Labour Market Regulation, Flexibility and Employment

Christopher L. Erickson – Daniel J. B. Mitchell

Abstract. Chronic unemployment and slow employment growth in some countries have led to calls for more labor-market "flexibility". This paper defines the flexibility issue in terms of legally-mandated "severance", a generalized employment cost linked to seniority. A mandated severance benefit can stand for a variety of programs including employer-provided employment guarantees, payments which must be made to laid-off workers, and compensation for wrongful discharge. Such a mandated cost can be seen as a payroll tax on the employer, raising the issue of tax incidence.

Employers often take the view that labor costs are given and that mandated costs are simply add-ons to pre-existing cost levels. However, the literature on tax incidence suggests that a significant portion of "employer-paid" payroll taxes are shifted to labor in the form of lower wages. Such shifting should reduce the dis-employment effects attributed to severance.

A model is provided of a firm upon which a severance mandate is imposed. Even at the micro level, the firm can shift some of the cost of severance to employees by lowering wages — although at the expense of higher turnover costs associated with increased quit rates. At the macro level, to the extent that firms reduce employment, there could be still further downward wage adjustments which would shift the severance burden to labor and mitigate the dis-employment effect.

Ultimately, if the natural rate of unemployment is raised by severance mandates, the age-old question is raised of why wages do not fall in the face of labor surpluses. The true inflexibility to be explained, therefore, is in wage determination.

1. Introduction

The rise in unemployment rates in the 1970s and 1980s, especially in Europe, has raised concerns over lack of labor-market "flexibility".[1]

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More rapid job creation in the US than in Europe led Europeans to toy with the idea of deregulating the labor market along lines perceived as the American model.[2] However, exactly what is meant by flexibility is not always clear, and the conclusions reached tend to be vague. One report, for example, ends with the hardly-controversial statement that "dynamic" economies bent on sustainable growth will have to be flexible. Labour market flexibility is one of the conditions for their success".[3]

In this study, inflexibility is defined to encompass programs, such as government-mandated job security protections, which reward seniority. It is often argued that such arrangements, by constraining employers, layoffs and making hires more expensive, discourage hiring and lead to chronic unemployment. The thrust of this paper is that such mandates are unlikely to be root causes of chronic unemployment because firms could offset mandated costs via lower wages. Thus, the inflexibility which must be examined is the old riddle of labor economics: why downward wage adjustments do not clear a labor market characterized by surplus workers.

2. Compensation and entitlement-linked versions of labor-market flexibility

There is a body of thought connecting flexibility and job creation to labor compensation and working conditions. Classical labor market theory going back to the 1920s and 1930s emphasized wage flexibility to clear the labor market in times of high unemployment, reasoning at the macro level from the analogy of a micro labor market. Employers would hire more people, it was assumed, if labor costs were lower. Keynesians, beginning in the mid 1930s, placed the responsibility for clearing the market on monetary and fiscal policy. But the 1970s and 1980s saw something of a classical revival.

For example, the rapid growth and full employment of the "four-tiger" countries of Asia has sometimes been attributed to moderate wage repression, a classical explanation since it presupposes a tendency for wages — absent repression — to settle at too-high levels.[4] The Weitzman "share economy" plan to introduce profit sharing as a substitute for wage flexibility also re-emphasized the wage mechanism.[5] Sluggish job creation in Europe, particularly relative to the US in the 1980s, was linked to "too-high" real wages, perhaps triggered in the 1970s by oil price shocks.[6] Various notions were then attached to the general idea of a classical

"Eurosclerosis".[7] However, the tie between the new emphasis on wage flexibility in Europe and labor market inflexibility has not been adequately drawn.

The type of initial flexibility or inflexibility with which this paper deals primarily stems from regulation of workplace practices, especially those related to job security. Such legal mandates are certainly not intended to reduce employment; if such perverse effects occur, they are accidental byproducts. Nonetheless, the argument often is made that legal mandates increase the cost of workers, thereby decreasing their use. So a critical issue is whether, or by how much, costs are actually raised by mandated benefits.

Much of the opposition in the US to creating a national mandate for employer-paid-and-provided health insurance stems from the fear of dis-employment effects due to mandated labor costs. European concerns about the impact of job security regulations are similar. Each employee hired involves a potential risk to the employer; there could be a future decline in demand for labor and difficulty in shedding employees in that event. If there are firing costs, these automatically become hiring costs, thus reducing hiring, according to a common line of thinking.

3. Examples of seniority-linked "severance" entitlements

Various kinds of legal arrangements provide increased benefits related to seniority in the case of involuntary separation. Among such entitlements are job-security guarantees and protections, since such guarantees tend to be stronger for longer-service workers. These protections may involve obtaining permission for layoffs from official bodies or delays in negotiating layoffs with internal enterprise councils. Or they may involve cash payments to laid-off workers. Apart from legally-required procedures, there may simply be public and political controversy in some countries when layoffs occur. Such policies and political pressures characterize many European countries.

However, examples can be cited outside Europe. Unemployment insurance in the US is conditioned on a worker receiving minimum accumulated wage earnings over a specified period so that seniority is effectively required. Employers are charged for payments to laid-off workers but voluntary quits generally do not entitle a worker to off benefits. In the case of arbitration of discharges in the union sector of the American economy or wrongful discharge lawsuits by non-

Figure 1. Effect of payroll tax

union employees, American arbitrators, judges and juries tend to give weight to worker seniority.

Taiwanese laws require payments of large severance bonuses linked to past seniority to employees who are terminated. However, voluntary quits eliminate the severance entitlement.[8] Thus, employees accumulate an entitlement of potential cost to the employer. The cost of the entitlement can be reduced by shifting the expense to employees or following strategies which reduce the proportion of higher-seniority workers in the workforce.

As these examples make clear, there is a wide array of public policies which can be depicted as a potential cost to the employer which rises with seniority. In later analysis, this cost will be termed "severance". An important question is the degree to which the severance cost may be shifted by the employer — or by all employers acting collectively as demanders of labor — to employees. Employment effects will depend critically on the degree of shifting that is possible.
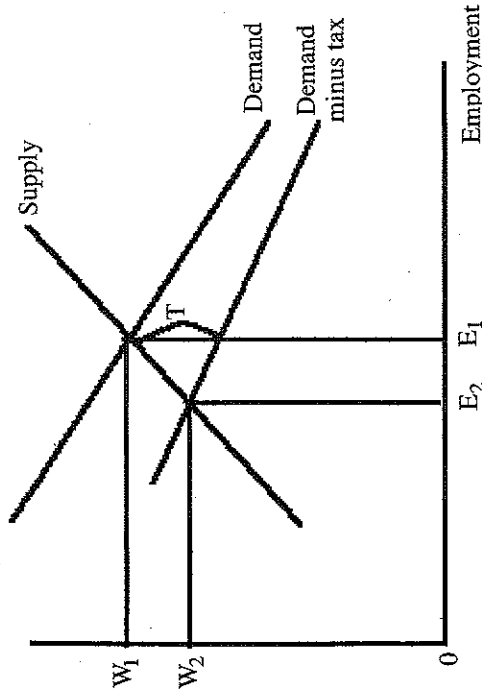
Note, however, that simply asking employers what adjustment in public policy is needed to expand employment will produce a predictable answer. An employer will almost always say that if a particular costly mandate were reduced, or even if a privately-negotiated labor cost were reduced, the firm would thereby have a competitive advantage and would tend to expand output and employment. The problem with such reasoning is that while reducing the cost for one firm might well have that job-creating result, reducing it for all firms (including competitors), might well have another. Reasoning from the single employer perspective is not likely to incorporate such all-firm consequences.

4. The incidence of labor-market mandates: analysis

The cost argument concerning labor-market entitlements is simply that if workers are made more expensive, employers will use fewer of them. However, as previously stressed, a critical question is the degree to which a mandated cost can be shifted to labor. A complete shift will eliminate the adverse employment effect. There is a literature on payroll tax incidence which is quite relevant to the employer-mandate/flexibility issue.

At the simplest level, the potential shift to labor can be depicted in terms of demand and supply analysis.[9] For example, Figure 1 shows a downward-sloping demand for labor and an upward-sloping

labor supply curve. If the mandate's cost is translated into the equivalent of a payroll tax rate T, imposition of T raises the cost to the employer from W_1 to W_2, an increment *less* than T.[10] The more inelastic the supply curve, the more the margin by which W_1 exceeds W_2, and the less the employment displacement effect (the drop from E_1 to E_2). With a totally inelastic labor supply curve, there is no increase in costs at all when T is imposed, and no disemployment effect. Indeed, a payroll tax imposed in the face of a backward-bending labor supply curve would reduce labor costs and *increase* employment.[11]

Even the analysis of Figure 1 can understate the degree to which a payroll tax type expense can be shifted back to labor. Figure 1 implicitly assumes that the expense represented by the tax provides *no* incremental gain for labor. Typically, however, employees do gain some entitlement as the result of the imposed expense. Much depends on what value employees place on the entitlement and the degree to which receiving it is conditional on employment.[12]

Consider, for example, a hypothetical mandate that employees receive a cash bonus equal to one percent of any wage payment. Since bonus and wage are perfect substitutes (both are cash), the slope of the labor supply curve becomes irrelevant. Wages would simply fall by one percent, an amount completely offset by the bonus, leaving employees and employers effectively in the same

position. In short, simple demand/supply analysis predicts that the result of a mandate would be somewhere between the type of incidence depicted on Figure 1 and a complete shift to labor, depending on the value of the entitlement to labor.[13]

Demand/supply analysis often assumes a competitive, clearing labor market characterized by the "law of one price". In such a labor market, there is full employment and firms do not have their own wage policies. Rather, they pay the going wage rate for a particular grade of labor. Thus, there are three objections to the kind of analysis embodied in Figure 1.

First, real-world firms have wage policies and may pay above or below the market average. A firm which lowers its wage relative to the average wage prevailing in the labor market will experience an increase in quits and higher turnover costs. However, it can choose to maintain its level of employment in the face of higher quits by increasing its hiring rate; there is a possibility of substituting turnover costs for wage costs. If mandated costs are imposed, the firm might choose to reduce its wage and put up with higher turnover.

Second, in union bargaining situations there may be a significant pay premium relative to the market-clearing wage. Workers may queue for high-wage union job openings. The supply curve of Figure 1 is not strictly relevant to such a situation since the wage is set off the supply curve.[14] If a costly mandate is imposed in such an excess-supply-of-labor case, does the union successfully insist on maintaining the pre-mandate level of wages and benefits? The answer is not clear, but the possibility of some absorption of the mandated cost by labor remains. In effect, the employer may bargain on a total compensation basis so that added costs come out of the workers' "pot".

Third, the flexibility discussion has occurred in the context of generalized unemployment in many countries. Unionization rates vary quite widely in Europe so a purely union story is not appropriate. In some cases, real wages were maintained in the 1980s and 1990s in the face of chronic unemployment among predominantly non-union workers (in France for example). Hence, it would be inappropriate to consider the question of mandate incidence in the face of excess labor supply only in the context of collective bargaining.

It is fashionable in macroeconomic circles to consider the mysteries of why wages do not fall in the case of chronic excess labor supply to be explainable by various concepts developed since

the 1970s. Often cited are implicit contracts, efficiency wages and similar micro constructs. Unfortunately, there is no simple theory to predict whether wage rigidity in the face of a benefit mandate means wage-plus-mandate rigidity (absorption of the mandate cost by labor) or whether it means wage-only rigidity.

5. The incidence of labor-market mandates: empirical evidence

Although the possibility exists that labor bears some or all of the costs of mandated benefits, there are political advantages in obscuring that fact. Mandated programs and benefits may be more popular with workers when it appears that the employer is paying the cost.[15] But there have been few empirical estimates of actual mandate incidence. One approach is to estimate labor demand and supply curves and then to apply the type of analysis of Figure 1 to calculate the impact. Krueger applied this approach to the Clinton health care proposals, using relatively low supply elasticities culled from various studies.[16] Workers were found to be likely to absorb about two thirds of the added program costs.[17] A similar study by Aaron and Bosworth estimated that about three quarters of the added cost would be shifted to workers.[18]

Since the Clinton proposal for health insurance was never put into effect, its possible impact had to be estimated using hypothetical demand/supply models. A second approach, however, is to examine the impacts of mandates that have been implemented. In the early 1970s, Brittain examined data on a cross-section of 64 countries' manufacturing wages and payroll taxes.[19] On the assumption that a constant elasticity of substitution (CES) production function could describe output, he estimated that all of the payroll tax was absorbed by labor. A tax-shift-to-labor parameter was consistently found equal to unity across his various data sets.

However, as Feldstein pointed out, *given the CES interpretation*, Brittain's results were predetermined. The real wage excluding the tax will differ from the marginal product of labor by the amount of the tax, regardless of the degree to which the tax is shifted to labor.[20] Brittain responded to this criticism by noting that his data need not be interpreted only as reflections of a CES production function.[21] The issue dividing Brittain and Feldstein was essentially whether it was possible to estimate what the wage would have been in the absence of the payroll tax and compare it with the actual wage. Brittain's approach, when rationalized in CES terms,

essentially standardized for labor demand across countries, but not for the supply of labor. A looser interpretation — just that wages could typically be predicted by some general measure of living standards (Brittain used the output/labor ratio) — would give the Brittain test more meaning.

However, even the looser interpretation is open to question on empirical grounds. Seemingly minor differences in specification of Brittain's estimating equations and the period used for estimation were found by Vroman to lead to wide differences in the shift coefficient. On the other hand, an alternative data base tested by Vroman was found to produce estimates which coincided with Brittain's original estimates and conclusion.[22]

The Brittain approach, minus its CES interpretation, continues to suggest that much of the impact of employer-paid social insurance costs are shifted back to labor. Figure 2 shows the percentage of manufacturing production worker compensation which went for social insurance in 27 countries. The proportions range from below 5% to above 30%. In most cases, the proportions have increased since the mid 1970s, although some countries have reduced tax rates, partly out of employment concerns.
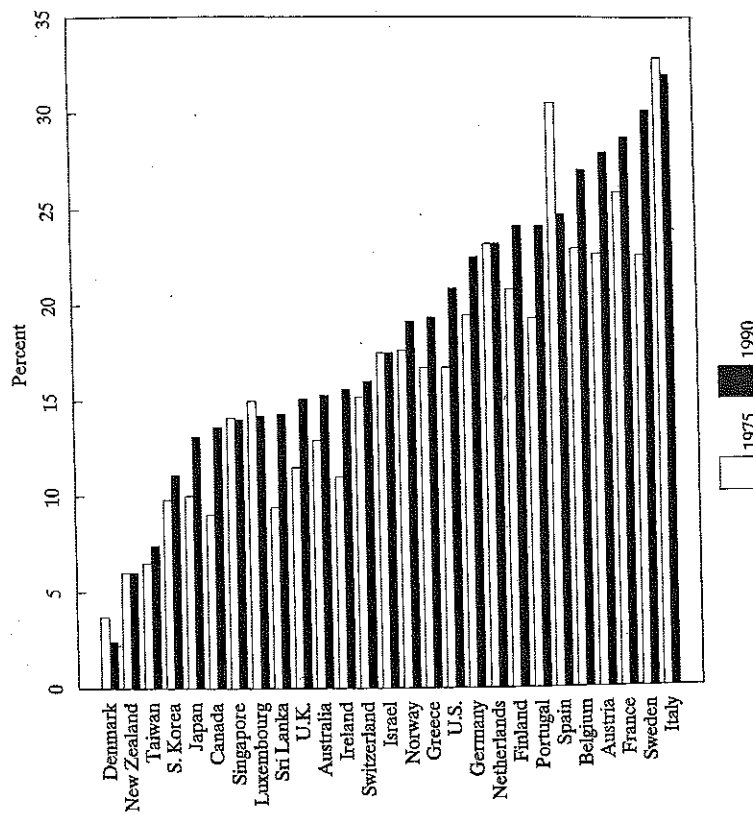
With all estimates converted to US dollars, a simple regression across the countries in 1990 standardizing only for GDP per capita suggest that each dollar of labor compensation expended for social insurance raises total labor compensation by $0.28. Taken literally, this would mean that labor absorbed 72% of the cost. However, regression analysis suggests that take-home pay, which should decrease in that case, instead rose by $0.16 per dollar of social insurance. Thus, there is a spurious positive correlation that accounts for $0.16 of the $0.28, suggesting that the "true" impact of an added $1 of social insurance is about $0.12 on total compensation. That estimate indicates that labor absorbs about nine tenths of the cost of "employer-paid" benefits.[23]

An alternative methodology applied by Hamermesh took advantage of the cap on US social security taxes which creates different average tax rates across individuals.[24] Using individual wage data, Hamermesh found that about a third of the payroll tax was shifted back to labor, almost all in the first year.[25] However, the approach seems quite sensitive to the method of estimating the payroll tax owed for each employee. Actual payroll taxes were not indicated in the data set; they were approximated based on reported earnings or estimated earnings (which may both be in error). It is unclear that any of the techniques used would avoid the problem of

bias toward zero of regression coefficients when there are errors in independent variables.[26]

More recent work has used variation in the cost of mandates across industries and occupations or demographic groups. Workers' compensation programs are mandated by US state law to compensate for work-related injuries or diseases. Cross-state costs vary within occupational groups, although the amount of absorption by occupation of the cost varies substantially. Overall, however, more than 85% of the cost was found to be shifted to labor.[27] A related study focused on the costs of a mandate that employer-provided health insurance plans in the US (which are not themselves

Figure 2. Employer social insurance contributions (as percent of total hourly manufacturing compensation)

Note: Data refer to production workers.
Source: U.S. Bureau of Labor Statistics.

mandated) must provide maternity care. A similar estimate resulted.[28]

Time-series evidence is yet another approach. Holmlund estimated annual wage-change equations for Sweden including a term for payroll tax rate changes. He found that about half of a payroll tax increase was absorbed by labor in the initial year. His equations could not determine the long-term impact since lagged payroll taxes were not used as independent variables. However, Holmlund noted that it was likely in the long run that full absorption by labor would occur.[29]

Generally, US data suggest that payroll tax increases initially boost labor costs but are eventually absorbed by labor. An annual regression of the change in labor's percentage share of GDP (including employer contributions and taxes for social insurance) against current and lagged values of the change in employer contributions and taxes for social insurance will produce positive coefficients for current and recent years. But these coefficients shift to negative for years further in the past, the precise results being very sensitive to specification.[30]

6. A simple model of severance, wages and employment

As previously noted, a mandated benefit of seniority-related entitlement can be used as a proxy for a variety of legally-required programs related to job security. Of course, employers might provide such benefits without a mandate, since seniority-linked entitlements could reduce turnover costs by attaching "golden handcuffs" to employees. To model the impact of an effective mandate, it must therefore be assumed that a law is imposed requiring the firm to go *beyond* what it would voluntary offer. The model presented below is not necessarily an accurate depiction of real world wage determination but serves to illustrate key issues using the assumption of profit maximization (which economists generally prefer).

Consider a two-period model in which a firm, which uses labor as its only input to production, has a level-of-employment policy, a wage policy, and a severance policy. In period (1), it hires E workers at wage W, offering a potential severance entitlement S. If those workers quit at the end of period (1), they do not accrue any entitlement. But if they stay with the firm into the second period, they accrue a benefit which might be viewed as severance pay S

received at the end of period (2). S could be a function of the wage but for simplicity consider it to be a fixed payment.

The firm can follow a low-wage or high-wage policy and maintain its level of employment E (holding S constant). However, the quit rate will be higher at a lower wage. Thus, the firm will have to replace workers who quit at a hiring cost of h per worker. A similar relationship between the severance offering and the quit rate (q) also holds; given a wage level, the higher the level of severance, the lower the quit rate and its associated costs.

In period (1), the firm has three kinds of labor costs: (a) ongoing *employment costs* (WE), (b) *hiring costs* (hqE), and (c) *severance costs* ($S[1-q]E = SE - SqE$). To maximize profits in period (1), the firm must adjust its three policy instruments (E, W, S) optimally. It will set E so that:

Marginal revenue product of labor

  = marginal employment cost

    + marginal hiring cost + marginal severance cost   [1]

or:

$$MRP_L = W + hq + S(1-q) \qquad [1']$$

Equations [1] and [1'] are simply generalizations of the textbook rule that wage = marginal revenue product of labor.[31]

Since, by construction, E is not a function of W (because the firm substitutes a higher hiring intake with attendant higher hiring costs for the wage to keep E at the desired level), the optimum, profit-maximizing wage decision is to set W such that:

marginal employment cost associated with a 1 unit wage increase

  = net effect on severance – hiring cost associated

    with the reduction in quits brought about by the

    1 unit wage increase   [2]

or:

$$(S-h)q'_w = 1 \qquad [2']$$

where q'_w is the marginal (partial) effect of W on the quit rate. The cost of severance per worker rises with the wage, since raising the wage lowers quits (a higher fraction of the firm's workforce becomes entitled to severance). Employment cost per worker is simply the wage W. But hiring costs fall as the wage increases, since quits fall and fewer workers need to be replaced.

Figure 3. Wage effect on cost
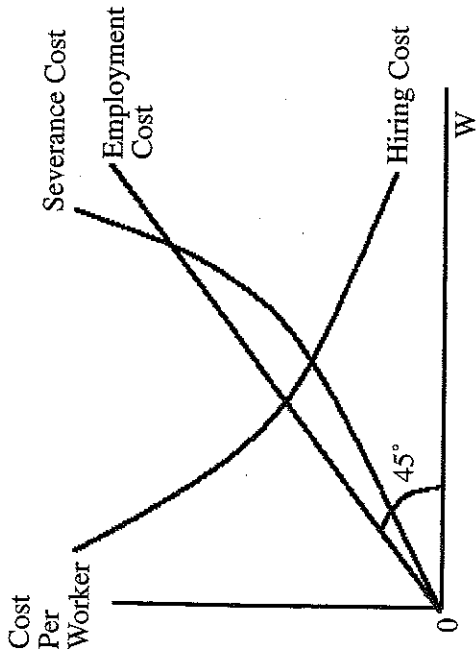
Figure 4. Wage determination

Figure 3 illustrates the three elements of labor cost per worker as a function of the wage (given optimal S). The employment cost W is shown by the 45° degree line through the origin. The severance cost rises as W increases because fewer quits translate into more workers eligible for severance. And the hiring cost falls for the same reason; higher wages reduce quits which reduce the need for replacement hiring. The firm sets the wage (given severance discussed below) so as to minimize total labor costs per worker ([employment cost + severance cost+hiring cost]/E) as at W_1 on Figure 4.

Finally, the firm sets its voluntary level of severance such that:

the marginal cost of increasing the severance payment
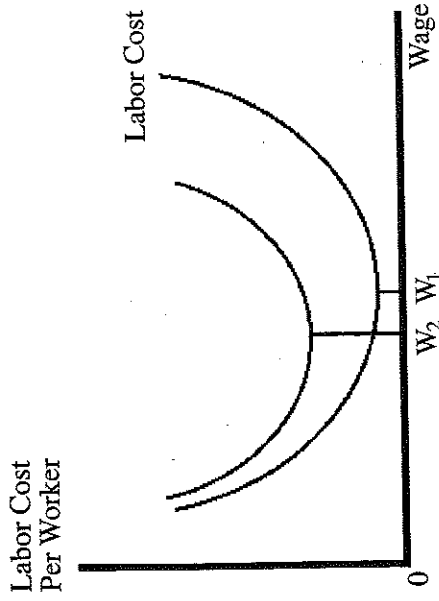= the marginal saving due to lower quits   [3]

or:

$$(1-q)+Sq'_s=hq'_s \qquad [3']$$

where q'_s is the partial derivative of the quit rate with respect to S. We will assume that the mandated severance level is above the optimal voluntary level for the representative firm.

Consider the firm alone, i.e. neglecting the macro effects of the mandate on other employers. If the firm is in profit-maximizing equilibrium and a government mandate now requires higher-than-voluntary-provided severance per eligible worker, labor costs will increase. Quits will fall due to the extra severance and that will reduce hiring costs. But the saving in hiring costs will not be enough to compensate the firm for higher severance, otherwise the firm would have raised severance voluntarily. The firm reacts on the employment side by reducing the labor input. The optimum wage falls to W_2 on Figure 4, as the firm tries to stimulate quits in order to reduce severance eligibility.[32]

Up to this point, the analysis has neglected economy-wide repercussions of the mandate. But it is very important to consider such macro developments in analyzing the overall impact of the mandate; the final effects will reflect the actions of *all* affected employers, not just those of a single firm. If all firms react in a similar fashion to the firm modeled above, then real wages should fall. The reduction in labor demand — absent some form of wage rigidity — should drop the wage until the labor market again clears.

That simple point brings the analysis back to the earlier discussion of payroll tax incidence. The severance cost is an implicit "tax" on employment. With a totally inelastic labor supply, real wages should fall throughout the labor market. The fall should continue until firms had their profitability restored to the level consistent with full employment, a point that would be reached when all of the added severance cost was shifted to labor as a lower real wage.[33]

If labor supply is elastic and positive, some of the burden of added severance should fall on labor and some on the employer, as in the payroll tax case. However, the labor market would still clear.

Employment would be lower than before the mandate but unemployment should not be higher. That is, workers willing to accept going wages would find jobs, although some would choose leisure rather than work because of lower wages. This outcome is manifestly *not* what has been observed in many countries with chronically high unemployment levels. Ultimately, therefore, the explanation of unemployment as due to inflexibility associated with severance-like job security mandates is at best incomplete. *If an increased job-security mandate brings about increased unemployment, it is because wages do not fall to offset the cost of the mandate. The inflexibility to be explained, in short, is the old puzzle of why wages do not fall (or fall sufficiently) in the face of unemployment.*

7. The macro context

The concept of severance costs can be modified to include changes in the economic environment as well as the monetary value of the severance payment. In the model above, severance was paid to any worker who did not quit at the end of period (1). However, severance could be reinterpreted as an insurance benefit based on a contingency in period (2): the possibility of a layoff. That is, the benefit could be an employment or income guarantee that would take on value in period (2) only if the worker would otherwise be involuntarily terminated due to a business downturn.

In effect, the severance benefit could be seen as an option which could be exercised by the worker during bad times in period (2). Should the worker's value to the firm fall to the point of layoff, the worker could exercise the option and collect income from the employer in the form of severance, a continuing income payment, or continued employment at the existing wage. The cost to the employer of providing such options increases, as with financial options, with the variance of the contingency. If employers perceive that economic conditions have become more uncertain, severance costs will rise, even if there is no change in the terms of the mandate.

There are many factors which could have contributed to employer perceptions of increased risk and uncertainty beginning in the 1970s and 1980s. These include the move to flexible exchange rates, the rise of new foreign competitors (Asia, eastern Europe), deregulation and privatization in domestic markets, oil price shocks, new technology, etc. In some instances, especially when a mandate is
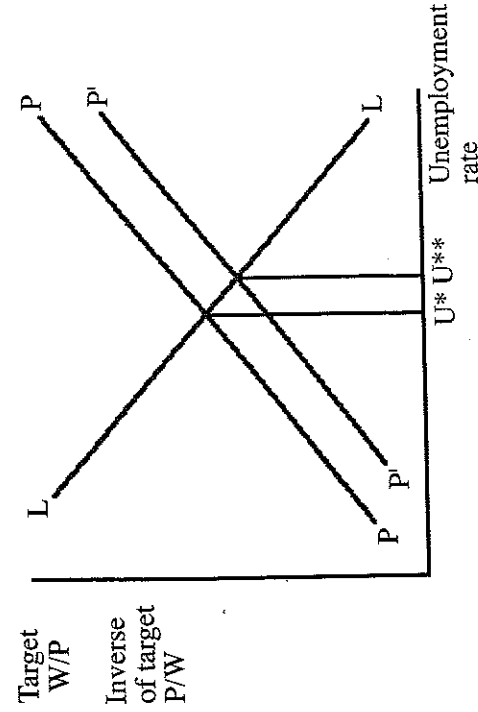
relatively new, employers may have difficulty estimating just what the risks are.[34]

American employers, for example, can obtain insurance policies against wrongful discharge lawsuits which cover litigation expenses and adverse verdicts for economic damages. However, court awards of punitive damages can not be recompensed by insurance. And there may be uninsurable internal costs to the firm such as supervisors becoming overly cautious in disciplining employees. One study found that California employers cut back hiring by more than could be justified by litigation expenses in wrongful discharge suits, suggesting significant risk aversion and/or indirect expenses.[35]

But even though risk aversion and hidden costs are easily cited, the wage flexibility issue remains at the heart of the discussion. Higher unemployment can arise from increased costs of severance only if wages do not fall to offset the added expected costs. Discussion of labor-market inflexibility and dis-employment has too often proceeded on the assumption that labor costs are given and any new costs simply are one-for-one add-ons.

Figure 5 provides a wider analysis at the macro level, drawing on the Mitchell–Zaidi model of the determination of the "natural" rate of unemployment.[36] The unemployment rate U tends to weaken labor's bargaining position, other things equal, so that target W/P, wages divided by a price index (the real wage) tends to be lower at

Figure 5. Determination of unemployment

Target W/P

Inverse of target P/W

P   P'   L   U* U**   Unemployment rate

higher unemployment rates. This labor-market relationship is shown by downward-sloping line LL. In the product market, firms mark up prices P over their labor costs W so that P/W represents the target profit margin. Other things equal, high unemployment (economic slackness) will reduce the ability to maintain high profit margins so target P/W will be lower at higher unemployment rates. But P/W is simply the inverse of W/P and is graphed on Figure 5 as *upward-sloping line PP*.

Clearly, the inverse of target P/W from the product market must equal target W/P in the labor market for equilibrium to prevail, as at U^* on Figure 5. U^* is the natural rate of unemployment because it harmonizes labor and product market targets. If U falls temporarily below U^*, workers will try to obtain a higher W/P in the labor market and firms in the product market will try to obtain a higher P/W (lower W/P). It is not possible for W/P and P/W to go up simultaneously. A wage-price spiral will therefore accelerate at points to the left of U^* on Figure 5. Conversely, to the right of U^*, a zone of disinflation eixsts. At U^*, whatever rate of inflation currently exists will tend to continue. Assuming the central bank is content with the current inflation rate, it will follow policies to hold unemployment at level U^*; departures from U^* will be unsustainable in the long run.

Other things being equal, any exogenous influence that causes firms to seek higher profit margins (a lower PP line and a lower W/P, holding LL constant) will tend to raise the natural rate of unemployment. Any influence that increases labor's insistence in seeking a higher real wage (a higher LL and a higher W/P, holding PP constant) will also raise the natural unemployment rate. If the expected cost of severance is raised, either because of a tighter mandate or because employers feel severance has become more expensive due to increased economic risk, PP will shift down (to $P'P'$) on Figure 5. By itself, this shift will raise the natural rate of unemployment (to U^{**}). Only if LL shifted down sufficiently to compensate employers for the increased cost of severance, i.e. only if the burden of the added cost of severance is shifted to labor, will the natural unemployment rate remain as low as U^*.

8. The bottom line on flexibility and employment

It is popular to point to mandated employment security devices as departures from needed flexibility in the labor market. But labeling

such inflexibility as the culprit for chronically high unemployment in some European and other countries can at best be only part of the story. Limits on the firm's right to lay off do raise costs to employers, but other elements of compensation, especially wages, could adjust to offset the extra costs. The view that labor costs are given and mandates add to costs on a one-for-one basis exaggerates the dis-employment effect. As shown in our simple model of the firm, wages are not fixed by "the market" through the law of one price. Firms can select from a wage/quit rate menu and absorb some mandated costs by accepting a higher quit/lower wage strategy. Hence, the key inflexibility is not the mandated employment security policy but whatever it is at the level of the firm that prevents downward wage adjustments in the face higher labor costs or high unemployment.

Notes

[1] An extended version of this paper was originally prepared for a meeting of study group #10 on "Flexible Work Patterns" held in conjunction with the International Industrial Relations Association, 4th European Regional Congress, Helsinki, Finland, August 26, 1994.

[2] Tiziano Treu, "Labour Flexibility in Europe", *International Labour Review*, 131 (4–5: 1992), pp. 497–152; Michael Emerson, "Regulation or Deregulation of the Labour Market: Policy Regimes for the Recruitment and Dismissal of Employees in the Industrialised Countries", *European Economic Review*, 32 (1988), pp. 775–817; Organisation for Economic Co-operation and Development, *Mechanisms for Job Creation: Lessons from the United States* (Paris: OECD, 1989).

[3] Organisation for Economic Co-operation and Development, *Labour Market Flexibility: Report by a High-Level Group of Experts to the Secretary-General* (Paris: OECD, 1986) p. 22.

[4] International Bank for Reconstruction and Development (World Bank), *The East Asia Miracle: Economic Growth and Public Policy* (New York: Oxford University Press, 1993), pp. 261–273.

[5] Martin L. Weitzman, *The Share Economy: Conquering Stagflation* (Cambridge, Mass.: Harvard University Press, 1984).

[6] Friedrich Klau and Axel Mittelstädt, "Labour Market Flexibility and External Price Shocks", Working Paper no. 24, Department of Economics and Statistics, OECD, September 1985.

[7] Olivier Blanchard and Lawrence H. Summers, "Hysteresis and the European Unemployment Problem", *NBER Macroeconomics Annual: 1986* (Cambridge, Mass.: MIT Press, 1986), pp. 15–78.

[8] Daniel J. B. Mitchell, Hsueh-Yu peng and Mahmood A. Zaidi, "Public Policy Towards Employee Benefits in the United States, Canada, and Taiwan: Lessons for European Integration", *LABOUR* 7 (1993), pp. 125–156, especially pp. 151–152.

[9] The analysis below can be found in standard textbooks. See, for example, Ronald

G. Ehrenberg and Robert S. Smith, *Modern Labor Economics: Theory and Public Policy*, fifth edition (New York: HarperCollins, 1994), pp. 69–71.

[10] The text assumes that the employer is mandated to pay the tax or cost of the benefit. There can also be mandates under which employees pay for, or share in the costs. The implications of taxes which are legally-paid by employers may not be identical to those legally-paid by the employer. These distinctions are not considered here. See Bertil Holmlund, "A Note on Changes in Payroll Taxes — Does Legal Incidence Matter?", *National Tax Journal*, 34 (December 1981), pp. 479–482.

[11] Certain kinds of benefits could theoretically increase labor supply. For example, it has been argued in the US that mandated paid maternity leave would reduce the tendency of women to reduce labor supply by quitting at the time of childbirth. See Olivia S. Mitchell, "The Effects of Mandating Benefits Packages", in Laurie J. Bassi and David L. Crawford, eds, *Research in Labor Economics*, 11 (Greenwich, Conn.: JAI Press, 1990), p. 306.

[12] Lawrence H. Summers, "Some Simple Economics of Mandated Benefits", *American Economic Review*, 79 (May 1989), pp. 177–183, especially p. 180.

[13] If the entitlement is not conditioned on employment, i.e. if the worker would receive the benefit whether employed or not, then even if the benefit is valuable, the analysis of Figure 1 would apply. For example, if a country creates a health care system for all members of the population, employed or not, financed (perhaps partially) by a payroll tax, the employee experiences no gain of health insurance by working. In that case, the effect is no different than if the government had simply imposed the payroll tax as a source of general revenue.

[14] The text assumes that a wage is negotiated and then the employer chooses the employment level along its demand curve. In truly efficient wage bargaining, the wage may be set off both the demand and supply curves, i.e. negotiations take place over both the wage and the employment level. Although that case is not discussed here, the same issues arise as in the case of operating along the demand curve.

[15] The Clinton administration was insistent on having its proposed health insurance plan be "employer-paid" although official analyses, including its own, assumed that the incidence would fall on labor. See US Congressional Budget Office, "Estimates of Health Care Proposals from the 102nd Congress", CBO paper, July 1993, p. 3; US President, *Economic Report of the President, February 1994* (Washington: GPO, 1994), pp. 148–149.

[16] Alan B. Krueger, "Observations on Employment-Based Government Mandates, With Particular Reference to Health Insurance", Working Paper 323, Industrial Relations Section, Princeton University, January 1994.

[17] Krueger used a two-sector model of currently insured and currently uninsured workers. Costs rise in the latter and drop in the former sector.

[18] Henry J. Aaron and Barry P. Bosworth, "Economic Issues in Reform of Health Care Financing", *Brookings Papers on Economic Activity* (Micro: 1994), pp. 249–286, especially p. 263.

[19] John A. Brittain, "The Incidence of Social Security Payroll Taxes", *American Economic Review*, 61 (March 1971), pp. 110–125; John A. Brittain, *The Payroll Tax for Social Security* (Washington: Brookings Institution, 1972).

[20] Martin S. Feldstein, "The Incidence of the Social Security Payroll Tax: Comment", *American Economic Review*, 62 (December 1972), pp. 735–738.

[21] John A. Brittain, "The Incidence of the Social Security Payroll Tax: Reply", *American Economic Review*, 62 (December 1972), pp. 739–742.

[22] Wayne Vroman, "Employer Payroll Tax Incidence: Empirical Tests With Cross--

Country Data", *Public Finance*, 29 (2: 1974), pp. 184–200.

[23] The relevant regressions, with all variables expressed as natural logs and t-statistics in parentheses, are:

(1) COMP $= -4.58 + 0.71$ GDP/Capita $+ 0.28$ Soc Ins   Adjusted $R^2 = 0.94$
    $(-5.70)^*$ $(8.18)^*$ $(4.41)^*$

(2) TAKE $= -5.70 + 0.81$ GDP/Capita $+ 0.16$ Soc Ins   Adjusted $R^2 = 0.92$
    $(-6.40)^*$ $(8.45)^*$ $(2.35)^{**}$

(3) ADJ $= -4.58 + 0.71$ GDP/Capita $+ 0.11$ Soc Ins   Adjusted $R^2 = 0.90$
    $(-5.70)^*$ $(8.18)^*$ $(1.81)^{***}$

*significant at 1% level
**significant at 5% level
***significant at 10% level

where:

COMP = hourly compensation (including social insurance) of manufacturing production workers

TAKE = hourly compensation (excluding social insurance) of manufacturing production workers

ADJ = COMP -0.16 Soc Ins (from equation [2])

Soc Ins = hourly employer expenditure on social insurance for manufacturing production workers

Similar results were obtained for year 1981 although the coefficient of Soc Ins in equation [3] fell below significance.

[24] Daniel S. Hamermesh, "New Estimates of the Incidence of the Payroll Tax", *Southern Economic Journal*, 45 (April 1979), pp. 1208–1219.

[25] Only one report appears to have produced a lower estimate of the shift to labor: a 1980 study by the US Congressional Budget Office (CBO) concerning a proposal to limit social security payroll tax increases for anti-inflation reasons. The CBO assumed that the shift to labor amounted to only one fourth of the tax over 2 years. However, the CBO does not cite any source or methodology for deriving this estimate and may have simply made it up for illustrative purposes. See US Congress, Senate Committee on Banking, Housing and Urban Affairs, Subcommittee on Economic Stabilization, *Economic Impact of Payroll Taxes*, hearings of March 13, 1980 (Washington: GPO, 1980), pp. 3–9, especially p. 4. Note that the CBO's assumption in this document is inconsistent with its later position cited earlier in the text.

[26] In addition, when there is a kink in the payroll tax formula, odd labor supply responses are possible for which it may be difficult to standardize. See C. Duncan MacRae and Elizabeth Chase MacRae, "Labor Supply and the Payroll Tax", *American Economic Review*, 66 (June 1976), pp. 408–409; Robert A. Moffit, "Labor Supply and the Payroll Tax Note", *American Economic Review*, 67 (December 1977), pp. 1004–1005.

[27] Jonathan Gruber and Alan B. Krueger, "The Incidence of Mandated Employer-Provided Insurance: Lessons from Workers' Compensation Insurance", Working Paper 3557, National Bureau of Economic Research, December 1990.

[28] Jonathan Gruber, "The Efficiency of a Group-Specific Mandated Benefit: Evidence from Health Insurance Benefits for Maternity", Working Paper no. 4157, National Bureau of Economic Research, September 1992.

[29] Bertil Holmlund, "Payroll Taxes and Wage Inflation: The Swedish Experience", *Scandinavian Journal of Economics*, 85 (1: 1983), pp. 1–15.

[30] Over the period 1953 to 1993, a regression with second degree, unconstrained polynomial lags produces the following results:

$$DLBRSH = 0.00 + 1.85\ DLBRTX[-1] + 0.72\ DLBRTX[-1] - 0.14\ DLBRTX[-2]$$
$$(0.62)\ (2.28) \qquad\qquad (1.70) \qquad\qquad (-0.28)$$

$$-0.72\ DLBRTX[-3] - 1.03\ DLBRTX[-4] - 1.07\ DLBRTX[-5]$$
$$(1.42) \qquad\qquad (-2.58) \qquad\qquad (-1.61)$$

Adjusted $R^2 = 0.20$ (*t*-statistics in parentheses)
[variable lag in brackets]

DLBRSH = annual change in labor's percentage share of GDP (total labor compensation/GDP)

DLBRTX = annual change in employer contributions to and taxes for social insurance as percentage of GDP

[31] Profits are equal to revenue – costs = revenue (employment cost + hiring cost + severance cost). Profits will be maximized by setting the partial derivatives of this equation with respect to *E* equal to 0. The terms of equation [1] are those partial derivatives.

[32] The labor cost function of Figure 4 shifts up (because of the net cost increase due to severance) and to the right. The rightward motion is due to the fact that the severance function shifts up more than the hiring function shifts down, i.e. the involuntary departure from the profit-maximizing equilibrium means that the severance cost increase outweighs the hiring cost saving, as explained in the text.

[33] The firm in the model above experiences higher quit rates at lower wages. But if all firms are lowering the wage, the quit rate need not rise.

[34] For a discussion of recent changes in employer perceptions of risk in the context of another type of employer compensation option, see Christoper L. Erickson and Andrea Ichino, "Lump Sum Bonuses in Union Contracts", *Advances in Industrial and Labor Relations*, 6 (Greenwich, Conn.: IAI Press, 1994), pp. 183–218.

[35] James N. Dertouzos and Lynn A. Karoly, *Labor-Market Responses to Employer Liability* (Santa Monica, Calif.: Rand, 1992), especially chapter 4.

[36] Daniel J. B. Mitchell and Mahmood A. Zaidi, "International Pressures on Industrial Relations: Macroeconomics and Social Concertation", in Tiziano Treu, ed., *Participation in Public Policy-Making: The Role of Trade Unions and Employers' Associations* (Berlin: de Gruyter, 1992), pp. 59–72.