect to \( E_{4j} \) and \( H_{4j} \) to yield a system of 2n equations in 2n unknowns. Making use of Cramer's rule, this system of simultaneous equations was solved for the partial effects of the parameters of the model (e and B) on each of the choice variables (\( E_{4j} \) and \( H_{4j} \)).

The model first implies that the optimal employment levels chosen by the firm are affected by experience rating. Given the pattern of product demand, we have

\[
E_{4j} > 0, \quad E_{5j} < 0, \quad \text{and } \quad B.
\]

Greater experience rating will decrease employment in each peak demand period and increase it in each slack demand period. Hence, for a given decline in product demand, we predict that stronger experience rating will reduce the optimal number of layoffs as the firm moves into a period of slack demand. This result is entirely consistent with those generated by other market models. However, this model provides an important additional implication: The effect of experience rating on the layoff rate is a result of the offsetting effects of a change in \( \varepsilon \) on peak demand period and slack demand period employment levels. Therefore, given the pattern of product demand, a change in the degree of experience rating will affect layoffs, but it is not likely to have a substantial effect on the average level of employment over the product demand cycle.

The effect of the UI benefit rate on the optimal number of layoffs can be seen most clearly by considering the following expression which determines the sign of the partial derivative of layoffs with respect to the UI benefit rate in slack period 4:

\[
E_{4j} = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix} \begin{bmatrix} \omega_{j} \end{bmatrix} \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix} \begin{bmatrix} \omega_{j} \end{bmatrix}, \quad \text{if } \omega_{j} > 0.
\]

Two mechanisms through which higher UI benefits influence the firm's layoff decisions are present, both of which are related to the rate of attrition of laid off workers to other jobs.

The first term in (21) is the UI tax effect of a change in benefits on the firm's layoff decisions. An increase in the UI benefit rate will increase the UI tax cost incurred by the firm first, by increasing the total amount of benefits collected by each laid off worker, and second, by discouraging attrition of laid off workers to other jobs which will increase the average stock of unemployed workers who collect benefits over a given slack period. Therefore, as a consequence of its effects on the firm's UI tax costs, a higher UI benefit rate will discourage layoffs.

The second term in the expression is the hiring cost effect of a change in benefits on the firm's layoff decisions. Since \( B_{4j}/B_{5j} \), this term implies that higher benefits will increase layoffs. When the firm expects a recovery following slack demand period 4, it will perceive the need to hire new workers at the beginning of peak period 4 and so the perceived cost of a layoff includes a component which reflects the expected subsequent cost of hiring new workers. Since a higher UI benefit rate--through its effect on the attrition rate--will increase the number of workers who will be available for recall at a given point in time, a higher benefit rate will reduce the firm's perceived risk of permanently losing a worker for whom new hires are imperfect substitutes. Therefore, higher benefits will encourage layoffs.
Hence, the total effect of higher benefits on the optimal number of layoffs depends upon the relative magnitudes of the UI tax and the hiring cost effects. Indeed, if the UI tax effect is larger (smaller) than the hiring cost effect, then higher benefits will unambiguously increase (decrease) the cost of a layoff. Moreover, as is evident from expression (21), the magnitude of the UI tax effect, in large part, depends upon the degree of experience rating faced by the firm and the initial benefit rate, while the magnitude of the hiring cost effect depends primarily upon the cost of hiring a new worker. On these grounds, layoffs will be decreased by higher benefits when the firm is liable for most (or all) of the UI benefit credits it generates and its new hire costs are relatively low, whereas layoffs will be increased by higher benefits when the degree of experience rating faced by the firm is very low and its new hire costs are relatively high.

The essence of these predictions can be clarified by considering the behavior of the firm in the absence of a formal UI system in which case the firm would be willing to pay its surplus workers some optimal UI benefit rate, assuming nontrivial costs of hiring new workers. In effect, the firm would choose to administer its own informal UI system. But, apart from the fact that the firm's UI costs would be perfectly experience rated, the incentives which operate through its self-imposed UI system are identical to those which operate through a formal UI system. Within the context of the model presented here, it is indeed clear that the firm perceives an optimal, cost-minimizing UI benefit rate which is an increasing function of new hire costs and a decreasing function of the degree of experience rating.

Finally, the effects of \( B \) on employment levels are analytically similar to the effects of \( e \). Since an increase in \( B \) increases the cost of a layoff, employment is decreased in peak periods and increased in slack periods. When the UI tax effect overpowers the hiring cost effect, an increase in \( B \) also increases the cost of a layoff, which once again implies lower peak period employment and higher slack period employment. The opposite effects of an increase in \( B \) on the cost of a layoff and hence on peak period and slack period employment levels are implied when the hiring cost effect overpowers the UI tax effect. Therefore, we conclude that the changes in the UI benefit rate will affect the magnitudes of periodic fluctuations in employment without substantially affecting the average level of employment over the product demand cycle.

V. Average Hours Per Worker

The hours effects of the UI system parameters are best shown by returning to the first order conditions. Since a profit maximizing equilibrium requires that the value of the product resulting from the last worker-hour employed be equal to both the cost of the last worker-hour employed through an employment stock exchange, and the cost of the last worker-hour employed through a change in average hours per worker in each period, equation (14)-(19) can be solved for the optimal ratio of average monthly hours per worker to the employment stock in each period, which yields the following conditions:

\[
H_t = \frac{eB_t + C_g(1-a^t)^{1/2}}{2C_h},
\]

\[
H_t = \frac{eB_t + C_g(1-a^t)^{1/2}}{2C_h},
\]

\[
H_t = eB_t + C_g[1-(1-\alpha^t)^{1/2}]C_k^t.
\]

By differentiating these equations with respect to \( e \) and \( B \), the effects of the UI system on the optimal ratio of average monthly hours per worker to the employment stock were derived. First, the model predicts that stronger experience rating will increase this ratio in every period. Since greater experience rating increases the cost of changing employment levels, which increases the total labor costs associated with employment stocks relative to the total labor costs associated with changes in the level of average hours per worker over the firm's time horizon, the optimizing firm will choose higher hours to employment ratios.

At this juncture, it is indeed important to recognize that the model does not imply that stronger experience rating will simultaneously reduce the optimal number of layoffs and increase the change in the level of average hours per worker between a given peak demand period and the following slack demand period. Rather, the conditions for the effect of experience rating on hours in the typical slack and peak demand periods are

\[
\frac{\partial H_t}{\partial e} > 0, \quad \frac{\partial H_t}{\partial B_t} < 0,
\]

where the sign of the partial derivative for peak period \( k \) depends upon the form of the firm's production function. In fact, if we assume that \( B_t/N_t < 0 \) then the model implies that greater costs of experience rating will cause the firm to reduce period to period changes in the level of average hours per worker. This is a perfectly acceptable and intuitively logical result. Since, ceteris paribus, stronger experience rating increases the costs of periodic employment stock changes, we would expect the rational firm to partially offset such cost increases by reducing the cost it incurs for periodic changes in average hours per worker.

The model also implies that the UI benefit rate will affect the optimal ratio of hours to employment where the sign of its effect in every period is determined by the negative of expression (21). Indeed, when the UI tax effect is stronger (weaker) than the hiring cost effect, an increase in the benefit rate will decrease (increase) the cost of a layoff. This, of course, increases (decreases) the costs incurred by the firm over its time horizon as a result of the employment levels it chooses relative to the
costs associated with changes in the level of average hours per worker. Therefore, when the magnitude of the UI tax effect is greater (less) than the cost of the hiring cost effect, more (less) liberal UI benefits will increase (decrease) the optimal ratio of hours employment.\textsuperscript{10}

VI. Summary and Conclusions

This paper has considered how a firm alters its demands for labor services in an environment of fluctuating product demand. The analysis assumes that the firm incurs UI tax costs when workers are laid off, hiring costs when new workers are hired, and administrative costs when the level of average hours per worker per month is changed; it is also assumed that the firm attaches a probability of less than one to the prospect of rehiring a worker it has laid off. A model which reflects these assumptions was then used to determine the effects of changes in the degree of experience rating of the UI tax and the UI benefit rate on the firm's labor demand responses to periodic changes in product demand.

Since the UI tax is a cost of labor turnover which is based upon the degree of experience rating and the volume of UI benefit claims made by the firm's former employees, the direct effect of a change in a UI system parameter is on the cost of a layoff to the firm. Thus, the implications of the model may be conveniently summarized by indicating the effects of a change in the cost of a layoff on the firm's incentives, where the cost of a layoff is always increased by stronger experience rating and--as explained below--may be increased or decreased by higher benefits. Accordingly, the model predicts that the firm's period to period labor demand decisions are altered by an increase in the cost of a layoff in the following ways:

1. The quantity of labor services (worker-hours) demanded by the firm will decrease in peak demand periods and increase in slack demand periods. Thus the average quantity demanded over a product demand cycle is not likely.
2. The level of employment will decrease in peak demand periods and increase in slack demand periods. Therefore, the optimal layoff rate will fall whereas the average level of employment over a product demand cycle is not likely to be substantially affected.
3. The level of average hours per worker per month relative to the level of employment will increase in every period.
4. The level of average hours per worker per month will increase in slack demand periods while the direction of its change in peak demand periods depends upon the form of the firm's production function.

An increase in the UI benefit rate alters the cost of a layoff in two ways. Through the UI tax effect higher benefits directly increase the cost of a layoff. Through the hiring cost effect higher benefits reduce unemployment costs, and so increase the probability that a laid off worker will be rehired; this reduces the component of the cost of a layoff attributable to the firm's expected cost of hiring new workers in the next peak demand period. Where the UI tax effect overpowers the hiring cost effect, the net effect of higher benefits is to increase the cost of a layoff; this implies that the effects of higher benefits on the firm's labor demand decisions are precisely those listed as items 1-4 above. To the converse, when the hiring cost effect overpowers the UI tax effect, higher benefits decrease the cost of a layoff, and so the effects of higher benefits on the firm's pattern of labor demand are obtained simply by reversing the signs of the effects listed as items 1-4 in the preceding paragraph.

Why are these results important? First, in emphasizing the effects of UI on layoff rates, other models have provided an incomplete picture of the effects of UI on the incentives of firms which face the prospect of recurring cycles of product demand. These models have led to the conclusion that greater experience rating will reduce layoffs and hence unemployment. The model presented here also implies that layoffs will be reduced, however, it demonstrates (as other models do not) that reduced unemployment is obtained as much by reduced employment during business cycle peaks as it is by higher employment during business cycle troughs. This suggests that policy action to increase the degree of experience rating would reduce business (employment) fluctuations without causing a substantial change in the average level of employment over the business cycle. Stronger experience rating thus appears to be a proper policy goal, not because it has a direct effect which reduces unemployment, but rather, because it would drive the UI system toward realizing its full potential as a stabilizer of aggregate economic activity.

With regard to the effects of higher benefits, the relative magnitudes of the UI tax effect and the hiring cost effect will vary substantially across firms according to the degree of experience rating faced by the firm, the initial average UI benefit rate received by the firm's former employees, and the cost of hiring new workers incurred by the firm. Higher benefits will increase the cost of a layoff for some firms while decreasing it for others; hence, on average, a change in the benefit rate is not likely to have substantial effects on either the magnitudes of employment fluctuations or the average employment level over the business cycle.

Second, this model more clearly describes the relationship between the firm's choice of employment levels vis-a-vis average hours per worker than do previous models. In the context of the model, stronger experience rating increases the component of the firm's labor costs associated with the level of employment it chooses. Holding the costs of changing average hours per worker fixed, the firm will, on average, substitute hours for employment. Thus when the degree of experience rating is increased, we expect the firm to demand more hours per accounting period from each of the workers it retains.

\textbf{Endnotes}

Using UI tax and benefit data for 2-digit industries in 21 states, Nants and Asher (1980) have shown that substantial subsidies flow from firms in low-turnover industries to firms in high-turnover industries.
their data indicate that for industries characterized by high-turnover, benefit payments to workers typically exceed tax payments made by employers whereas for industries characterized by low-turnover, the converse is true.

With regard to the Burdett and Hool model, these predictions are unambiguously implied only by the variant of their model which assumes that the firm maximizes profit subject to an expected utility constraint for the representative worker.

The production function is defined such that an increase in the rate of use of labor services, regardless of whether it is obtained by employing more workers or by increasing average hours per worker, will increase the firm's output rate by the same amount. In effect, the model implies that the firm maximizes profit subject to an expected utility constraint for the representative worker.

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Furthermore, the model also implies that the firm maximizes profit subject to an expected utility constraint for the representative worker.

For purposes of simplicity, the procedure of summing over time, time discounting, has been adopted since integrating discounting into the model would not alter the substantive conclusions.

Evaluation of the second order conditions assures that the model's solution is indeed a profit maximum.

The effect of a change in ε on the average level of employment over one product demand cycle was investigated by comparing the magnitudes of $\Delta y/N_a$ and $3E/4i\alpha$ as weighted by $t_a$ and $t_i$, respectively. The sign of this effect is ambiguous and depends upon the form of the firm's production function.

As stated in the preceding section, higher benefits may increase or decrease the change in worker-hours between the k-th peak period and the following slack period. Since the cost of adjusting worker-hours, in part, reflects the cost of changing employment stocks, the UI tax and hiring cost affects apply to changes in worker-hours as well. In fact, expression (21) determines, in the same way, the sign of the effect of higher benefits on the change in worker-hours between a given peak period and the subsequent slack demand period.

If the firm chose to pay no UI benefits, workers who are laid off in a given slack demand period would seek and accept other jobs at a high rate. In this case, UI costs would be zero, but the expected hiring costs in the subsequent peak period would be high. Conversely, if the firm chose the provide UI by paying a benefit rate which equals the unemployment wage rate, then its UI costs would be high, and its subsequent hiring costs would be zero (given that a desired employment does not exceed its level in the previous peak period). The rational firm, however, would choose to pay a benefit rate which results in the cost-minimizing combination of UI costs and hiring costs.

Since the model abstracts from overtime premium, these results must be qualified. When the firm must pay overtime premia, its ability to substitute more hours per worker is impaired in a very specific way. As demonstrated by Fan, Boulier, and Goldfarb (1983), a discontinuity in the rate at which compensation increases with hours worked implies that costs associated with employment stocks can change, within a limited range, without causing the firm to choose a work period different from the standard work period. Since employment costs are affected by UI system parameters, their results suggest that when overtime premia must be paid, the effects of the UI system on average hours per worker are not as great as suggested by this model.

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THE ECONOMICS OF CHARITY LIFE-CYCLE PATTERNS OF ALUMNAE CONTRIBUTIONS
James H. Grant and David L. Lindauer

This paper presents charitable giving in a consumer demand framework and examines the relationship between age and personal donations. Relying on data on alumnae contributions to a four-year liberal arts college, information on the age-charitable giving profile is used to make inferences about the income elasticity of donations over the life cycle. A second aim of the paper is to discuss the economics of alumnae contributions. In addition to presenting the average life-cycle pattern of such gifts, we discuss the impact of fully anticipated reunions on the distribution of donations over the life cycle.

The results suggest that the income elasticity of alumnae giving increases with alumnae age. Significant increases in educational donations relative to the long run age-giving path are realized, which are not at the expense of lower contributions in either the immediate pre- or post-reunion years. Reunion drives also increase the number of gift givers in a manner analogous to, albeit smaller than, their impact on per capita contribution levels.

I. Received Theory

While altruistic and philanthropic motives are central to individual decisions concerning charitable contributions, such donations are also affected by economic circumstances facing contributors. Recent attempts to assess the impact of tax deductibility on the level of personal donations have adopted this approach. Specifically, charitable gifts have been posited to respond to both the price of giving and disposable income, where the price of giving depends upon the tax treatment of charitable donations. For example, if charitable contributions are fully tax deductible, the price of a one dollar donation will not equal one dollar, but will instead equal $1 - m$ dollars, where $m$ represents the individual's marginal tax rate. Given current U.S. tax law, an individual facing the top marginal tax rate of .50 will thus pay a net price of only 50 cents for each dollar of charitable donations.

Once charitable giving is interpreted as a special case of consumer demand for a nondurable good, it is possible to assess the impact of tax policy on voluntary donations by estimating the price and income elasticities of giving. Most cross-section studies estimate these parameters by employing equations of the following form:

$$g = Y + P + u$$

where $g$ is the amount of the donation, $Y$ and $P$ are income and price variables respectively, $x$ is a vector of household characteristics and $u$ is