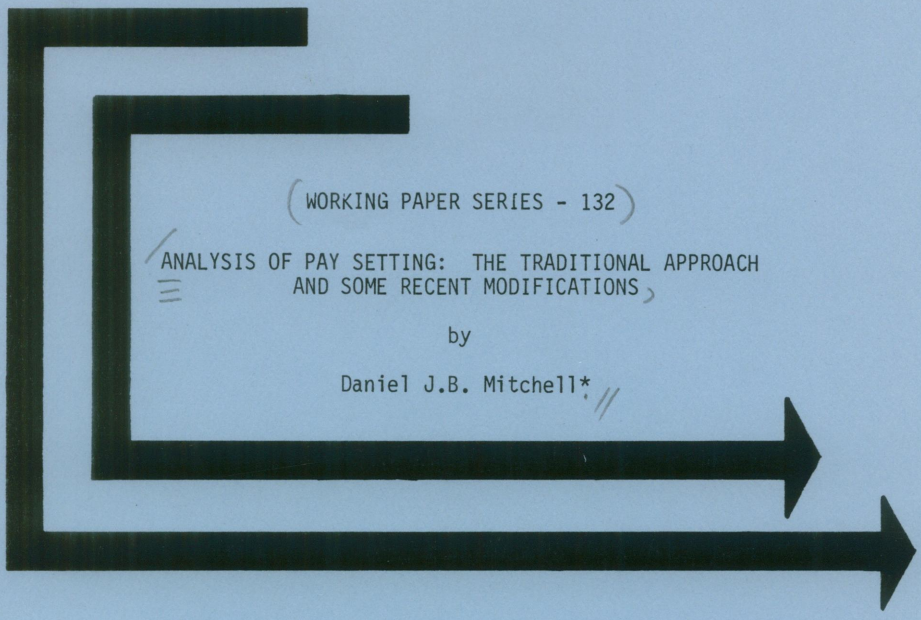

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ANALYSIS OF PAY SETTING: THE TRADITIONAL APPROACH AND SOME RECENT MODIFICATIONS

by

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CHAPTER 5:

Analysis of Pay Setting:

The Traditional Approach

and

Some Recent Modifications

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Chapter 5: Analysis of Pay Setting: The Traditional Approach and Some Recent Modifications

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Chapter 5: Analysis of Pay Setting:
The Traditional Approach and Some Recent Modifications

Setting pay is one of the key human resource management decisions for an organization. As we have already seen, the pay system functions partly as a reward/incentive system. And, it is closely intertwined with procedures for employee evaluation. However, once a pay system is established, the pay level must be determined. The pay level will be a critical determinant of the firm's success in employee recruiting and employee retention. If pay is set "too" low, then regardless of the system in which it is embedded, the firm will suffer from excessive vacancies and turnover. If pay is set too high, excess direct labor costs will result. Too-high wages may also make it difficult to bring "new blood" into the organization, since voluntary quit rates of existing employees will be extremely low.

In this chapter, the classical economic supply/demand model of pay determination is first presented. The model is shown to have substantial analytical problems. Its predictions do not accord with many real world phenomena. On the other hand, examples will be given of applications for the traditional framework. Some recent modifications to the classical model are then presented. These newer approaches help explain the actual practice of pay determination in the next chapter. They also

suggest some HRM methodology that ought to be followed, but often is not, in the pay setting process.

Throughout this chapter, the words "wage" or "pay" are used to refer to labor compensation. For now, the reader can think of these terms as including fringe benefits, e.g., pensions, health and life insurance, as well as cash wages. In the next chapter, HRM strategies regarding the mix of compensation between wages, benefits, and conditions of work will be analyzed.

I. Demand in the Classical Model of Pay Determination.

The classical economic model depicted the labor market as just another product market, the main difference being that what is called a "price" in the goods market is re-labeled a "wage" in the labor market. In chapter 2 on productivity, the demand side of the classical labor market model has already been reviewed. The model begins with the proposition that the demand for labor by employers is a derived demand; labor is not wanted for direct consumption, but only as a necessary input into the production process.

1. Labor Demand in the Short Run.

In the labor market, despite this distinction between a direct demand and a derived demand, a "normal" downward sloping

demand curve results. The short-run demand curve for labor at the level of the firm is the firm's marginal revenue product of labor (MRP_L) schedule. This schedule is, in turn, derived from the marginal product of labor (MP_L) function by placing a value on the marginal product.

The resulting demand curve for labor is described as "short run" because of the definition of marginal product. The marginal product of labor is the incremental production of an extra unit of labor, holding capital (and other factor inputs) fixed. It is a convention in economics to view capital as fixed in the short run, although variable in the long run. Thus, in the short run, factory management must work with the capital equipment it has already installed, and vary output mainly by varying labor input. But over a longer period, the capital employed can be increased (through new purchases and installation) or decreased (through sales, depreciation, or scrapping).

Recapitulating, the basic short-run formulas for labor demand are:

1) $MP_L = \delta Q/\delta L$, where Q is physical output and L is labor input.
2) $MRP_L = MP_L \times P$, where P = price of the final product (or marginal revenue in the case of an imperfectly competitive firm).

Due to diminishing marginal returns, the MRP_L schedule will have a downward sloping profile (as was depicted on Figure 2 of chapter 2). The firm will add units of labor to its workforce until it reaches the point at which:

3) $W = MRP_L$, where W is the wage per unit of labor.

At the point corresponding to equality (3), profit maximization occurs.

If the firm hired fewer units of labor than corresponds to equality (3), adding an additional unit would cost less than the incremental revenue acquiring that unit would produce. So a simple cost/benefit analysis indicates that the extra labor units should be added. Similarly, if the firm hired more units of labor than indicated by the equality, the marginal units of labor will cost more than they are worth to the firm, and should therefore be severed from the workforce.

ii. Labor Demand in the Long Run.

In the long run, both labor and capital are variable. The firm's capital/labor ratio can be changed in response to changes in the wage rate (W) relative to the rental cost of capital (R).

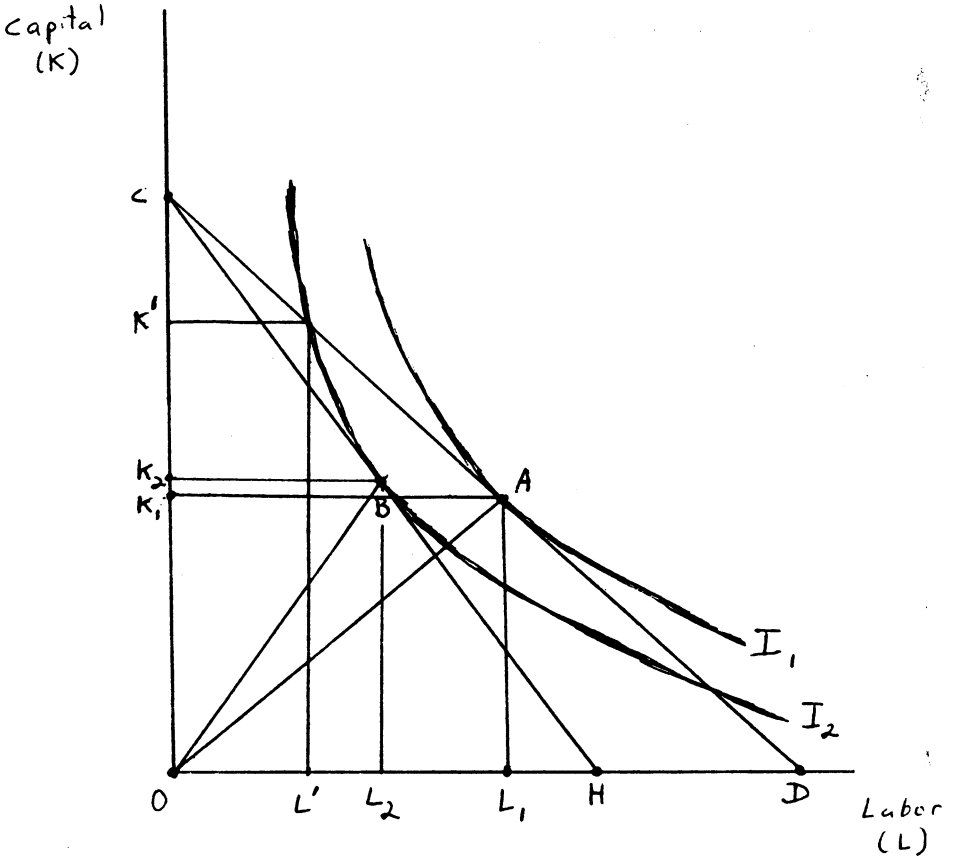
Common assumptions in microeconomics used to analyze this decision are that the firm's production function exhibits both constant returns to scale (e.g., doubling all inputs will double output) and diminishing marginal productivity. Under these assumptions, a given level of output (say, level Q*) has an associated "isoquant" curve relating all possible combinations of capital and labor inputs which could be used to produce that output.

Such an isoquant is shown on Figure 1 by curve I_1. The curve is downward sloping because labor and capital are assumed to be substitutes. If one factor is decreased, the other must be increased to maintain production at level Q*. In addition, the isoquant is bowed in towards the origin because of the diminishing returns assumption. If, for example, units of capital are successively removed from the production process, progressively larger increments of labor will be required to maintained an unchanged level of output.

There is a family of isoquants representing alternative production levels. Higher isoquants represent more output, lower isoquants represent less. Due to the assumption of constant returns to scale, the isoquants have a proportional relationship to one another. That is, each isoquant is a radial projection of the others.

Figure 1

Factor Selection in the Long Run



The slope of a ray from the origin represents a given capital/labor ratio. Isoquants intersecting such rays will all have the same slope at the intersection points because the curves are radial projections. The distance of these intersection points from the origin is in direct relation to the output associated with the isoquant. For example, if isoquant I_2 represents 80% of output level Q*, than OG on Figure 1 will be 80% of the length of OA.

Profit maximization implies producing the maximum output for a given expenditure on factor inputs. Total expenditure on such inputs will be WL + RK, where L is the level of labor input and K is the level of capital input. A given expenditure level (say, E*), can be represented by a downward sloping straight line such as CD on Figure 1. Given E*, the firm could purchase capital and labor inputs at any point along CD. For example, it would be feasible to purchase OK' of capital and OL' of labor and produce at the output level corresponding to I_2. But to do so would not be optimal, since higher indifference curves can be reached with E* expenditure.

The highest output will be Q*, which is associated with isoquant I_1. Production will occur at point A where the isoquant is just tangent to the isoquant. Given expenditure E*, the firm will purchase OK_1 of capital and OL_1 of labor. Its capital/labor ratio will be the slope of ray OA.

If labor became more expensive (an increase in wage W), the expenditure line would rotate clockwise around point C. The new expenditure line OH represents combinations of capital and labor that can be bought given the higher wage. Now the highest isoquant that can be reached is I_2 at point B. The new capital input will be OK_2 and the new labor input will be OL_2.

Note that both capital and labor usage is decreased because of the wage increase but that the labor reduction is proportionately larger than the capital reduction. As a result, the capital/labor ratio (shown by the slope of ray OB) increases. When labor costs rise relative to capital costs, the firm substitutes capital for labor.

In the long run, then, a wage increase in the classical model sets in motion a complex set of forces. These forces tend to reduce the demand for labor. First, firms substitute capital for labor. Second, since production costs have increased, prices will rise, leading to reductions in demand for the output. Output will therefore be lower for the "typical" firm in the industry depicted and less labor will be needed as a result.

iii. Total Labor Market Demand.

To determine the wage in the classical model, it is necessary to consider more than one firm, and to encompass both supply and demand in the analysis. In the labor market, many firms -- often from many industries -- are competing for available labor. Their individual demand curves must be summed to obtain the overall market demand for labor schedule. Figure 2 illustrates how the demand curves of firm A and firm B (D_A and D_B) can be summed to produce a joint demand curve for the two firms (D_{A+B}).

At a wage of W*, firm A would hire L_A units of labor and firm B would hire L_B units. The two firms together would hire $L_A+L_B = L_{A+B}$, a point on the D_{A+B} schedule. A similar calculation can be made for all possible wage levels, and the joint labor demand curve can be traced. This horizontal summation process can be repeated for all firms in the labor market to produce the total market demand curve for labor (D_T) which is shown on Figure 3.

iv. Some Criticisms of Classical Demand Analysis.

Various criticisms have been leveled at classical labor demand analysis over the years. A longstanding complaint about the classical model relates to its marginalist assumptions. Can

Figure 2

Joint Demand Curve of Labor For Two Firms

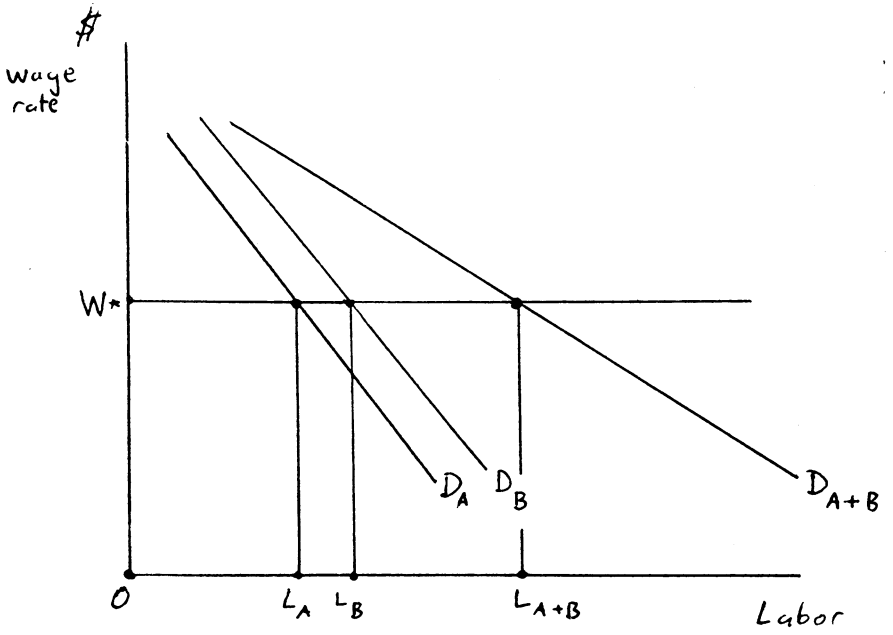
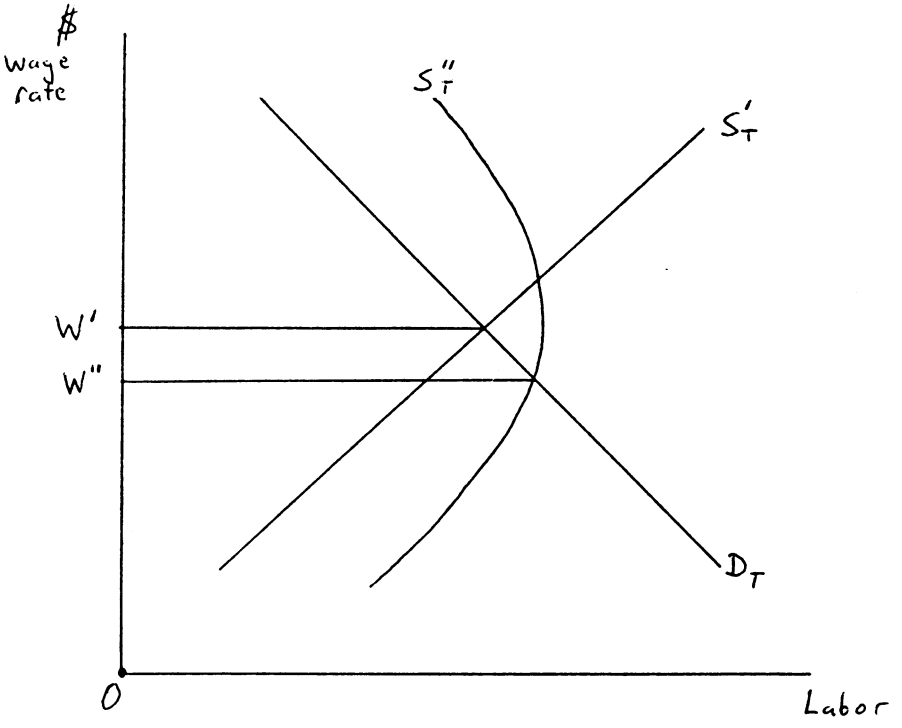


Figure 3

Labor Market Demand and Supply Curves



firms really make the precise marginal calculations which are assumed in the short-run model? Do they really know whether the marginal revenue product of labor equals the wage? There is certainly no trace of such marginalist calculations in the ordinary day-to-day operations of real world firms or in their HRM practices. Typically, where cost estimates are made, they are likely to be total cost or average cost estimates rather than marginal.[3]

It may well be that production technology, once embodied in the capital equipment of the firm, is essentially of the "fixed coefficient" variety. That is, there is a basic capacity constraint imposed by the capital stock. Output below that capacity is varied on a roughly proportional basis through changes in labor and material inputs. The marginal product of labor may be a positive constant up to the capacity constraint and then fall to zero when the capacity limit is reached.[4]

Some analysts have argued that even in the long run, the classical model as depicted on Figure 1 does not well describe the production decision process. For a given level of technological sophistication, capital and labor may be complements rather than substitutes, so that the capital/labor ratio is more or less fixed by technological imperatives. A boost in labor costs (relative to capital costs) may trigger innovations, so that new equipment involving a higher

capital/labor ratio is ultimately developed. But the process of innovation is discontinuous, not the smooth adjustment depicted on Figure 2. And many innovations may be regarded as "accidents" unrelated to the relative costs of capital and labor. Once installed, they become locked into the production process for long periods of time.[5]

v. Some Uses of the Classical Labor Demand Model.

Other criticisms of the strict classical model will be reviewed later in this chapter. However, classical labor demand theory still has an important message, even in the face of all of these (valid) objections. Generally, labor demand will be downward sloping as on Figure 2, no matter what theories or models are put forward. A downward sloping demand curve implies that less labor will be used as the wage is raised, whether the demand curve under consideration is taken to represent a plant, firm, industry, or all employers in a given area. This conclusion has important implications for understanding labor market developments. Two examples are discussed below: minimum wage floors and union membership trends.

Legal Minimum Wage Floors.

Since 1938, the U.S. has set a federal minimum wage forbidding covered employers from paying less than a designated

wage rate, originally 25¢ per hour. From time to time, Congress has seen fit to raise the minimum. Thus, in the early 1980s, the Fair Labor Standards Act (FLSA) designated the minimum wage level as $3.35 per hour. (The FLSA also requires time and a half for hours worked over 40 hours per week, as discussed in the previous chapter).

Especially in the 1960s, the coverage of the FLSA was widened so that by 1985 an estimated 86% of private sector nonsupervisory workers fell under the FLSA's minimum wage regulation.[6] Thanks to Congressional action in the 1970s, and subsequent Supreme Court interpretation, nonsupervisory government workers are also covered. Many states have minimum wage laws as well. State minimums can exceed the federal level. When state minimums are higher than the federal, they supersede the FLSA. In addition, state laws apply to employers who are otherwise exempt from FLSA coverage.

Most covered workers in fact earn substantially more than the minimum wage. But certain industries, such as fast food restaurants, use significant numbers of minimum wage workers. That is, for industries which make heavy usage of relatively unskilled workers, the minimum wage is an effective constraint on their internal pay policies; such employers would pay a lower wage were such payments not illegal. Thus, the FLSA is but one of many examples of legal restrictions on HRM practices.

Economists have generally been skeptical of the use of minimum wage laws as anti-poverty devices, precisely because the demand for labor is believed to be negatively sloped. Reduction of poverty is the most common argument made in favor of minimum wage laws. But with a negatively sloped labor demand curve, a wage floor will result in less employment than would be offered in the absence of any constraint. Thus, some potential low-wage workers may not be able to find work with covered employers because of the minimum wage.

If workers are unable to find work at covered employers, they could conceivably shift their job searching to the uncovered sector. Were they to do so, however, wages would tend to be lower than otherwise in that sector because of the artificial increase in labor supply. However, the uncovered sector is quite small and is further narrowed by state minimum wage laws which reach small employers who do not meet the coverage standards of the FLSA.[7] Thus, workers who do not find work at the minimum wage may simply be "disemployed," i.e., either unemployed (and looking for work) or simply out of the labor force entirely.

How large this disemployment effect may be has long been subject to empirical controversy. The size of the effect depends on the slope of the demand curve for unskilled workers. But to argue there is no disemployment effect whatsoever, minimum wage

proponents must come up with one of two types of arguments. Either they must find a rationale for a vertical demand curve for labor. Or they must produce a reason (or reasons) why the minimum wage would cause the labor demand curve to shift upwards sufficiently to offset disemployment.

It is difficult -- if not impossible -- to find a rationale for a vertical demand for labor curve. The negative slope of the classical model comes from two influences: 1) the substitution in production potential, e.g., of capital for labor, and 2) the negative slope of the demand for the outputs labor produces. Even if the scope for production substitution is small, it is difficult to imagine why product market demand curves should not be negatively sloped. Hence, the notion of a vertical demand curve for labor is not defensible. But, of course, it might be argued -- based on empirical evidence -- that the elasticity of the demand for labor is quite low.

The second argument -- that imposing a minimum wage raises the demand for labor curve -- can be made in two ways. One is to argue that raising the minimum will redistribute income to low wage workers who will spend more on the products they themselves produce than would otherwise be spent. The difficulty with this approach is that the proportion of minimum wage workers is small, so any income effects will also be small. Moreover, we are talking of income redistribution -- not creation. So any added

spending of minimum wage recipients must be netted against reduced spending by their employers.

Another possible argument revolves around what some economists have called "X-efficiency." X-efficiency -- or more appropriately for the purpose at hand, X-inefficiency-- represents a departure from the classical economic model.[5] It refers to a margin of potential profit maximization which firms do not exploit unless "shocked" into doing so.

Actually, arguments that X-inefficiencies exist have a long history in business cycle analysis. Business cycle theories formulated in the early part of this century viewed depressions as periods in which business would be stimulated to end wasteful practices and cut costs. Booms were seen as periods when business became lazy. These ideas have lingered; reports that the economic slump of the 1980s and foreign competition have made U.S. business "lean and mean" are really expressions of the X-inefficiency notion.

Some minimum wage proponents have argued that imposing or raising a minimum wage acts as a shock, and causes low-wage employers to become more efficient (reduce their X-inefficiency), thus raising the demand for labor. But the shock approach -- like the income approach -- raises an analytical problem. There may well be X-inefficiency in the economy,

contrary to the assumptions of the classical economic model. But assuming that there is such inefficiency, it is unclear why shocks to eliminate it would necessarily result in more employment.

Suppose an X-inefficient employer were neglecting to utilize a profitable, labor-displacing technology. If shocked into more efficient operation, the an employer would reduce its workforce, not increase it. That is, there is no a priori reason to believe that shock effects must create more jobs, even assuming that such shock effects occur in the first place.

There are other elements in the minimum wage debate. For example, most workers employed at or below the minimum wage come from families with incomes above the official poverty line.[9] Teenagers from middle class families, for example, may work at the minimum. Raising the minimum may cause employers to substitute between different low-wage groups, thus redistributing income in complex ways.[10]

Despite these other (important) considerations, the debate over the impact of the minimum wage is an illustration of the use of the classical economic model of demand to analyze a pay setting issue. Despite the model's weaknesses, it does provide a framework for the debate. Proponents of minimum wage increases must ultimately answer the question: Why won't raising the wage

reduce the demand for low-wage labor or particular kinds of low-wage labor? The answers can be judged in terms of plausibility and empirical evidence.

Union Membership Trends.

In a subsequent chapter, a variety of issues related to unions and collective bargaining will be discussed. However, by way of preview, one of the most important phenomena in the private union sector has been its shrinkage relative to nonunion employment. Unions represented as many as 40% of private, nonfarm wage and salary employees in the mid 1950s.[11] But by 1986, the proportion had fallen to only 15%.[12]

At the same time that the proportion of unionized workers was falling, union pay rates were generally rising compared with nonunion. Only in the 1980s, did the widening of the union/nonunion pay differential notably reverse, as part of a general movement toward union pay concessions. The classical approach to labor demand illuminates the relationship between the rising wage and the decline in the unionization rate.

Classical demand theory would predict that rising union pay differentials would trigger a relative fall in the demand for services of union workers. The market would tend to substitute cheaper nonunion workers for more expensive union workers.

Eventually, shrinkage of the union sector would weaken unions sufficiently so that the widening union pay differential could no longer be maintained.

Obviously, it will be important to look further into the phenomenon of declining union representation in the later chapter on unions and collective bargaining. However, the fact that classical labor demand theory helps explain developments in the union sector is well worth noting. It illustrates that such theory, despite its many unrealistic elements, nevertheless has uses in understanding actual labor market trends.

II. Supply in the Classical Model of Pay Determination.

In the complete classical model, the wage is determined by the interaction of demand and supply. While demand ultimately is a byproduct of the production processes used by the many firms in the labor market, labor supply is a matter of "tastes" and preferences of individual workers (or potential workers). The labor market offers workers a choice (a trade off) between income and leisure. They can supply their services to the labor market and receive wage income. Or they can forgo working and have more leisure.

Often in textbook presentations of supply in a goods market, the supply curves are depicted with the general upward-sloping

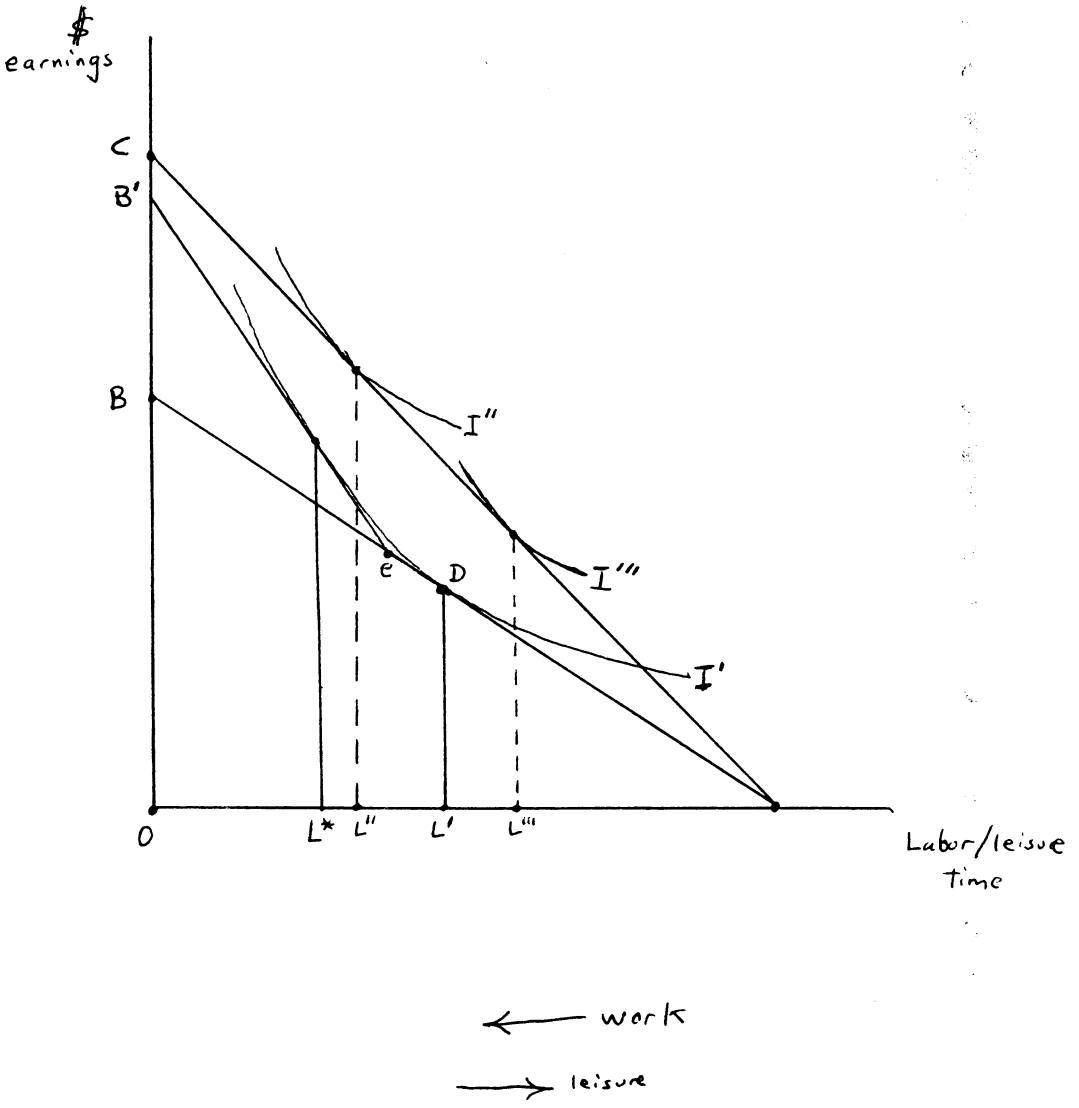
shape of line S_T' on Figure 3. The notion is that the more the market pays for something, the more of it which is produced. This proposition is intuitively appealing. However, in the labor case, there can be very different results. It is possible to have cases in which labor supply diminishes as the wage is raised.

Consider Figure 4, which represents an individual's choice between leisure and labor-generated income. As noted in the previous chapter, at a constant wage per unit of time, the individual faces a linear trade off between leisure and work-related income, such as line AB. The individual has an "endowment" of potential labor time OA, which can be divided between work and leisure. Given the trade-off line AB, the individual will supply labor corresponding to the point where his/her highest indifference curve (between income and leisure) is reached. On Figure 4, this level of labor supply is L' and the highest attainable indifference curve is I'.

At a given level of utility, the individual would indeed provide more labor, if marginal income gains were higher than the wage rate underlying line AB. That is, the slope of indifference curve I' is steeper, going leftwards from point D, and flatter going rightwards. However, raising (lowering) the wage raises (lowers) the potential level of utility. At a high wage, the individual can receive more income from a given level of labor

Figure 4

Individual Labor Supply Decisions



supplied than at a lower wage. Thus, two effects are operating: a "substitution" effect between leisure and income (reflected in the convex shape of the indifference curve) and an "income" effect.

If leisure is what economists call a "superior" good, an increase in income (other influences held constant) will produce a greater relative demand for leisure, i.e., an increase in the amount of potential income "spent" on leisure. But if leisure is an "inferior" good, a boost in income will reduce the relative consumption of leisure time. Only in the inferior case will the substitution effect and the income effect work in the same direction when wages are increased or decreased. If leisure is inferior, for example, a wage increase will always lead to an increase in labor supply. But when leisure is superior, a wage increase could lead to a cutback in labor supply, if the income effect overcomes the substitution effect.

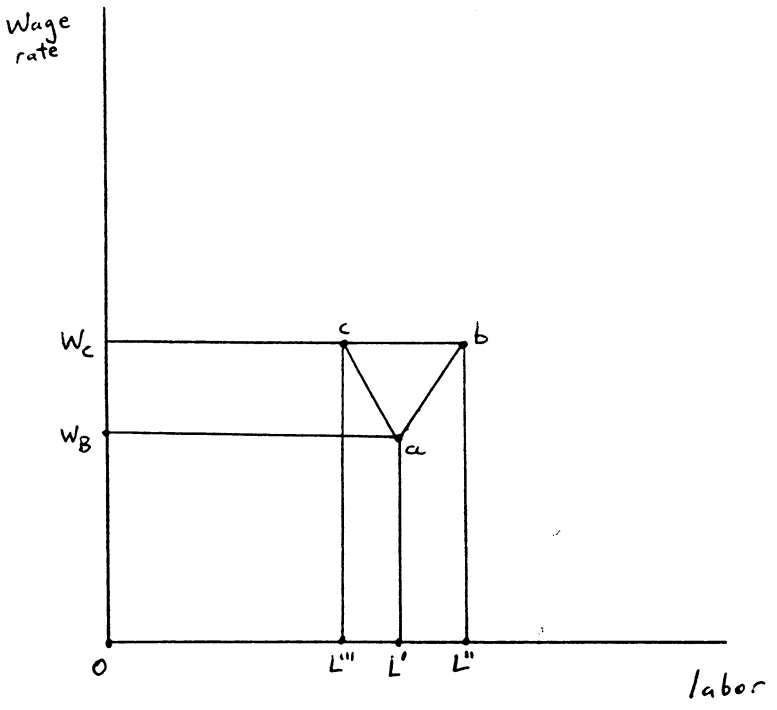
To illustrate, on Figure 4, the individual depicted is shown as experiencing a wage increase, thus rotating his/her leisure-income trade-off line in a clockwise direction to AC. If the individual's higher indifference curves are similar to I", labor supply will increase (from AL' to AL"). But if the higher indifference curves are similar to I'", then labor supply will drop when wages are increased (from AL' to AL'").

Neither result shown on Figure 4 should be regarded as irrational or illogical; it is simply a question of individual preference. A person characterized by more Puritan work ethic tastes will have indifference curves such as I", and will increase labor supplied as wages rise. An individual who just wants to earn only enough to "get by" or live comfortably will cut labor supply beyond a certain wage level as pay rates continue to rise. This reduction occurs because his/her target income can be achieved with reduced labor and more leisure when wage rates increase.[13]

Figure 5 shows the segments of the individual supply curve which can be derived from the indifference curve analysis of Figure 4. Let W_B correspond to the wage underlying line AB on Figure 4 and W_C correspond to the wage underlying AC. The individual with higher indifference curve I" will have a supply curve segment that looks like ab of Figure 5. And the individual with indifference curve I'" will have segment ac. Because of its negative slope, economists refer to supply schedules such as ac as "backward bending."

Just as the firms' demand curves were summed up to produce an overall market demand curve, so the individual labor supply curves of all workers or potential workers can also be summed to produce a total labor supply schedule. If many individuals have backward bending supply curves, the aggregate market labor supply

Figure 5
Segments of Individual Labor Supply Curves



schedule may look like S_T" on Figure 3. But if there are more Puritan ethic types, it will look like S_T'.

III. Some Uses for the Classical Labor Supply Concept.

The analysis above of labor supply behavior presented so far is highly abstract. And, as will be noted later in later chapters, the classical economic model of the labor market obscures and distorts many aspects of real world behavior. For example, the decision to supply labor is not affected by considerations of job availability or unemployment in the classical model, because the labor market is assumed always to clear. Nevertheless, the model has some interesting implications for HRM policy.

1. Voluntary Overtime.

In the classical economic model, the individual employer has no labor market power. As a small player in a vast labor market, the employer simply accepts the going market wage and hires (or refrains from hiring) accordingly. But for reasons to be discussed later, the real world employer does have power relative to employees and a certain scope for changing wages at the firm level. Consider a firm which wants to induce its current employees to work more hours per week than they have in the past. Given the indifference curve analysis just presented, what kind

of a pay schedule would best induce a willingness of workers to supply more labor hours to the firm on a voluntary basis?

One possibility would be for the employer simply to raise wage rates across the board and then wait to see if more labor were offered at the new higher wage. But Figure 4 suggests that this strategy might not be successful. If the workforce was characterized by workers with indifference curves such as I'", the income effect would more than offset the substitution effect. Thus, at a higher wage, workers might prefer to put in fewer hours on the job, not more hours.

Of course, faced with a backward bending labor supply schedule, the employer might consider reducing wages instead of increasing them. However, such a reduction might raise worker turnover, reduce morale, or in other ways produce counterproductive results. And there is an alternative to both across-the-board wage cuts or wage increases, one which we have already discussed in the previous chapter.

Even if the labor supply curve is not backward bending, raising the general wage rate might not be in the best interest of the employer. The employer is seeking extra hours of labor. But if wages are raised, the employer will pay higher wages not only for the extra hours, but for hours which are already being supplied at the current wage rate.

As a solution, the employer could pay a premium wage applicable only to the incremental hours which the firm needed. Paying overtime is a form of such a premium. An overtime pay premium breaks the leisure-income trade off line into two differently sloped segments, illustrated by broken line AeB' on Figure 4. The premium-related segment eB' emphasizes the substitution effect embodied in indifference curve I'. But it also avoids triggering the offsetting income effect, since the premium wage applies only to the incremental labor hours, and not to the "normal" hours which were previously worked. The income effect is not triggered because if the employee chooses not to supply extra labor time, he/she will not receive any income increase.

As shown on Figure 4, the worker will be just indifferent between working the old AL' level of labor input and the higher level AL*. Just a slight increase in the overtime pay premium above that underlying line segment eB' will induce the worker to prefer the longer hours and to volunteer for overtime. Thus, the classical model of labor supply provides a rationale for overtime pay premiums, which -- as was noted in the previous chapter-- were often paid by employers even before they were required to do so under federal law. A premium for overtime hours (as opposed to a general wage increase) avoids much of the income effect, thus "guaranteeing" a willingness to supply more hours of work.

And it targets the extra pay just to the incremental hours needed by the employer.

ii. Absenteeism.

Employers in the real world do not usually permit employees to select how many hours to work per week free of any constraints. Some individual flexibility may be allowed, e.g., the decision whether or not to work overtime, but typically there are normal hours per week which the employee is expected to be on the job. The reasons for this hours constraint will be considered in a later chapter. However, it is sufficient to note at this point that such constraints do exist, and that therefore individual workers may not be entirely free to reach their highest indifference curves, given their pay rates.

If a firm has rules about normal work hours, employees who violate those rules through unexcused absences can be disciplined or terminated. However, repeated exercise of discipline and termination as HRM policies may be costly. Moreover, an employer who detects a severe absenteeism problem should view it as a symptom of inequality of marginal rewards for labor hours supplied and the value of those hours to employees. If employees are effectively reducing their labor supply via absenteeism, there may be a remedy available in the pay system.

As in the overtime case, one solution might be to raise pay across the board. But again, it is not clear that higher pay would necessarily induce reduced absenteeism. It could have the reverse effect, if workers' preferences are basically to earn a "target income." Higher pay might lead to a greater demand for leisure and more absenteeism in some cases.

In principle, the firm could try and produce an elaborate pay schedule with rising wages for each hour of work supplied. Rather than just a "straight time" rate and an overtime rate, there could theoretically be many progressively higher, in-between rates. However, such a proliferation of wage rates would be difficult for the employer to administer.

Some employers find a compromise solution by using a bonus system. Employers can offer lump-sum financial rewards to those workers who have good attendance records. Effectively, such bonuses add a wage premium to those hours which might otherwise be lost to absenteeism. Such a system is not especially difficult to administer, assuming that employee absenteeism records are kept. And the analysis presented here suggests that employers <u>should</u> keep such records, since rising or too-high absenteeism indicates the presence of a pay problem which needs to be addressed.

iii. Influencing Worker Preferences.

The indifference curves shown on Figure 3 are reflections of individual tastes. However, such preferences can be influenced. Use by economists of the word "leisure" to represent the alternative to work is misleading. Leisure suggests that non-working hours are spent at the beach or the golf course or just "goofing off." In fact, non-working hours of employees are often programmed with family responsibilities. These responsibilities are reflected in employee tastes.

Worker preferences with regard to work hours reflects the scheduling of those hours as well as the total number of hours. By adjusting the schedule of working hours to accord with external demands on worker time, the employer can effectively reduce the marginal value of "leisure." Arrangements of these types will be discussed in a later chapter. But it is useful to mention examples at this point.

Some firms have experimented with "flexitime" (or "flextime") arrangements under which employees are permitted some freedom in scheduling the time of day they work, even though total hours are designated by the employer. Others have rescheduled work to permit more concentrated family time, e.g., 4 ten-hour days rather than 5 eight-hour days per week. Finally, some employers provide or subsidize child care arrangements to

alleviate household demands on worker hours. These policies reduce the value of non-working time relative to working time for employees, thus cutting absenteeism costs to the employer.

IV. The Interaction of Demand and Supply in the Classical Model.

The simple classical model of demand and supply in the labor market produces a single, going wage rate. An auction-like process is assumed to operate, similar to what is observed in financial and commodity markets. Suppose the wage rate were somehow set too low, so that there is an excess demand for labor (a shortage). The wage would be quickly bid up to the market clearing level where demand = supply. Similarly, if there were a too-high wage, so that supply exceeded demand (a glut), the wage would be bid down to the market clearing level. Thus, on Figure 3 the market clearing wage will be W', if the supply schedule is S_T'. If the supply schedule is instead represented by S_T'', the market clearing wage will be W".

Note again that in this simple demand/supply framework, firms do not have their own wage policies. From the viewpoint of the firm, wage is simply given by the market. The firm does not offer a wage below the going rate, since no workers will accept jobs at below-market pay levels. Workers always have the opportunity to accept jobs at the market wage from other employers: why should they work for less than that rate of pay?

Just as workers would not see any advantage in accepting below-market wages in the classical economic model, so firms would not benefit by offering above-market wages. Any firm which did pay above the market could easily hire all the workers it wanted; indeed, all workers in the market would be most anxious to work at the firm. The lucky job recipients would be enjoying what economists call "rents" for their services. But the firm would simply be paying more than was necessary to obtain labor, if it paid above the market. It would be putting itself at a cost disadvantage relative to its product market competitors. And it would be cutting into its own profits.

i. Critical Assumptions of the Classical Model.

The single wage rate conclusion from the simple classical model follows from a number of key assumptions, some of which were discussed in earlier chapters as unrealistic. It assumes there is perfect labor market information; firms and workers have no trouble locating each other. Everyone knows the market wage rate immediately; there are no wage differentials resulting from ignorance because there is no ignorance.

In addition, the classical model assumes that all labor in the relevant market is homogeneous; there is no variation in individual characteristics that might affect the employee's value

to the firm. There is no cheating or shirking in the market. All aspects of the labor market contract are understood by employers and workers, and everyone fulfills their part of the bargain.

ii. Two Key Problems with the Model.

At one level, it is easy to criticize the assumptions underlying the classical economic model. They clearly depart from reality. Workers, we know, are not homogeneous. There are problems and costs involved in acquiring information in the labor market. And there may be employee cheating and shirking, which require costly incentive corrections or supervision. Similarly, employers may not always keep their side of the employment bargain, whether that bargain is implicit or explicit.

Of course, all models are oversimplified and depart from reality in some respects. A key issue is what the empirical evidence shows about the model's predictions. There are really two predictions from the classical model of pay determination. First, it is predicted that there is only one rate of pay in the market place (although we must worry about exactly what we mean by the "market"). Second, the model predicts that the labor market always clears; there is no excess demand or supply (except in certain deviant cases involving market power discussed below).

iii. A Single Rate of Pay?

One of the most striking features of labor market data is the diversity of observed pay rates. For example, data from the successive decennial Censuses of Population shows large variations in earnings across occupations, regions, age brackets, and educational levels. According to Table 1, for example, mean earnings of full-time, full-year workers varied substantially. Waitresses averaged $6,554 while accountants and auditors received $23,835 in 1979.

Clearly, there is not a single rate of pay for "labor" shown on this table. Yet, there is a quick comeback for someone defending the classical model. The different occupations are not part of the same labor market, would be the response. They involve different skills, different levels of education, etc. Of course, there are pay differentials across such a diverse group, because workers across occupations are not perfect substitutes for one another.

This defense of the classical model is certainly valid, as far as it goes. The differentials shown on Table 1 are not necessarily inconsistent with the single-wage prediction of the classical model. Adam Smith, the father of classical economic analysis, would have been quick to point out that occupational wage differentials should be expected. Indeed, in his famous

Table 1

Mean Annual Earnings of Full-Time, Year Round Workers
1979

	Males	Females
Accountants & auditors	$23,835	$13,629
Receptionists	13,642	8,792
Waiters & waitresses	9,673	6,554
Aircraft engine mechanics	20,481	14,849
Upholsterers	12,452	8,082

Source: U.S. Bureau of the Census, 1980 Census of Population, Earnings by Occupation and Education, PC80-2-8B (Washington: GPO, 1984), Table 2.

Wealth of Nations (originally published in 1776), Smith cited various reasons for pay differentials, even apart from occupational skills. He expected conditions of work -- pleasant or unpleasant -- for example, to result in lower or higher wages, holding other influences constant.[14]

Although there are obvious causes of wage differentials which do not violate the classical model, Table 1, even with its overly broad occupational selection, poses some problems for the single wage rate prediction. Why do males consistently earn more than females within occupations on the table? Are there hidden skill differences which explain the differences in pay between the sexes? Certainly, there have been attempts to reconcile such sex-linked differences with classical theory. But as will be seen in a later chapter, such attempts have not answered all of the questions raised.

If a labor market is to be defined empirically which would approximate the market of the classical model, the analysis must be confined to a single occupation. And it should remain within a relatively narrow geographical region so that employee mobility could occur at low cost between employers. But as Table 2 illustrates, even when such narrow definitions are used, what emerges is a range of pay rates, not a single number.

Table 2

Range of Earnings of Secretaries and Truckdriver in the Los Angeles - Long Beach, California Metropolitan Area, October 1986

Weekly Earnings	Number of Surveyed Secretaries Level-1	Straight-Time Hourly Earnings	Number of Surveyed Truckdrivers, Light Trucks
$200-219	33	$5.00-5.49	633
220-239	31	5.50-5.99	108
240-259	93	6.00-6.49	518
260-279	189	6.50-6.99	561
280-299	271	7.00-7.49	393
300-319	317	7.50-7.99	65
320-339	483	8.00-8.49	184
340-359	376	8.50-8.99	72
360-379	235	9.00-9.49	45
380-399	300	9.50-9.99	3
400-419	80	10.00-10.49	14
420-439	54	10.50-10.99	88
440-479	45	11.00-11.49	2
480-519	7	11.50-14.00	52
Median weekly wage:		Median hourly wage:	
All firms in survey	$330.00	All firms in survey	$6.55
Firms with at least 500 workers	$334.50	Firms with at least 500 workers	$10.12

Source: U.S. Bureau of Labor Statistics, Area Wage Survey: Los Angeles - Long Beach, California, Metropolitan Area, October 1986, bulletin 3035-53 (Washington: GPO, 1987), pp. 3, 11, 16, 23.

Table 2 is derived from one of many "area wage surveys" regularly conducted by the U.S. Bureau of Labor Statistics in 71 urban areas. The survey used for Table 2 was confined to the Los Angeles - Long Beach Metropolitan area. Occupations reported are precisely defined in terms of skills and responsibilities for survey purposes. Yet for the two occupations shown on the table -- "level-1" secretaries and light truck truckdrivers -- (and all the other occupations included in the survey), the dispersion of pay rates reported is very wide.[15]

Some employers evidently pay substantially above or below the median wage for a given occupation. Although there is some clumping of observations near the median wage, the median does not correspond to the "going" wage in the classical sense. It is simply a measure of central tendency within a scattered distribution.

Table 2 also reveals that larger firms often pay more for the same kind of occupation than smaller firms. Median truck driver wages for larger firms are roughly double the level for all survey employers. This gap may well reflect a greater tendency for larger firms to be unionized at the blue collar level. For secretaries -- who are rarely unionized even at large firms -- there is a much smaller relative pay premium associated with bigger employers.

Of course, it is always possible to argue that even narrow labor market definitions, such as those underlying Table 2, are not narrow enough. The observed pay differences are simply the result of unmeasured variation in worker skills or occupational titles, according to such views. But the problem with such defenses is that they are untestable. They can neither be affirmed nor refuted. That is, the unmeasurable, by definition, cannot be measured.

A simpler and more sensible approach is to recognize that firms in fact have differentiated pay policies. Some employers choose to pay more than others -- even within narrowly defined occupations -- for internal reasons. And others are compelled to pay more than they would like due to union pressures.

iv. Market Clearing?

The concept of pay policy will be developed below while union influences will be left to a later chapter. However, before considering pay policy, it is useful to discuss the other prediction of the classical economic model, namely market clearing. Does the pay determination mechanism within labor markets cause them to clear?

Shortages.

From time to time, employers complain that they "can't get enough good help." Or they report continuing vacancies for particular occupations. Such complaints generally do not accord with the classical economic model of wage determination. If an employer needs more workers in a given occupation, why not simply raise the pay level until such workers are attracted?

Indeed, occupations affected by labor shortages normally will experience above-average pay increases. But the adjustment process may be slow, unlike the instantaneous market clearing suggested by the classical model. In the face of a shortage, employers may first try and "make do" with the workers they have, perhaps assigning individuals whose skill levels do not quite meet normal standards to perform the work. They may increase overtime hours for current employees (despite the premium pay involved). Or they may offer training to workers to produce the talents needed, although before the shortage they relied on the market to supply the required skills.[16]

In short, employers first look for ways to avoid wage increases when they experience labor shortages. Indeed, the historical evidence suggests that labor shortages during World War I were responsible for the first big surge in adoption of modern HRM policies. Employers looked at HRM as an alternative

to wage increases in the face of excess demand for labor sparked by the war.[17]

Sometimes the reluctance to raise wages of a particular occupational group is linked to notions of inter-occupational equity which become embedded in the workforce. Employers may feel that if they raise the wage of one group, other groups (which are not in short supply) will want comparable increases. In such situations, morale and productivity might suffer -- or possibly union organizers would be attracted by the employee discontent. Rather than upset workplace relations, the employer may decide to cope with the shortage through means other than overt wage increases.

Where unions are already present, the potential workplace discontent over advancing pay of one group relative to another has a channel of expression. For example, school boards complained in the early 1980s of chronic shortages of math and science teachers, who could earn superior incomes in industry. The "market" solution would have been to raise the salaries of just math and science teachers, but not others. However, teacher unions (which represent all specialties) were reluctant to see the traditional, uniform pay schedule disturbed.

If math and science teachers received pay increases, perhaps history and English teachers would become resentful, both at

their employer and at their union. Cross-sectional equity was a concern. In addition, teacher unions may have hoped to induce school boards to grant across-the-board pay increases for all teachers, using the shortages of math and science teachers as a bargaining tool.

Although labor shortages may not accord with the classical economic model of pay determination, many analysts have found advantages for society in such shortages. During the two world wars, for example, anyone who wanted to work could readily find a job. Indeed, employers were literally begging for labor to meet military production goals. As was noted in the previous chapter, profit sharing plans have been advocated as devices to produce artificial labor shortages that would simulate such wartime-type conditions.

The fact that wartime periods of labor shortage are viewed as "golden ages" for workers is a reflection of the tendency of the labor market more often to fail to clear in the other direction. When regional labor shortages have developed in peacetime, as in the case of parts of New England during the mid 1980s, the rest of the country has been envious. It is more common for the economy to face significant unemployment problems than to have generalized labor shortages. The degree to which the political system has regarded unemployment as a major policy issue has varied. But unemployment has traditionally been viewed

as an important social problem; labor shortages have usually not been so regarded.

Unemployment.

A cleared labor market should not exhibit unemployment. Unemployed workers represent excess supply, a sign the labor market has failed to clear. The existence of unemployment has always been a thorn in the side of classical economic theory. Ultimately, it cannot be reconciled with a simple demand/supply framework of the type shown on Figure 3.

Most economists ignored the unemployment issue until the Great Depression of the 1930s. There were two basic reasons for avoiding the subject. One was that -- especially in the U.S.-- there were no good measures of unemployment available. The measurement of unemployment in a rigorous fashion by government statistical agencies did not begin in the U.S. until the 1940s. (Reported figures on unemployment during the 1930s, which now appear in statistical handbooks, are guestimates made long after that period had passed).

A second reason that unemployment was largely ignored was that joblessness was taken to be a temporary "aberration" in the labor market, a transitory maladjustment that would be resolved. Or it was assumed that unemployment could usefully be viewed as a

voluntary condition. According to this latter view, if the unemployed "truly" wanted to work, they would bid down the prevailing wage until someone offered to hire them.

The Great Depression was so severe, and so extended in duration, however, that the maladjustment or voluntary unemployment views became indefensible. A theory of macroeconomics developed, associated with the British economist John Maynard Keynes.[18] This new theory sought to remove the focus from wage setting as the solution to unemployment.

Keynes insisted that the wage mechanism could not clear the labor market. He argued paradoxically that the solution to the problem of the labor market lay outside that market. Details of Keynesian theory -- and criticisms of it -- are best left to macroeconomics courses. But Keynes' essential point was simple enough.

Classical microeconomic theory, as we already know, predicts that firms will operate where $W = MRP_L = MP_L \times P$. Thus, $W/P = MP_L$. W/P is the real wage, i.e., the wage expressed in terms of its purchasing power over the final product.[19] According to Keynes, if wages were cut in the face of unemployment, prices would fall proportionately, because wages are ultimately the major factor in costs. If wages and prices fell proportionately, their ratio W/P would be unchanged, and no new employment would

be created. Thus, only government, according to Keynes, through monetary and fiscal policies, could cause the labor market to clear by maintaining adequate aggregate demand in the economy.[20]

Although unemployment has never returned to the very high levels of the 1930s, its continued existence after World War II remained a continuing challenge to economic thought. By the 1970s, a substantial body of theoretical literature regarding the failure of the labor market to clear had produced insights valuable to the understanding of HRM practice. Some of this literature was meant as a criticism of Keynesian views. Other elements were intended to rationalize or supplement the Keynesian explanation of labor market failure. These new views--involving implicit contracting and efficiency wages -- will be discussed in later sections.

There are few today who would argue that the simple demand/supply framework of Figure 3 adequately describes the overall functioning of the labor market. Some would argue that the classical story is basically correct, but simply needs to be modified and extended. Others would say that modifications needed are so extensive as to require a completely new theory. However, despite its weaknesses in explaining macroeconomic phenomena, the older classical theory can provide insights into certain micro issues. Before turning to newer views on the labor

market and pay determination, we will first probe the available insights.

V. Supply/Demand Analysis and General Wage Trends.

Although the labor market does not clear in the manner suggested by classical economic theory, supply and demand pressures do influence pay trends. At the micro level, prolonged shortages will raise wages of those groups affected relative to other. And prolonged surpluses will have the opposite effect. At the macro level, generalized labor shortages will eventually lead to wage inflation. Large scale unemployment, in contrast, will be associated with reduced wage inflation and can even lead to wage cuts.

i. Demographic Influences on Wage Trends.

Two illustrations will serve to demonstrate both the uses of, and the limitations of, supply/demand analysis at the micro level. (We will discuss the macro evidence in a subsequent chapter on making pay changes). Table 3 shows the ratio of the wages of young people's wages (16-24 year olds) to older person's wages (25 years and above) from the late 1960s to the mid 1980s. Demographic changes in the population (the post World War II baby boom) caused a "bulge" of young people to enter the labor market during the 1970s. Other things equal, we would expect this

Table 3

Demographic Influences on Wages, 1967-1985

Year	Median Weekly Earnings of Full-Time Workers: Ratio: Wage for Younger Workers to Wage for Older Workers[1]		Young People as Percent of the Civilian Labor Force[2]
	Males	Females	
1967	74%	94%	20%
1972	66	87	23
1977	62	81	24
1982	56	75	22
1985	54	71	20

[1]Younger workers are those aged 16-24 years; older workers are those aged 25 years or more.

[2]Young people are those aged 16-24 years.

Source: U.S. Bureau of Labor Statistics, Labor Force Statistics Derived from the Current Population Survey: A Databook, Volume 1, bulletin 2096 (Washington: GPO, 1982), p. 726; U.S. Bureau of Labor Statistics, Handbook of Labor Statistics, bulletin 2217 (Washington: GPO, 1985), p. 10; U.S. Bureau of the Census, Statistical Abstract of the United States: 1987 (Washington: GPO, 1987), pp. 378, 402.

increase in relative supply to depress wages of younger workers relative to older. And, indeed, that is precisely what occurred in the 1970s.

On the other hand, the bulge phenomenon reversed in the 1980s as the generation of the baby bust (low birth rates in the 1960s) came of labor market age. It might have been expected that wage trends of the 1980s would have responded to this demographic reversal. But, in fact, the relative wage of younger workers went on declining.

Some influences behind this continued trend were the freezing of the minimum wage after 1980 and the general state of the labor market during the early 1980s. The 1980s saw very high unemployment initially. Thereafter, as the economy recovered from recession, unemployment did not fall to pre-recession levels until early 1987. Since young people are new entrants into the labor market, their pay will be particularly sensitive to labor market slackness.

Another factor which adversely affected young people's pay in the 1980s was the changing composition of the workforce. New jobs tended to open in lower-paid service and retail trade industries. Foreign competition, among other factors, created stagnation in higher-paying manufacturing. Thus, entry into

higher paying jobs was made more difficult than had been the case previously.[21]

If wage trends for young people are to be understood, a combination of influences must be considered. Demographic influences in the 1970s are consistent with the classical supply/demand model. On the other hand, periods of extended unemployment such as the early to mid 1980s -- while relevant to demographic wage trends -- are not consistent with the simple demand/supply economic model. Also inconsistent are hiring systems which establish entry jobs geared to young people and make hiring in those jobs especially sensitive to product market conditions. That is, in the simple model, employers would not seek to shield incumbent senior workers (insiders) from labor market conditions at the expense of potential new hires (outsiders).

ii. Occupational Wage Analysis.

Table 4 illustrates an occupational wage trend, a second example of the use of demand/supply analysis. The table shows wages for elementary and secondary school teachers as a percentage of economy-wide wages from the early 1960s to the mid 1980s. During the period until the early 1970s, baby boomers caused school enrollments to rise rapidly. Thereafter, the baby bust led to declining enrollments. Other factors held constant,

Table 4

Trends in Pay of Teachers and Enrollments in Elementary and Secondary Schools, 1960-85

Year	Annualized Percent Change in Enrollments During 5-Year Period Ending in Year Shown	Average Teacher Salary[1]	Teacher Salary as Percent of Wages & Salaries per Full-Time Equivalent Employee[2]
1960	+3.6%	$5,000	103.6%
1965	+2.8	6,200	106.7
1970	+1.1	8,600	110.9
1975	-.6	11,700	107.9
1980	-1.6	16,000	101.3
1985	-.6[3]	23,100	110.0

[1]Refers to 12-month period ending in June of year listed.

[2]Wages & salaries per full-time equivalent employee refers to all industry average.

[3]Estimate.

Source: U.S. Bureau of the Census, Statistical Abstract of the United States: 1986 (Washington: GPO, 1986), pp. 138-139; U.S. Bureau of Economic Analysis, The National Income & Product Accounts of the United States, 1929-76, Statistical Tables (Washington: GPO, 1981), Table 6.9A; Survey of Current Business, various issues.

we would expect period of increasing enrollments to boost the demand for teachers, and to pull up their relative wages. Similarly, declining enrollments should reverse this wage trend.

According to the table, relative teacher salaries generally moved as expected until the mid 1980s. By the mid 1980s, two factors seemed to be boosting teacher pay. First, there was general concern, as expressed in reports of official commissions, that the quality of the American educational system was declining.[22] Such factors as falling S.A.T. scores were often cited as evidence of this decline. It was argued that raising teacher pay would permit an increase in teacher quality.

A second influence was what is sometimes called a "cobweb" effect. The decline in teacher pay -- with a lag -- discouraged young people from entering the teaching profession. Eventually, shortages began to appear for certain specialties, triggering pay increases for both new hires and incumbents. Undoubtedly, as information about teacher pay opportunities spreads, more young people will decide to make careers in the field. Perhaps, if teacher salaries continue their relative rise, a rush to enroll in teacher training programs will produce a future labor market glut. That is, lags in market perceptions -- and those due to the time involved to complete training programs -- can produce cycles of excess demand and supply.[23]

Using demand/supply analysis can be helpful to HRM practitioners. Employers can make projections of their future labor costs and hiring problems if they can forecast labor market trends for the kinds of occupations and groups they typically hire. Thus, operators of fast food chains -- based on demographic projections in the 1960s -- could have foreseen that the labor on which they depend would be widely available and relatively cheap during the following decade. School boards in the 1980s, with knowledge of recent public demands for higher quality, as well as an upcoming baby "boomlet" (as baby boomers have babies), must now plan for higher labor costs until the teacher labor market comes into a better balance.

VI. The Exercise of Labor Market Power.

One exception to classical competitive assumptions which still falls within the spirit of the classical model involves labor market "monopsony" power on the part of employers. Another exception is union bargaining power. These special cases could result in labor shortages or surpluses, respectively, which can be understood through simple supply/demand analysis.

i. Employer Monopsony Power and Labor Shortages.

The classical labor market is generally pictured as competitive with many buyers and sellers. However, there can be

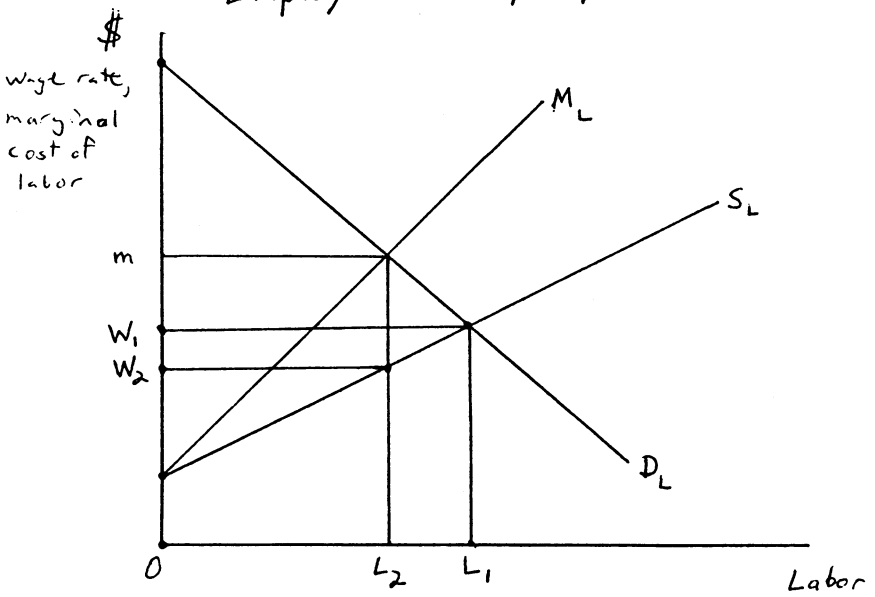
exceptions to this structure. Given costs of mobility to workers, situations could arise in which an employer -- or a relatively small number of employers -- could influence wage rates by deliberately limiting their demands on the job market. Such HRM strategies are called "monopsonistic" by economists. The word refers to a market with one buyer, just as the more common term "monopoly" refers to a market with one seller.

Perhaps the best illustration of such a market would be a "company town" in which a single employer is the only demander of labor. If mobility into or out of the town is costly (perhaps the town is in a remote location), the employer will have monopsony power over the workforce. Figure 6 depicts the result.

Line D_L on Figure 6 is the demand for labor in the town. S_L is the assumed supply curve.[24] The competitive wage for this case would be W_1, where demand meets supply. Similarly, the competitive employment level would be L_1. However, the situation is not competitive. For the employer, each unit of labor hired is more costly than the wage at which hiring occurs. This extra cost is incurred because the employer must raise the wages of previously hired workers in order to attract the incremental labor unit. Thus, the marginal cost of labor schedule (M_L) lies above S_L at every point to the right of the vertical axis.

Figure 6

Employer Monopsony Power



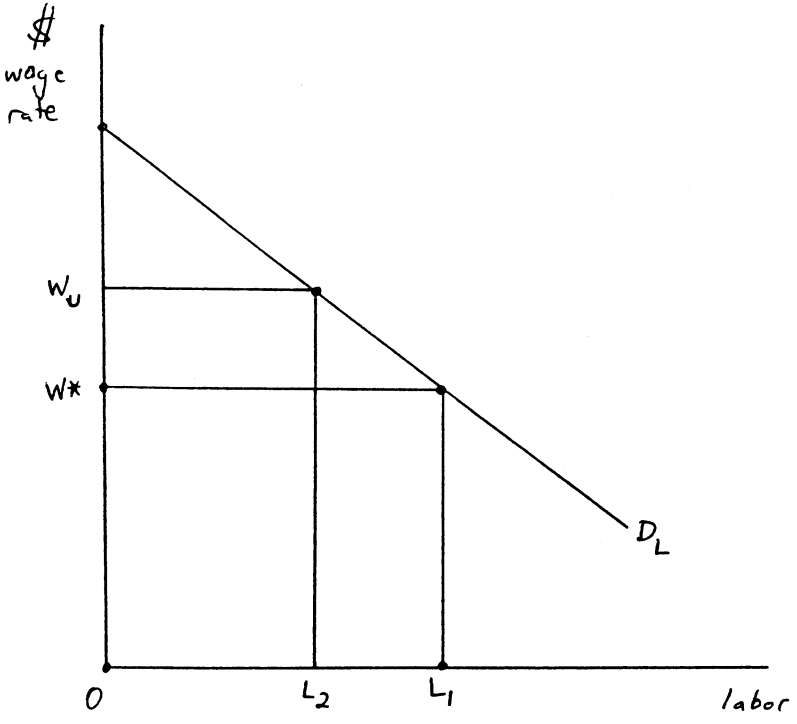
A profit maximizing employer will hire labor until the marginal revenue resulting from the hire just equals its marginal cost (m). For the employer of Figure 6, this equality occurs at employment level L_2, which is less than the competitive level L_1. The employer pays a wage of W_2 ($W_2 < W_1$) to hire L_2 units of labor. By repressing its own demand for labor, the employer raises the level of profits.

True company towns are comparatively rare today, although they form part of the historical folklore of industrial unrest, particularly in natural resource oriented industries such as coal mining. However, there may be circumstances in which, even in comparatively large metropolitan areas, there are few enough employers of a particular occupational group to depress wages through "cartel" type actions.

For example, it has been alleged over the years that hospital associations have been able to depress nurses' wages in some cities by agreeing on wage levels below what the competitive market would produce. Where more than one employer is involved, such collusive arrangements produce a labor shortage. Each employer would like to hire more workers than can be found at the agreed upon wage. But each refrains from raising wages to hire more workers, knowing that the collusive arrangement would be undermined by competitive bidding for labor. Informal "no raid" agreements may help maintain the arrangement.

Figure 7

Impact of an Above-Market Union Wage in Classical Economic Analysis



Assuming all employers stick to the arrangement (despite the temptation present in any cartel to cheat), a chronic labor shortage would develop. And, indeed, for many years the "nursing shortage" was much discussed by hospital administrators. This type of labor shortage is in keeping with the classical model, modified to reflect monopsony.

ii. Union Bargaining Power and Labor Surpluses.

More extensive discussion of unions and collective bargaining will be left to a later chapter. However, it can be usefully noted at this point that if unions can inflict costs on employers (through strikes or other job actions), they may be able to induce them to agree to higher than market wages. Figure 7 illustrates such a case. The demand for labor of a particular employer is depicted as D_L. The going market wage, in the classical sense, is assumed to be W*. At that wage, absent any other pressures, the employer would hire L_1 units of labor.

Suppose a union is able to induce the employer to agree to a hire wage W_U. The employer will hire L_2 units of labor ($L_2 < L_1$). Those lucky workers supplying the L_1 units will enjoy a union wage premium (a "rent") of W_U-W* for each unit supplied. Since the employer's wage is now above the market, other workers will be attracted by the premium.

However, employment will not be available for these outside job seekers. Instead, there will be a chronic labor surplus, a queue of people waiting for vacancies to open at the premium wage.[25] This type of labor surplus is reconcilable with classical labor market theory, modified to include union bargaining power. It could also result from minimum wage laws and certain other government policies which constrain employers to pay higher wages than they otherwise would.[26]

Finally, it should be noted that in the case of monopsonistic employer wage setting, a union could raise wages above what would otherwise be paid without creating a labor surplus. Consider a union which raised the wage on Figure 6 from W_1 (the monopsony level) to W_2. No surplus would result since supply = demand at the higher wage. If the union raised wages still higher, however, a surplus would result.

VII. Alternative Models of Pay Determination.

Recent economic models of pay determination have included costs and benefits which are neglected in the simple, classical approach. As stressed in earlier chapters, merely hiring labor does not guarantee optimum production. Once the labor is on the payroll, the employer needs to take steps to motivate workers. Previously, use of incentive systems and of supervisor/auditors

has been discussed as the mechanisms used to ensure "a fair day's work for a fair day's pay." However, some economists have argued that the absolute level of pay itself is an important mechanism designed to avoid excessive employee shirking. Such models are generally put under the heading of "efficiency wage" theories (discussed below).

Still another approach emphasizes the cost of employee turnover. An employee who quits imposes costs on the firm, especially if a replacement must be hired. The replacement must be recruited, screened, and trained, all costly activities. These costs can be viewed as employer investments in the workforce which "depreciate" as employees depart. Since wage policy can affect the rate of employee turnover, the decision of selecting a wage is more complicated that simply determining the going market rate.

i. Efficiency Wages.

Imagine that the labor market initially did function in accordance with the classical economic model. Employees and employers would not be attached; rather they would negotiate "daily" agreements through a market process which ultimately produced a uniform wage for all employees of a given classification.

The employer in such a market place would face the standard principal/agent problem; how should the employer (as principal) make sure that the employee (as agent) performs as the employer desires? It was noted in a previous chapter that one possibility would be to offer an incentive compensation system, but that this route entailed many complications and had generally declined empirically as the option chosen by employers. Another possible approach to resolving the principal/agent problem is to offer merit rewards, with meritorious behavior determined by supervisors through performance appraisals. This method is widely used, but it, too, poses significant problems of effective implementation.

A major difficulty, starting from a classical labor market, is that an employee whose performance is substandard really suffers no penalty. Such an employee can be dismissed if unsatisfactory conduct is uncovered. But the dismissal itself simply rids the firm of the employee. It imposes no penalty on the worker, since the auction process provides easy access to another job with some other firm at the going market wage.

Bonding.

In such a market, an employer might want to create a penalty system to provide an incentive for employees to avoid improper behavior. Theoretically, the employer could request that

employees post a bond of some type against poor performance. But such a system poses a difficult contracting problem. If the employer were the sole judge of whether performance was satisfactory, there would be an incentive for the employer to impose artificially high standards in order to disqualify workers and appropriate their bonds. If, on the other hand, the employee were made the sole judge, bonds would never be forfeited, regardless of how poor actual performance turned out to be.

Of course, the judge could be some neutral, outside person on whom the employer and employee would agree, prior to implementing the employment contract. There are systems of arbitration under union contracts, which handle -- among other matters -- employee grievances relating to discipline and dismissal. (These systems will be discussed in a later chapter). However, even if such a system could be made applicable to all employees (including the large, nonunion majority), there would still be two barriers to a bonding system. First, the value of the bond would need to be mutually negotiated by the employer and employee. Second, the employee would have to raise the funds needed to post the bond in financial markets, if he/she did not have the money handy.

Obviously, a very small bond would not provide much incentive for shirking avoidance. And a large bond might be difficult for workers to finance. Many employees would have

little collateral for potential lenders. Lenders would have to make judgments, in setting interest rates or determining loan eligibility, on the likely future performance of the potential employee. Considerable risks might be entailed which would be difficult for lenders to reduce in the face of imperfect and costly information.

Thus, the bonding system is a theoretical nicety, but not a practical solution to the principal/agent problem in the labor market. The absence of such systems in most employer/employee relationships is adequate testimony to the difficulty they would pose. While certain employees are bonded, e.g., armored truck drivers, the bonding is provided by an outside insurance carrier to the employer in order to insure against employee theft. The employer, not the employee, pays for the bonding service, so that no employee incentive effects are involved.

A Single-Employer Wage Premium.

An alternative approach to bonding -- again, starting from a classical economic labor market -- would be for some imaginative employer to offer a wage premium to employees who performed satisfactorily. An employer might announce that it would offer a wage of, say, 20% above the going market wage, to satisfactory employees. It would guarantee to workers that the premium pay policy would be continued indefinitely and that the firm would

not dismiss employees except for "just cause," i.e., clearly unsatisfactory conduct.[27]

Note that under such a policy, the employer could not gain by appropriating something from employees after subjecting them to artificially high standards. While a bonding system would provide a temptation for employers to cheat, the wage premium system has no such perverse incentives. If an employer fired a worker without just cause, another replacement employee would have to be hired at the premium wage. Improper termination would gain nothing for the employer.

However, the wage premium system would provide an incentive to perform satisfactorily on the part of the employee. If the employee were fired, he/she would not have another opportunity to earn the premium working at this employer again. (And, recall, as we have told the story so far, this employer is the only one offering the premium!) The fired employee would immediately find another job through the auction labor market, but not at the premium wage. Lifetime income for the employee would thus be reduced as the penalty for inadequate performance or misconduct.

The Spread of the Wage Premium.

Of course, if one employer successfully solved the principal/agent problem through a wage premium, other employers

would imitate the solution. Once the innovation became general, however, the entire functioning of the labor market would be transformed. If every employer attempts to pay more than the going wage, the going wage would itself begin to escalate. It would rise above the level which would clear the labor market, producing a labor surplus (unemployment).

With unemployment now in the picture, the nature of the firing penalty is automatically transformed. The penalty for employee misconduct becomes joblessness for some period, rather than a mere loss of a wage premium. A fired worker experiences a drop of wage income to zero during the job search period, which may have an extended duration.[28] Since this penalty is potentially heavy, the new "going" wage would not have to be much above the market clearing rate to enforce employee discipline. It would have to be just high enough to create a sufficient margin of unemployment to make the threat of firing for misconduct significant.

There is ample, anecdotal evidence that the level of unemployment does influence employee discipline. During wartime periods, when unemployment was very low, employers complained about inability to maintain standards. ("You just can't get good help nowadays.") During recessions, when the level of joblessness is high, security conscious employees are less likely to take actions which might threaten their positions. In the

union sector, for example, periods of elevated unemployment seem to be associated with reduced strike activity.

Differentiated Pay Policies.

Our model is now beginning to look more like the real world. Employees do not wish to be fired. Unemployment exists. But the story continues to lack an important element of realism, namely a dispersion of wages. That is, the modified model still has a uniform wage rate, although this wage is above the market-clearing level for efficiency-wage reasons. Yet we know that actual labor markets exhibit a range of wages for a given occupation.

Efficiency wage theory offers some insight into the variegated pattern of firm wage policies. Different employers will have different inherent discipline problems. In some cases, employee misconduct will be more costly to the firm than in others. Where team production is involved, for example, poor performance of a single employee might upset the performance of many other workers. Or, for some employers, it may be especially difficult to detect misconduct. This problem might arise particularly in large, bureaucratic firms.

Thus, some firms will end up paying higher wages than others. Those with the highest wages -- abstracting from any

union pressures -- will be employers for which employee misconduct is especially costly and hard to detect. Larger firms, which must rely on hierarchies of supervisors to maintain discipline, might well fall into this category, and therefore would be expected to pay particularly high wages. Small firms, where the boss is near the shop floor, and where only relative small teams can exist, would be likely to follow lower-wage policies.

Is it Discipline or Incentive?

In telling the efficiency wage story, we have emphasized employee discipline. The theory seems to have a negative aspect. Workers are pictured as lazy shirkers who must be deterred from their potential cheating by crafty employers. However, it is easy to place the story in a more positive perspective.

After all, the high wage employer is really indicating to workers that the firm is an especially good place to work, because of the premium compensation it offers. The employer is saying "you do right by me, and I'll do right by you." Efficiency wage theory, in other words, can be presented as the Golden Rule, applied to the labor market.

And the Golden Rule need not be exclusively expressed as a pay premium. The employer might chose to offer career

opportunities to satisfactory workers, i.e., opportunities for promotions and advancements. An employee might expect that satisfactory performance would yield an upward sloping wage profile. At the entry level, wages would be comparatively low. But as the employee proved himself/herself, pay would increase by means of advances up a defined job ladder or through merit adjustments.

The reader might stop at this point and consider what he or she regards as a "good" job. It probably has many of the aspects just discussed. A good job is generally viewed as one with good pay and benefits, opportunities to progress, and "fair" treatment and evaluation by the employer. Such attitudes are entirely in accord with the efficiency wage approach.

ii. Turnover Costs.

The costs of employee turnover provide another rationale for wage premiums.[27] If the firm has an investment in its incumbent employees (the total of their recruitment, screening, and training costs), each voluntary quit imposes a loss on the employer. The investment in the departing employee is lost and new investment must be made in the replacement. But in a classical economic labor market, employees are leaving all the time; there is no formal employer/employee linkage.

Again, an innovative employer in such a market might decide to pay a wage premium to employees in order to hold on to them and avoid human resource investment losses. The premium would be a windfall to workers, who would otherwise earn the lower, going wage in the market. Thus, paying a premium would dramatically cut quits.

But all employers would begin to pay premiums, to protect their human resource investments. As in the efficiency wage case, the going market wage would begin to escalate, until the labor market no longer cleared. A labor surplus would develop, which would -- in turn -- influence the amount of premium an employer had to pay. An employee who resigned might face a spell of costly joblessness, thus deterring such quits in the first place.

Since different employers have different levels of investments in their employees, there would be differences in firm wage policies. Firms with heavy investments would pay more than those with low employee investments. Generally, it would be expected that relatively low wage policies (and high employee turnover) would characterize occupations where investments were low. Workers whose productivity could be easily judged (so that screening costs were low) or who come with skills provided in the external labor market (e.g., clerical workers with skills such as

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Insert: Chapter 5. What incentive is this firm offering to perspective employees? What relation does the firm's hiring strategy have to turnover costs?

typing and shorthand) would have higher turnover rates than others.

The turnover cost approach -- like the efficiency wage model -- is consistent with employer policies other than simple wage premiums. Career ladders and opportunities for advancement can be part of employer strategies to retain employees and reduce turnover. Note that once employees are retained by such policies, they develop an ongoing relation with their employers. The arms-length impersonal transaction disappears.

In a world with ongoing relationships, career ladders make great sense. Thus, career ladders foster ongoing relationships and ongoing relationships foster career ladders. Since employees are likely to remain with the firm for an extended duration, firm investments in the workforce have a better chance of being recouped by the employer. Thus, the employer might provide training for workers to enable them to advance. Such training and the idea of recouping investments of these kinds will be discussed in more detail in a later chapter.

iii. The Formal Solution.

In the classical economic model, the employer does not have a wage policy. Wages are set by the market, not the firm. The only choice for the employer is to determine the level of

employment (in the short run) and the level of both labor and capital (in the long run). Labor will be hired such that wage = marginal revenue product of labor.

It is easy to modify the classical model to incorporate both efficiency wage considerations and turnover costs. Consider an employer using labor and capital in the short run to produce some output. Let P = the product price, Q = the level of output, W = the wage, L = the labor input, π = profits, and t = the rate of turnover costs per employee. Then firm profits can be expressed as:

4) $\pi = PQ - WL - tL -$ fixed capital costs

The employer must maximize π, using W and L as instruments.[30]

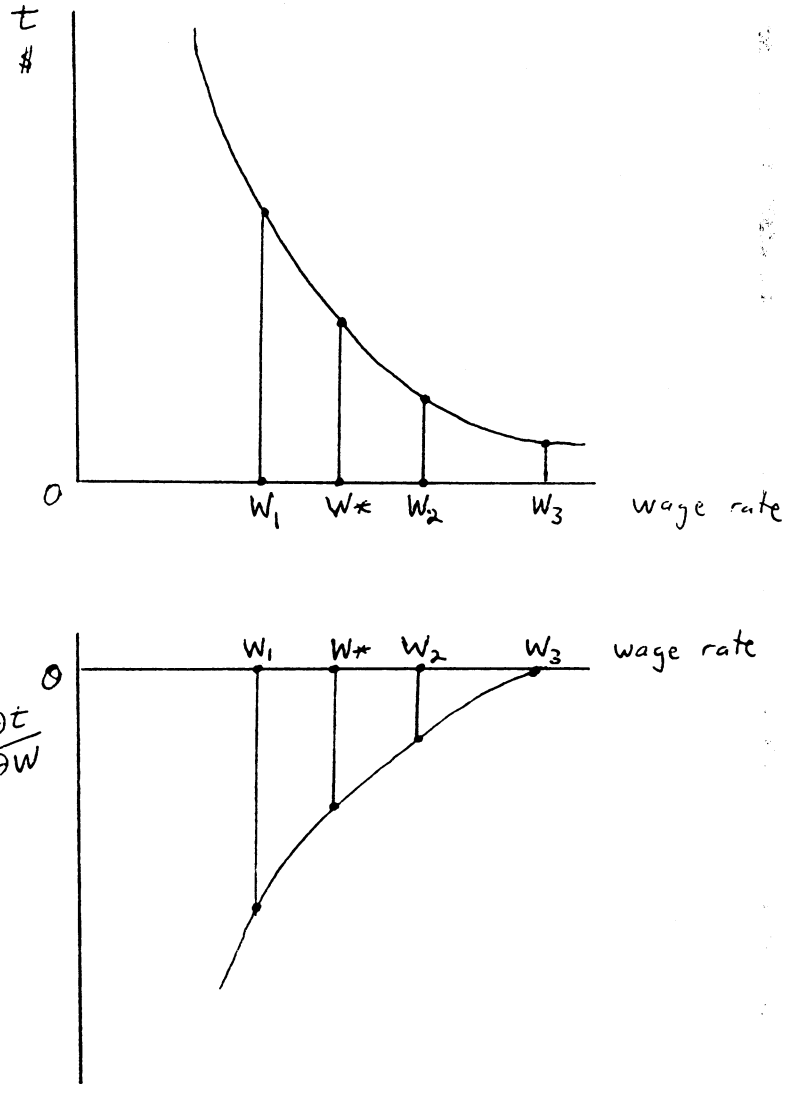
In order to solve for the optimum solution, it is necessary to specify the production process as it relates to labor input and efficiency (employee effort). And it is important to consider how the wage level chosen affects efficiency and turnover. As long as the employer pays a wage within "reasonable" range of the market average, it can maintain L at a target level. But low wages will mean that heavy turnover must be sustained to maintain L. And high wages will permit maintaining L with low turnover.

Thus, t is a function of W such that $\delta t/\delta W < 0$ and $\delta^2 t/\delta W^2 > 0$ in the relevant range surrounding W*, the average rate of wages for the class of worker under consideration. The relationship between t and W is represented by the downward sloping curve shown on the upper panel of Figure 8. At a wage such as W_1, which is less than the average wage, turnover would be high and the marginal effects of reducing the turnover rate by increasing wages would be considerable. But at high wages (relative to the market average) such as W_2, turnover would be low and the gains from further wage increases in reducing turnover would be low.

Finally, turnover rates might reach an irreducible minimum at some high wage, such as W_3. Due to deaths and family pressures, some departures from the firm's workforce are inevitable, regardless of the wage level. Thus, the marginal effect of wages on turnover, $\delta t/\delta W$, becomes zero at some very high wage.

A similar analysis can be made of the efficiency effect of wage levels. In the short run, output's relation to labor input can be written $Q = eF(L)$, where e is an efficiency factor which is, in turn, a function of W. F(L) is the short-run production function, i.e., the total product of labor with capital held fixed. Within the relevant range, we assume that $\delta e/\delta W > 0$ and $\delta^2 e/\delta W^2 < 0$. The efficiency factor's relation to the wage is

Figure 8
Turnover and Wage Rates



represented by the curve on the upper panel of Figure 9. And the lower panel of the figure represents $\delta e/\delta W$.

It is assumed that efficiency will be very low at wages such as W_1 which are well below the market average wage W*. But high incremental efficiency gains can be achieved by raising the wage from those very low levels. At above average wage levels, such as W_2, marginal efficiency gains are positive, but much reduced. Finally, at some very high wage (such as W_3), it is assumed that no further efficiency gains can be achieved by wage raising. At that wage $\delta e/\delta W = 0$.

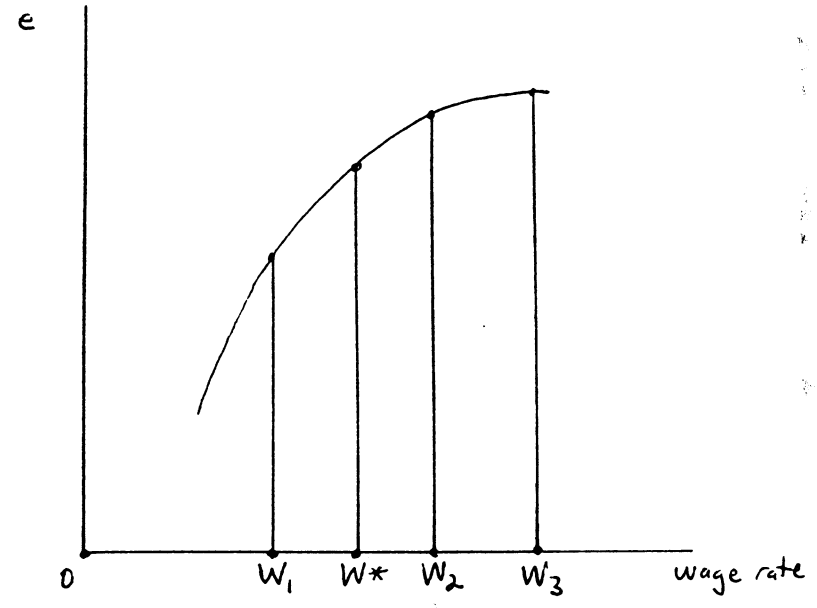
To determine the optimum, profit maximizing decisions regarding L and W, the usual differentiation of equation (4) can be performed. The result is:

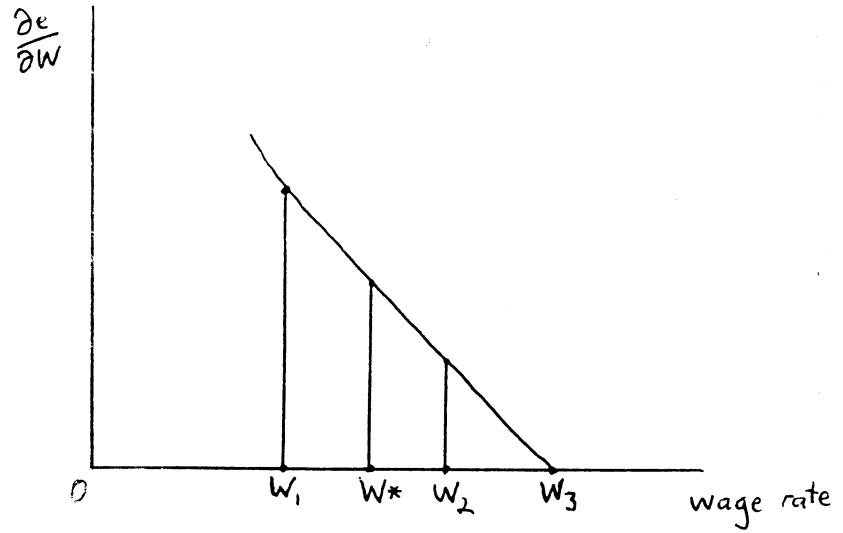
5) $\delta\pi/\delta L = P[e(\delta Q/\delta L)] - W - t = 0$, and

6) $\delta\pi/\delta W = PF(L)(\delta e/\delta W) - L - (\delta t/\delta W)L = 0$

The term in brackets [] in equation (5) is the marginal product of labor. When multiplied by P, it becomes the marginal revenue product of labor (MRP_L). Hence, equation (5) specifies that the firm should set its employment level such that $MRP_L = W+t$. This condition is eminently sensible. Each labor unit added to production costs the firm the direct wage payment to the worker <u>plus</u> an expected turnover cost. Hence, the firm -- in

Figure 9
Efficiency and Wage Rates





making a marginal cost/benefit analysis -- is simply equating the marginal benefit of added labor with the incremental labor acquisition cost. The reasoning is precisely the same as that underlying the classical economic model, except that the classical model omitted consideration of turnover costs.

Equation (6) can be rewritten as:

7) $[PF(L)(\delta e/\delta W)/L] - \delta t/\delta W = 1$

The bracketed [] term on the left hand side of equation (7) is the marginal increase in revenue per labor unit from efficiency gains associated with wages, while the next expression $-\delta t/\delta W$ is the marginal saving in turnover costs per labor unit. Thus, equation (7) says that the firm should raise wages by $1 (or 1 dime or 1 cent) increments until the marginal revenue per labor unit from the wage increase plus the marginal turnover saving per labor unit just equals the $1 (or 1 dime or 1 cent) cost per labor unit of the incremental wage increases. This equation, although sensible, has no counterpart in the classical model, since the firm in that model is not assumed to have its own wage policy.

iv. The Employee as Stakeholder.

The model presented above provides for an extended employer/employee relationship. Employees remain with the firm for indefinite periods, possibly for entire careers. They are aware of the firm's policy of promised fair treatment and potential advances in pay and status for employees who meet specified work standards. Such employees are likely to be willing to make their own personal investments in meeting the firm's required standards. For example, they may undertake training in pursuit of the rewards promised in the firm's HRM policy.[31]

In addition, in a labor market characterized by unemployment, accepting a job offer carries with it a certain risk to the employee. If the job does not turn out as expected, or if they employer breaches its own HRM policies, the worker may have to quit or may be terminated. Either outcome could result in a spell of costly unemployment. Thus, the employee has a stake in the successful outcome of his/her job decision and a stake in the overall economic condition of the enterprise.

This stake is accentuated in a labor market with entry level job openings and internal career ladders. If a worker in mid career loses his/her job, it may be necessary -- even if another job is quickly located -- to "start at the bottom." That is, it

may not be possible to carry over the status and pay from the old job into the new one. Studies of job losses due to mass layoffs in the 1980s demonstrate that displaced career workers often experienced significant spells of unemployment or non-employment or, if they found jobs, often had to accept lower pay compared with their previous employment.[32] Thus, incumbent workers with considerable seniority on their jobs have a special stake in retaining those positions.

VIII. The Next Step.

In this chapter both the uses of the classical model of pay determination and the important limitations of that model have been explored. Simple supply/demand analysis, with its implicit assumptions of one wage rate in the labor market and complete clearing of the market, can be useful for certain purposes. But it is necessary also to include the impact of wages on worker efficiency and turnover before the model produces a generally realistic picture of the labor market.

The fact that the labor market is quite different from financial and commodity markets, however, does not mean that participants in the labor market are somehow irrational. It has been assumed throughout this chapter that there are rational actors (employers and employees) in our modified model of labor market behavior. It is simply that the principal/agent problem

and the difficulty in obtaining information are sufficiently powerful in the labor market to create different institutional arrangements than are found in other types of markets. Rational people will operate differently when faced with different circumstances.

Although this chapter formally presented a model of the firm which recognizes efficiency and turnover, it did not consider whether that model can be applied to improve HRM policy. For example, can some of the concepts we have introduced be quantified for use by employers? The next chapter will explore the issue of implementation. And it will also consider the mix of alternative kinds of pay, e.g., wages versus fringes and other conditions of work, as a matter of HRM policy.

FOOTNOTES

1. The rental cost of capital is the sum of foregone interest and net depreciation (subtracting any price increase in the value of the equipment) in a given time period. Thus, suppose a $100 machine is purchased which depreciates (net) by $10 per year. Suppose further than the relevant annual interest rate is 5%. The cost of owning the machine is $5 (.05 x $100) plus $10. So R = $15. A capital renting company under competitive conditions would change this annual price to a firm which rented its equipment. A firm which owned and operated the machine would still need to view the opportunity cost of the machine as the implicit rental rate of $15.

2. The text is following the convention of referring to the theory embodied in Figure 1 as the theory of the "firm." In fact, it is really a theory of the plant. With constant returns to scale, firm size is really indeterminate -- and irrelevant-- in the model. (A firm might own more than one plant). For that matter, with constant returns to scale, even plant size is indeterminate.

In theory, it is possible to create models in which the preferences of workers are biased towards labor-intensive products. Then, pushing up wages might create more demand for such products and more demand for labor. Such a model would be unstable, since wage increases would generate pressure for further wage increases.

3. Richard A. Lester, "Shortcomings of Marginal Analysis for Wage-Employment Problems," American Economic Review, vol. 36 (March 1946), pp. 63-82.

4. Strictly speaking, if labor and materials must be fed into the production process in a fixed ratio, neither one has a marginal product (or, put another way, the marginal product of each separately is zero). There would be a positive, constant marginal product of a combined unit of labor and materials. Readers who are familiar with input-output analysis will recognize such production assumptions.

5. The development of the modern typewriter/computer keyboard is an example. Current key arrangements were determined in the 19th century in response to key jamming problems of early typewriter models and a desire of a manufacturing to have salesmen be able to type the brand name "Type Writer" on the top line of letter keys. Touch typing subsequently locked in the arrangement of the keys, since typists needed to be able to use any typewriter model that an office might use. With modern computers, the keyboard could easily be re-arranged to facilitate faster typing. But

until mechanical typewriters have totally disappeared, and until all computers have the ability to allow simple user key re-arrangements, the standard QWERTY arrangement will prevail. For a history, see Paul A. David, "Clio and the Economics of QWERTY," American Economic Review, vol. 75 (May 1985), pp. 332-337. One study, based on cases, investigated the impact of relative labor costs (between different kinds of labor) on the techniques employed in manufacturing production. Changes in relative wages were not found to play a role in such choices, since estimates of cost savings were not precise enough to warrant the use of such information. See Michael J. Piore, "The Impact of the Labor Market Upon the Design and Selection of Productive Techniques within the Manufacturing Plant," Quarterly Journal of Economics, vol. 82 (November 1968), pp. 602-620. Piore did find, however, that average wages (for all grades of labor) were used in estimating cost savings, thus leaving open the possibility that general increases in labor costs relative to capital costs could influence capital/labor substitutions.

6. U.S. Bureau of the Census, Statistical Abstract of the United States: 1987 (Washington: GPO, 1987), p. 404.

7. Under the U.S. constitution, Congress has regulatory power only over interstate or foreign commerce. In practice, since the 1930s, very broad definitions of interstate commerce have been applied by the Supreme Court. Coverage under the FLSA is determined partly by the nature of the activities performed by the employer or employee and by the dollar level of the employer's business.

8. Harvey Leibenstein, General X-Efficiency Theory and Economic Development (New York: Oxford University Press, 1978).

9. About a fifth of such workers were below the poverty line as of March 1985. Ralph E. Smith and Bruce Vavrichek, "The Minimum Wage: Its Relation to Incomes and Poverty," Monthly Labor Review, vol. 110 (June 1987), pp. 24-30, especially p. 28.

10. Edward M. Gramlich, "Impact of Minimum Wages on Other Wages, Employment, and Family Incomes," Brookings Papers on Economic Activity (2:1976), pp. 409-451.

11. Estimates for unionization the overall workforce, including government employees, in this period peak at about 35%. See U.S. Bureau of Labor Statistics, Handbook of Labor Statistics, bulletin 2070 (Washington: GPO, 1980), p. 412. The text figure is an approximation excluding government workers.

12. Employment and Earnings, vol. 34 (January 1987), p. 220.

13. Employers in less developed countries sometimes complain about labor force "commitment." Workers recruited from rural areas are said to quit and return home after earning a target income, thus causing substantial labor turnover.

14. Adam Smith, An Inquiry into the Nature and Causes of the Wealth of Nations (New York: Modern Library, 1937), pp. 100-110.

15. Detailed definitions of these jobs are provided by the U.S. Bureau of Labor Statistics. A level I secretary carries out recurring office procedures independently and selects the guidelines or reference which fits the specific case. The secretary's supervisor provides specific instructions on new assignments and checks completed work for accuracy." A variety of specified duties are mentioned such as responding to routine telephone requests, maintains supervisor's calendar, etc. A light truck driver drives a truck weighing less than 1½ tons within a city or industrial area. The precise details appear in the source to Table 2.

16. The benefits to employees in a labor-shortage economy are discussed in Arthur M. Okun, "Upward Mobility in a High-Pressure Economy," Brookings Papers on Economic Activity (1:1973), pp. 207-252.

17. Sanford M. Jacoby, Employing Bureaucracy: Managers, Unions, and the Transformation of Work in American Industry, 1900-1945 (New York: Columbia University Press, 1985), chapter 5.

18. John Maynard Keynes, The General Theory of Employment, Interest, and Money (New York: Harcourt, Brace, & World, 1936).

19. Dividing the wage by a price gives the consumption power of the wage in terms of the product being priced. Thus, if the hourly wage is $10 and apples cost 50¢, then the hourly wage expressed in terms of apples is $10/50¢ = 20 apples. More commonly, we divide wages by a price index and express the result as a real wage index. The relations of wages and prices are discussed more fully in a later chapter.

20. Daniel J.B. Mitchell, "Wages and Keynes: Lessons from the Past," Eastern Economic Journal, vol. 12 (July-September 1986), pp. 199-208.

21. The issue of changing workforce composition was discussed in an earlier chapter of this text.

22. National Commission on Excellence in Education, A Nation at Risk: The Imperative for Educational Reform (Washington: U.S. Department of Education, 1983). Known as the "Gardner Report."

23. Richard B. Freeman, "A Cobweb Model of the Supply and Starting Salary of New Engineers," Industrial and Labor Relations Review, vol. 29 (January 1976), pp. 236-246.

24. In principle, the supply curve could be backward bending. However, it can be shown that a monopsonistic employer will only operate on the upward sloping portion of a labor supply curve.

25. In West Coast longshoring, for example, union members have first crack at available work at the union hiring hall (which dispatches workers to the various stevedoring companies as ships require loading and unloading). When sufficient union labor is not available, other workers can be dispatched. There are inevitably queues for such peak vacancies because of the high union wage paid.

26. The federal government requires contractors on government-financed construction projects to pay "prevailing wages" as determined by the U.S. Department of Labor, pursuant to the Davis-Bacon Act. Such wages may be above levels nonunion employers would otherwise pay.

27. Models of the type discussed in this section can be found in George A. Akerlof and Janet L. Yellen, eds. Efficiency Wage Models of the Labor Market (New York: Cambridge University Press, 1986). Analysis has also turned to the historical evidence, notably Henry Ford's decision to pay a wage of $5/day -- a princely sum at the time -- in 1914. Ford argued that raising wages was actually a cost saving device, a position in line with the efficiency wage approach (within limits!). See Daniel M.G. Raff and Lawrence H. Summers, "Did Henry Ford Pay Efficiency Wages?," working paper no. 2101, National Bureau of Economic Research, December 1986.

28. The existence of unemployment insurance in the real world may partially mitigate the penalty for dismissal. However, employers may challenge unemployment insurance benefit claims for workers who are fired for cause. And, in any case, the benefits are likely to be substantially less than the wage the worker previously received.

29. A model of the type developed in this section can be found in Arthur M. Okun, Prices & Quantities: A Macroeconomic Analysis (Washington: Brookings Institution, 1981), pp. 26-133.

30. We are assuming a competitive firm with price fixed by the market at P. Modification of the model to include imperfect competitors is not difficult.

31. Employee training is discussed in a later chapter.

32. U.S. Bureau of Labor Statistics, Displaced Workers, 1979-83, bulletin 2240 (Washington: GPO, 1985); Richard M. Devens, Jr., "Displaced Workers: One Year Later," Monthly Labor Review, vol. 109 (July 1986), pp. 40-43, and "errata" for this article in the September 1986 issue, p. 41. A later study can be found in Francis W. Horvath, "The Pulse of Economic Change: Displaced Workers of 1981-85," Monthly Labor Review, vol. 110 (June 1987), pp. 3-12.