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## THREE ESSAYS ON THE EFFECT OF EXPERIENCE RATING IN UNEMPLOYMENT INSURANCE

By

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#### ABSTRACT

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The 1932 Wisconsin Unemployment Compensation Act called for an experience rated unemployment insurance (UI) tax, one which ties an employer's tax rate to his past employment experience. Since that original UI statute, experience rating has gained favor primarily on the basis of three arguments. First, by making unemployment costs a cost of production firms should be induced to stabilize their own employment fluctuations in an attempt to minimize their production costs. Second, experience rating should encourage firms to participate in the administration and development of the UI system. And last, experience rating should lead to an optimal resource allocation since it charges the firms which create unemployment with the cost of that unemployment. This study is in the form of three essays. Each one looks at some facet of each of the arguments to see if any of them are valid.

The degree of experience rating, i.e., how close firms come to balancing tax payments with expected benefit payments to ex-employees, can differ markedly from state to state because of tax rate ceilings and floors. These differences in degree allow a test of experience rating's influence on firm behavior. The parameters of the experience rated UI system, that is the tax rates and the taxable wage base, are used to test the effects of rating.

If experience rating the UI tax induces firms to stabilize, then states with strong experience rating should exhibit smoother employment fluctuations than states with weak. The first essay tests this hypothesis by looking at the seasonality of employment across states in three industries, SIC 161, highway and street construction except elevated highways; SIC 233, women's, misses', and junior's outerwear; and SIC 243, millwork, plywood, veneer, and other prefabricated wood products. A measure of seasonality is created by estimating the spectrum of the time series of employment for each industry for each state. Monthly employment data from 1960-1974 are used. A linear regression equation is estimated with the spectral measure of seasonality as the dependent variable and the parameters of experience rating as the regressors. The results show that firms do indeed respond to experience rating by stabilizing their seasonal, at least, employment fluctuations.

The second essay uses employer challenges of decisions to award benefits to separated workers as a proxy for employer interest and participation in the UI system. Other factors which might influence litigiousness besides the strength of experience rating are included. Cross section data by state for the years 1969-1974 are used. The effect of experience rating is tested in a regression analysis framework on the pooled time series and cross section data set. The results show that several factors influence a firms propensity to appeal benefit awards, and that the strength of experience rating is among them.

The final essay shows that if some unemployment costs are not due to any individual firm, but are socialized unemployment costs, then experience rating may not lead to an optimal allocation of unemployment costs, and hence may not lead to an optimal resource allocation. Given some logical assumptions, the analysis shows that a mixed tax plan may be the best way to levy the UI tax with a flat rate tax for the socialized costs and an experience rated tax for the costs due to individual firms.

The conclusion drawn from the three studies is that experience rating should be strengthened. As a result decreases in unemployment can be realized in two ways: by dampened seasonal fluctuations, and second, by allocating resources away from unstable employment industries into stable employment industries. Both goals can be reached without employers becoming overly strict in their challenges of benefit award decisions.

#### ACKNOWLEDGEMENTS

Although my name alone appears as the author of this piece, many others have helped directly and indirectly in its development and completion. Special thanks first go to my mentor, Dan Hamermesh, who has helped me so much in my slow but sure, I think, development as an economist. I thank Ken Boyer, Subbiah Kannappan, and Dan Saks for their comments and guidance in this project. The companionship of good friends make any undertaking easier, and no one could ever have better friends than Evelyn and Mark Fallek, Joe and Crystal Stone, Mark Machina, Patty Bachmeier, and Laura Littleford. My appreciation and sympathy go out to Sandi Neubauer who typed this thing three times now and never once fell to sleep at the typewriter. I thank Kathy Halpin, whose intelligence and common sense helped direct and redirect ny analysis many times. Finally, I wish to thank Kathy again and Sarah Halpin for their love and understanding and especially their uncanny ability to always make me laugh even when this dissertation seemed like it would never end.

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#### CHAPTER I

## Experience Rating and the Unemployment Insurance System

The unemployment insurance system in the United States is an amalgam of a federal program and 51 separate, and often disparate, state programs. Unlike Europe, where even several cities had unemployment insurance (UI) plans as early as the 1890's, in the U.S. it was not until the Social Security Act of 1935 that UI was established nationwide.<sup>1</sup> Prior to 1935, however, six states had enacted UI laws of their own. The pioneer in the field was the Wisconsin Act, adopted in 1932, whose philosophy and mechanics influenced the federal statute. The Wisconsin provisions for temporary benefits to workers unemployed through no fault of their own were similar to the European predecessors, but the financing of benefits differed significantly. The European plans required contributions from workers, employers, and government. The Wisconsin plan called for employer payments alone, and each employer's contribution rate was related to the amount of benefits drawn by his ex-employees. This linking of the contribution rate to a firm's employment experience has come to be known as experience rating.

<sup>&</sup>lt;sup>1</sup>See Nelson [16] for a detailed early history of unemployment insurance in the U.S.

Although the Social Security Act of 1935 mandated a federal unemployment insurance system, it gave each state the option of setting up its own UI program. In fact it encouraged the states to do so by allowing a portion of the Federal tax to be excused in lieu of payments into a state fund. Given the choice between collecting taxes itself or seeing them whisked away to Washington, not surprisingly every state and the District of Columbia began its own UI program by 1937.

Besides motivating states to establish their own programs, the Act encouraged them to experience rate their unemployment insurance taxes. Experience rating makes the individual firm's tax rate dependent on its past employment experience. A firm which has experienced few layoffs in a qualifying period, and hence which has generated few benefit payments, is taxed at a lower rate than a firm which has generated many benefit payments.

As of January, 1978, the federal UI tax is levied at a rate of 3.4% on the first \$6,000 of each covered worker's wages. The tax is payable entirely by the employer. By paying taxes into its own state's UI fund, a firm can credit those payments to its federal tax, potentially reducing the federal tax to 0.7% of its taxable payroll. Furthermore if the state experience rates its UI tax, the firm can still claim the full federal tax offset even if it pays its state tax at a rate less than 2.7%. Thus, for example, a firm with few layoffs that is charged state taxes at a 0.1% rate, still receives credit for paying at a rate of 2.7%, and pays a total UI tax of only 0.8% (0.7% to the federal government and 0.1% to the state fund).

As a result of this bonus offset provision all states have adopted experience rated tax schedules. The federal government, out of the 0.7% on taxable payrolls that it retains, completely reimburses the states for the administrative costs of their own employment service commissions, enforces a few federal standards, and provides advice to the states. Benefit levels, eligibility rules, benefit duration, and tax rates charged are all up to the individual states.

#### Mechanics of Experience Rating

The original unemployment insurance law created an individual UI account for each firm in the state. Money flowed into the account from the firm alone, and the individual account was the only source of money for benefits to the firm's exemployees. If the firm's account was depleted, no further benefits were paid to its laid off workers. To increase the insurance factor and to protect workers, all states eventually adopted some form of a pooled fund. Now tax rates are determined as if each firm had an individual account, but the taxes are paid into a general fund from which benefits are withdrawn.

Several formulas are used by various states to experience rate the tax, the most popular (32 states) being the reserve ratio formula.<sup>2</sup> Each employer has an account to which his tax payments are credited and from which benefits drawn by his exemployees are debited. The reserve ratio is the ratio of the

<sup>&</sup>lt;sup>2</sup>See Haber and Murray [9] for a discussion of the reserve ratio and other experience rating formulas.

firm's balance (taxes minus benefits) to its annual payroll. The annual payroll is usually the average payroll for the prior three years. The firm's tax rate is adjusted to make the reserve ratio equal to some given number. Actually the adjustment is such that the reserve ratio is within some range. When the ratio reaches the maximum, a reduced tax rate is assigned; if the ratio reaches the minimum, the tax rate is increased. Adjustments are usually made on an annual basis.

Although the intent of experience rating is to balance tax payments with expected benefit withdrawals, some states have instituted minimum and maximum tax rates which make balancing impossible. Thirty-eight states have non-zero minimum tax rates (see Table 1). Firms with no layoffs in these states cannot possibly balance their accounts since their tax payments necessarily outweigh their zero withdrawals. Most states also use multiple tax schedules, a lower schedule in effect when the state fund is of some given size, a higher one when the fund is depleted to some specified level. Thus, even though a state can possibly award a zero tax rate, it may not. Table 1 shows that in 1975 only 6 states awarded zero tax rates, and the minimum rate was as high as 3.9% (in Massachusetts).

Tax rate ceilings may make it impossible for some firms to pay as much into the UI fund as its ex-employees withdraw. Table 1 shows that maximum rates charged in 1975 ranged from 2.7% in six states to 6.6% in Michigan. Benefits charged to a firm but not covered by that firm's tax payments are referred to as ineffectively charged benefits. In 1967 18% of the covered

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Rhode Island	1.0	0.4	3.2	5.0	
South Carolina	.25	4.1	.25	4.1	
South Dakota	0	4.1	0	2.7	
Tennessee	ŗ.	4.0	<b>т</b> .	4.0	
Texas	.1	1	<b>-</b>	4.0	
Utah	.7	2.7	1.4	2.7	
Vermont	.1	5.0	1.0	5.0	
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Wisconsin	0	4 <b>•</b> 4	0	4.7	
Wyoming	0	2.7	.79	3.49	
Sources: Compariso	n of State	Unemployment	Insurance Laws,	January, 1975.	

"Significant Provisions of State Unemployment Insurance Laws," July 5, 1976.

. TABLE l (Continued)

firms in California had negative balances for the year amounting to \$92 million. Accumulated negative balances for the state fund were \$564 million. Most states carry forward negative balances, although some intermittently excuse them and allow the firms to start with a clean slate.

States have instituted ceiling and floor tax rates for political and economic reasons. Ceiling rates "protect cyclically sensitive industries from bearing the brunt of a general business slump."<sup>3</sup> They lessen the fear that unlimited liability for unemployment costs might deter hiring or might drive firms out of business. They enhance the insurance aspect of UI since a firm's past experience may not be an accurate indicator of its future layoffs. Non-zero minimum rates have been adopted under the assumption that UI is a social insurance program and therefore sharing of some of the costs by all firms is appropriate.<sup>4</sup>

Besides ineffectively charging some benefits, some states also noncharge benefits. Noncharging means that benefits are paid to an unemployed worker, but they are not charged against any firm's account. The costs of these noncharged benefits are somehow distributed among all the firms. Benefits are noncharged for a variety of reasons, but most noncharges are connected with disqualifications. A claimant found ineligible for benefits can in many states collect benefits after waiting some number of weeks. Also some states automatically noncharge

<sup>3</sup>Warden [21], p. 89.

<sup>4</sup>Becker [4], p. 20.

benefits if the worker was separated under potentially disqualifying circumstances.<sup>5</sup> Of fifteen states surveyed by Becker<sup>6</sup> in 1966, noncharged benefits accounted for over 12% of benefits in nine of the states. South Carolina in 1967 noncharged 47% of all benefits paid in the state.

## Extent of Experience Rating

Because tax rate ceilings and floors differ markedly across states and because of noncharged benefits, the degree of experience rating, i.e., how close firms come to balancing their tax payments with expected withdrawals, can differ markedly. Table 1 shows the minimum and maximum rates possible in each state in 1975, and the minimum and maximum actually charged. Some states, like Michigan, Alaska, New Jersey, and Florida have wide ranges in possible tax rates. Others like Virginia, Utah, and Arizona have relatively narrow ranges. The differences among states are more pronounced in actual rates charged in 1975. Thus Massachusetts, despite a potential range of 0.5 to 5.1 percent, charged at rates between 3.9 and 5.1 percent. Michigan, on the other hand charged between 0.7 and 6.6 percent, out of a potential 0 to 6.6. The strength of experience rating in a state's UI tax can be indicated by the tax rates it charges and the tax base it uses. The higher the minimum tax rate, the harder it is for stable employment firms to balance their

<sup>6</sup>Becker [4], p. 105.

<sup>&</sup>lt;sup>5</sup>Becker [4], p. 36.

accounts. The lower the maximum tax rate, the harder it is for unstable employment firms to pay enough taxes to equal their benefit charges. Each state is also free to set its own taxable wage base (at least \$6,000, as of January, 1978) and some, like Alaska at \$10,000, have chosen bases higher than the minimum. Once the taxable wage base has been reached, further wages paid to the worker are not subject to experience rating at all. Therefore, the higher the wage base, the stronger the state's experience rating. Table 1 indicates which states in 1975 had taxable wage bases greater than \$6000.

## Merits of Experience Rating

The virtues and drawbacks of experience rating have been debated in the U.S. almost as long as the very idea of unemployment insurance.<sup>7</sup> Three arguments are usually cited in favor of an experience rated unemployment insurance tax. Differentiating tax rates according to employment experience encourages individual firms to stabilize their own employment. Second, an experience rated tax promotes employer interest and participation in the administration and development of its own state's unemployment insurance system. Third, an experience rated tax allocates the cost of unemployment benefits better than a flat rate tax because it relates unemployment costs to the product that generated the costs.<sup>8</sup>

<sup>&</sup>lt;sup>7</sup>Becker [4], p. 5-16 outlines the history and early development of experience rating.

<sup>&</sup>lt;sup>8</sup>See Haber and Murray [9], pp. 337-346.

## 1. Stabilization of Employment

The pioneer Wisconsin unemployment insurance plan gained acceptance largely because of the claim that the program would encourage firms to smooth irregular employment patterns. An experience rated unemployment insurance tax charges each firm with the cost of unemployment benefits drawn by its ex-employees. Thus the firm's unstable employment becomes a cost of production, to be minimized along with all its other costs. For the profit maximizing firm, minimizing its unemployment insurance tax burden is tantamount to reducing its employment fluctuations. The firm will stabilize employment as long as the marginal cost of a layoff (in terms of expected UI tax charges) outweighs the marginal wage bill reduction. Paul Raushenbush, who helped draft the Wisconsin Act noted:

Just as employers are now required by law to pay workmen's compensation for accidents, so they should in future pay limited unemployment compensation to laid off workers. Both accidents and unemployment are <u>industrial</u> hazards and genuine production costs to be prevented where possible, but compensated for where unavoidable.<sup>9</sup>

Opponents of experience rating point out that the firm's opportunities for stabilizing its employment are for the most part limited to smoothing seasonal peaks and valleys. Frictional, cyclical, and technological unemployment are almost completely beyond the firm's control. And even seasonal employment stabilization is limited by the weather and festival days, factors which the employer cannot alter.<sup>10</sup> P. L. Rainwater, former administrator of the Mississippi UI system, claims:

<sup>9</sup>As quoted in Becker [4], p. 52.

<sup>10</sup>See Haber and Murray [9], pp. 339-340; Warden [21], pp. 81-83.

The most probable result of merit rating in operation will be a rate structure which will impose low rates on all employers who participate in the production of goods for a relatively stable market, high rates on all employers who take part in the production of goods for a market subject to severe fluctuations...The reward of rate reduction will go to the employers who have done nothing to earn it. The penalty of high rates will be imposed upon employers who are not so much inefficient as unlucky. Thus merit rating will bear little or no relation to merit. Their determination will depend less upon good management than upon good fortune.

Hence the firm's tax rate is primarily determined not by its stabilizing behavior, but by the inherent stability or in-stability of its industry.

## 2. Employer Interest and Participation

Proponents of experience rating claim that rating increases employer interest and participation in the UI system. Specifically the firm should be induced to police the system, scrutinizing the claims filed by its ex-employees to make sure that they truly qualify for benefits. Each state has established an appeals process so that employers can challenge benefit awards on various grounds, such as employment being terminated because of misconduct, the unemployed worker not actively seeking new work, and other grounds. Experience rating encourages firms to use the appeals process since, if the appeals board rules in the firm's favor, any benefits paid for that claim are not charged against the firm, and hence do not adversely affect the firm's tax rate. Without an experience rated tax, the potential gain

<sup>11</sup> See Rainwater [18], p. 760.

from a challenged claim is split among all firms, thus greatly diminishing the individual firm's motivation to file an appeal.

Critics charge that the increase in employer participation as a result of experience rating is insignificant,<sup>12</sup> and that rating has caused the primary function of UI, which is providing benefits to the unemployed, to be subordinated to experience rating itself.

Considering the objectives of unemployment compensation it would seem those administering the program would be cheifly concerned with the payment of benefits. But benefits are not the major issue. Today most unemployment compensation problems at both the legislative and administrative levels are chiefly involved with, if not subordinated to, experience rating. Proposals to extend coverage, to liberalize benefits, to make determinations of seasonal industries -- these and similar measures are tested for their effect upon a possible reduction in the employer's tax rate through experience In short, employers and many administrators rating. in their preoccupation with experience rating are converting the present system into a tax program rather than one designed to pay benefits to unemployed workers.<sup>13</sup>

#### 3. Allocation of Unemployment Costs

Varying tax rates according to employment experience, forces the firm to consider UI benefit costs as a cost of production. Those benefit costs which cannot be eliminated by employment stabilization are incorporated into product price by the competitive firm. Thus consumers of goods whose production generates unemployment pay the price of that unemployment. For example, consumers of highly fashionable women's shoes,

<sup>12</sup>Becker [4], p. 127.

13Clinton Spivey, as quoted in Haber and Murray [9], p. 346.

having seasonal production schedules and high unemployment, pay for the luxury of the seasonality if the tax is experience rated.

A flat rate tax requires firms with below average unemployment partially to pay benefit costs generated by firms with above average unemployment. As a result, products from firms with stable employment are priced too high relative to products from firms with unstable employment. Consumers buy more than the socially optimal amount of the unstable employment goods because of their artificially low price, and resources are misallocated away from stable industries and into unstable industries.

The allocative argument in favor of experience rating is independent of any employment stabilization gains that may be realized as a result of rating. Edwin Witte, one of the authors of the Social Security Act said:

There are good theoretical arguments on both sides of this question (whether to experience rate the tax). To me the weight of the theoretical arguments seems to be in favor of experience rating. I hold his view not so much because I believe the experience rating will operate to reduce unemployment, but because I believe that the adjustment of contribution rates to the varying risks of unemployment of different industries and establishments is in accord with prevailing American concepts. In all other "insurances" in this country, rates are adjusted to the risk. Our private economy is grounded upon the concept that each industry should stand on its own feet. Honest cost accounting requires that all costs be ascertained and properly allocated to the commodities produced or services rendered. An industry which operates intermittently occasions great costs to its employees and to society through its methods of operation. Whether it can or cannot operate more regularly, the unemployment which arises by reason of its intermittent or irregular operation is a cost which should be charged to the establishment producing the goods or services and which gets the profits of the enterprise. Every reason that can be advanced for contributions from employers only--and in all but six

states all contributions come from the employers--logically leads to variable contribution rates, rates adjusted to risk and costs. In a socialistic economy it might be proper to have all industry collectively bear the costs of unemployment; in a private economy, where the profits go to particular entrepreneurs, all costs of production should be borne by the particular establishments, and these should include the unemployment compensation costs, as well as all other costs.<sup>14</sup>

Opponents of experience rating maintain that not all unemployment is caused by an individual firm or by the production of a particular product (like fashionable women's shoes). For example, cyclical unemployment is associated with a general economic decline where cutbacks in one industry are often the result of cutbacks in another. It is rarely possible to lay blame for unemployment on any one industry, let alone on any one firm.<sup>15</sup> Yet experience rating regards the firm which actually lays off the worker as solely responsible for the subsequent benefits drawn.

Haber and Murray claim that "there are practical limits to how high maximum tax rates can be pushed."<sup>16</sup> The "socialized" costs arising from ineffectively charged benefits and other costs "that cannot or should not be charged to any one employer"<sup>17</sup> should be shared by all employers. Experience rating shares socialized unemployment costs only if each firm's share is completely reflected in its layoffs.

<sup>14</sup>Lampman [15], pp. 274-275.

<sup>15</sup>Warden [21], pp. 81-82.

<sup>16</sup>Haber and Murray [9], p. 353.

<sup>17</sup>Haber and Murray [9], p. 357.

## Outline of Study

Despite the long standing political debate, little has been done to analyze the impact of an experience rated UI tax on the firm in a microeconomic framework. The purpose of this study is not to evaluate the arguments for and against experience rating, but to investigate at least some facet of each of the three arguments to see if any of them are valid. Does experience rating actually induce firms to stabilize their own employment? Does experience rating encourage firms to scrutinize benefit claims more diligently? Does experience rating better allocate the cost of unemployment insurance than a flat tax rate?

Whether the costs of unemployment insurance taxes are significant enough for firms to alter their employment fluctuations is an empirical question. The first section of this study considers the seasonality of employment across states for three industries: SIC 161, highway and street construction except elevated highways; SIC 233, women's, misses', and juniors' outerwear; and SIC 243, millwork, plywood, veneer, and other prefabricated wood products. A regression model is used to see if an industry's seasonal fluctuations in employment are influenced by the strength of experience rating.

The second section uses employer appeals of benefit awards to ex-employees as a proxy for employer interest and participation in the UI system. Again, whether UI costs are significant enough to alter firm behavior is an empirical question. A

regression model tests whether the proportion of benefit awards appealed by employers in a state is affected by the strength of experience rating in that state.

The third section deals with experience rating as an allocator of unemployment insurance costs. The portion of UI costs which are "socialized" costs, and therefore, for efficiency, should not be charged against any individual firm, is an open question. As a result, a theoretical approach is taken in this section, investigating the effect of experience rating on resource allocation in the presence of different types of "socialized" unemployment costs. The effect on resource allocation of an experience rated tax or a flat rate tax is considered in a situation where blame for a part of unemployment cannot be observed. The effect of the two schemes, and a mixture of the two, on resource allocation in the presence of "socialized" unemployment as a cost of maintaining the labor market, is also considered.

#### CHAPTER II

## The Effect of Unemployment Insurance on Seasonal Fluctuations in Employment

The possible stabilizing effects of unemployment insurance have been of interest to policy makers ever since the pioneer unemployment compensation law was enacted in 1932. At the bidding of gubernatorial candidate Phil LaFollette, that act was drawn up "with maximum emphasis on steadier jobs."<sup>18</sup> When President Franklin Roosevelt called for UI to be included as part of the Social Security Act he asked for a plan whose goal was "to afford every practicable aid and incentive toward the larger purpose of employment stabilization."<sup>19</sup>

Despite this longstanding interest and the arguments about the existence of stabilizing effects, little empirical work has been done on the subject. That which has been done deals exclusively with the macro stabilizing effects,<sup>20</sup> ignoring the possible micro employment effects which had much to do with making UI acceptable to representatives some 45 years ago.

<sup>20</sup>See von Furstenberg [20] and Hamermesh [10] for recent macro stabilization studies.

<sup>&</sup>lt;sup>18</sup>Raushenbush [19], p. 18.

<sup>&</sup>lt;sup>19</sup>Nelson [16], p. 212.

The bulk of micro empirical work concerning UI has involved the effect of benefits on supply side behavior in the labor market.<sup>21</sup> This study investigates differences in demand side behavior caused by the manner in which the UI system is financed, through an experience rated tax on employers. Employment stabilization is gained at the firm level by experience rating the UI tax, that is, tying the individual firm's tax rate to its own past employment experience. By making the tax payable by the employer, it becomes a cost of production. The profit maximizing firm, in seeking to minimize its tax burden along with its other costs, stabilizes its own labor requirements.<sup>22</sup>

#### The Unemployment Tax as an Inducement to Smooth Employment Fluctuations

Unemployment insurance programs in the U.S. are a predominantly state run endeavor. The federal government sets a few standards, provides advice, and reimburses the states for the administrative costs of their systems. Regular benefits are financed by state UI taxes. Only three states (Alabama, Alaska, and New Jersey) call for employee contributions; all others tax the employer alone.

<sup>&</sup>lt;sup>21</sup>For a summary of empirical research see Welch [22].

<sup>&</sup>lt;sup>22</sup>Brechling [5] develops a more rigorous theoretical model of how experience rating can affect firm behavior.

A state can differentiate tax rates among firms by experience rating its tax. An experience rated UI tax is one in which the tax rate assigned to a firm is dependent on that firm's past employment experience. A firm which has generated a large number of layoffs in the qualifying period, and hence has generated a large amount of benefit claims, is charged at a higher tax rate than a firm with few benefits charged against its account. Thus each firm is in a manner paying for the unemployment that it creates.

A perfectly experience rated tax charges each firm whatever tax necessary to balance its payments into the UI fund with the expected withdrawals from the fund by its ex-employees. Α firm with no layoffs would be assigned a zero tax rate, a firm with many layoffs assigned a rate high enough to ensure balancing. In fact, however, states have statutory minimum rate floors, maximum rate ceilings, and taxable wage bases less than total covered wages, so that balancing of accounts does not always occur. The degree of experience rating, i.e., how close firms come to balancing their accounts, can vary markedly across states. These differences in degree allow a test of experience rating's ability to smooth employment. The stronger the experience rating in a state, the greater should be the motivation to smooth employment since the stronger the rating the more are unemployment costs coming home to roost. Thus states with strong experience rating should exhibit smoother employment

patterns for a given industry than states with weak experience rating, all other things being equal.<sup>23</sup>

The contention that experience rating can induce firms to smooth their employment fluctuations assumes that the firms can alter those fluctuations in some way. A firm might stabilize its employment by reworking production schedules or by taking on complementary lines to reduce the seasonality of its employment. Clearly part of the firm's employment variation is beyond its control. Things like seasonality of demand for the firm's product, weather considerations, and seasonality in raw materials supplied to the firm greatly limit the amount of stabilization actually possible. Whatever employment variability that the firm can affect, however, should be dampened by experience rating the unemployment insurance tax.

Experience rating's ability to induce firms to smooth employment is also limited by the amount of the tax that the firm can shift either backward onto labor or forward onto consumers. If the firm draws its workers from a wage inelastic labor supply, it ought to be able to shift all of the tax costs

<sup>&</sup>lt;sup>23</sup>See Becker [4] for a more detailed account of the link between experience rating and employment stabilization. He reviews three prior studies, each of which deal with firm reaction to experience rating within one state. The studies all employ interviews or questionnaires and find that, in general, about one fourth of the firms sampled (having one third the covered workers) are appreciably affected by experience rating incentives.

Feldstein [7] develops a model showing that unemployment insurance increases temporary layoff unemployment. Imperfect experience rating is partially responsible for the increase in that it subsidizes firms with poor employment records such that they do not pay the full cost of benefits drawn by their laid off workers.

back onto its labor force. Similarly if demand for the firm's output is price inelastic it should be able to shift forward the entire tax. This shifting problem is ignored here; i.e., it is assumed that the firm bears the full burden of the unemployment insurance tax. If shifting does occur it should weaken the incentive to smooth employment since it implies that the firm is escaping part of the tax.

If experience rating induces firms to smooth their employment swings, then a given industry should exhibit smoother swings in a state with strong experience rating than in a state with weak rating. Specifically this paper looks at seasonal swings in employment. The reasons for this are twofold. First, theoretically, if this smoothing behavior is going to show up anywhere, it ought to show up in seasonal variations since those rather than cyclical or trend variations are more under the control of the firm. (That is, control in the sense that they are more predictable and hence more easily adapted to by the firm.) Secondly, for practical considerations, looking at seasonal variations allows one observed cycle for each year's worth of data, rather than, for example, one observed cycle for three years data if estimating a three-year business cycle.<sup>24</sup> Given some measure of seasonality for an industry for each state and given some parameters of experience rating strength for each state, then one can test to see if the parameters of

<sup>&</sup>lt;sup>24</sup>See Hamermesh [11] for a brief discussion of the importance of a long time series.

strength of experience rating influence the seasonality of that industry in some characteristic manner.

### Data and Methodology

Three industries were chosen for investigation. They were SIC 161, highway and street construction, except elevated highways; SIC 233, women's, misses', and juniors' outerwear; and SIC 243, millwork, plywood, veneer, and other prefabricated wood products. These were picked since they should exhibit seasonality, and they are also well represented through the fifty states, ensuring a good sample size. To get a measure of seasonality for each industry for each state the spectrum of a time series of employment for the industry was estimated. The spectrum shows how the variance of the time series is distributed across frequencies. By totaling up the portion of variance accounted for by the seasonal frequency and its harmonics, a measure of seasonality for each industry for each state is obtained.

Monthly employment observations by state<sup>25</sup> for the years 1960 through 1974 were used to create the time series for each industry. Because of missing data or an industry not being represented in each state, the number of spectral measures of seasonality differed from industry to industry. Fifty spectra were estimated for industry 161, 36 for industry 233, and 39 for industry 243. Each of the time series was greatly dominated

<sup>&</sup>lt;sup>25</sup>Data source: <u>Employment and Wages</u> [28].

by low frequencies, making prewhitening of the series a must before estimating the spectra.<sup>26</sup> The procedure used was to estimate a first-order autoregressive parameter for each series and to use that parameter to prewhiten the detrended series. Thus the actual spectra estimated for an industry were for the series  $z_{ti} = x_{ti} - ax_{t-1}$ , i, t = 1,179;  $z_{180}$ , i =  $a(x_{179} - x_0)$ ; where x is monthly employment, i indexes the states. The spectra were estimated using a Parzen window and 36 lags,<sup>27</sup> so that the spectrum for each industry for each state was

$$s(w_j) = \frac{1}{2\pi} \begin{bmatrix} \lambda_0 & C_0 + 2 & \Sigma & \lambda_k & C_k & \cos w_j k \end{bmatrix}$$

$$k=1$$

where M is the maximal lag (here M = 36) and

$$w_j = \frac{\pi j}{M}, j = 0, M$$

and where the estimated covariances  $C_k$  are given by

$$C_{k} = \frac{1}{T} \begin{bmatrix} \Sigma \\ \Sigma \\ t = 1 \end{bmatrix} (z_{t} - \overline{z}) (z_{t+k} - \overline{z})$$
  
where  $\overline{z} = \frac{1}{T} \sum_{t=1}^{T} z_{t}$  and T is the length of the time series (here  $\overline{T} = 180$ ).

The Parzen window is the weighting scheme

$$\lambda_{k} = \frac{1 - 6(\frac{k}{M})^{2} + 6(\frac{k}{M})^{3}}{2(1 - \frac{k}{M})^{3}} \qquad \frac{k \le M/2}{M/2 < k \le M}$$

<sup>26</sup>See Nerlove [17] for a discussion of prewhitening. <sup>27</sup>See Jenkins and Watts [13] and Granger and Hatanaka [8]

for a detailed account of spectral methods of estimation.

The regression model for each industry is of the form

 $S_1 = \alpha + \beta X_1$ 

where  $S_1 = spectral$  measure of seasonality for state i

 $X_1$  = a vector of indicators of experience rating strength for state 1.

We assume that other factors which may explain seasonality in a state (weather, for example) are uncorrelated with the indicators of experience rating strength. The strength of experience rating refers to how close firms actually come to balancing their tax payments and expected benefit withdrawals. The ideal situation would be to observe each firm's UI fund account. Unfortunately no such data are available. A few states publish account balances by broad industry group. Most do not even publish the number of firms with negative balances or the size of aggregate negative balances.

Since neither firm data nor industry group data are available this study consider the parameters of the UI system which allow firms to balance their accounts, namely the tax rates and the taxable wage base. Rather than construct an index of experience rating strength from those parameters, for each state the parameters are entered individually into the analysis as indicators of experience rating strength. This is partly due to the difficulty of arbitrarily weighting different parameters to get a single index number, and partly due to the fact that the influences of the tax base and tax rates have been considered individually in mush of the literature concerning experience rating, and hence their separate effects may be of interest.

The taxable base can be used as a parameter of experience rating strength, since it shows how much of the wage bill is

actually subject to the tax. Instead of the statutory base for each state, the ratio of taxable wages to total covered wages (TAX/TOT) was used. If the statutory base were used, two states with a \$4,200 maximum would be ranked as the same. Yet if State A is a high wage state and State B is a low wage state, then the \$4,200 maximum is more effective in B than in A. Clearly the closer TAX/TOT is to unity, the stronger the rating scheme, all other things being equal.

A state's maximum tax rate can indicate experience rating strength since the higher the ceiling rate, the more likely it is that an unstable employment firm can balance its tax payments and its benefit withdrawals. Low tax rate ceilings increase the opportunity for a firm to escape experience rating by paying at an ineffective maximum rate. Two separate maximum tax rate variables were created, CAMAX and AH. CAMAX is the highest maximum tax rate charged in either 1962, 1966, 1967, or 1975. AH is the average of the highest rates charged in those four years. Rate data covering all the years in the study were not available. Out of the limited possibilities, these years were chosen since they include years when the general U.S. economic picture was bright, ordinary, and dim.

The level of the maximum tax rate does not necessarily indicate its effectiveness. A state with a highly unstable employment industry requires a higher ceiling rate to have an effective tax schedule than a state with no unstable industries, yet both rates may be sufficient for all firms to balance their UI accounts. For example, Michigan's 6.6% ceiling may be too
low for highly seasonal construction firms to balance their accounts, yet Arizona's 2.9% maximum may be sufficient for Arizona. Therefore the maximum tax rate may be more an indicator of a states industrial make-up or weather than it is of the strength of experience rating. If the ceiling rate does not reflect the effectiveness of the upper end of the tax scale it is a poor indicator of strength.

Since states generally do not publish negative balance figures, it is difficult to gauge the effectiveness of ceiling rates. Becker<sup>28</sup> complied statistics on the distribution of taxable wages by tax rate group for each state in 1967. These data indicate serious problems in using the maximum tax rate as an indicator of experience rating strength. For example, 13.4% of the taxable wages in Pennsylvania were taxed at a 4.0% ceiling rate, while Mississippi's 2.7% ceiling was charged to only 7.0% of the firms in that state. Thus Mississippi's 2.7% rate appears more effective despite the fact that it is only 2/3 as high as Pennsylvania's. Similarly, Illinois and Pennsylvania appear to have equal rating strength at the upper end of the tax scale since each had 4.0% ceiling rates. Yet only 0.2% of the firms in Illinois were assigned that rate, indicating that Illinois' 4.0% maximum was much more effective than Pennsylvania's. PMAX, the percentage of taxable wages in each state's highest tax bracket was created from Becker's data in an attempt to gauge the effectiveness of the maximum tax rate.

<sup>28</sup>Becker [4], p. 88-89.

PMAX hints at the amount of wages that escapes experience rating because of an ineffective ceiling tax rate.

Minimum tax rates point out the effectiveness of the lower end of the experience rated tax schedule and can also indicate the effectiveness of the upper end. The higher the minimum tax rate, the harder it is for stable employment firms to balance their accounts, and hence the weaker the experience rating. If the costs of ineffectively charged benefits are at least partially charged to firms with no layoffs, then the deviation of the minimum rate from zero also points up the extent of ineffectively charged benefits. Two variables for the minimum tax rate were created, CAMIN and AL. CAMIN is the lowest minimum tax rate charged in either 1962, 1966, 1967, or 1975. AL is the average of the lowest rates charged in those years. Since every state contains some very stable employment firms (hence firms with no or few layoffs) comparing minimum rates across states should lead to a much more accurate appraisal of experience rating strength than comparing maximum rates.

States can weaken the experience rating of their UI taxes by noncharging benefits. For lack of data this indicator of strength was dropped. As noted earlier, however, noncharging might be significant. Assuming that noncharges are distributed among all firms, the minimum rate does partially point out the extent of noncharges.

#### Regression Results

Table 2 shows the two estimated equations for each industry. The dependent variable is the spectral measure of seasonality, the fraction of variation in the industry time series of employment which can be attributed to the seasonal frequency and its harmonics. The state by state spectral measures for each industry appear in the appendix. Positive regression coefficients indicate that higher levels of the independent variable imply more seasonality of employment. For example, the positive coefficients for AL, the minimum tax rate, indicate that tax rate floors close to zero reduce seasonal fluctuations.

Several proxies for minimum and maximum tax rates were tried, along with regressors indicating the spread of rates, concentration of rates, effective ranges of rates, variability of minimum and maximum rates, and the like. None proved significant save the rates themselves.

The results were mixed. For the construction industry SIC 161, the taxable base parameter TAX/TOT and the maximum tax rate parameter were significant in explaining seasonality of employment. For the outerwear industry SIC 233, all the parameters of experience rating strength were significant except TAX/TOT. And for the wood products industry SIC 243, no parameters even approached significance. That nothing worked out for the wood products industry was not surprising. The estimated spectra for that industry showed little seasonal, i.e., twelve month cycle, power. Many states had no peak at all at the seasonal frequency and, in fact, five states showed definite two-year cycles. Coupling that empirical evidence with the recognition

Effect of Experience Rating Indicators on Seasonality Dependent Variable: Spectral Measure of Seasonality

		CONSTANT	ТАХ/ТОТ	PMAX	CAMIN	CAMAX	AL	АН	R <sup>2</sup>
Industry	161	.3735 (5.64)	2272 (-2.30)	.0003 (0.31)	.0128 (1.09)	.0125 (2.01)			.2223
		.3980 (5.92)	2579 (-2.57)	.0003 (0.24)			.0112 (1.06)	.0117 (1.06)	1721.
Industry	233	.1317 (2.38)	0092 (-0.11)	.0015 (1.91)	.0207 (2.39)	.0123 (2.46)			.3924
		.1311 (2.39)	0521 (-0.67)	.0016 (2.03)			.0191 (2.64)	.0198 (2.75)	.4195
Industry	243	.2149 (4.05)	0535 (-0.70)	(0.14) (41.0)	0099 (-1.18)	.0040 (0.86)			.0829
		.2002 (3.87)	0526 (-0.72)	.0002 (0.31)			0055 (-0.78)	.0082 (1.24)	.0820
TAX/TOT	Ratio	of taxable	e wages to	total co'	vered wage	s 1n 196'	7.		
PMAX	Perce	nt of taxal	ble wages :	in highes	t tax brac	:ketBecl	ker.		

Lowest minimum rate charged from years 1962, 1966, 1967, 1975.

CAMIN

TABLE 2 (continued)

- Highest maximum rate charged from above years. CAMAX
- Average minimum rate charged over above years. AL
- Average maximum rate charged over above years. AH
- Unemployment Insurance Financial Data 1938-1970, U.S. Department of Labor, Manpower Administration, 1971. Sources:

Unemployment Insurance Tax Rates by Industry, for years 1962, 1966, 1967, U.S. Department of Labor, Manpower Administration.

Significant Provisions of State Unemployment Insurance Laws, January 5, 1976, U.S. Department of Labor, Employment and Training Administration, 1975.

Joseph M. Becker, Experience Rating in Unemployment Insurance.

that this is an industry greatly dominated by outside forces which themselves are higly unpredictable, like the building industry, money markets, et cetera, leads one to believe that the wood products industry simply has few options for change. Given that the industry has little opportunity to stabilize its labor requirements, it is not likely that it would respond differently to gradations of experience rating.<sup>29</sup>

For the two industries in which the results showed some significance, the signs turned out as had been expected with the exception of a positive coefficient on the maximum tax rate variable. The taxable base variable TAX/TOT was negative, as expected. The greater the portion of covered wages that is subject to experience rating, the stronger the rating; the stronger the rating, the greater the motivation to smooth employment, and hence the less the seasonality. The coefficient on the minimum tax rate parameter was positive. The higher the tax rate floor, the weaker should be the motivation to smooth, and hence the greater the seasonality. As outlined above, once a firm's employment record is good enough to qualify it for the minimum rate, its motivation to improve disappears. Hence the closer the minimum is to zero, the greater should be the desire

<sup>&</sup>lt;sup>29</sup>The spectral measure of seasonality used as a dependent variable measures only the portion of variation attributed to the seasonal frequency and its harmonics, and says nothing about the amplitude of the seasonal swings. For this reason the equations were run again including the total variation of the time series as a right hand side variable lest it be simply the size of the swings rather than experience rating which explains the differences in seasonality. The total variation variable was insignificant and its inclusion did not affect the size or significance of the original regressors.

to smooth employment, at least in the aggregate, for firms in the lower range. Also the deviation of the minimum rate from zero hints at the amount of subsidization that is going on by good record firms for firms paying at an ineffective maximum tax rate. Remember that some firms pay into the state UI fund fewer tax dollars than their ex-employees draw out as benefits. The additional monies must be made up for by taxing other firms at rates higher than required to balance their own accounts. Thus the deviation of the minimum tax rate from zero can indicate not only weakness of rating at the lower end of the tax scale, but also weakness at the upper end. Both reasons call for a positive coefficient on the minimum rate parameter, i.e., weaker rating, less motivation to smooth, more seasonality.

If the level of the maximum tax rate indicates experience rating strength, then the coefficient sign on CAMAX and AH should be negative. High ceiling rates imply firms cannot easily escape experience rating by paying at an ineffective maximum rate. Thus high ceiling rates should imply strong experience rating and therefore less seasonality of employment. These estimated coefficients were positive and significant for both SIC 161 and SIC 233. The shortcomings of the maximum tax rate as an indicator of rating strength were outlined already. The cited evidence shows that the level of the ceiling rate does not adequately reflect its effectiveness, therefore CAMAX and AH can be misleading. Both seem to be more behavioral variables than true indicators of experience rating strength.

The portion of wages which escapes experience rating due to an ineffective maximum rate is better represented by PMAX, the percentage of total taxable wages which fall in the state's highest tax bracket. As such PMAX is not necessarily the portion of wages escaping experience rating (since some firms may be balancing their accounts by paying at the ceiling rate), but it is a proxy for ineffectively charged benefits. Its estimated coefficient is positive, though insignificant for SIC 161. The more wages in the maximum rate bracket, the greater the probability that some firms escape experience rating. The less effective the ceiling rate, the less the motivation to smooth employment, and the greater the seasonality.

To test further for experience rating's influence on employment swings, the sample was split in two, with the 50 : state median value of TAX/TOT as the demarcation. States with ratios of taxable wages to total wages greater than .571 make up the high TAX/TOT group. States with ratios below .571 make up the low TAX/TOT group. States in the high group should exhibit stronger experience rating and hence more diligent smoothing behavior than those in the low group. This is simply because more wages are subject to rating. Since the experience rated tax is paid only on the first x dollars of wages, in a low taxable wage base state that amount might be reached after three or four months employment, and all wages after that are, in effect, not subject to rating at all.

Each equation was re-estimated on each subsample and those results appear in Table 3. In the outerwear industry, SIC 233,

and the construction industry, SIC 161, the effects of ineffectively charged benefits, PMAX, the minimum tax rate, AL or CAMIN, and the taxable wage base TAX/TOT were all larger and more significant in the high group than in the low. The effect of the maximum tax rate, AH or CAMAX, was essentially the same in each group, indicating its stance as a behavioral variable rather than a parameter of experience rating strength. Once again the wood products industry, SIC 243, showed no response to experience rating strength. The limitations on stabilization of employment for this industry appear too great no matter how strong the rating scheme.

The two sets of estimated equations for SIC 161 and SIC 233 were subjected to a Chow test<sup>30</sup> to see if the structures were truly different. The results appear in Table 4. The Chow test showed that the structures to be significantly different for the outerwear industry SIC 233, but the test fell short of significance at the 10 percent level for the construction industry SIC 161.

Just what sort of evidence is all this for the contention that experience rating induces firms to stabilize their employment? Two of the three industries investigated showed some reaction to experience rating strength, and each reacted differently. The fact that they do respond is evidence, and the fact that they respond differently is further evidence, since if an

<sup>&</sup>lt;sup>30</sup>See Kmenta [14], pp. 373-374, for a derivation of the Chow test.

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TABLE

Regression on Split Industry 161 Sample Dependent Variable: Spectral Measure of Seasonality

Variable	CONSTANT	TAX/TOT	PMAX .	CAMIN	CAMAX	AL	AH	R <sup>2</sup>
H1gh TAX/TOT	.5422 (4.63)	5524 (-3.02)	0000. (17.0)	.0356 (2.00)	.0189 (1.79)			.4297
	.5543	5801 (-2.89)	.0004 (0.25)			.033 (1.90)	.0214 (1.31)	35 ElhE.
LOW TAX/TOT	.5132	-4894 (-1.93)	0021 (-0.04)	0021 (-0.14)	.0120 (1.58)			.2487
	.5388	-5.449 (-2.10)	.0002 (0.13)			0017 (-0.13)	.0145 (1.34)	.2237
Each subsample	e has 25 obs	servations.	The origin	lal sample w	as split a	t TAX/TOT =	.571, the	

median value of that variable for the 50 states and D.C.

# TABLE 3b

# Regressions on Split Industry 233 Sample Dependent Variable: Spectral Measure of Seasonality

Variable	CONSTANT	TAX/TOT	PMAX	CAMIN	CAMAX	AL	AH	R <sup>2</sup>
H1gh TAX/TOT	.2831	2661 (-1.88)	.0024 (3.07)	.4.16)	.0098 (1.45)			.7763
	.3018	3677 (-2.50)	.0013 (1.45)			.0480 (4.22)	.0221 (2.34)	36 1492.
Low TAX/TOT	.2193	1493 (-0.75)	.0007 (0.59)	.0068 (0.68)	.0105 (1.64)			.2757
	.2160	1970 (00.1-)	(00.1)			.0075 (0.93)	.0188 (2.14)	.3690
lentatuo edu	sew elnmes	си]4+ a+ ПАУ	(/m/m _ 57	14 04T L	d anona da	as 17 ohse	nuations	+ha

The high group has I/ observations, the • 7 / 6 • t TOT /VHT ine original sample was split at low group 19.

	Depend	ent Variable	: Spectral	Measure of	Seasonali	ty	- - -	
Variable	CONSTANT	TAX/TOT	PMAX	CAMIN	CAMAX	AL	AH	R <sup>2</sup>
H1gh TAX/TOT	.0903 (0.86)	.0791 (0.48)	.0005 (0.46)	0048 (-0.30)	.0143 (1.67)			.2108
	.0760	.0956 (0.57)	.0006 (0.52)			0090 (-0.60)	.(69.1)	.2309 w
Low TAX/TOT	.3376	2384 (-1.23)	(£0°0)	0132 (-1.26)	0017 (-0.29)			IOHI.
	.3031 (2.77)	1930 (-1.01)	0001 (70.0-)			0059 (-0.67)	.0008 (0.09)	.0803

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TABLE 3c

Effect of Experience Rating Indicators on Seasonality Split Industry 243 Sample

Chow Tests for Split Samples S = H (C, TAX/TOT, PMAX, CAMIN, CAMAX)Industry 161 F = 1.65 (F = 2.00 at 10% level) Industry 233 F = 2.51 (F = 2.08 at 10% level) S = H (C, TAX/TOT, PMAX, AL, AH)Industry 161 F = 1.43 Industry 233 F = 2.69

industry faces its own limitations on its ability to stabilize, then it should react differently depending on its own powers of adaption, i.e., its own control over altering its labor require-The construction industry SIC 161 is a highly seasonal ments. one; in fact SIC 16 is the most seasonal industry in the two digit classification. These construction firms are almost always in the maximum tax rate group, such that ranges of tax rates, minimum rates, and the like really should not influence them much since they are out of the realm of possibility. What can be of importance to these firms, and what the estimation procedure shows they react to, is the amount of wages on which they must pay the UI tax. The tax increases the cost of labor. So, for example, it is less likely that a worker expected to be needed for only a short period of time will be hired. Therefore, if construction firms attempt to queue their contracts rather than make use of a surplus labor supply, they may be doing so in response to the experience rated UI tax.

The outerwear industry SIC 233, on the other hand, reacts more to the tax-rate aspect of experience rating strength than to the base. But this is a low wage industry such that more of the wages are within the wage base limit no matter how high or low the taxable wage base. Also this is an industry with enough control over its labor requirements that it can adjust more easily, so that tax rates other than the maximum are within its reaching distance. That this industry has more options for adapting is supported by the fact that historically the garment industry is one which has attempted to stretch its output over the year. Firms in the industry have wider options for adapting, especially in that they exercise more control (predictability) over seasonal fluctuations in demand than a construction industry. Given the greater stability in the seasonal fluctuations, both in period and amplitude, this industry is in more of a long run situation than the construction industry, in the sense that its seasonality is more predictable, and hence one would expect the diminished effect of the taxable base variable.

That firms in the same industry react differently depending on the strength of the rating is further evidence that experience rating is actually motivating firms to smooth their employment. The outerwear industry shows significantly different firm behavior when split at the median taxable base level. Given the same type firm in two separate states, one with strong rating, the other with weak rating, the smoothing claim would say that the firm in the strong rating state should be more sensitive, and that contention is borne out. The construction

industry does not show different behavior that is statistically significant. But again it is one with little power to change its labor requirements, so that one would not definitely expect different behavior within the industry. Also the choice of splitting the industry sample at the median TAX/TOT value was rather arbitrary. Given that SIC 161 comes close to showing a significant difference in behavior perhaps there might be some higher split point, i.e., some sufficiently strong degree of rating, which would show significantly different behavior.

It should be noted that the assumption that firms cannot shift the UI tax is the worst case choice for finding experience rating to be significant. Any shifting of the tax burden diminishes the incentive to smooth employment, since then that portion of the cost of UI is no longer borne by the firm. Hence for a given degree of experience rating strength, if shifting can occur, the observed smoothing behavior is at least as great as it would be without any shifting. The no shifting assumption was made simply because the available data are not detailed enough to make any definite judgement.

#### Potential Problems

There is a potential problem in drawing conclusions from the above results, namely one of pinning down causality. The estimated equations show correlation between the strength of experience rating and dampened employment swings, but does that imply that one is causing the other? Might it not be that seasonal industries locate in states with weak rating? What we are

investigating here, though, is firm behavior within an industry across states. Of the three industries analyzed here only the outerwear industry SIC 233 has much opportunity for movement. The wood products industry cannot easily move away from its source of raw materials and the construction industry is closely linked to local markets. A three digit industry classification is a rather fine category breakdown, such that firms in this class ought to be fairly homogeneous. If the firms in this seasonal outerwear industry can simply pick up their sewing machines and move to states with weak experience rating, it seems unlikely that they should be represented in forty-six states in 1974, the last year in the sample, (especially given that those states exhibit) wide differences in experience rating strength).

That the same type seasonal outerwear firm is able to survive in a state with strong rating, ostensibly by smoothing its employment, when a weak rating locale is available, seems evidence for causality. That the same type firm acts differently across states in adjusting its employment swings to the strength of rating in the state seems strong evidence for causality.

A simultaneity problem exists if the seasonality of employment influences the strength of experience rating. It is politically easy for states with a high concentration of stable employment industries to have strong experience rating since no firms are heavily taxed in any case. The analysis here, again, deals with industries at the three digit level, so that the firms should be quite homogeneous. That the seasonality

of employment for the state can influence experience rating strength does not say that these individual firms considered can influence it. All we can say definitely now is that experience rating does influence firm's stabilizing behavior.

#### Conclusions

What has been gathered here is, I think, some good circumstantial evidence that experience rating does motivate employers to smooth their employment swings. Only three industries were studied and only two showed any reaction at all. But the reaction was logical and statistically significant. This is not to say that this smoothing behavior justifies experience rating. There are other experience rating effects which must be considered, and even within this smoothing aspect no question was raised as to the benefits gained from smoothing relative to the costs incurred by administering an experience rated system. The purpose of the study was to test, for the first time, whether rating strength at all influences employers to alter their employment patterns to smooth fluctuations. And the evidence seems to say that it does.

#### CHAPTER III

#### The Effect of Experience Rating on Employer Appeals

Proponents of experience rating claim that an experience rated unemployment insurance tax should increase employer interest and participation in the UI system.<sup>31</sup> In particular, firms should police the system by contesting benefit awards to ex-employees who do not truly qualify for benefits. Each state has an appeals process through which employers can contest, on several eligibility grounds, a decision to award benefits. If the appeals officer upholds a firm's challenge, any benefits paid are not charged against the firm's UI fund account.

The propensity to appeal benefit awards depends on the expected loss from not appealing. In the case of an experience rated UI tax, that expected loss is an increased tax rate. Strong rating implies that the firm's tax rate will be adjusted to reflect the full cost of benefits paid. Weak rating implies that the firm may escape part or all of the benefit costs, depending on how sensitive the tax rate is to changes in the employer's UI account.

<sup>&</sup>lt;sup>31</sup>Haber and Murray [9] summarize the objectives of experience rating, its historical development, and its characteristics. Becker [4] does likewise and includes several specific examples of the effect that experience rating has on the manner in which individual firms handle unemployment insurance claims.

Many other factors affect an employer's litigiousness, the cost of appealing in terms of time and money, the cost of monitoring claims, the probability of success, and the expected benefit cost. Holding constant these other factors, the stronger the experience rating, the greater should be the firm's propensity to appeal, since strong rating increases the cost of a forgone appeal.

Employer policing of the UI system can take forms other than monitoring benefit claims. For example, firms might pressure the state legislature to enact stricter eligibility standards, or call for stricter enforcement of present rules. This study limits itself to policing as reflected in firm monitoring of ex-employees' eligibility for benefits. The fraction of total claims which are contested by employers is a proxy for the diligence of this type of policing effort, and it is used to test whether experience rating has any effect in this area.

#### The Appeals Process

In 1974 18,865,179 persons filed unemployment insurance benefit claims. A case may be illustrative.

Mr. A from Illinois, was laid off from his job as a press operator from June 26 until July 15 due to a plant shutdown. He intended to take a trip to Greece in the interim and requested extra time off. His employer refused the request and scheduled him for work on July 15. Mr. A took the trip anyway with the intention of

leaving Greece on the fifteenth. Unfortunately political unrest made his return impossible, and worse, Mr. A was inducted into the Greek army on July 21. Efforts to contact his employer were futile since all communication out of Greece was cut. When he finally returned to the U.S. Mr. A found he had been discharged as of July 19 for failure to report to work. He filed for UI benefits on August 5 to be effective September 22. and they were granted. His employer, however, challenged the award, claiming that Mr. A was discharged because of misconduct and hence was not entitled to benefits. The Illinois UI Board of Review agreed with the employer, reasoning that Mr. A's plans to remain in Greece until the fifteenth showed a "disregard of his duties toward his employer and constituted misconduct." $^{32}$ His application for benefits was refused.

Thousands of cases like this involving misconduct, no doubt most of them more mundane, are heard every year in states across the U.S. They are heard not in courts, but as part of each state's unemployment insurance system. Each time a decision is made whether to grant or not to grant unemployment insurance benefits, both the claimant and his former employer have recourse to dispute that determination.

The process through which an application for unemployment benefits is accepted or rejected, and the provisions for

<sup>&</sup>lt;sup>32</sup>See the <u>Benefit Series Service Unemployment Insurance</u> Report [27], Report 310-29, March 1976.

subsequent appeals of that decision differ from state to state. Michigan's system is not atypical. Upon being separated from work an ex-employee can file for benefits at a local Michigan Employment Security Commission office. The office determines if he is covered by unemployment insurance, and if covered, whether he is eligible for benefits. In 1976 a Michigan worker must have been employed for 14 weeks by one or more qualifying employers and have received a minimum of \$25.01 per week in wages. The reason for the worker's separation also affects his eligibility. The most common grounds for declaring a worker ineligible are separation for misconduct, voluntary separation without good cause, not able to and not available for work, and refusal of suitable work. Adverse eligibility rulings can cancel all or part of a claimant's benefits. Once the applicant's eligibility has been determined, his weekly benefit amount, and the potential duration of those benefits, is calculated.

The MESC deputy's eligibility ruling can be challenged by both the ex-employee and by his former employer. Only the most recent employer can contest a decision to award benefits. The disputed claim case is heard before an MESC referee (some states use a panel consisting of several persons to hear challenges). The appeals referee serves as an impartial, quasi-judicial officer who conducts evidentiary hearings pertaining to the claimant's benefit rights and the liability of the employer. Each party testifies for the record. They may be represented by a lawyer or an authorized agent. The

referee's prime responsibility is to obtain all of the facts and to secure relevant documentary evidence in the form of exhibits.<sup>33</sup>

The referee's decision can be appealed to the three member Michigan Employment Security Appeal Board, and its decision can be appealed to the state courts. All but four states provide for a higher level of appeals authority within the UI system. Most use either a three member panel as in Michigan, or the head of the state's employment security commission to hear appeals of lower authority decisions. Connecticut, Hawaii, Nebraska, and New Hampshire utilize only a one stage appeals process before sending contested claim cases to the state courts.

#### Theory

An employer's decision to contest an award of benefits to an ex-employee may be based on personal animosity or pecuniary gain. Since the UI tax is experience rated, it may be rational economic behavior for the firm to contest a benefit award. The greater the benefit drain on a firm's UI account, the greater the required tax payments, via a higher tax rate, on the part of the firm. Table 5 lists the average benefit payment for several selected states for the period 1969 through 1974. If the employer successfully contests a benefit award, then no benefits are charged against his account, and his tax rate is

<sup>&</sup>lt;sup>33</sup>See the <u>Michigan Employment Security Commission Annual</u> <u>Report 1974</u> [23] for a more complete description of Michigan's UI system procedures.

Average Total Benefit Payments, Selected States

State	1969	1970	1971	1972	1973	1974
Alabama	427.13	462.56	556.62	562.46	492.45	495.65
California	643.19	724.27	857.47	794.21	805.12	852.72
Colorado	474.77	567.17	624.52	611.68	597.01	915.12
Massachusetts	607.19	713.90	1014.60	917.79	1056.98	1096.36
Michigan	494.12	734.37	841.63	765.31	718.62	763.12
Missouri	439.53	491.57	619.13	638.00	630.00	598.26
New York	656.35	734.26	950.06	1017.45	982.69	1154.74
Техаз	408.24	459.76	567.32	636.01	634.63	587.60
V1rg1n1a	306.01	353.20	482.66	506.97	554.19	515.86
Wisconsin	546.13	640.44	887.68	941.34	883.25	857.04
Data Source:	Unemployment	Insurance 2	statistics [	30].		

not adversely affected. In states with strong experience rating the representative firm pays a larger portion of the cost of its separated worker UI benefits than in states with weak rating. Hence, holding everything else constant, aggregate firm behavior in states with strong rating should exhibit more diligent scrutiny of benefit claims, than in states with weak experience rating.

As alluded to above, employer interest and participation in the UI system could extend to working with legislators and administrators to alter the system, rather than merely policing ex-employee benefit claims. What some consider undue emphasis on both aspects has led to stiff criticism of the experience rated tax scheme.

Walter Reuther in testimony before Congress in 1965 said:

We know the pitiful results which experience rates have produced in the form of vicious disqualification provisions, unreasonably high earnings requirements, cancellation of benefit rights, and worst of all, the baseless unreasoning, devious contesting by employers of all claims which may adversely affect their tax rates. Every device imaginable is employed to beat down, wear out, and defeat the unemployed worker who has the temerity to file a claim for benefits. Trade associations encourage this process of contesting all claims. They point out that dollars are involved in a claim. And they say that no matter if the employer does know that the worker is entitled to benefits under the facts and the law, he should still contest the claim because that will delay things, cause the State agency to investigate and, maybe, cause the worker to give up the whole thing as an impossible fight to win.<sup>34</sup>

<sup>&</sup>lt;sup>34</sup>See Becker [4], pp. 128-130 for Reuther's quote and a discussion of it and other similar complaints.

Andrew Biemiller of the AFL-CIO testified in 1970 concerning unemployment insurance:

We are convinced experience rating has led to the development of most unfair and undesirable practices within the program. Harsh disqualification provisions in state laws, and unmerited employer challenges of legitimate claims in order to preserve favorable tax rates flow directly from present experience rating requirements in the law.<sup>35</sup>

Whether experience rating induces perverse behavior on the part of firms in the form of challenging valid UI benefit claims is not the question in this paper. What is under investigation is whether the effect of experience rating is significant enough to encourage firms to dispute proportionately more claim applications in states with strong rating than in states with weak rating.

An employer's decision to appeal a benefit award, assuming that he is acting on economic reasons, turns on whether the expected gain from winning the appeal outweighs the cost of the appeal. As intimated above the stronger the state's experience rating, the greater is the expected gain from an appeal, holding everything else constant. If the experience rating were so weak that each firm pays the average tax rate, then the expected gain from the reversal of a benefit award is quite small to the appealing firm since the tax gain is dispersed among all the firms in the state. If the state has perfect experience rating, such that the appealing firm is solely charged with the benefits paid, then the expected gain

<sup>&</sup>lt;sup>35</sup>Quoted from Biemiller's U.S. Senate testimony [26].

from a reversal accrues to the firm alone, and hence the reversal has a much larger impact.

Aside from the tax saving, the firm can gain from contesting a claim through the deterrent effect that the challenge can have on future claims. A spurious claim contested today might preclude future spurious claims, thus saving the firm the cost of future appeals. Let G be the expected gain to be realized from contesting a claim. Then

G = G(TS, D)

where TS is the expected tax saving and D is the deterrent effect. TS is actually a function of the total expected benefit payment and the strength of experience rating, since rating determines how much of the benefit payment will be charged to the firm. More completely, then

G = G(TS(EXBEN, R), D)

 $\frac{\partial G}{\partial E \times B \in N} \ge 0$ ,  $\frac{\partial G}{\partial R} \ge 0$ ,  $\frac{\partial G}{\partial D} \ge 0$ ,

where EXBEN is the expected benefit payment and R is an index of experience rating strength.

Contesting a claim is not a costless proposition for the firm. It must prepare its case and present it, each of which costs time and money. Because of the possibility of higherlevel appeals, the firm may be forced to argue the case several times. The size of the firm might affect the cost of disputing a benefit award. Firms with large work-forces might be able to

take advantage of economies of scale in monitoring benefit claims if a high volume permits the use of a person or division which specializes in applying the intricacies of the law to claims filed. Large firms may also be more concerned than small firms with the effect on future claims of allowing a current erroneous benefit award to go uncontested.

On the other hand, there are reasons for small firms challenging more claims, so that the effect of firm size is ambiguous. The manager of a small firm is more likely to have first hand knowledge of the conditions under which an employee was released. Whether there are grounds to warrant a claim challenge can be easily determined. In the case of a large firm the claims monitor might be forced into the tedious process of finding out the name of the ex-employee's supervisor, why and under what conditions he was released, and perhaps personal information about the worker which may affect his claim status (medical considerations, for example). Also, for large firms to take advantage of the possible economies of scale in scrutinizing claims they must first institute some sort of monitoring system. For a firm with a very stable employment record the expected gain to be realized from such a system may not be large enough to offset the cost of maintaining it. In states with weak experience rating the potential tax saving even for a firm with above average separations may not be great enough to offset the special monitoring costs, whereas in a state with strong rating the cost might be justified. Thus whether large firms take advantage of the possible economies of scale depends partly on the strength of experience rating.

Firms may be motivated to contest claims for other than economic reasons. When a worker is fired or quits a small firm because of a job-related dispute, that dispute is more likely to be with the same level of management that makes the decision to challenge a claim. As a result more challenges out of spite, out of a desire to get the last word through denying benefits, are likely in small firms. Also workers leaving small firms voluntarily might be perceived as disloyal if the small firm does not experience the same sort of turnover as a large one. The effect of firm size, then, is indeterminate.

Let L be the expected cost of contesting a benefit award. Then

$$L = L(SZ, HLA)$$
  $\frac{\partial L}{\partial SZ} \stackrel{<}{>} 0, \qquad \frac{\partial L}{\partial HLA} \stackrel{>}{>} 0,$ 

where SZ is the firm's size and HLA is the probability that a higher level appeal hearing will be required.

The firm decides to contest a benefit award if G > L and is indifferent if G = L. Let P(A) be the probability that a given UI benefit award determination will be challenged. Then

$$P(A) = F(G - L)$$

where

$$\frac{\partial P(A)}{\partial EXBEN} \ge 0$$
,  $\frac{\partial P(A)}{\partial R} \ge 0$ ,  $\frac{\partial P(A)}{\partial D} \ge 0$ ,  $\frac{\partial P(A)}{\partial SZ} \le 0$ ,  $\frac{\partial P(A)}{\partial HLA} \le 0$ .

#### Data and Methodology

The data used to test whether experience rating encourages firms to police the unemployment insurance system more diligently are aggregate state data for forty-nine states and the District of Columbia (see below why only 49 states were included) from the six-year time period 1969 through 1974. The estimating equation is of the form

 $P(A)_{it} = F(Rl_{it}, R2_i, EXBEN_{it}, SZ_i, X_{it})$ 

l = 1, 50; t = 1969, 1974,

where P(A) is the number of lower authority employer appeals per 10,000 new spells of insured unemployment, Rl is a group of time-variant indicators of experience rating strength, R2 is a group of time-invariant indicators of experience rating strength, EXBEN is the expected total benefit payment. SZ is a group of indicators of firm size in the state, and X is a vector of control variables. Table 8 lists the particular forms of the estimating equation.

The deterrent effect D is difficult to quantify and was dropped from the analysis. The deterrent effect itself should not differ greatly across states unless the labor force's psychology differs from state to state. The gain from the deterrence, however, does differ if UI costs differ across states. The effects of those cost differentials are controlled for in the regression model. Also the cost consideration of higher level appeals HLA was dropped, since data do not exist

for the fraction of employer challenges which are appealed to higher authorities. This effect should not be significant, since the major cost incurred is the initial preparation of the case, and since less than 17 percent of total lower authority appeals (of which employer appeals are only a small fraction) are appealed to the higher authority appeals board.

Data from Illinois were dropped from the sample because of this state's extraordinary contested claims behavior. While the average fraction of contested claims for all UI systems other than Illinois was 3.90 per 10,000 claims over the time period, Illinois' rates ranged from 19.15 to 34.30 with an average of 27.01. The discrepancy can be attributed chiefly to the Illinois UI administration's particularly strict interpretation of the "able and available for work" eligibility criterion. During the period of the study an Illinois employer needed only to assert that a separated worker was unable or unavailable for work. The burden of proof was on the ex-employee. As a result Illinois experienced an inordinately high percentage of contested claims. Table 6 outlines Illinois' lower authority appeals behavior versus the average for the rest of the na-Table 7 shows the percentage of benefit cases contested tion. on the not able and not available grounds versus the next highest state for the six years under consideration. Because of the particularly stringent eligibility requirement several large Illinois firms automatically contested any UI claim by a former employee. Because of these unusual circumstances (the Illinois eligibility requirements have since been changed) Illinois was dropped from the sample.

Lower Authority Appeals, Illinois vs. Rest of U.S.

Year		Total Decisions	Volur Qui	ntary Lt	Miscond	luct
		#	#	8	#	%
1060	Illinois	16,629	2,646	15.9	1,572	9.5
1909	U.S.	172,194	69,256	40.2	30,094	17.5
1070	Illinois	20,809	3,570	17.2	2,439	11.7
1970	U.S.	214,821	89,461	41.6	41,972	19.5
1071	Illinois	26,656	4,945	18.6	3,280	12.3
19/1	U.S.	261,677	109,761	41.9	56,756	21.7
1070	Illinois	25,669	5,232	20.4	3,151	12.3
19/2	U.S.	283,837	119,511	42.1	58,121	20.5
1072	Illinois	26,524	5,486	20.7	3,582	13.5
19/3	U.S.	306,962	128,001	41.7	61,426	20.0
1074	Illinois	32,950	5,970	18.1	4,350	13.2
19/4	U.S.	358,695	14,761	41.2	85,175	23.7

# (continued)

Year		Refusal Suitab Work	of le	Not Al And No Availa	ole ot able	Labo Dispu	or ute	Otl	ner
		#	%	#	%	#	/0	#	%
1060	Illinois	509	3.1	11,407	68.6	40	0.2	455	2.7
1909	U.S.	11,820	6.9	32,686	19.0	4,361	2.5	23,977	13.9
1070	Illinois	622	3.0	13,819	66.4	0		359	1.7
1910	U.S.	10,570	4.9	35,558	16.6	6,168	2.6	31,092	14.5
1071	Illinois	669	2.5	17,067	64.0	70	0.3	625	2.3
17 ( 1	U.S.	11,902	4.5	37,261	14.2	4,706	1.8	41,291	15.8
1072	Illinois	727	2.8	15,610	60.8	0		949	3.7
<b>_</b> ){C	U.S.	12,607	4.4	42,026	14.8	4,911	1.6	46,485	16.4
1072	Illinois	777	2.9	15,602	58.8	0		1,077	4.1
1915	U.S.	15,411	5.0	48,953	15.9	5,990	1.8	47,101	15.3
1074	Illinois	680	2.1	20,839	63.2	0		1,111	3.4
17(7	U.S.	14,278	4.0	50,437	14.1	6,236	1.6	54 <b>,</b> 959	15.3

Data source: <u>Unemployment Insurance Statistics</u> [30].

### Appeals Based on Not Able and Not Available, Illinois vs. Next Highest State

Year	State	Total Decisions	Not Able Not Avai #	and lable %
1060	Illinois	16,629	11,407	68.6
1909	New Hampshire	942	361	38.3
1070	Illinois	20,809	13,819	66.4
1970	Connecticut	5,974	1,974	33.0
1071	Illinois	26,656	17,067	64.0
1971	New Hampshire	1,372	482	35.1
1072	Illinois	25,609	15,610	60.8
1972	Connecticut	9,422	3,955	42.0
1072	Illinois	26,524	15,602	58.8
1973	Connecticut	8,488	3,499	41.2
2054	Illinois	32,950	20,839	63.2
1974	Connecticut	7,439	2,934	39.4
Data sou	urce: Unemploymen	t Insurance Stat	tistics [30].	

The model as constructed seems particularly adapted to estimation by the Zellner seemingly unrelated regressions.<sup>36</sup> With some variables remaining constant across years for each state and others varying annually the possibility of cross-equa-(with each year a separate equation) correlation seems tion significant. A system of seemingly unrelated regression equations is equivalent to a single equation model if all the regression coefficients in each equation are the same as the regression coefficients in any other equation. In such a case the single equation can be estimated by the method of ordinary least squares on the pooled cross section and time series data.<sup>37</sup> Chow<sup>38</sup> tests where run on the various equation forms to see if the estimated coefficients are significantly different from year to year. Table 8 shows the results of those tests. That the coefficients do not differ makes the Zellner seemingly unrelated regressions nearly equivalent to ordinary least squares. As a result the equations were estimated on the pooled cross-section time series data set using ordinary least equares.

Given the high probability of autocorrelated disturbances it is not surprising that the estimated equations on the pooled

<sup>&</sup>lt;sup>36</sup>Kmenta [14] discusses the implications of Zellner seemingly unrelated regressions in some detail.

<sup>&</sup>lt;sup>37</sup>See Kmenta [14], p. 518.

<sup>&</sup>lt;sup>38</sup>Kmenta [14], pp. 373-374, for a derivation of the simple Chow test.

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Chow Tests
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Z =	$(SSE_{p} - \frac{1974}{1=1969} $ $(SSE_{1})/5K$	is distributed as $F_{\Sigma N}^{5K}$ - 6K
	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	1

Equation Form	Z
1	0.7506
2	0.7373
3	0.7131
4	0.6918
5	0.6636
6	0.6796
7	0.6594

•

•

data set exhibit quite low Durbin-Watson statistics, on the order of 0.8. In order to reduce the autocorrelation a Cochrane-Orcutt<sup>39</sup> type transformation was performed on the data. The actual data used in the OLS estimation procedure are of the form

$$Y_{i, t} - \rho Y_{i, t-1} = \beta (X_{i, t} - \rho X_{i, t-1})$$

with  $\rho = 0.7$ . The transformation removed most of the correlation, the Durbin-Watson statistic rising to about 1.9, but it also reduced the sample size from 300 to 250.<sup>40</sup>

Several indicators of experience rating strength are used as shown in Table 9. The average minimum rate AL, the average maximum rate AH, and PMAX, a proxy for ineffectively charged benefits, are as in Chapter 2. TAX/TOT is the ratio of taxable to total wages for each year. BASE is the taxable wage base for each year. Although neither the rates nor PMAX are from the time span of the study, they should indicate the structure of experience rating in each state, assuming that the time period 1969 through 1974 was not out of the ordinary.

The average minimum tax rate AL points out the effectiveness of the lower part of the tax scale and also hints at the

<sup>39</sup> Kmenta [14] outlines the Cochrane-Orcutt iterative method, pp. 287-288.

 $<sup>^{40}</sup>$  The method was not truly Cochrane-Orcutt in the sense that an iterative technique was not employed and a  $\rho$  was not calculated from the residuals. Because of computer statistical package limitations an initial  $\rho$  was chosen by  $\rho = (2 - DW)/2$ , where DW is the Durbin-Watson statistic from the untransformed regression. Given that starting point,  $\rho$  was varied until the Durbin-Watson statistic indicated little autocorrelation.
effectiveness at the upper end. Deviations of the minimum rate from zero imply a range where some amount of improvement or deterioration in a firm's experience record does not result in an altered tax rate. Firms operating at a point on the tax formula where changes in their employment records do not alter their tax rates have no real economic incentive to challenge a benefit claim by a separated worker. The higher the minimum tax rate, i.e., the wider the range where no changes in rates occur, the fewer the employer challenges. Also ineffectively charged benefits must be made by other firms in the UI system. If those charges are spread over firms to include those with perfect employment records, then deviations of the minimum rate from zero hint at the size of ineffectively charged benefits. A firm paying at the ceiling tax rate need not worry about further worsening of its employment record since another separation has no effect on its tax rate; therefore the firm has no economic incentive to challenge a UI claim. Thus the larger the deviation of the minimum rate from zero the fewer the benefit award appeals by employers: (1) improved records do not gain lower taxes because of weak rating at the lower end of the tax scale; (2) worsened records do not produce higher taxes because of weak rating at the upper end of the tax scale.

PMAX and AH are indicators of the strength of experience rating for firms at the upper reaches of the tax scale. PMAX is included besides the maximum rate itself since the degree of experience rating is pointed out not by the level of the

maximum rate, but by its effectiveness. PMAX, as a proxy for the size of ineffectively charged benefits, reflects the effectiveness of the maximum rate.<sup>41</sup>

The expected total benefit payment, EXBEN, is the product of the average weekly payment for total unemployment and the average actual duration of benefits, in weeks, for all beneficiaries. SZ1, SZ2, and SZ3 are included to indicate the mix of firms according to size in each state. The variables were created from <u>1972 Census of Manufactures</u> [24] Area Series. SZ1 is the percentage of firms with 1 to 19 employees, SZ2 the percentage with 20 to 99, and SZ<sup>4</sup> the percentage with 100 to 499 employees. SZ4, the percentage with 500 or over employees was not included since it is a linear combination of the first three.

The state average annual unemployment rate, UER, was included in the control variables to account partly for differences in the mix of unemployment insurance claimants. A possible simultaneity problem exists if the percentage of claims contested influences the unemployment rate. The problem is partly relieved by using the survey unemployment rate, rather than the

<sup>&</sup>lt;sup>41</sup>See Chapter 2 for a more detailed discussion of all the indicators of experience rating strength. The indicators are entered individually because of the difficulty involved in constructing a valid single index, and also because historically there has been an interest in their separate effects.

insured unemployment rate.<sup>42</sup> DENR is the number of denials per 1,000 claimant contacts. Since the employment security commission itself first passes on the eligibility of a claim, close scrutiny and strictness on their part should preclude many employer challenges of benefit awards. PRB is a proxy for what the employer perceives as the probability that the challenge of an award will result in a reversal. PRB1. t was created as PRB<sub>1</sub>,  $t = \frac{1}{3} \sum_{k=1}^{3} PRBL_1$ , t-k, where PRBL<sub>1</sub>, t is the percentage of employer lower authority appeals which were ruled in the employer's favor. It was included under the assumption that employers are influenced by what they see as their chances of actually winning a contested claim case. The average wage in covered employment WG was used to control for wage differentials, especially across states. Since the UI tax is levied on wages only up to a certain amount, a \$4,200 wage base in one state is not really equivalent to a \$4,200 wage base in another state if their wage structures differ.

### Regression Results

The results of regressions on the various equation forms appear in Table 9. The figures in parentheses below the estimated

<sup>&</sup>lt;sup>42</sup>See Holen and Horowitz [12] for a discussion of changes in claimant mix. They are concerned about the effect that the unemployment rate has on the mix and the consequent effect that the mix has on denials. High unemployment should reduce denials, they concluded, because of the superior quality of the average claimant. A similar effect should result with regard to employer challenges of benefit awards. Successful challenges however, should reduce the covered unemployment rate. In that vein, Holen and Horwitz did find evidence that high denial rates reduce the unemployment rate.

TABLE 9

**Regression Results** 

Variable	(1)	(2)	(3)	(1)	(5)	(9)	(1)
SZI	1.3319	1.3082	1.2364	1.3479	1.2640	1.2743	1.1701
	(2.02)	(1.98)	(1.87)	(2.04)	(1.85)	(1.93)	(1.71)
SZ2	0.9058	0.8951	0.8138	0.9205	0.8569	0.8379	0.7579
	(1.32)	(1.30)	(1.18)	(1.34)	(1.22)	(1.21)	(1.08)
SZ3	1.5782	1.5473	1.4271	1.6057	1.4833	1.4826	1.3300
	(1.84)	(1.80)	(1.65)	(1.86)	(1.65)	(1.71)	(1.47)
DFNR	0.0394	0.0389	0.0391	0.0390	0.0388	0.0394	0.0391
	(2.60)	(2.56)	(2.58)	(2.57)	(2.55)	(2.59)	(2.57)
PRB	0.0169	0.0172	0.0162	0.0174	0.0169	0.0164	0.0158
	(0.83)	(0.85)	(0.80)	(0.85)	(0.83)	(0.81)	(0.78)
UER	-0.3855	-0.3710	-0.3793	-0.3718	-0.3677	-0.3820	0.3773
	(-2.65)	(-2.53)	(-2.59)	(-2.50)	(-2.47)	(-2.57)	(-2.53)
EXBEN	0.0050	0.0050	0.0051	0.0049	0.0050	0.0050	0.0051
	(4.10)	(4.11)	(4.18)	(4.03)	(4.05)	(11.4)	(4.14)
PMAX	0.0579	0.0582	-0.0806	0.0586	0.0592	-0.0787	-0.0826
	(0.91)	(0.91)	(-0.69)	(0.92)	(0.93)	(0.67)	(-0.70)
AL	-2.8338	-2.8916	-4.0318	-2.8914	-2.8820	-4.0094	-4.0356
	(-4.39)	(-4.45)	(-3.87)	(-4.39)	(-4.37)	(-3.85)	(-3.86)
АН	-0.0301	-0.0245	-0.2511	-0.0314	-0.0180.	-0.2551	-0.2462
	(-0.06)	(-0.05)	(-0.47)	(-0.06)	(-0.04)	(-0.48)	(-0.46)

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Variable	(1)	(2)	(3)	(†)	(2)	(9)	(1)
TAX/TOT		1.6626 (0.74)	1.6543 (0.74)		-		
BASE				0.0001 (0.45)	0.0002	0.0001 (0.38)	0.0001 (0.57)
MG					-0.0065 (-0.50)		-0.0079 (-0.61)
PMAX•AL			0.1496 (1.40)			0.1478 (1.38)	0.1527 (1.42)
${ m R}^2$	.2260	.2677	.2738	.2667	.2675	.2725	.2737
SOURCES: SZ1 - SZ3 DENR PRB EXBEN UER TAX/TOT BASE PMAX, AL,	Census Unemplo [30] [30] Statist Handboo [29] AH as in	of Manufac yment Insu ical Abstr k of UI Fi Chapter 2	tures [24] rance Stat1 act [25] nancial Dat	Area Series stics [30] a 1938-70 a	ind suppleme	ntal memora	nda [29]

coefficients are t-values. The equations show that firms do react to experience rating strength by challenging more claims in states with strong rating than in states with weak. The taxable wage base, BASE, and its size relative to total payroll, TAX/TOT, the minimum and maximum tax rates, AL and AH, and the percent of taxable wages taxed in the states highest bracket, PMAX, were used as indicators of experience rating strength. Both TAX/TOT and BASE had positive but insignificant effects. The larger each is the greater is the portion of wages actually subject to rating,<sup>43</sup> and hence the stronger the rating. Strong rating as indicated by the effectiveness of the taxable base implies more contested UI claims by firms.

The average minimum tax rate AL was negative and quite significant. As outlined earlier the minimum tax rate indicates strength of experience rating both at the lower and the upper reaches of the tax scale. The greater the deviation of the minimum tax rate from zero, the weaker the experience rating scheme. The test shows that lower minimum tax rates, i.e., stronger experience rating, lead to a more dilligent selfpolicing effort on the part of firms, as reflected in more challenged benefit claims.

<sup>&</sup>lt;sup>43</sup>The fraction of wages actually covered by the UI tax is important since wages paid by the firm after the base has been reached are in reality not subject to experience rating at all.

The average maximum tax rate AH has a negative effect, though small and very insignificant. It is the effectiveness of the maximum rate, however, and not its level that is the indicator of experience rating strength, and high maximum rates do not necessarily imply effective maximum rates.

PMAX was used to indicate the extent of ineffectively charged benefits, i.e., the adequacy of the maximum tax rate. As such its coefficient should be negative. The larger are ineffectively charged benefits the weaker is the rating scheme, and hence the fewer are contested claims. PMAX, however, is shown to have a positive, though insignificant, effect in all the equation forms except when an interaction term between PMAX and the minimum tax rate proxy AL is included. This sort of behavior is logical if one considers how ineffectively charged benefits are financed. The cost of ineffectively charged benefits must be made up for by tax contributions from firms in the UI system not paying at the ceiling rate. Tax payments for those purposes are beyond the control of the individual firm. The firm, however, does exercise some control over the tax costs resulting from its own worker separations. In attempting to minimize its UI tax burden the firm will scrutinize claims by its own ex-employees more closely in order to make up for that portion of its taxes which it cannot reduce in any manner. Hence the diffidence with which firms paying at an ineffective maximum rate treat claims can be more than made up for by increased diligence by other firms in the system. This contention is borne out when the interaction term PMAX AL is added to the estimating equation.

The total effect of PMAX and AL is outlined in Table 10. AL is shown to have a negative effect always. PMAX alone has a negative effect. Large amounts of ineffectively charged benefits imply an ineffective tax rate ceiling. This sort of weakness in the experience rating scheme lessens the inducement to police claims, and so contested claims decrease. The total effect of PMAX remains negative as long as the minimum tax rate does not exceed 0.53% (0.54% is the median minimum rate, 0.70% is the average minimum). When the burden of ineffectively charged benefits is sufficiently heavy, as evidenced by high minimum tax rates, the very weakness in the experience rating scheme appears to increase employer challenges of claims in an effort to reduce their tax rates to a level which they consider equitable given their own employment records.

The fact that AL was the only indicator of experience rating strength that proved statistically significant does not imply that experience rating has little influence on employer appeals. AL was significant at the 1 percent level. Of the individual indicators of experience rating, strength, it singly is probably the best indicator, since it points out the strength of rating in all reaches of the tax scale. The other indicators, though insignificant, had the expected signs, except for the average maximum rate AH, whose shortcomings as a strength indicator have already been noted. The wage base BASE varies little from state to state, as does the ratio of taxable to total wages TAX/TOT, diminishing the chances for finding statistical significance. PMAX is created from data

7 1 A M	TADLE

Total Effect of AL and PMAX

	Equation (3)	Equation (6)	Equation (7)
<u>aP(A)</u> aAL	-4.0318 + 0.1496 PMAX	-4.0094 + 0.1478 PMAX	-4.0356 + 0.1527 PMAX
Evaluated at PMAX =			
0.1 (minimum)	-4.0168	-3.9446	-4.0203
	(-3.89)	(-3.86)	(-3.88)
8.7 (mean)	-2.7255	-2.7188	-2.7022
	(-4.13)	(-4.07)	(-4.04)
23.2 (maximum)	-0.5610	-0.5804	-0.4930
	(-0.31)	(-0.33)	((0.27)
aP(A) aPMAX	-0.0806 + 0.1496 AL	-0.0787 + 0.1478 AL	-0.0826 + 0.1527 AL
Evaluated at AL =			
0.00 (minimum)	-0.0806	-0.0787	-0.0826
	(-0.68)	(-0.67)	(-0.70)
0.70 (mean)	0.0234	0.0241	0.0236
	(0.34)	(0.35)	(0.34)
2.57 (maximum)	0.3031	0.3011	0.3098
	(1.63)	(1.62)	(1.66)

from a single year, 1967, a time of low unemployment. For those years when the unemployment picture is not so rosy, some of which certainly occurred in the time span 1969-1974, the fraction of firms in a state's maximum tax bracket may differ dramantically.

Factors other than the strength of experience rating influence the firm's decision to challenge benefit awards. Firms are shown to be quite sensitive to changes in the expected total benefit payment, EXBEN. For the employer for whom experience rating is effective, the UI fund account is reduced by the amount of the total benefit payment. Since his tax rate depends on the status of that account, it is logical that he should be sensitive to the amount by which it is reduced. Also, firms challenge fewer UI claims in times of high unemployment than in times of low unemployment, as indicated by the positive UER coefficient. This is because of the higher quality of claimants when unemployment is high, 44 and also because firms are more likely to challenge claims in periods of low unemployment based on the belief that separated workers should have no trouble finding work if they were truly looking for it. Finally, as expected, the coefficient on PRB, the probability of winning a contested claim, was positive; however, it was not significant. This would indicate that the firm's overriding interest is the prospective reduction in its UI account and the effect that it might have on the firm's tax rate.

<sup>&</sup>lt;sup>44</sup>See Hamermesh [10], pp. 16-17 for data and discussion of claimant composition problems.

The coefficient on the denial rate, DENR, was expected to be negative, but the estimation procedure resulted in the opposite. If the employment security commission deputies closely scrutinize claims and strictly apply eligibility requirements, then these actions should be evidenced in high denial rates. Strictness in a claim's initial determination should weed out most challengeable claims and reduce the number of claims which firms need to dispute. The positive, and significant, coefficient on DENR probably shows that strict state eligibility requirements result in high denial rates on the part of the employment security commission. This strictness seems to provide wider grounds for employers to challenge claims that are approved in the initial stage.

The size of the firm entered into this decision rule partly under the assumption that large firms might take advantage of economies of scale in monitoring claims. If they do, the cost of contesting a claim should fall with firm size, and large firms should be observed to context more claims than small firms. The size variables are not the actual sizes of firms but, as noted above, indicate the distribution of firms by size for each state. The positive signs of SZ1, SZ2, and SZ3 imply that by decreasing the percentage of firms in the largest category (SZ4, 500 or more employees), more employer challenges would result. Holding constant for the strength of experience rating might mask the effect of firm size. For large firms to take advantage of potential economies of scale they must first establish some monitoring agency. Whether the gain from such an agency justifies its cost depends partly on

experience rating, as outlined earlier. Thus in states with strong experience rating large firms may establish monitoring agencies, but large firms in states with weak rating may not. The effect of firm size might then be captured by the experience rating strength indicators.

More likely the signs indicate that small firms can keep better tabs on why employees were separated simply because they are small. The results imply that large firms suffer from diseconomies of scale. Also if benefit claims are challenged for other than economic reasons, small firms are more likely to take such action as noted earlier.

The theory suggests that what really drives employers to police UI claims is experience rating. An unwarranted benefit award can lead to tax rate increases which would have been avoided had the firm successfully challenged the claim. Some critics of experience rating assert that the savings from award reversals are too small to affect firm behavior in monitoring the claims of ex-employees.<sup>45</sup> Secondly, the firms' cooperation in determining the eligibility of a claimant can be counted on since it is required by law.<sup>46</sup> Other critics make the more serious charge, alluded to earlier, that experience rating encourages firms to misuse the appeals process to deny rightful claims in order to prevent an increase in their tax

<sup>&</sup>lt;sup>45</sup>Haber and Murray [9], p. 345, note the small saving. <sup>46</sup>See Becker [4], p. 127, for a review of this argument.

rates.<sup>47</sup> If the first argument against rating is true, then no significantly different behavior with regard to experience rating strength should be observed across states. If the second is true the states with strong rating should exhibit more challenged claims, but many of those claims should be frivolous.

#### Conclusions

Proponents of experience rating claim that rating boosts employer interest and participation in the UI system. Specifically, it encourages firms themselves to examine the eligibility status of ex-employee claimants, rather than deferring the check to state system authorities. This study uses the propensity to challenge claims in the UI appeals process as a proxy for employer diligence in policing claims.

The propensity to appeal understates employer policing behavior. When an unemployed worker applies for benefits, the state UI authority asks his former employer about the conditions of his separation. Employer policing activity on this level may cause the UI officer to deny benefits, thus precluding the need for an employer appeal. It is in this way that employer claims policing behavior is not limited to appeals, and the propensity to appeal understates the diligence of firms' policing efforts.

<sup>&</sup>lt;sup>47</sup>Both Haber and Murray [9], p. 345 and Becker [4], p. 128 cite "overzealous" employer application of eligibility requirements.

Critics of experience rating assert that the potential tax savings from challenged claims are too small to influence firms. The estimated equations show that assertion to be false. Firms in states with strong experience rating (where potential tax savings are relatively larger) challenge more benefit awards than firms in states with weak rating (where the potential gains are smaller).

The major criticism of experience rating as a booster of employer interest and participation is not that it does not work, but that it works to excess. Firms completely ignore the conditions of separation, and automatically challenge claim after claim in an attempt to hold down their tax rates. The data show, however, that firms simply do not challenge many claims, experience rating or not. If each state in the union had replaced its own average tax rate spread with Michigan's 0.3 to 5.4 percent (one of the largest spreads in the study), contested claims would have been 15 to 25 percent higher. depending on which estimated equation is used as a predictor. This would have resulted in only 6,200 to 11,100 more challenged claims per year, with an expected cost saving to firms of between \$3.3 million and \$6.1 million, a rather small amount considering benefit payments in 1972, for example, were \$4.47 billion. Although a significant increase in the strength of experience rating indicates that firms will increase their challenges 15 to 25 percent, that large percentage increase translates into only 6,000 to 11,000 more appeals.

The minimal effect of the strength of experience rating on firm propensity to appeal does not necessarily imply that

rating has little effect on employer interest and participation in the UI system. Interest and participation can take many other forms, for example working with the state legislature or with business groups to formulate changes in the UI program. The results do indicate that experience rating can be significantly strengthened without the risk of promoting perverse firm reaction in the form of spurious challenges to benefit awards.

#### CHAPTER IV

# Experience Rating and the Allocation of Unemployment Insurance Costs

Unemployment insurance benefits represent a resource transfer from real national output. Experience rating allocates the charges for unemployment insurance by tying each firm's tax payments to the benefits received by its separated workers. Paul Raushenbush, who helped draft the first state unemployment insurance law said:

The perennial major problem of organized society is so to devise its legal and economic rules that the price system will adequately reflect social costs and conserve social standards. The social and human costs of irregular employment should properly be charged against and compensated by each employing unit. Only in this way can consumers be assured that a low price is not a misleading and parasitic price, and that the competitive (or other) system is really functioning in the public interest. The economic truth of this point is being increasingly admitted where sweatshop daily and weekly wages are involved, but has not yet been so clearly recognized where irregular employment and yearly earnings are concerned.

Given the disbursement of unemployment benefits, a failure to experience rate the tax allows those firms who cause more than the average amount of unemployment to escape at least part of the cost of that unemployment. Similarly, those firms who

48 As quoted in Haber and Murray [9].

create less than the average amount are required to pay the cost of benefits that should be assessed against those other firms. A uniform tax creates an external economy for unstable firms and an external diseconomy for stable firms, so that goods from stable industries are priced too high relative to goods from unstable industries. However, for a perfectly experience rated tax to allocate the UI costs properly, those firms who are charged with unemployment must truly be responsible for that unemployment or else the experience rated tax also creates externalities.

### Experience Rating and Cost Allocation

A proposition of welfare economics states that the price system leads to a Pareto optimal state of the economy. Consumers equate the marginal rate of substitution between any two goods to the ratio of their prices. Producers equate the marginal rate of transformation between any two goods to the ratio of their prices. In particular, workers equate the ratio of their marginal utilities of income and leisure in each alternative occupation to consumers' preferences for the use of workers in each alternative occupation.

The usual model of the price system as used in welfare economics is inadequate for our purposes, since it assumes full employment. If unemployment (forced leisure) is allowed, the behavior of workers in the economy is altered.<sup>49</sup> In

<sup>&</sup>lt;sup>49</sup>The model of the price system with possible unemployment outlined here is developed by Cartwright [6].

comparing alternative occupations workers must consider not only the wage rate, but also the employment stability of the occupation. Assuming that workers can perceive the degree of instability in each occupation the price system still guarantees a Pareto optimal state. Workers' preferences concerning the stability of employment, just as their preferences about other job attributes, will be reflected in wage differentials. If workers prefer stable employment, occupations with a great degree of instability will command a higher wage than those with little instability.

If workers can perceive the instability inherent in each occupation, a system of unemployment insurance is superfluous. If workers cannot perceive the instability, then wage differentials will not be effected to reflect their preferences toward stable (unstable) employment, and too many (few) labor resources will be bought up by firms in unstable (stable) employment industries.

Unemployment insurance was instituted under the assumption that workers do not have perfect information about the degree of instability inherent in each occupation, and therefore are sometimes unemployed through no fault of their own. Indeed, some observers favor denial of benefits for seasonal unemployment because it is unemployment that the worker can predict.<sup>50</sup> In 1971 15 states had special eligibility requirements for seasonal workers.<sup>51</sup>

<sup>50</sup>See Haber and Murray [9], p. 213-214. <sup>51</sup>See Adams [1], p. 12-13.

Given the necessity of a UI system, the questic it leads to the same resource allocation as would be the of a perfectly competitive system with perfect information on the part of workers. Cartwright shows that the allocation is identical if benefits reflect workers' preferences toward instability and if the unemployment tax is levied so that each firm pays for the unemployment which results from its own instability.<sup>52</sup>

The usual argument against levying the UI tax in such a manner is that employment instability is due to the market rather than due to any individual firm, and hence the firm should not be charged. The argument is irrelevant. If the market creates differing degrees of instability the market is responsible, and the unemployment costs of that instability must be reflected in market price. Thus a construction firm may have no control over its weather induced seasonality, but the costs of that seasonality must be refelcted in its output price. If it is not, then the price of construction goods will be too low relative to the prices of more stable goods, and an inefficient allocation of resources will result.

An experience rated UI tax attempts to charge each firm for the unemployment which results from its instability by

<sup>&</sup>lt;sup>52</sup>Cartwright's point is that a UI system leads to a more efficient resource allocation if wage differentials do not reflect worker preferences toward instability. He then goes on to show empirically that they do not. He notes that if the UI benefits are not financed by the firms which cause the unemployment, then UI may not lead to a more efficient resource allocation. This latter point is the concern in this essay.

varying tax rates so that each firm pays for the benefits drawn by its ex-employees. If a firm's layoff record is not an accurate indicator of its degree of instability, then the experience rated tax will not optimally allocate the costs of unemployment, since it will not accurately charge the source of the unemployment.

This essay considers two cases in which layoffs may not truly reflect a firm's employment instability. First, suppose a firm can transmit part of its own employment instability to another firm. For example, consider a doughnut shop at the gates of a large factory. The factory lays off one third of its work force. The drop in demand for doughnuts causes the shop to release one of its counter workers. The counter worker's unemployment costs are charged completely to the doughnut shop by experience rating, even though the layoff was at least partly due to the factory's employment instability and not to the shop's. In this instance charged (by experience rating) unemployment does not equal caused unemployment. The greater the divergence of charged unemployment from caused unemployment, the less efficient is the allocation of resources resulting from an experience rated UI tax. The second case considers the possibility of unemployment insurance costs which cannot be attributed to any one firm. For example, suppose a worker is laid off because he cannot perform his job due to a non-work related illness. The separation is due to the workers change in health and not to the firm's instability. Yet an experience rated tax charges the firm as if it were due to the

firm's own instability. If such social costs of unemployment are charged to individual firms, an efficient resource allocation may not be achieved.

# The Model

The effects of an experience rated tax as an allocator of unemployment costs is examined in the context of a twoconsumer, two-producer world where labor is the only productive resource. Consumers get utility from the two goods, from leisure, and from unemployment time, a sort of surrogate leisure time. Their utility functions are of the form

$$\dot{U_{i}} = U_{i}(x_{i}, y_{i}, l_{i}, n_{i}), i = A, B$$

where  $x_i = \text{amount of good X for consumer i}$ 

 $y_1 = amount of good Y for consumer 1$ 

 $l_1 = amount of leisure for consumer i$ 

 $n_1$  = amount of unemployment time for consumer i. All the marginal utilities are non-negative except  $\frac{\partial U_1}{\partial n_1} > 0$ , i.e., workers may get utility or disutility from being unemployed.

The only productive resource is labor, e, so that the production functions are

$$X = F_1(e_1)$$

$$Y = F_2(e_2)$$

We wish to maximize consumer A's utility

(1) 
$$U_A = U_A(x_A, y_A, l_A, n_A),$$

subject to consumer B's utility,

(ii) 
$$\overline{U}_{B} = U_{B}(x_{B}, y_{B}, l_{B}, n_{B});$$

the production functions,

(iii) 
$$X = F_1(e_1);$$

and (iv) 
$$Y = F_2(e_2);$$

the resource constraints,

$$(v - ix) \qquad x_A + x_B = X$$
$$y_A + y_B = Y$$
$$l_A + l_B = L$$
$$n_A + n_B = N$$
$$e_1 + e_2 = E$$

and the unemployment-time transmission functions;

$$(x - xiii) \quad n_{11} = G_{11}(X)$$
$$n_{21} = G_{21}(X)$$
$$n_{22} = H_{22}(Y)$$
$$n_{12} = H_{12}(Y)$$

where n<sub>ij</sub> = unemployment transmitted to firm i from firm j; the additional resource constraint,

.

(xiv) 
$$n_{11} + n_{21} + n_{22} + n_{12} = N$$

and the total resource constraint,

(xv) E + N + L = R.

Equations x - xiii indicate that a firm creates unemployment through its own production process, and that the firm itself may not suffer all the unemployment created. Thus Firm 1 causes  $n_{11} + n_{21}$  units of unemployment but only incurs  $n_{11}$  of the units itself. The other  $n_{21}$  units of unemployment created are forced onto Firm 2. Transmitted unemployment may take any of several forms. For example, a strike in Firm 1 may result in induced layoffs for Firm 2. Layoffs in one firm due to technological reorganization (e.g., changeover in the auto industry) might partially cause layoffs in some related industry.

We assume that none of the unemployment tax can be shifted forward onto consumers or backward onto labor. We also assume that the price of unemployment (the UI benefit) is either determined in the market, or the government sets the price at what would be the market price.

The solution to this set of 15 equations shows that consumer A should set

(1)  $\frac{\partial U_A}{\partial x_A} = \frac{\partial U_A}{\partial l_A} F_1' + \frac{\partial U_A}{\partial l_A} - \frac{\partial U_A}{\partial n_A} G_{11}' + G_{21}'$ 

(2) 
$$\frac{\partial U_A}{\partial y_A} = \frac{\partial U_A}{\partial I_A}$$
  $F_2^{\dagger} + \frac{\partial U_A}{\partial I_A} - \frac{\partial U_A}{\partial n_A}$   $H_2^{\dagger}2 + H_{12}^{\dagger}$ 

Thus consumers set marginal utility of a good equal to the marginal production cost of the good plus the marginal cost of the unemployment created by that good's production.

 $\frac{\partial U_A}{\partial I_A} = \frac{\partial U_A}{\partial n_A}$ , the difference between the marginal utility of

leisure and the marginal utility of unemployment time represents the price of unemployment for the consumer. If A is indifferent between leisure time and unemployment time, he only pays attention to the production cost of the good in deciding his optimal purchases. The greater the marginal utility of unemployment time, the smaller is the second term in (1) and (2), and hence the more he desires of goods X and Y, since he cares less about any unemployment time their production forces upon him. The smaller the marginal utility of unemployment time (and it could be negative), the greater the right hand side in (1) and (2) and the less he desires of each good because of the forced leisure inherent in each production process.

The individual unemployment transmission functions,  $G_{11}$ ,  $G_{21}$ ,  $H_{22}$ , and  $H_{12}$  are not observable by the taxing authority. Instead, what it observes is the unemployment suffered by each firm,  $G_{11} + H_{12}$  for Firm 1, and  $H_{22} + G_{21}$  for Firm 2. A perfectly experience rated UI tax charges each firm with the cost of the unemployment that it incurs, which is not necessarily the cost of the unemployment that it creates.

In a regime of perfect experience rating Firm 1 faces the profit function

(3) 
$$\pi_1 = p_x X - p_e e_1 - p_n [G_{11}(X) + H_{12}(Y)]$$

where  $p_x$  is the price of output X,  $p_e$  is the wage rate and  $p_n$  is the price of a unit of unemployment (the UI benefit). Similarly Firm 2 faces

(4) 
$$\pi_2 = p_y Y - p_e e_2 - p_n [H_{22}(Y) + G_{21}(X)]$$

where  $p_y$  is the price of output Y and the other prices are as above.

Firm 1 maximizes its profits when

(5) 
$$p_x = p_e / F_1 + p_n [G_{11}].$$

Firm 2 maximizes its profits when

(6) 
$$p_y = p_e/F_2^i + p_n[H_{22}^i].$$

Each firm sets its output price equal to its marginal production cost plus only the cost of the unemployment which it creates and transmits to itself. Hence each firm ignores the unemployment it transmits to other firms and the unemployment which it receives, which violates the optimality conditions (see equations 1 and 2), and each overproduces. For if Firm 1 considered the unemployment which it forces onto Firm 2,  $p_e/F_1$  would have to be smaller, implying a less intensive use of the labor resource. The more significant  $G_{21}(X)$  and  $H_{12}(Y)$  are, the more serious is the misallocation of resources brought about by a perfectly experience rated UI tax. Equation's (3) and (4) imply that each firm distinguishes between which unemployment it transmits to itself and which it receives from other firms. If the firm cannot make the distinction (and after all if it could, probably the taxing authority could too) and mistakenly considers received unemployment as part of its own caused unemployment, then an experience rated tax may lead to an optimal cost allocation. Specifically, suppose  $H_{12}(Y^*) = G_{21}(X^*)$  for every equilibrium combination  $X^*, Y^*$ . If the firm does not distinguish between own caused and received unemployment, its profit functions are

$$\pi_{1} = p_{X}X - p_{e}e_{1} - p_{n}[G(X)]$$
$$\pi_{2} = p_{y}Y - p_{e}e_{2} - p_{n}[H(Y)],$$

where

$$G(X) = G_{11}(X) + H_{12}(Y) = G_{11}(X) + G_{21}(X)$$
$$H(Y) = H_{22}(X) + G_{21}(Y) = H_{22}(X) + H_{12}(X),$$

and profits are maximized when

$$p_{x} = p_{e}/F_{1}^{i} + p_{n}[G_{11}^{i} + G_{21}^{i}]$$
$$p_{y} = p_{e}/F_{2}^{i} + p_{n}[H_{22}^{i} + H_{12}^{i}],$$

but this result is equivalent to the optimality conditions (1) and (2). Therefore in the case that firms do not distinguish between sources of unemployment, if transmitted unemployment equals received unemployment for each firm, the experience rated tax leads to an optimal allocation of unemployment costs.

Unless all firms and consumers have perfect information a simple two good economy cannot adequately describe the problem of transmitted and received unemployment. Who causes what and who receives what is very complex. The first firm blames the second, the second blames the third, the third blames the first, and so on. The point to be made is that a perfectly experience rated unemployment insurance tax does not necessarily lead to an optimal resource allocation because observed unemployment does not necessarily equal caused unemployment. Only if there are no interfirm transfers of unemployment, or if the interfirm transfers cancel, does experience rating guarantee a proper allocation of unemployment costs. The interfirm transfer problem is equivalent to an externality problem. One firm manages to foist a part of its costs of production onto another firm, which has no recourse to reimbursement.

## Experience Rating, Uniform Taxes, and Social Unemployment Costs

Historically the argument against an experience rated UI tax as an unemployment cost allocator has been based on the contention that little unemployment is generated by the individual firm. As explained earlier, the cost of employment instability due to a market rather than due to a firm is still the responsibility of the firms which choose to operate in that market. For example, seasonal market demand for toys may force toy makers to have seasonal demand for labor. If those toy

firms are not charged with the unemployment costs then consumers of more stable employment goods subsidize demanders of toys.

Although seasonal unemployment can logically be charged to individual firms, some other types of unemployment are not so easily charged. Cyclical unemployment is associated with a general business decline where unemployment in one industry is often the result of production cutbacks in another. Temporary unemployment due to macroeconomic policy maneuvers, and to some types of frictional unemployment such as switching jobs because of non-work related illness are other instances of unemployment difficult to charge to an individual firm.

If an experience rated UI tax is to effect an efficient allocation of resources, then costs not due to an individual firm's instability, that is socialized unemployment costs, must not be charged to firms on the basis of layoff records. What constitutes socialized unemployment costs is not definite. Becker<sup>53</sup> argues that even benefits paid to a disqualified worker after the penalty period are rightly charged to the worker's former employer. Haber and Murray<sup>54</sup> on the other extreme argue that there are 'practical limits' to maximum tax rates, and the socialized costs of the resulting ineffectively charged benefits should be borne by all employers.

<sup>&</sup>lt;sup>53</sup>Becker [4], p. 46.

<sup>&</sup>lt;sup>54</sup>Haber and Murray [9], p. 353 and 357.

The more dominant socialized unemployment is compared to firm created unemployment, the more it is likely that a flat tax rate will better allocate UI costs, assuming that socialized unemployment is proportional to the size of the labor market. And clearly a flat rate tax is easier and cheaper to administer than a system of experience rated taxes.

The socialized costs of unemployment are considered to be costs of maintaining the labor market in a modern technological society. A 1908 newspaper editor noted, "Industrial progress has put hundreds of thousands of wage-earners at the mercy of other men, who in turn are at the mercy of the great rhythmus of business prosperity and adversity."<sup>55</sup> Some unemployment is not due to heartless employers or to a character flaw in workers, but simply to the environment of a modern economy. Whether socialized unemployment costs are the result of frictional unemployment, or cyclical, or partly seasonal (as Haber and Murray seem to argue), or some combination is not specified. We simply assume that there may be some unemployment which is generated as a byproduct of participation in the labor market, and therefore, for the sake of efficiency, those costs should be shared by all the firms which use the labor market. The above model does not account for any costs of labor market maintenance. To include such effects let socialized unemployment be represented by S = S(E), where S' > 0. Socialized unemployment is an increasing function of the size of the labor market.

<sup>55</sup>As quoted in Nelson [13], p. 3.

To focus on the effects of socialized unemployment costs, assume that unemployment created by each individual firm is transmitted to itself only. Transmitted unemployment is probably small and its effect is further diminished by the counterbalance of received unemployment. Secondly, unemployment which a firm inherits due to the instability of a supplying industry or demanding industry can be attributed to the firm's market and hence be a responsibility of the firm for dealing in that market. Thus the costs of seasonal unemployment in the canning industry are rightly attributed to the canning industry, even though the seasonality is a result of seasonality in agriculture. Both reasons make the assumption  $G_{12} = H_{21} = 0$  not unreasonable.

To incorporate socialized unemployment costs into the model and to eliminate transmitted unemployment, we replace equations x - xv with the unemployment-time functions,

(x-a)	$n_1 = G(X)$
(xi-a)	$n_2 = H(Y)$
(xii-a)	S = S(E)

the additional resource constraint,

$$(xiii-a)$$
  $n_1 + n_2 = N$ 

and the total resource constraint,

$$(xiv-a) \qquad E + N + L = R$$

The solution to this new set of 14 equations shows that consumer A should set

(7)  $\frac{\partial U_A}{\partial x_A} = \frac{\partial U_A}{\partial I_A} / F_1 + \left[\frac{\partial U_A}{\partial I_A} - \frac{\partial U_A}{\partial n_A}\right] \begin{bmatrix} G' + \frac{\partial S}{\partial e_1} / F_1 \end{bmatrix}$ 

$$\frac{\partial U_A}{\partial y_A} = \frac{\partial U_A}{\partial I_A} / F_2 + \left[ \frac{\partial U_A}{\partial I_A} - \frac{\partial U_A}{\partial n_A} \right] \left[ H' + \frac{\partial S}{\partial e_1} / F_2 \right]$$

Optimality requires that consumers set the marginal utility of a good equal to its marginal production cost plus its marginal cost of unemployment resulting from that good's production.  $\frac{\partial S}{\partial e_1} = F_1'$  indicates that consumers weight the marginal cost of the larger labor market by the marginal product of the new unit of labor, since the new unit imposes a cost because of the now larger labor market, but also provides additional output for consumers to enjoy. The larger the unit's marginal product, say  $F_1'$ , the smaller is  $\partial U_A / \partial x_A$ , indicating the consumer is more willing to accept the increased labor market maintenance expense in exchange for more X.

S(E) represents the unemployment attributable to the maintenance of the labor market itself.  $\partial S/\partial e$  represents the marginal socialized unemployment created from the use of labor unit e, and says nothing about which firm actually suffers that unemployment. The socialized unemployment that results from the use of the labor market is not necessarily distributed across firms according to their participation in the market. And if it is not so distributed one firm suffers more socialized

unemployment than it creates by its use of the market. As in the above example, the construction industry might incur a disproportionate share of the socialized unemployment resulting from a tightened money supply. Let socialized unemployment S be distributed across firms according to functions

 $D_{i}(S), i = 1, 2$ 

Since consumers care only about who creates unemployment, the H functions do not alter their optimal choices.

When the insurance taxing authority uses a perfectly experience rated unemployment system, he cannot observe G(X), H(Y), S(E), or  $D_1(S)$  and  $D_2(S)$ . Instead he taxes each firm according to the unemployment it suffers, whether it is responsible for it or not. Perfect rating forces the firms to face profit functions

(9) 
$$\pi_1 = p_x X - p_e e_1 - p_n [G(X) + D_1(S(E))]$$

(10) 
$$\pi_2 = p_y Y - p_e e_2 - p_n [H(Y) + D_2(S(E))].$$

Producers maximize their profits when

(11) 
$$p_x = p_e/F_1' + p_n[G' + D'_{\frac{\partial S}{\partial e_1}} F'_1]$$

(12) 
$$p_y = p_e/F_2' + p_n[H' + D'_2 \frac{\partial S}{\partial e_2} F'_1],$$

which implies that the firm produces the optimal amount of goods only if  $D_1' \ \partial S/\partial e_1 = \partial S/\partial e_1$  and  $D_2' \ \partial S/\partial e_2 = \partial S/\partial e_2$ , if each firm suffers only the socialized unemployment it creates

through its participation in the labor market. It is not the size, relative or absolute, of the socialized unemployment that dooms a perfectly experience rated UI tax as an ideal cost allocator, but it is how that unemployment is distributed across firms. Even if all unemployment were socialized unemployment, a perfectly experience rated tax would still lead to an optimal allocation of unemployment costs as long as socialized unemployment is distributed to each firm in accordance with how much socialized unemployment the firm is responsible for by its participation in the labor market. Thus if G = H = 0, perfect rating would still lead to an optimal resource allocation as long as  $D_1^i |\partial S/\partial e_1 = \partial S/\partial e_1$  and  $D_2^i |\partial S/\partial e_2 = \partial S/\partial e_2$ .

Let us assume that unemployment S resulting from labor market maintenance is a linear function of the size of the labor market.  $S(E) = S(e_1, e_2) = k(e_1 + e_2)$ , which says that firms create socialized unemployment proportionate to their use of the total labor market. Really this assumption is the rationale for instituting a flat rate UI tax. If socialized unemployment is the bulk of unemployment, and if socialized unemployment is created in said proportion, then a flat tax will, in general, more accurately charge each firm's unemployment costs.

Suppose the taxing authority institutes a flat rate tax on employers to pay the costs of unemployment insurance. Each firm pays a fraction of the total unemployment costs equal to its fraction of the labor force. The firms face the profit functions

(13)  $\pi_1 = p_x X - p_e e_1 - p_n [(G(X) + H(Y) + S(E)) e_1 / E]$ 

(14) 
$$\pi_2 = p_y Y - p_e e_2 - p_n [(G(X) + H(Y) + X(E)) e_2/E].$$

Producers maximize profits when

(15) 
$$p_x = p_e/F_1' + p_n[G' + \frac{\partial S}{\partial e_1}F_1']e_1/E + p_n[G+H+S]e_2$$
  
 $E^2F_1'$ 

(16) 
$$p = p/F' + p[H' + \frac{\partial S}{\partial e} F']e/E + p[G+H+S]e \frac{1}{E^2F'_2}$$

The optimality conditions (7 - 8) indicate that producers' marginal rate of transformation should be

(17) 
$$\frac{F_1'}{F_2'} = \frac{(p_y - p_n H')}{(p_x - p_n G')} \frac{(p_e + p_n \partial S/\partial e_1)}{(p_e + p_n \partial S/\partial e_2)}$$

Given the assumption  $S = k(e_1 + e_2)$ , (17) becomes

(17a) 
$$\frac{F_{1}}{F_{2}'} = \frac{p_{y} - p_{n}H'}{p_{x} - p_{n}G'}$$

Given a flat rate tax, the profit maximizing conditions in this case (15 - 16) indicate that producers hire labor so that together:

(18) 
$$F'_{1} = (p_{y} - p_{n}H' e_{2}) (p_{e} + p_{n}\frac{\partial S}{\partial e_{1}} \cdot \frac{e_{1}}{E} + (G+H+S)e_{1})$$
  
 $F'_{2} = (p_{x} - p_{n}G' e_{1}) (p_{e} + p_{n}\frac{\partial S}{\partial e_{2}} \cdot \frac{e_{1}}{E} + (G+H+S)e_{2})$   
 $F'_{2} = (p_{x} - p_{n}G' e_{1}) (p_{e} + p_{n}\frac{\partial S}{\partial e_{2}} \cdot \frac{e_{2}}{E} + (G+H+S)e_{2})$   
 $F'_{2} = (p_{x} - p_{n}G' e_{1}) (p_{e} + p_{n}\frac{\partial S}{\partial e_{2}} \cdot \frac{e_{1}}{E} + (G+H+S)e_{2})$ 

If the fraction of unemployment  $[G + S(e_1)]/[G + H + S]$  caused by Firm 1 is equal to its share of the labor force  $e_1/E$ , and similary for Firm 2, a flat tax will lead to an optimal resource allocation.

Equations (11 - 12) show that in a regime of perfect experience rating producers set the ratio of marginal products so that

(19) 
$$\frac{F_{1}^{*}}{F_{2}^{*}} = \frac{(p_{y} - p_{n}H^{*})}{(p_{x} - p_{n}G^{*})} \frac{(p_{e} + p_{n}D_{1}^{*}\partial S/\partial e_{1})}{(p_{e} + p_{n}D_{2}^{*}\partial S/\partial e_{2})}$$

Since  $S(E) = k(e_1 + e_2)$ , by assumption, the flat tax should be a better cost allocator than the experience rated tax when socialized unemployment  $S(e_1)$  dominates own unemployment G. Conversely, (19) shows that an experience rated tax is appropriate when socialized unemployment is relatively small. For the polar cases, when S = 0, i.e., there is no socialized unemployment, the experience rated tax always leads to the optimal resource allocation. When G = H = 0, i.e., there is no own firm created unemployment, the flat tax rate leads to an optimal allocation, given the assumtions  $S = k(e_1 + e_2)$ , since the second term in (18) then equals 1.

If the socialized unemployment is communicated to firms in proportion to their fraction of the labor force, i.e.,  $D_1^{+} \otimes S/\partial e_1 =$  $\partial S/\partial e_1$  and  $D_2^{+} \otimes S/\partial e_2 = \partial S/\partial e_2$ , then an experience rated tax also leads to the optimal cost allocation. As mentioned earlier the assumption  $S = k(e_1 + e_2)$  is precisely the rationale for a flat tax. If socialized unemployment arises according to some other mechanism, the conclusions about the allocative effects of the flat rate and the experience rated tax schemes may differ.

For example, suppose socialized unemployment is created in proportion to own caused unemployment, i.e., S = k(G(X) + H(Y)). In this case the choice of tax plan depends crucially on  $D_1$  and  $D_2$ . The distribution of socialized unemployment implied by  $D_1$  and  $D_2$  may so poorly reflect  $\partial S/\partial G(X)$  and  $\partial S/\partial H(Y)$ , that the flat rate tax better allocates the costs of unemployment.<sup>56</sup>

#### Combination Tax Schemes

If both own caused unemployment, G and H, and socialized unemployment S(E) are significant, the choice as to which tax scheme works better is not at all clear. Since a flat rate tax does a good job of allocating socialized unemployment costs, and an experience rated tax does a good job of allocating own caused unemployment, a mixture of the two taxes would seem the best solution of allocating both kinds of costs. In fact, from the very inception of the U.S. unemployment insurance system the idea of a mixed flat rate and experience rated tax was considered. President Roosevelt's Committee on Economic Security, when investigating how to establish a national system

 $56_{Suppose}$  G(X) + kG(X) > H(Y) + kH(Y),

but

 $G(X) + D_1(S) < H(Y) + D_2(S).$ 

Now the flat rate tax may not do a very good job of allocating unemployment costs, but it beats the experience rated tax on the averages.
of unemployment insurance, recommended a minimum 1% contribution rate by each employer into a pooled fund.<sup>57</sup>

Given both significant social unemployment costs and own caused unemployment costs, the question of how to levy the unemployment tax becomes one of how much experience rating is appropriate. Suppose the total amount of social unemployment costs can be observed. Then setting a flat rate tax to insure that each firm pays its share is a simple matter of computing the cost per labor input. Experience rating the remaining unemployment does not necessarily achieve optimality. Given our simplifying assumptions, a firm's charged unemployment is the sum of its own caused unemployment plus the socialized unemployment that is communicated to it. Thus the firm profit functions under the mixed tax scheme look like

 $\pi_x = p_x X - p_e e_1 - p_n [G(X) + D_1(S(E)) - e_1 S(E)/E]$ 

 $\pi_{v} = p_{v}Y - p_{e}e_{2} - p_{n}[H(Y) + D_{2}(S(E)) - e_{2}S(E)/E]$ 

Optimality is achieved only if social unemployment is distributed across firms in proportion to their use of the labor force. But from above, if that condition is met, a perfectly experience rated tax alone also leads to an optimal output mix.

To see why this condition is required for the mixed structure to achieve optimality, suppose firm A creates 3 units of unemployment per labor input and firm B creates 7 units. There are 3 units of socialized unemployment per labor input in the economy. Now suppose socialized unemployment is

<sup>&</sup>lt;sup>57</sup>Altmeyer [2], p. 24.

distributed unevenly such that firm A inherits 4 units per input and firm B inherits only 2. Firm A's charged unemployment is 7 and firm B's is 9. A flat rate tax of 3 units per input insures that each firm covers its socialized unemployment costs. But by experience rating the remainder firm A in effect pays for causing a unit of unemployment which it inadvertently inherited because of an inequitable distribution of socialized unemployment. Firm A pays a tax of 7 when it should be 6, and firm B pays 9 when it should pay 10. To generalize, if every firm has charged unemployment at least as great as its socialized unemployment responsibility then a perfectly experience rated tax and a combination tax both lead to the same result.

For a mixed tax scheme to approach more closely the proper allocation of unemployment costs than a straight experience rated tax, at least one firm must have charged unemployment less than the socialized unemployment for which it is responsible. Since there are 13 states with minimum tax rates of 0, then that situation definitely can exist. Suppose the taxing authority sets a flat tax rate so that each firm pays the exact amount of its socialized unemployment costs. Any unemployment costs over the minimum are assumed to be own caused and are experience rated. The result is that firms that previously paid no tax now pay the correct amount, firms that previously paid less than socialized unemployment costs now pay closer to the correct amount, and firms that previously paid more than the flat rate now pay the same amount.

Unfortunately this gives the taxing authority a surplus of tax collections over unemployment costs.

The mixed tax scheme has clearly improved the unemployment cost allocation, since now at least all employers are covering their socialized costs. Just as clearly, the proper allocation has not been achieved since the taxing authority cannot distinguish between caused unemployment and inherited social unemployment, but still only observes charged unemployment. He would like to pass out the surplus as credits to those firms that inherit more than their equitable share of social unemployment. But even if he knew what those firms were, he most likely would not have a large enough surplus to pass out. For suppose the flat rate is 3% and some firm has charged unemployment requiring a 4% tax rate. This firm creates unemployment such that a tax rate of 2% would cover the cost. That cost added to its socialized cost says that the firm should pay a 5% tax, not a 4% tax. In effect the firm is escaping 1% of its socialized costs because it inherits less than an equitable amount of those costs.

### The Optimal Amount of Experience Rating

Given that only charged unemployment can be observed, the optimal amount of experience rating is a two part problem. First, how high should the minimum tax rate be, which is actually the question how much unemployment should be considered social unemployment? Secondly, how should the surplus tax collections be distributed? (Or really, how should taxes be collected so that no surplus results?) Lowering all tax rates so as to

collect no surplus assumes that social unemployment is distributed fairly evenly among all firms, since all are given a tax reduction, except those at the minimum. Tax rate ceilings, i.e., limiting taxes for firms with a large amount of charged unemployment, assume that the reason those firms have so much charged unemployment is because they suffer a grossly disproportionate amount of social unemployment.<sup>58</sup>

The foregoing analysis of experience rating and uniform tax rates as cost allocators in the presence of social unemployment assumed that the unemployment generating functions G(X)and H(Y) were fixed. Chapter 2, however, shows that this is not necessarily the case. The evidence from that study indicates that the costs imposed by the experience rated UI tax may induce a firm to stabilize its seasonal employment fluctuations, i.e., alter its unemployment generating function, in an effort to reduce its UI tax burden.

The gain from an experience rated UI tax then might not simply be a better allocation of unemployment costs, moving closer to the optimal point along a transformation curve, but moving from an inefficient point inside the curve to a point along the efficient frontier. If Firm 1 alters its unemployment generating function G(X) so that the new  $G_1(X) < G(X)$ , the time that previously was wasted in unemployment can be used

<sup>&</sup>lt;sup>58</sup>If cyclical unemployment is socialized unemployment then ceiling rates protect cyclically sensitive industries from bearing the brunt of a general economic downturn. If extremely seasonal unemployment is partly socialized unemployment as Haber and Murray [9], p. 353 seem to argue, then ceiling rates protect those extremely seasonal firms.

produce more consumer goods X and Y, without either consumer relinquishing any leisure time.<sup>59</sup> Therefore the marginal rates of transformation resulting from an experience rated tax and some alternate tax scheme may not be comparable. Figure 1 illustrates this point. Let T be the efficient frontier and let A be the optimal point (from consumers' standpoint) along T. Suppose the marginal rate of transformation of X for Y at inefficient point B is equal to the MRT at point A. Suppose point C along the efficient frontier results from allocation UI costs through experience rating. Point C is clearly superior to point B, yet on the basis of MRT's B appears superior.

FIGURE 1



<sup>&</sup>lt;sup>59</sup>This assumes that the marginal utility of leisure time is greater than the marginal utility of unemployment time. If the opposite is true then consumers prefer more unemployment time and less leisure. In this situation an experience rated tax can also lead to more efficient production. If costs are not allocated properly, then some firms may 'over stabilize' employment, i.e., cut employment fluctuations to a greater degree than consumers wish.

Even if experience rating 'misallocates' resources (in the MRT deviation sense) worse than some alternate tax plan, it may lead to a superior output combination. (See Figure 2.) Suppose  $P_X^*$  and  $P_Y^*$  are the prices of goods X and Y at the optimal point C. Then a line V with slope  $-P_Y^*/P_X^*$  is tangent to T at C. Let V' be parallel to V and run through B, the inefficient point. V' represents the value of output combination B evaluated at the optimal prices. All combinations to the right of V' are of greater value, in terms of the optimal prices, than B. Thus as long as the experience rated tax moves firms to produce somewhere on the efficient frontier between  $t_1$  and  $t_2$  (or for that matter anywhere to the right of V'), the value of that output is greater than the inefficient point combination even if the resource allocation appears worse.



### Conclusions

An experience rated unemployment insurance tax unambigously

leads to an optimal allocation of unemployment costs only if

each firm is charged with the unemployment which it creates. In the presence of socialized unemployment, when the unemployment is proportional to the size of the labor market, a mixed tax scheme of a uniform tax to cover the social unemployment cost and an experience rated tax to cover the rest, is likely to lead to a better allocation of cost than either plan by itself. Thus financing the administrative costs of the state UI programs through the Federal UI tax (which is effectively a 0.7% uniform tax), and the benefit costs portion of the programs through an experience rated tax is appropriate. If the cost of spells of unemployment greater than 26 weeks are assumed to be socialized unemployment costs due to cyclical fluctuations in the economy, then federally funded extended benefit programs are appropriate. If those unemployment costs are not socialized costs, then extended benefits should be financed through experience rated state taxes. Also, if socialized unemployment costs are costs that should be borne by all the participants in the labor market, then contributions are called for from both employers and workers.

Finally, since experience rating can induce firms to stabilize their own employment fluctuations, it can shift the equilibrium output combination to a combination on or nearer the efficient frontier. Looking at the allocation of UI costs as represented by marginal rates of transformation without considering the real gain from the experience rated tax can be misleading, since a suboptimal allocation might be superior to what appears to be an optimal point.

#### CHAPTER V

### Conclusions

The 1932 Wisconsin Unemployment Compensation Act called for an experience rated UI tax, one which ties an employer's tax rate to his past employment experience. Since that original UI statute, experience rating has gained favor primarily on the basis of three arguments. The Congress of the United States encouraged (actually all but forced)<sup>60</sup> the states to experience rate their unemployment insurance taxes under the assumption that an experience rated tax would impel each firm to stabilize its own employment fluctuations. The 'Wisconsin School'<sup>61</sup> originators of the idea of an experience rated tax emphasized that it could allocate the costs of unemployment to those firms which caused the unemployment. Finally, an experience rated tax encourages firms to take a direct interest and to participate in the administration and development of the UI system in its own state.

<sup>&</sup>lt;sup>60</sup>See Haber and Murray [9], p. 338 for the Senate Finance Committee's statement of purpose in favoring experience rating. Becker [4], p. 12-16 outlines the debate over allowing federal UI tax credits only through experience rating.

<sup>61</sup> 

Especially Arthur Altmeyer, John Commons, Harold Groves, Paul Raushenbush and Edwin Witte.

All these pro-experience rating arguments imply that firm behavior is somehow altered by an experience rated unemployment insurance tax. Yet no microeconomic study of the effects of experience rating on firm behavior has been done. The purpose of these three essays was not a cost benefit analysis of experience rating, nor even an evaluation of each of the arguments. The purpose was to look at some claimed implication of each argument to see if those implications are valid.

The first two essays asked whether the experience rated UI tax is significant enough to affect firm behavior in stabilizing employment and in policing benefit claims. Both are empirical questions and were handled in an empirical format. The parameters of the experience rated UI system, that is the tax rates and the taxable wage base, were used to test the effects of rating. The third essay used a general equilibrium analysis to ask how experience rating might misallocate the costs of unemployment if layoff records do not reflect the unemployment costs generated by a firm.

## Review of Findings

An experience rated UI tax varies each firm's tax rate so that its payments into the UI fund balance its expected benefit withdrawals. The profit maximizing firm attempts to minimize this tax burden along with its other costs, and in so doing stabilizes its employment. If employment stabilization can be realized at all, it should certainly show up in damped seasonal employment fluctuations. Here there are more

possible ways to smooth seasonal swings than other types, like cyclical, for instance, because they are more predictable and their source more easily pinpointed. A firm might try to alter its production schedule to reduce peak period demand for labor, or it might try to take on complementary lines so that when one output is in season the other is out and vice versa.

The first essay showed that seasonality of employment is affected by the experience rated UI tax. Three industries were studied: SIC 161, highway and street construction, except elevated highways; SIC 233, women's, misses', and juniors' outerwear; and SIC 243, millwork, plywood, veneer, and other prefabricated wood products. Only two of the three, SIC 161 and SIC 233, showed any reaction to experience rating, and in each the reaction was different. Since each industry faces different limitations on its ability to stabilize unemployment, i.e., different stabilization costs, it is not surprising that each exhibits a different response to the tax. The wood products industry, SIC 243, which showed no reaction to experience rating, faces seasonality in its own production and in the demand for its output. Apparently for this industry the costs of stabilization are too high no matter how effective the experience rating is in charging firms for their unemployment costs. On the other hand, strong rating does increase employer stabilization efforts in the construction industry, SIC 161, despite its strong weather induced seasonality. The most definite response to experience rating was in the outerwear industry, SIC 233. Firms in this industry were represented

in 46 states in 1974 even though those states exhibited a wide variation in experience rating strength. Ostensibly, firms in states with strong experience rating have survived by stabilizing their own employment and reducing their UI tax burden.

The second study showed that experience rating increases employers' propensity to challenge benefit awards.<sup>62</sup> If a firm successfully challenges a claim by an ex-worker, no benefits are charged to its account. In states with strong experience rating the firm pays a larger portion of the cost of its separated workers' UI benefits, and hence has a greater incentive to examine claims for violations of eligibility standards. Experience rating has come under bitter attack on this point<sup>63</sup> by some, yet others have praised this policing incentive.<sup>64</sup> The potential for abuse of the appeals process exists, but the data show that very few benefit awards are challenged by employers.<sup>65</sup> If all states widened their tax rate spreads to the 0.3% to 5.4% that Michigan averaged in the study, appeals would increase by only 6,000 to 11,000 annually.

 $<sup>^{62}</sup>$ This result is evidence that firms believe that shifting of the UI tax is not complete and immediate.

 $<sup>^{63}</sup>$ Recall the statements by Walter Reuther and Andrew Biemiller as quoted in Chapter 3.

<sup>&</sup>lt;sup>64</sup>For example, see Bailenson [3], p. 5.

<sup>&</sup>lt;sup>65</sup>In 1974 there were 17.4 million new spells of insured unemployment. 3.1 million of those claims were disqualified by state authorities. Just 75,566 employer appeals were decided that year, only 0.5% of all benefit awards. Source: <u>Unemploy</u>ment Insurance Statistics [30].

The final essay considered the merits of experience rating as an allocator of unemployment insurance costs. Proponents of rating claim that tax rate ceilings and tax rate floors create interfirm subsidies, forcing stable firms to partially pay the unemployment costs of unstable firms. As a result, products from stable industries are priced artificially high and resources are misallocated away from stable industries and into unstable industries. Since labor is among those resources, incomplete experience rating increases unemployment.

The experience rated tax allocates UI costs to firms according to their layoff records. If layoffs do not accurately reflect unemployment caused by the firm then those costs will not be properly charged. This situation arises especially if there is socialized unemployment, unemployment not attributable to any one firm using the labor market, e.g., cyclical unemployment. If the costs of socialized unemployment are proportional to the firm's use of the labor market as indicated by its payroll, then a flat rate tax allocates those costs better than an experience rated tax. If there is both socialized unemployment and unemployment which can be attributed to firms, then a mixed tax plan is best, with a flat rate to cover the socialized costs and an experience rated tax to cover the rest.

### Recommendations for Change

These three studies have demonstrated the merits of an experience rated UI tax in accurately allocating unemployment costs, in stabilizing employment, and in the fostering of employer interest and participation in the UI system. They indicate that the real question about experience rating should not be whether it has any effects, but whether it has enough of an effect to outweigh its additional administrative costs.<sup>66</sup> At present data on the parameters of the system are simply too crude to allow reasonably accurate estimates of the size of the effects of rating on firm employment stabilization and on the propensity to appeal benefit awards. The first recommendation addresses itself to this problem.

1. More extensive data on the parameters of the experience rated UI system are needed. Data which could be fairly easily compiled from the states include the size of negative balances, to indicate the effectiveness of the maximum tax rates, and the size of noncharged benefits. The distribution of firms by tax rates would be helpful in indicating how sensitive the tax is to changes in employer experience. A wide range of tax rates can be deceiving if most of the firms are concentrated at one or a few rates. Since experience rating is designed

<sup>&</sup>lt;sup>66</sup>Becker [4], p. 323 estimates that about 4% of the total administrative costs of the UI system are due to experience rating. He cites that several state administrators claim that computerization of UI systems is reducing the additional administrative load.

to affect firm behavior, more disaggregated tax data would help to estimate its effects. Minimum and maximum tax rates by industry, and the variation of rates within an industry would be helpful, though clearly more expensive to compile than the aggregate state data suggested above.

2. Experience rating should be strengthened. The federal government should require states to reduce the minimum rate to zero and eliminate ceiling tax rates. The taxable wage base should be raised. A strongly experience rated tax can reduce unemployment in two ways: by inducing individual firms to stabilize their own employment fluctuations, and by eliminating the interfirm subsidies that are the result of ceiling tax rates. These subsidies allocate labor resources away from stable employment industries and into unstable industries. These employment gains can be realized without greatly increasing employer challenges of benefit awards.

3. Socialized unemployment costs should not be subject to experience rating, but should be financed through a flat rate tax. Although other observers of the UI system might disagree, we would define socialized unemployment costs as noncharged benefits and benefits paid after 26 weeks of unemployment. The noncharged benefits should be financed at the state level to prevent states from capriciously noncharging benefits in hopes of being subsidized by other states. Benefits after 26 weeks should be financed completely by the federal flat rate tax in order to protect states with concentrations of cyclically sensitive industries.

In the very success that unemployment insurance has enjoyed over the last forty years as a "first line of defense" against temporary job loss lies a danger. In recent years UI has become a convenient frame on which to hang additional income maintenance programs.<sup>67</sup> Since all the benefits of experience rating depend on its ability to accurately allocate unemployment costs, the additional socialized unemployment costs should not be incorporated in the regular state UI systems.

In 1935 President Franklin Roosevelt requested from the Congress an unemployment compensation law with a goal "to afford every practicable aid and incentive toward the larger purpose of employment stabilization."<sup>68</sup> Congress responded with a federal-state plan that emphasized experience rated state taxes to finance benefits. It appears that the experience rated UI tax as presently constituted has at least partly fulfilled the request, and that strengthing of the rating provisions can affect even more stabilization.

<sup>67</sup>Becker [4], pp. 321-323; Hamermesh [10], pp. 106-108; and Warden [21], pp. 95-96, all note the danger of allowing the UI system to take on aspects of a welfare program. <sup>68</sup>See Nelson [16], p. 212.

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# Spectral Measure of Seasonality

· · · · · · · · ·		· · · ·	
· ·	Industry 161	Industry 233	Industry 243
New England			
Maine	•337556	.224126	
New Hampshire	• 339944	.191251	.204261
Vermont	.338609	.222335	
Massachusetts	•358363	.220586	.204077
Rhode Island	.338922	.290159	
Connecticut	•323543	.174067	.205291
Middle Atlantic			
New York	•347985	.222217	.246605
New Jersey	•353371	.256192	.178352
Pennsylvania	.346093	.287136	.215330
East North Central			
Ohio	.341233	.250491	.238035
Indiana	•345034	.188510	.282971
Illinois	.326864	.183579	.194164
Michigan	•343294	.194603	.188701
Wisconsin	•353259	.220586	.193786
West North Central			
Minnesota	.347719	.202741	.257724
Iowa	.345421	.154170	.210314

# (continued)

	Industry 161	Industry 233	Industry 243
Missouri	.329634	.182199	.185740
North Dakota	.285158		.175104
South Dakota	• 330797		
Nebraska			.193742
Kansas	.320287	.211968	.177164
Pacific			
Washington	.320229	.208750	.168098
Oregon	.318804		.175005
California	.261658	.184297	.178305
Alaska	.245782		
Hawaii	.170366	.172209	.177993
South Atlantic			
Delaware	.304677		
Maryland	.327725	.189934	.201399
District of Columbia	.244195		
Virginia	.284313	.177762	.185091
West Virginia	.304322	.195024	
North Carolina	.248658	.165360	.178702
South Carolina	.237479	.216190	
Georgia	.289331	.158847	.204103*
Florida	.179142	.191674	.225820

# (continued)

	Industry 161	Industry 233	Industry 243
East South Central			
Kentucky	.326956		.207670
Tennessee	.305292	.168669	.212373
Alabama	.283492	.180229	.153414
Mississippi	.288835	.166517	.189170
West South Central			
Arkansas	.318122		.217674*
Louisiana	.262903		<b>.</b> 198124 <b>*</b>
Oklahoma	.244719	.152929	.194042
Texas	.264099	.169997	.182033
Mountain			
Montana	.320583		
Idaho	• 307990		.164809
Wyoming	.336656		
Colorado	.287712	.170207	.174914
New Mexico	.301416		
Arizona	.184411	.189827	.209881 <b>*</b>
Utah	.316585	.164886	.174213
Nevada	.281535		.185065

\*Value on basis of 24 month season.

Data source: Employment and Wages [28].

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