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The Simple Economics of Benefit Transfers

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Abstract

The paper examines the employment and unemployment implications of permitting unemployed people to use part of their unemployment benefits to provide employment vouchers to the firms that hire them. This opportunity to transfer unemployment benefits into employment subsidies--"benefit transfers" for short--would help replace the unemployment trap by an incentive to work. The vouchers rise with people's unemployment durations and with the amount of training provided. The policy would be costless to the government since the cost of the employment vouchers is set equal to the amount saved on unemployment benefits. It would not be inflationary since the long-term unemployed, on whom the vouchers are targeted, have little influence on wage setting.

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Contents

Summary

This paper examines the implications of allowing unemployed people--particularly those who have been unemployed for a long time--the option of "transferring" some of their unemployment benefits into employment vouchers, that is, using a portion of their unemployment benefits to subsidize their own employment. In this way, the policy aims to turn the disincentive to work that is created by the unemployment benefit system into an incentive to seek and provide jobs.

The Benefit Transfer Program (BTP) has five salient features that distinguish it from the standard wage subsidy programs attempted heretofore: (1) it is voluntary; (2) the size of each person's employment voucher is linked to the size of his or her existing unemployment benefits; (3) the longer a person is unemployed, the larger is the stream of employment vouchers to which he or she is entitled; (4) once a person has found a job through the BTP, the size of the voucher gradually falls the longer the person remains employed; and (5) larger vouchers are given to employers who can prove that they are devoting these funds to training their new recruits.

The paper indicates that the BTP may make a substantial contribution to reducing unemployment in a number of member countries of the Organization for Economic Cooperation and Development (OECD). The reason is not that labor demand is generally very responsive to changes in labor costs--standard estimates of aggregate short-run labor demand elasticities are well under half in most OECD countries--but that many countries spend a lot on unemployment benefits, particularly if these benefits are broadly defined to include not only the cash payments to the unemployed, but also all the associated welfare state benefits and forgone tax revenues.

Since the amount that the government spends on the employment vouchers is set so as not to exceed what it would spend anyway on unemployment support, the reduction in unemployment can be achieved at no extra budgetary cost. All that has happened is that the funds that previously encouraged unemployment are now encouraging employment. If the employment vouchers are appropriately directed at the long-term unemployed, the reduction in long-term unemployment could be achieved without stimulating inflation because the long-term unemployed exert a negligible dampening influence on wages. By linking the vouchers to training, the BTP could become the basis for national training programs.

I. Introduction

Having plowed the field, the farmer and his son maneuver the tractor across the adjoining road. Suddenly they see a Jaguar speeding towards them at 100 mph. A second before expected impact, the Jaguar veers into the field, skids through a cloud of dust, regains the road and flies off into the distance. The farmer turns to the boy and says, "Son, we left that field just in time."

The spirit of this tale goes a long way towards explaining the evolution of unemployment policy in many EC countries and elsewhere. The policy is to pay people when they are unemployed and tax them when they find jobs. So, far from inducing workers to seek employment and firms to take them on, the policy in fact discourages them from doing so and thereby contributes to the unemployment problem. Having done so, the unemployment benefit system is then seen as particularly essential in providing a safety net for those out of work. This is not the only occasion on which economic policy creates the problem it is meant to solve, but it is particularly unconscionable in times of recession, when unemployment becomes a flagrant waste of human resources.

If the money governments spend on unemployment benefit could be redirected so as to provide an incentive, rather than a disincentive, for employment, many countries struggling with the twin burdens of high unemployment and costly unemployment benefits may reap a substantial benefit. This is the purpose of my "benefit transfer program" (BTP), on which the U.K. Workstart schemes are based. A related scheme, called Job Compact, has been introduced on a national level in Australia. 1/ The basic idea is to give the unemployed--particularly those who have been unemployed for a long time--a new option: *to use a portion of their unemployment benefits as vouchers for employers that hire them.* In this way unemployment benefit systems, which currently impose an implicit tax on work, could become a source of employment subsidies for the people who need these subsidies most, namely, the long-term unemployed.

1. General description and motivation

In market economies there generally "ain't no such thing as a free lunch." But this is an exception, since unemployment benefit systems create inefficiencies that the Benefit Transfer Program is designed to mitigate. When an inefficiency is reduced, fewer resources are wasted and society gets a free lunch. The unemployment benefit systems are notoriously inefficient since they keep the unemployed from competing effectively for jobs. They do so by (a) raising the return from remaining unemployed, (b) reducing the

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1/ Other experiments in this vein have been conducted in the United States, Germany, Italy, Canada, and elsewhere. See, for example, Byrne (1993), Felli and Ichino (1988), and Woodbury and Spiegelman (1987).

return from finding a job (via the taxes necessary to finance the unemployment benefits), and (c) putting upward pressure on wages (since they improve worker's fall-back positions when their wage claims are rejected). These inefficiencies are magnified by other market failures, such as those that arise when insiders (incumbent employees whose positions are protected by labor turnover costs) exercise their market power in the wage negotiation process 1/ or when firms use their wage offers to motivate their workforce and attract high-quality newcomers. 2/ Furthermore, these inefficiencies are perpetuated through a wide variety of inertial forces in the labor market, such as labor turnover costs that keep employment from adjusting readily or the tendency for people to reduce their job search effort as their unemployment spell lengthens. All these inefficiencies tend to pull in the same direction, in the sense that they keep wages undesirably high and employment undesirably low. The BTP is aimed at undoing some of these harmful effects.

Beyond that, it is common knowledge that unemployment benefit systems are not only inefficient, but also inequitable, in that they magnify existing inequities in people's job opportunities. The longer people are unemployed, the more their skills erode, the more discouraged they become in searching for jobs, and the more wary employers become of hiring them. For these various reasons, the long-term unemployed are disadvantaged in the labor market. The equitable policy response to this problem is to make it more profitable for firms to take on the long-term unemployed and for these people to find jobs, rather than merely to provide limited support when people are unemployed.

The BTP has five salient features, that distinguish it from the standard wage subsidy programs attempted heretofore:

(1) It is voluntary; only those unemployed people and potential employers who wish to take advantage of it need do so. The unemployed retain the option of remaining on unemployment benefit.

(2) The size of each person's employment voucher is linked to the size of his existing unemployment benefits, so that the amount the government spends on employment vouchers is no greater than what it would have spent on unemployment benefits. "Unemployment benefits" are to be interpreted widely to include foregone taxes and the full spectrum of welfare state benefits falling on the unemployed.

(3) The longer a person is unemployed (up to a limit), the larger is the stream of employment vouchers to which he is entitled.

1/ This market failure is analyzed in the insider-outsider theory. See, for example, Lindbeck and Snower (1989).

2/ This failure is the theme of the efficiency wage theory. See, for example, Calvo (1979), Shapiro and Stiglitz (1984), and Weiss (1980).

(4) Once a person has found a job through the BTP, the size of the voucher gradually falls the longer the person remains employed.

(5) Larger vouchers are given to employers who can prove that they are devoting these funds to training their new recruits.

2. An illustrative example of BTP design

There are many ways in which the BTP could be implemented in practice. Here is a specific example. Every person who has been unemployed for over six months would be mailed an employment voucher. This is meant to signal that this individual's employment prospects have improved and thereby to reduce the discouragement--and the associated decline in effort to search for new jobs--that people frequently experience after having sought jobs unsuccessfully for half a year. If the person does not find a job within the period over which the voucher is valid (one month), the voucher expires and the person continues to collect his unemployment benefits. But if he finds a job, he turns the voucher over to his new employer, who can then claim a subsidy from the government. 1/ The voucher specifies the size of the subsidy per weekly hours of work; so if the job is part-time, rather than full-time, the subsidy to the employer is scaled down pro rata.

Employers can use the voucher in two ways, as a recruitment voucher or as a training voucher. To cash the voucher as a recruitment voucher, the employer need only show that a worker entitled to a voucher has been hired (possibly subject to some anti-displacement conditions, specified below). To cash the voucher as a training voucher, the employer is also required to prove that the proceeds of the voucher are spent exclusively on training the new recruit. In order to avoid the danger that firms may divert some of their training budgets to other uses, the subsidized training is to be provided by independent private-sector agencies. To avoid the danger that firms may attempt to retain their new recruits by requiring the training to be excessively firm-specific, the subsidized training must lead to nationally certified qualifications. For any given employee, the training voucher is larger than the recruitment voucher.

1/ Alternatively, when a job is found, the subsidy could be divided between the employer and the employee. If wages are perfectly flexible over the long run, then the relative shares of the voucher claimed by the employer and employee may be expected to have no effect on employment, since the wage agreement depends on these relative shares: if the employee is allotted more of the voucher, the wage will turn out to be correspondingly lower. In practice, wage scales across employees are often standardized, so that even in the long run wages may not adjust to compensate for vouchers whose magnitude is related to unemployment durations. In any case, in the short run (before all wages in the economy have adjusted fully to the vouchers) the relative shares may have an effect that depends on the relative returns to job search by workers versus the returns to employee search by firms: if the employee gets more of the voucher, his job-search effort will rise, but the search intensity of potential employers will fall.

On the basis of the voucher, the employer and employee are free to come to any wage agreement they choose. The only restriction is that the recruitment voucher must be less than the wage and the training voucher must be less than the wage plus training expenditures. 1/ By giving the employer and employee this latitude regarding remuneration, they gain the incentive to maximize the potential gains from productive exchange. Of course, unemployed people will accept employment only if the wage is sufficiently high to compensate them for the loss of their unemployment benefits plus the value of their leisure; 2/ and the employers will accept only if it is profitable for them to do so. The voucher is meant to create such mutually advantageous deals: some of the unemployed people, who initially would not have been willing to work at the maximal wage that potential employers would have been willing to offer, may now find work, since these employers will be able to make higher wage offers upon receipt of the vouchers.

The longer the unemployment spell a person has been through (up to a maximum attained after, say, 2.5 years of unemployment), the greater the size of the initial voucher the person receives upon becoming employed. 3/ Once the person is employed, his vouchers decline steadily, month by month, as his job tenure extends. After two years of employment, the voucher is phased out entirely.

Within this general framework, the size of each person's recruitment employment voucher is to be kept approximately in line with the size of the unemployment benefits he would otherwise have received. 4/ This means that in the month in which the person becomes employed, the size of the

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1/ Clearly, if these conditions were violated, employers would find it worthwhile to hire the subsidized workers without requiring any productive effort on the workers' part. That would obviously defeat the purpose of the BTP, namely, to get unemployed people back into productive pursuits.

2/ An unemployed person's valuation of his leisure may be either positive or negative.

3/ It is desirable that the initial voucher rise gradually with unemployment duration, in order to keep small the size of the "notches" by which the successive vouchers rise with the length of the jobless spell. Clearly, the greater are these notches, the greater will be the disincentive to work for people with unemployment spells just under the critical level entitling them to a higher voucher.

4/ In those countries where the size of unemployment benefits, plus all the related welfare state support, eventually falls with unemployment duration, there is a tension between (a) the requirement that the present value of each person's employment vouchers is approximately equal to the present value of the unemployment benefits that person would otherwise have received and (b) the requirement that the size of the initial voucher rise with the length of the person's previous unemployment spell (up to a certain limit). In case of such conflict, it may be necessary to meet the second requirement through some redistribution of funds towards those people with the longest unemployment durations.

voucher should be roughly equal to his unemployment benefit multiplied by his probability of remaining unemployed in that month. The size of the voucher in the following month of employment should be roughly equal to his unemployment benefit times his probability of still being unemployed after two months, and so on.

In practice, of course, these probabilities are difficult to assess with any accuracy, and thus some population-wide averages would have to suffice. But since unemployment benefits generally vary with people's personal circumstances, this arrangement does imply that different people with equal employment durations will receive different employment vouchers. In this sense, the BTP simply reproduces the unequal treatment of individuals through the unemployment benefit system. Whatever equity considerations underlie this unequal treatment (such as granting higher unemployment benefits to married people with children than to single people), these features are retained through the BTP. In this way the incentive to find jobs is spread more or less equally across the long-term unemployed, who are entitled to the largest unemployment benefits (and who consequently have the strongest incentive to remain unemployed) and hence also the largest employment vouchers. 1/

Similarly, the size of each person's training voucher is to be approximately in line with the unemployment benefits plus training subsidies he would otherwise have incurred.

To illustrate the relation of the recruitment and training vouchers to unemployment durations, it may be useful to consider the specific example of a person, with a particular set of benefit-relevant characteristics, receiving a recruitment voucher of $v_R = \min [0, \max (-1 + \frac{1}{6}D)]$ and a training voucher of $v_T = \min [0, \max (-2 + \frac{1}{3}D)]$, where D is the duration of unemployment. This means that a person who has been unemployed for six months or less receives nothing; one who has been unemployed for 12 months receives a recruitment voucher of $1 (declining at the rate of $1/6 per month of employment) or a training voucher of $2 (declining at the rate of $1/3 per month of employment); one who has been unemployed for 18 months receives a recruitment voucher of $2 or a training voucher of $4 (declining at the same monthly rates given above); and so on, up to a maximal recruitment voucher of $4 or a maximal training voucher of $8, achieved after 30 months of unemployment.

1/ If all individuals with a given unemployment duration were given the same voucher, those receiving relatively large unemployment benefits would have no incentive to take advantage of the BTP, whereas those receiving relatively small ones would have a great incentive to do so. Then, clearly, the employment incentives would fall very unequally on the long-term unemployed.

3. Economic implications of the BTP

It is a common experience of economic policymakers that wage subsidies are expensive and, given their cost, their employment impact is often disappointingly small. But the BTP is not just another wage subsidy scheme. Whereas the standard wage subsidy scheme is a burden on the tax payer, the BTP is not. Whereas the alternative to the standard wage subsidy scheme is to stop paying employers to take on workers they would otherwise have found unprofitable, the alternative to the BTP is to support people who are idle. Whereas standard wage subsidy schemes are wasteful, both in terms of deadweight (providing subsidies to some workers who would have found jobs anyway) and displacement (inducing firms to replace incumbent employees with subsidized recruits), the BTP is much less so: it is targeted at the long-term unemployed, and these workers have relatively low chances of finding jobs anyway and they are often very imperfect substitutes for incumbent employees (particularly in jobs that require experience and skill), so that they are in a correspondingly poor position to displace them. 1/

I will argue below (in Section VII) that in a good number of OECD countries, the BTP might turn out to have a surprisingly large effect in promoting employment and reducing unemployment. The reason is not that labor demand is generally very responsive to changes in labor costs--standard estimates of aggregate short run labor demand elasticities are well under a half in most OECD countries--but that many countries spend a lot on unemployment benefits, particularly if these benefits are broadly defined to include not only the cash payments to the unemployed, but also all the associated welfare state benefits and the foregone tax revenues. Replacement ratios--the ratios of unemployment benefits (broadly defined) to the average wage--exceed 50 percent in most OECD countries. It is because so much is spent on unemployment benefits and related expenditures that, when a substantial fraction of these funds is offered to employers in the form of employment vouchers, the resulting impact on employment may be substantial.

Basically, what the BTP is designed to do is to *raise* the take-home pay of the new recruits, while at the same time *reducing* their cost to the employers. In short, employees could wind up receiving substantially more than their unemployment benefits, and many employers could find themselves paying substantially less than the prevailing wages. The difference between what the employees receive and what the employers pay is the portion of unemployment support that has been transferred to employment vouchers.

When people draw unemployment benefits, the government bears the cost of supporting them single-handedly. But when they transfer their benefits to employment vouchers, the government shares this cost with the firms that hire them. The reason is that once people are employed, they become

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1/ Ways to further reduce deadweight and displacement are discussed in Section V.

productive, making goods and services that are sold to consumers and investors. The revenue that is generated in the process is what permits firms to pay wages substantially in excess of the employment vouchers. In effect, when unemployment benefits are used as employment vouchers, the firms and their customers have an automatic incentive to help the government in bearing the cost of bringing the unemployed back to work.

Since the amount that the government spends on the employment vouchers is set so as not to exceed what would have spent anyway on unemployment support, *the reduction in unemployment can be achieved at no extra budgetary cost*. All that has happened is that the funds that previously encouraged unemployment are now encouraging employment.

If the employment vouchers are appropriately targeted at the long-term unemployed, *the reduction in long-term unemployment could be achieved without stimulating inflation*, since the long-term unemployed exert little if any dampening influence on wage inflation.

By linking employment vouchers to existing unemployment benefits, the BTP becomes an *automatic stabilizer*, providing most employment vouchers when unemployment is highest. Once the recession is over, unemployment falls and, with it, the unemployment benefits transferable into employment vouchers. Thus the Program would automatically shrink as unemployment fell.

By linking the vouchers to training, *the BTP could become the basis for national training programs*. Clearly, firms that qualify for training vouchers (by spending them on nationally accredited training programs at independent agencies) generally have an incentive to retain their recruits after the vouchers have expired. After all there is little to be gained from training someone, even at subsidized rates, if the firm does not intend to use that worker once he has acquired the training. Thus the training for the unemployed would generally come with longer-term career prospects. This is something that existing government training schemes do not offer. Many current schemes also run the risk of being ill-suited to firms' diverse job requirements and workers' diverse productive potentials, whereas under the BTP firms would naturally initiate the training that is most appropriate to the available jobs. And it is worth recalling that, whereas the existing

training schemes are costly to run, this one would impose no additional cost to the government. 1/

The BTP could also play an important role in tackling regional unemployment problems. If it were adopted on a national level, regions of high unemployment would become ones containing relatively high proportions of subsidized workers, giving the agents that find it least costly to move--either the firms or the currently unemployed workers--an incentive to relocate and retrain. 2/

The case for implementing the BTP is particularly strong where unemployment benefits are generous and employment is responsive to variations in labor costs. As shown in Section VII, many countries in the EC and elsewhere fall into this category. The purpose of the intervening Sections II and VI is to provide a simple diagrammatic overview of the basic features of the BTP and their salient effects on employment and unemployment.

II. The Underlying Framework

Let me begin with a simple account of labor market behavior that provides a convenient background for understanding the role of the BTP in reducing unemployment. Figure 1 pictures unemployment as the outcome of an employment and wage setting process. The labor demand curve is denoted by *LD*. Under perfectly competitive conditions, it shows how much labor firms will employ at any given real wage. Under imperfect competition, it describes the profit-maximizing relation between employment and the real wage, when firms make employment and pricing decisions in response predetermined nominal wages. In either case, the labor demand curve is downward-sloping when there are diminishing returns to labor.

1/ Another way in which the BTP could encourage training is by encouraging long-term employment relative to temporary employment. The reason, of course, is that the size of the employment vouchers depends on the duration of the previous spell of unemployment. In accepting employment, a person therefore loses his voucher entitlement and must go through another unemployment spell before regaining that entitlement. Consequently, people would have a greater incentive to relinquish their voucher entitlement in return for a long-term career prospect, yielding a substantial present value of wage incomes, than for temporary jobs. Should policy makers deem this bias to be undesirable, however, they could make the size of the employment vouchers depend on the amount of time a person has been unemployed over, say, the past two years.

2/ Specifically, if it is cheaper for firms to relocate, they would move into the area and retrain the local unemployed workforce. If, on the other hand, the workers have lower moving costs, they will leave the area and retrain elsewhere.

Figure 1. The Labor Market Equilibrium

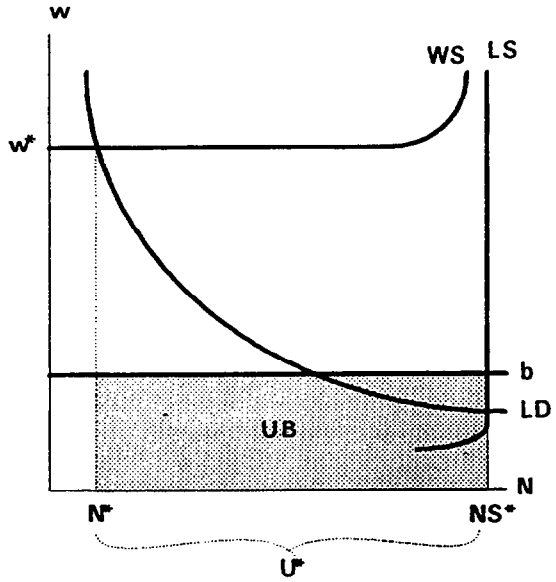
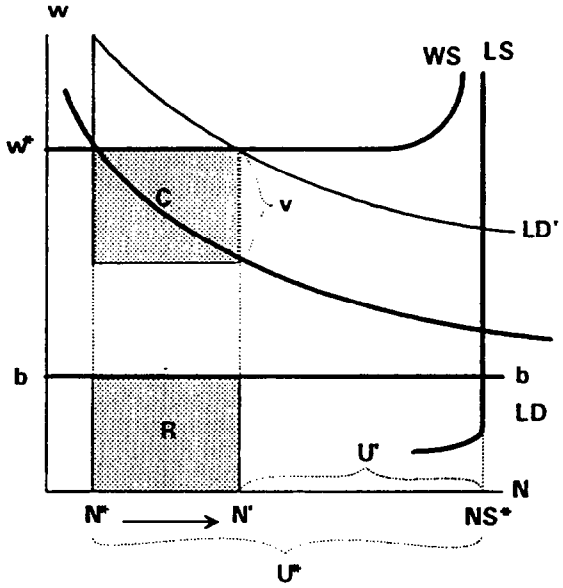


Figure 2. The Effect of The Recruitment Voucher



The wage setting curve, given by *WS* in the figure, shows how the wage is set at any given level of aggregate employment. This curve can be interpreted in a wide variety of ways. If, for example, firms set wages with a view to discouraging their employees from shirking, *WS* traces out the minimum wage (at any given level of aggregate employment) that firms must pay to keep their workers motivated, i.e., *WS* becomes the no-shirking constraint. 1/ Whereas if firms set wages so as to discourage quitting, *WS* gives the minimum wage (at each employment level) that firms must pay to retain their workers, i.e., *WS* is the no-quitting constraint. 2/ Moreover, if firms' wage offers are made with a view to attracting particularly productive employees, *WS* traces out the minimum wage (for given employment) of attracting workers at a particular level of productivity. 3/ Finally, the *WS* curve may also be interpreted as the outcome of wage negotiations between individual employers and employees (at any given level of aggregate employment), or it could be the upshot of union activity. 4/

The wage setting curve may be upward-sloping, downward-sloping, or flat. There are two countervailing effects on slope: (i) The greater the level of employment, the smaller will be the marginal product of labor and consequently the weaker will be the bargaining position of the marginal employees. 5/ On this account, an increase in employment puts downward pressure on the negotiated wage. (ii) The greater the level of employment, the easier it is for employees to supplement their income during a breakdown of negotiations, and the more favorable their fall-back positions become.

1/ See, for example, Shapiro and Stiglitz (1984). The underlying idea is that firms are unable to monitor perfectly whether their employees are shirking. Thus they offer a wage above the minimum wage necessary to induce people to work (the reservation wage) and they fire any employee whom they catch shirking. The greater the difference between the offered wage and the reservation wage, the greater is the employee's penalty for shirking. The *WS* curve then traces out the wage the firms need to offer in order to keep workers from shirking.

2/ See, for example, Calvo (1979) and Stiglitz (1985). If workers who quit their firms have some likelihood of going through a period of unemployment before finding new employers, the cost of quitting will depend on the difference between their current wage and what they receive when unemployed. Thus, firms can discourage quitting by raising their wage offers.

3/ See, for example, Weiss (1980).

4/ See, for example, McDonald and Solow (1981), where the wage setting curve is portrayed as a contract curve, and Lindbeck and Snower (1990), where it is the outcome of Nash bargaining between firms and their insiders. Furthermore, if unions set the wage unilaterally, then the wage setting curve can trace out the unions' most preferred points on a family of labor demand curves.

5/ The smaller the marginal product of labor, the smaller will be the workers' bargaining surplus (given their fall-back position) and thus the lower will be the negotiated wage, *ceteris paribus*.

In addition, employers' fall-back positions become less favorable, since they have a smaller pool of unemployed workers to draw from. On this account, an increase in employment puts upward pressure on the negotiated wage. The latter tendency may be reinforced when firms use their wage offers to discourage quitting or shirking. The greater is the level of employment, the more likely is a worker to find another job once he quits or has been fired. Thus the more the firm's offered wage may have to exceed the reservation wage in order to discourage quitting and shirking. 1/ For simplicity, the wage setting curve in Figure 1 is pictured as flat over the relevant range.

The equilibrium level of employment (N^* the equilibrium real wage (w^*) are given by the intersection between the labor demand curve (LD) and the wage setting curve (WS). The labor supply curve LS describes the aggregate amount of labor that workers, each acting on their own and in the absence of unemployment benefits, would be willing to supply at any given real wage. The difference between labor supply (NS^*) and labor demand (N^*) at the equilibrium real wage is the equilibrium level of unemployment (U^*).

The size of the unemployment benefit is denoted by b. Thus the aggregate amount that the government spends on unemployment benefits is bU^*, given by the shaded area UB in Figure 1. As shown below, the Benefit Transfer Program uses these unemployment benefits as a resource to promote employment.

Each of the following sections deals with a different aspect of the BTP. Section III begins with an elementary finger-exercise, in which the unemployment benefits pay for recruitment vouchers, in a simple world where vouchers are targeted perfectly at net increases in employment and no incumbent workers are displaced. Section IV examines the implications of directing the vouchers to the long-term unemployed. Section V considers the problems of "deadweight" (people receiving vouchers who would have become employed anyway) and "displacement" (the subsidized new recruits replacing the incumbents). Section VI explores the effects of using the unemployment benefits to provide training vouchers. Then Section VII provides some preliminary empirical estimates of how the BTP might affect unemployment in various OECD countries. Finally, Section VIII concludes.

III. Self-Financing Recruitment Vouchers

As a first step towards depicting the influence of the BTP in this setting, consider a hypothetical policy experiment, in which a recruitment voucher v is given to firms for each additional employee they hire. To keep the exposition simple for the moment, let us suppose that the government is actually able to confine its voucher payments only to the net increase in

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1/ This argument ignores the income effect. It is of course conceivable that the income effect be so strong that a rise in the offered wage *raises* workers' propensity to quit and shirk.

the aggregate employment level, and that no incumbent employees are replaced by the new recruits.

Then the labor demand curve moves upwards by the amount v, as shown by the shift from LD to LD' in Figure 2. 1/ For simplicity, suppose that the wage setting curve remains unchanged. 2/ Consequently, the equilibrium level of employment rises from N^* to N', unemployment falls from U^* to U', and spending on unemployment benefits falls correspondingly from bU^* to bU'.

Provided that incumbent employees are not displaced, the amount the government saves on unemployment benefits is $bU^* - bU'$. This may be interpreted as the "revenue" (denoted by the shaded area R in Figure 2) available to finance the cost of the recruitment vouchers. The cost of the voucher scheme is the size of the voucher (v) times the number of additional employees hired ($N' - N^*$). It is given by the shaded area C in the figure.

If the amount of voucher revenue (area R) is greater than or equal to the cost of the vouchers (area C), then the scheme pays for itself. Since the voucher revenue is $b(N' - N^*)$ while the cost is $v(N' - N^*)$, the scheme will be self-financing as long as $v \leq b$, namely, as long as the recruitment voucher does not exceed the unemployment benefit.

Clearly, the highest voucher that the government can afford to offer, without running a deficit on the scheme, is $v^* = b$. The resulting employment level is the maximum amount of employment that can be generated through the self-financing voucher scheme.

IV. Targeting the Long-Term Unemployed

We now extend the framework above to take account of another salient feature of the BTP, namely, targeting the long-term unemployed.

As noted, when people remain unemployed, their skills depreciate and become obsolescent, and they lose useful work habits such as reliability,

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1/ Since firms were previously willing to employ N^* workers at wage w^*, they are now prepared to provide the same employment at wage $w^* + v$.

2/ If the wage setting curve represents the no-shirking or no-quitting constraint, it will in fact remain unchanged, since the voucher does not affect the employees' incentives to shirk or quit at any given level of employment. Similarly, the wage setting curve is unchanged if it is the outcome of union wage setting. But if it is the outcome of wage negotiations between employers and employees, the vouchers have several countervailing effects on the portion of the wage setting curve. One the one hand, the vouchers raise firms' profits, and employees are able to capture some of this added profit through higher negotiated wages. On the other, the vouchers improve firms' fall-back position, since it is now cheaper to hire alternative labor during breakdown in negotiations; this puts downward pressure on the negotiated wage.

punctuality, conscientiousness, initiative, adaptability, and so on. The simplest way of summarizing these regularities in the framework above is to assume that people's potential marginal products fall with their unemployment duration, *ceteris paribus*.

To incorporate this assumption into the labor demand curve, suppose that all the unemployed, U^* in Figure 3, are ordered in terms of their unemployment durations, so that as we move along the horizontal axis from N^* to NS^*, we include people who have been unemployed for longer and longer periods of time. Then if the marginal product of labor falls not only due to diminishing returns to labor, but also because people with progressively longer unemployment durations are drawn into the workforce, that portion of the labor demand curve lying to the right of the equilibrium level of employment is no longer LD (corresponding to the labor demand curve in Figures 1 and 2), but may be depicted by LD_u.

In this context, the government can reduce the cost of the recruitment voucher scheme by offering vouchers of different magnitudes to workers with different unemployment durations. Clearly, this cost is minimized when workers with successively higher unemployment durations are each given a voucher amounting to the successively larger differences between their marginal products and the marginal product of the last worker hired without a voucher. For vouchers ranging from zero to $\bar{v}$, the cost is then given by the shaded area C in Figure 3. 1/ This cost-minimizing way of targeting the long-term unemployed permits the self-financing recruitment vouchers to have a larger employment effect than the uniform voucher scheme in the previous section, since it reduces the cost of the scheme relative to the voucher revenue for any given level of employment.

V. Deadweight and Displacement

Even if optimal targeting of the long-term unemployed were possible, the framework above would overstate the effectiveness of the self-financing recruitment vouchers. One reason is that we assumed the vouchers could be targeted exclusively at additional employees. In practice, this is generally unachievable. The net increase in aggregate employment is defined as the actual (post-voucher) level of employment minus what the employment level would have been in the absence of the voucher. But since the labor market is continually subject to external shocks, it is difficult to assess the latter employment level. Since firms have a clear incentive to understate this employment level (in order to receive large voucher payments) and since the government generally has too little information to correct such claims, it is inevitable that some vouchers would be paid for employees who would have been employed in any case.

1/ In practice, of course, such optimal targeting is not achievable since people's potential productivities and the position of the wage setting curve cannot be known with certainty.

Figure 3. Targetting the Long-Term Unemployed

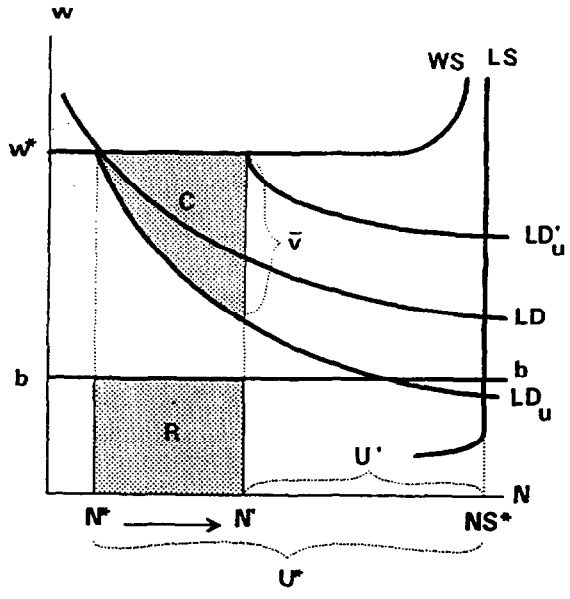
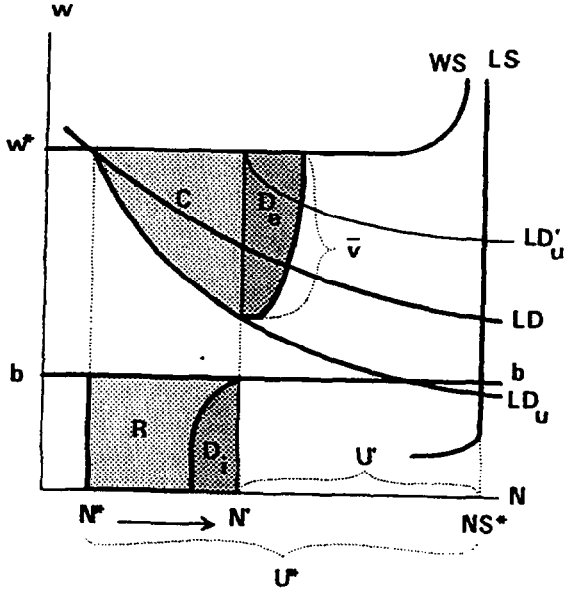


Figure 4. Deadweight and Displacement



In an attempt to get around this problem, recruitment subsidies may be granted for employment in excess of the level achieved at some time in the past (rather than the level that would have been achieved without the voucher). For example, employers could get subsidies for any additions to their workforce over the past year. Thus expanding firms would receive subsidies while contracting firms would not. But since the subsidies to the expanding firms are not balanced by payments from the contracting firms, more than the net increase in aggregate employment would be subsidized. The same holds true of firms that come into existence vis-à-vis those that close. Thus it is impossible in practice to avoid spending some vouchers on people who would have found employment even in the absence of the vouchers, i.e., some "deadweight" is inevitable.

Empirical studies 1/ show that the longer people are unemployed, the lower are their chances of becoming employed. 2/ Consequently, the magnitude of deadweight falls as the duration of unemployment rises. This is illustrated by the area D_e in Figure 4, where the wide upper portion of the area corresponds to the upper part of the LD_u curve (underneath the WS curve) and, as we move downwards along the LD_u curve, the width of the D_e area declines.

The total cost of the scheme is now the sum of deadweight area (D_e) and the cost of the net increases in employment (area C).

Another reason why the analysis of Section IV overstates the effectiveness of self-financing recruitment vouchers is that it assumed no displacement of incumbent employees by the subsidized new recruits. In practice, of course, it is virtually impossible to avoid any displacement, on account of factors analogous to those why deadweight cannot be avoided. It is very difficult, as a practical matter, to identify displacement. It is defined as the number of incumbents who would have been employed in the absence of the vouchers minus those who are employed under the voucher scheme. But the former number, being hypothetical, is hard to assess. For this reason, anti-displacement provisions may make a firm ineligible to receive a recruitment voucher for a worker hired after an incumbent has left. This is tantamount to making the firm ineligible unless its employment exceeds the level it achieved at some time in the past--which is the same as the above-mentioned provisions to avoid deadweight. But as in the case of deadweight, the vouchers received by the expanding or newly created firms are not balanced by payments from the contracting or closing firms and thus inter-firm displacement is still possible. Besides, it is quite easy for firms to circumvent such anti-displacement provisions (such as inducing the incumbent to leave *after* the new entrant has been hired). This is particularly true in sectors where the costs of hiring, training, and firing are low.

1/ See, for example, Layard, Nickell, and Jackman (1991).

2/ In the United Kingdom, for instance, this is the case up to unemployment durations of about 2.5 years, beyond which the employment probabilities flatten out.

In practice, the greater is the employment generated by the vouchers, the greater the number of incumbents that will be displaced. But as recruits with progressively longer unemployment durations are hired, they generally become less and less substitutable for the incumbents. Thus displacement rises less than proportionately with employment. This is illustrated by the area D_i in Figure 4.

Obviously, the greater is the amount of displacement, the smaller will be the voucher revenue, since displaced incumbents frequently join the unemployment pool. 1/ Consequently the amount of voucher revenue is now given by the area R in Figure 4.

Once again, the vouchers are self-financing as long as their total cost (the sum of areas C and D_e) does not exceed the voucher revenue (area R). In response to the voucher scheme depicted in the figure, employment rises from N^* to N'.

Figure 4 can also be used to understand the employment effect of the voucher scheme through time for each cohort of workers, where cohorts are defined in terms of the duration of the previous unemployment spell. The last cohort of workers to be employed under the voucher scheme (*viz*, the ones with the longest previous unemployment spell) generate a direct cost given by the rightmost vertical slice of the area C in Figure 4, and a voucher revenue given by the rightmost slice of the area R. In becoming employed they make up for the depreciation and obsolescence of their skills that took place during their period of unemployment, and thus their productivity rises from the relevant portion on the LD_u curve to that on the LD curve in the figure. With the passage of time, these workers gain employment experience and cease to be the marginal workers in terms of their productivity; this marginal status is taken on by subsequent recruits. Thus the direct costs and revenues associated with the above cohort of workers may be visualized as a succession of vertical slices of the areas C and R (respectively), each lying progressively further to the left. In this process, the size of the voucher gradually falls as the workers' period of employment proceeds, until eventually the voucher phases itself out of existence and the workers become unemployed again. 2/

1/ However, since they join it as short-term unemployed, they also have a relatively high chance of regaining employment.

2/ Not only do the voucher costs fall as time proceeds; the voucher revenue falls as well. The voucher revenue associated with each cohort of workers in each period of time is equal to the unemployment benefit associated with the unemployment duration which the cohort would have in that period, multiplied by the probability of still being unemployed in that period. Since the probability that a person remains unemployed falls as time proceeds, the voucher revenue must fall as well. Clearly, workers will remain unemployed until their recruitment subsidies have entirely disappeared only if the slope of the labor demand curve and the evolution of unemployment probabilities is such that the voucher revenue does not decline faster than the associated cost.

Now suppose that the size of the maximal voucher ($\bar{v}$) is gradually increased from an initial level of zero, causing employment to rise. As a result, the area of total cost (the sum of the areas C and D_e) and the area of voucher revenue (area R) both increase, as illustrated by the movement from TC' to TC'' and from R' to R'' (respectively) in Figure 5.

Clearly, when the maximum voucher is very small, the voucher revenue will exceed the total cost of the scheme, so that the scheme is self-financing. The reason is that as the voucher falls to zero, both the width and the height of the total cost area (TC) shrinks to zero, but only the width of the voucher revenue area (R) shrinks to zero; the height of the voucher revenue area remains at b, the size of the unemployment benefit. However, as the voucher is increased, the total cost may rise faster than the voucher revenue, 1/ so that there may be some maximal level of the maximum voucher ($\bar{v}^*$) beyond which the scheme ceases to be self-financing. *This is illustrated in Figure 6. The maximum level of employment that can* be generated through the scheme is then given by the employment level corresponding to $\bar{v}^*$.

VI. Training Vouchers

The BTP gives unemployed people the opportunity to use not only a part of their unemployment benefits, but also a portion of their existing training budgets to provide training vouchers for firms that are willing to hire them and train them while employed. As above, the training vouchers may be specially targeted at the long-term unemployed. Assuming that the longer people are unemployed, the lower their productivity and the more costly they are to train, the long-term unemployed require larger training vouchers to achieve a given level of productivity than do the short-term unemployed. The cost of the training voucher scheme is then minimized when the size of the training vouchers rises gradually with unemployment duration, as illustrated in Figure 7. Here the vertical distance between the wage setting curve WS and the labor demand curve LD_u is the minimum amount by which productivity must be raised in order to make the unemployed employable. The corresponding shaded area c is the cost of increasing net employment by $N' - N^*$ in this way. The maximum voucher required for this purpose is $\bar{v}$.

The area d_e represents "training deadweight," i.e., the amount of training voucher expenditures that are made on people who would have received the training even in the absence of these vouchers. Thus the total cost of the training voucher scheme is the sum of the areas c and d_e.

Given that the unemployment benefit is b and the average training expenditure per unemployed person is T, the corresponding voucher revenue is given by the area r. The area d_i stands for "training displacement," the

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1/ This is merely a possibility. There is nothing in our analysis that inevitably makes this happen.

Figure 5. The Effect of an Increase in the Voucher

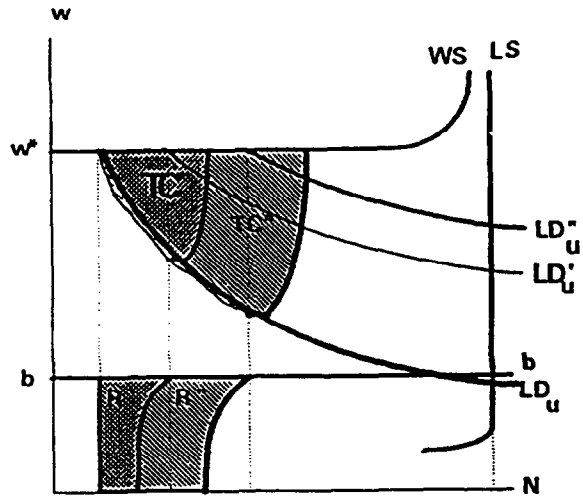
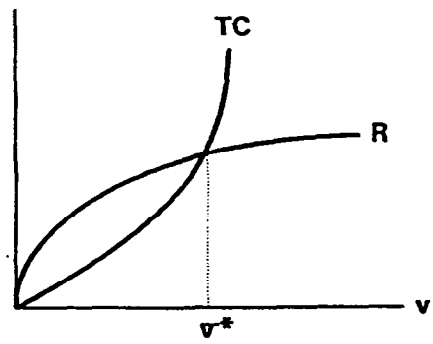


Figure 6. The Maximal Employment Voucher



amount of training voucher funds that are wasted because the newly trained people displace current incumbent employees.

The training vouchers pay for themselves provided that their total cost ($c + d_e$) is less than or equal to the voucher revenue (r).

Clearly, the intertemporal effects of the training vouchers differ from those of the recruitment vouchers. As above, the direct costs associated with the marginal recruits (those with the longest previous unemployment spell) may be pictured by the rightmost vertical slice of the area c in Figure 7 and the corresponding voucher revenue is given by the rightmost slice of the area r. The training vouchers, however, may usually be expected raise workers' *long-term* productivity to the level w^*, so that--barring any external shocks to labor demand--these workers will remain employed once their training period is over and their training vouchers have expired. Thus whereas a continuous stream of recruitment vouchers is necessary to maintain the level of employment above its initial level N^*, only a finite stream of training vouchers is sufficient for this purpose.

Figure 8 pictures the total cost and revenue from both the recruitment and the training vouchers in terms of the maximal magnitude of these vouchers. The training voucher revenue curve (r) lies above the recruitment voucher revenue curve (R), since the training vouchers are financed by both unemployment benefits and the existing training expenditures while the recruitment vouchers are financed by unemployment benefits alone. The total cost curve for the training voucher scheme (tc) lies above that of the recruitment voucher scheme (TC) provided that the cost of making an unemployed person employable through raising his productivity exceeds the cost of doing so through recruitment subsidies. Provided that the r curve lies above the R curve by more than the tc curve lies above the TC curve, the maximum level of the highest training voucher ($\bar{v}_t^*$), i.e., the maximum level of the training voucher allocated to the marginal recruit (namely, the recruit who previously had the highest duration of unemployment) will exceed the maximum level of the highest recruitment voucher ($\bar{v}^*$). 1/

1/ Clearly, the positions of the TC and tc curves are interdependent. The greater the number of workers receiving the recruitment voucher, the greater is the unemployment duration of the workers available to receive the training voucher, *ceteris paribus*. Thus the lower is the marginal revenue product of the workers receiving the training voucher and the lower is the training deadweight. Given that the former effect dominates the latter, this will raise the cost of the training voucher scheme for any given level of induced employment. In addition, training displacement will be lower as well, and this will raise the revenue from the training voucher scheme. In Figure 8, the positions of the R and TC curves corresponds to the optimal maximal training voucher and the positions of the r and tc curves corresponds to the optimal maximal recruitment voucher.

Figure 7. Training Vouchers

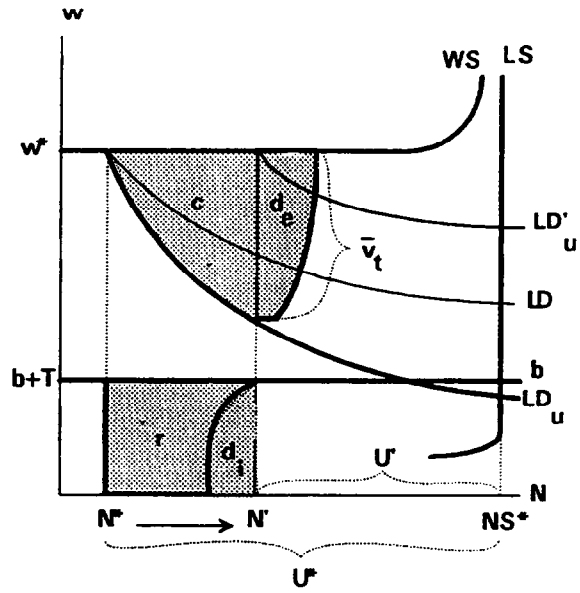
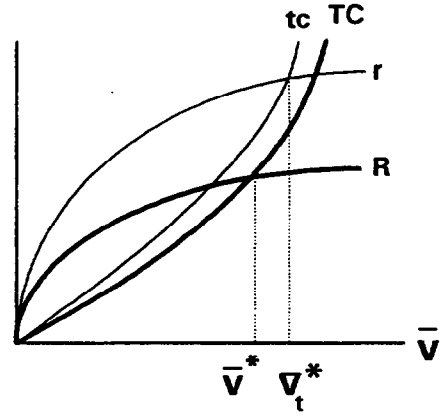


Figure 8. The Maximum Training on Recruitment Vouchers



VII. Estimating the Unemployment Effects of the BTP

We now derive some preliminary empirical estimates of how the BTP may affect unemployment in various OECD countries. The analysis is based on very simple calculations of deadweight, displacement, and voucher effectiveness. 1/ Since the emphasis is on simplicity, the results are clearly not definitive, but rather illustrative of a method of assessing the possible unemployment effects of the program. We focus attention exclusively on employment vouchers and ignore training vouchers. Moreover, let the targeted group comprise all the unemployed, and let the vouchers be granted for a one-year period, which will be our period of analysis.

Let us call employment of the target group "target employment," and let N_T and N_T^o be target employment in the presence and absence of the employment vouchers, respectively. By definition,

$$N_T = N_T^o + \Delta N_T \tag{1}$$

i.e., target employment with the vouchers is equal to target employment without the vouchers plus the additional employment induced by the vouchers (ΔN_T).

The N_T^o people in the economy, who would claim vouchers under the BTP but who would have found jobs anyway, represent deadweight. To model this in a simple way, we consider an "initial equilibrium," before the vouchers are introduced, and ask how many employees vacate their jobs each period and how many people who have previously been unemployed fill these vacancies. Let N^o be aggregate employment in the initial equilibrium, and σ_I be the incumbent workers' separation rate. Then, assuming employment to be stationary in the original equilibrium, the number of vacancies is $\sigma_I N^o$. Suppose that a constant proportion γ of these vacancies is filled, in the initial equilibrium, by those who were previously unemployed. Then the deadweight is

$$N_T^o = \gamma \sigma_I N^o \tag{2}$$

By definition, the change in aggregate employment induced by the vouchers (ΔN) is equal to the change in target employment (ΔN_T) plus the induced change in the employment of the incumbent workers (ΔN_I):

1/ The calculations build on the general approach outlined in Snower (1994).

$$\Delta N = \Delta N_T + \Delta N_I \tag{3}$$

When the induced change in the employment of incumbents is negative, it represents displacement. For simplicity, let us assume that the number of incumbents displaced by the target group is a constant proportion of the increase in target employment:

$$\Delta N_I = -\alpha_I \Delta N_T \tag{4}$$

where the incumbent displacement coefficient α_I is a constant ($0<\alpha_I<1$).

Substituting (4) into (3),

$$\Delta N = (1 - \alpha_I)\Delta N_T \tag{5}$$

and substituting (5) and (2) into (1), we obtain

$$(N_T/N^o) = \gamma\sigma_I + \frac{1}{1 - \alpha_I}(\Delta N/N^o) \tag{6}$$

In other words, the aggregate rise in employment is linearly related to the level of target employment.

It is convenient to think of the employment effect of the voucher as related to the percentage by which employment would increase in response to an equivalent wage reduction, since the latter can be summarized by the elasticity of labor demand. Specifically, the effect of a proportional real wage reduction ($\Delta w/w^o$) on employment ($\Delta N/N^o$) is

$$\Delta N/N^o = \eta(\Delta w/w^o), \tag{7}$$

where η is the labor demand elasticity.

In general, an employment voucher may be expected to be less effective in stimulating employment than an equal fall in the real product wage, for several reasons:

(i) We have already taken account of deadweight and the displacement. Our analysis also recognizes that the vouchers are aimed at the unemployed, whereas the hypothesized wage reduction falls on all workers.

(ii) Another reason is the potential displacement of those currently out of the labor force ("inactive" people). Whereas vouchers targeted at the unemployed are likely to reduce the job prospects of the inactive workers, a real wage reduction may be expected to have the opposite effect.

(iii) Beyond that, vouchers might conceivably drive up the real wages paid by firms, in which case their labor costs would fall by less than the size of the vouchers. In practice, however, this appears unlikely since the vouchers have the following countervailing effects on wage negotiations: (a) they improve the employers' fall-back positions (since they are now able to find cheaper replacement for their incumbent employees when negotiations fail), thereby reducing the negotiated wages, (b) insofar as they lead to the displacement of incumbents, they put further downward pressure on wages, and (c) they improve the employees' fall-back positions (since the voucher-induced fall in unemployment means that employees have an easier time finding alternative jobs when wage negotiations break down), thereby putting upward pressure on wages. When the employment vouchers are introduced, the first two effects will precede the latter, since the vouchers make the unemployed immediately cheaper to employer and immediately raise incumbents' chances of displacement, whereas the fall in unemployment takes some time to unfold. As for the third effect, econometric studies 1/ show that in OECD countries real wages are generally not very sensitive to changes in the unemployment rate.

(iv) But probably the most important reason why vouchers tend to have weaker employment effects than equivalent wage reductions is that the vouchers are temporary whereas the wage reductions--at least those which are relevant to the standard estimates of labor demand elasticities--are permanent.

Let us take a closer look at what point (iv) implies. As a first approximation, the employment effect of a one-period voucher relative to the employment effect of an infinite stream of such vouchers may be captured by the ratio of the voucher to the present value of the infinite stream. 2/ Let the size of the voucher be v, the firms' discount factor be δ, the separation rate relevant to the new recruits be σ_T, and the cost of a future separation from these workers (e.g., the cost of firing them) be Φ. Then the present value of the infinite stream is 3/

1/ See, for example, Layard, Nickell, and Jackman (1991).

2/ When firms are credit constrained, this will understate the effect of the voucher, since these firms do not have immediate access to the present value of the infinite stream.

3/ This expression in fact overstates the present value, since we have ignored hiring and training costs.

$$R = v + [(1 - \sigma_T)\delta v + (1 - \sigma_T)^2\delta^2 v + (1 - \sigma_T)^3\delta^3 v + \ldots]$$
$$-[\sigma\delta\Phi + (1 - \sigma_T)\delta^2\sigma_T\Phi + (1 - \sigma_T)^2\delta^3\sigma\Phi + \ldots]$$

In other words, in the first period each firm receives the voucher v for a new recruit. With probability $(1 - \sigma_T)$ this worker remains at the firm in the second period, when the discounted value of the voucher is δv; whereas with probability σ_T the worker leaves the firm, incurring a separation cost whose present value is $\delta\Phi$. Along these lines, it is easy to see that the first bracketed expression is the value of all the vouchers received by the firm, discounted by the retention probability and the discount factor, and that the second bracketed expression is the value of the separation costs, similarly discounted. Simplifying, we find

$$R = \frac{v}{1 - (1 - \sigma_T)\delta} - \frac{\sigma_T\Phi\delta}{1 - (1 - \sigma_T)\delta} \tag{8a}$$

Thus the ratio of the infinite stream to the size of the one-period voucher is

$$\varsigma = \frac{R}{v} = \frac{1}{1 - (1 - \sigma_T)\delta} - \frac{\sigma_T\delta}{1 - (1 - \sigma_T)\delta}\,\phi \tag{8b}$$

where $\phi = \Phi/v$.

Define the "voucher ratio" as the ratio of the voucher to the original wage: $\rho = v/w^o$. Furthermore, let

$$\theta = \beta\varsigma \tag{8c}$$

be the "voucher effectiveness coefficient," where ς takes into account that the voucher is temporary and β is a constant ($0<\beta<1$) that captures the other factors that may reduce the employment effect of the voucher relative to that of an equivalent wage reduction. Then we can move from the employment effect of a proportional wage reduction ($\Delta w/w^o$), as given in (7), to the employment effect of an equivalent voucher ratio ($\rho = \Delta w/w^o$) as follows:

$$\Delta N/N^o = \theta\eta\rho \tag{8d}$$

In short, the effectiveness of the voucher is taken to be a fraction of the effectiveness of an equivalent wage reduction.

Substituting (8d) into (6),

$$\frac{N_T}{N^o} = \gamma\sigma_I + \frac{\theta\eta\rho}{1 - \alpha_I} \tag{9}$$

This equation tells us that the ratio of target employment to aggregate initial employment depends positively (and linearly) on the voucher ratio. The equation summarizes our description of labor market activity and is depicted by the labor market equilibrium curve (*LE*) in Figure 9.

The government budget constraint for the BTP ensures that the cost of the employment vouchers does not exceed the associated reduction in unemployment benefits. Letting the unemployment benefit be constant at *b*, the government budget constraint (GBC) is

$$b\Delta N \geq vN_T \tag{10}$$

Define the replacement ratio as the ratio of the unemployment benefit to the real product wage: $r = b/w$. Recalling that $\rho = v/w$, the GBC becomes

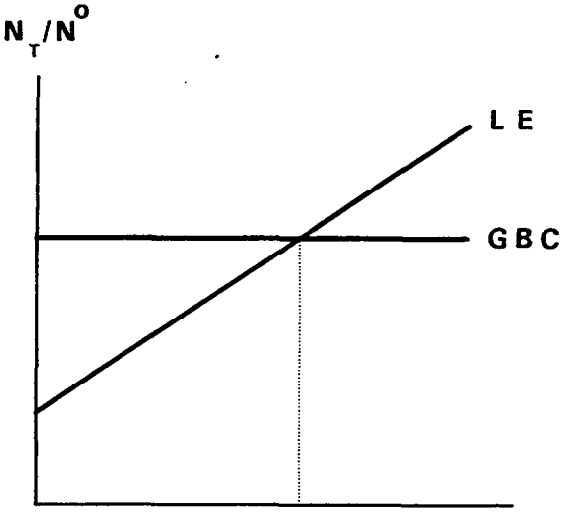
$$r\frac{\Delta N}{N^o} \geq \rho\frac{N_T}{N^o} \tag{10a}$$

Substituting (8d) into (10a) yields

$$\frac{N_T}{N^o} \leq r\theta\eta \tag{11}$$

The employment effect of the BTP is maximized when this constraint holds as equality, so that $N_T/N^o = r\theta\eta$ is the maximum level of target employment permitted by the government budget constraint. This equation is pictured by the GBC line in Figure 9.

Figure 9. The Maxiumum Voucher Ratio and the Maximum Employment Effect



Substituting the government budget constraint (11), as an equality, into the labor market equilibrium equation (9) yields the maximum level of the voucher ratio ρ^*:

$$\rho^* = (1 - \alpha_I)\ [r - \frac{\gamma\sigma_I}{\theta\eta}] \tag{12}$$

Inserting this value into (8d) gives us the corresponding effect on employment:

$$\frac{\Delta N}{N^o} = \theta\eta\ (1 - \alpha_I)\ [r - \frac{\gamma\sigma_I}{\theta\eta}] \tag{13}$$

Assuming a constant labor supply, the associated effect on the unemployment rate (u) is

$$\frac{\Delta u}{u^o} = \frac{1 - u^o}{u^o}\ (1 - \alpha_I)[r\theta\eta - \gamma\sigma_I] \tag{14}$$

This equation, together with equations (8b) and (8d), can be used to yield some provisional estimates of how the BTP may affect unemployment in the short run, *viz*, a year. Take the estimates of the short-run labor demand elasticities (η) 1/ and the replacement ratios (r) from Layard, Nickell, and Jackman (1991). 2/ Let u^o be represented by the unemployment rates of July 1994. Set the displacement coefficient conservatively at $\alpha_I = 0.4$, i.e., the voucher-induced rise in the number of jobs to the long-term unemployed is assumed to leads to 40 percent of that number of jobs being lost to the incumbents. Furthermore, set the incumbent separation rate at $s_I = 0.2$ and that fraction of vacancies filled by the long-term unemployed at $\gamma = 0.2$. Assuming that the discount factor is $\delta = 0.9$, the separation rate associated with the new recruits is $\sigma_I = 0.4$, and that the ratio of the firing cost to the voucher is $\phi = 0.5$, we find that $R = 0.56$, and thus we set the voucher effectiveness coefficient at $\theta = 0.5$. The resulting effects of the BTP on unemployment are given in Table 1.

1/ The underlying regressions are run on annual data and the short-run elasticities thus cover the span of a year.

2/ The elasticities for Canada, France, Germany, and the United Kingdom are taken from Bean, Layard, and Nickell (1986).

Table 1. Illustrative Calculations of the Short-Run Effects of the BTP

Country	Unemployment Rate (%)	Short Run Elasticity	Replacement Ratio	Employment Effect (%)	Unemployment Rate Effect (%)
Austria	5.2	-0.37	0.6	2.8	-51.8
Belgium	14	-0.3	0.6	3	-18.4
Canada	10.2	-0.35	0.6	3.9	-34.3
Denmark	12.3	-0.49	0.9	10.8	-77.2
France	12	-0.17	0.57	0.5	-3.7
Germany	8.3	-0.53	0.63	7.6	-84.2
Netherlands	7.3	-0.18	0.7	1.4	-17.5
Spain	24.6	-0.71	0.8	14.6	-44.9
Sweden	8.8	-0.12	0.8	0.5	-5
United Kingdom	9.3	-0.4	0.36	1.9	-19
United States	6.7	-0.2	0.5	0.6	-8.4

Source: Author's calculations as discussed in text.

Needless to say, these figures are merely suggestive of rough orders of magnitude. The above estimates of labor demand elasticities and replacement ratios are subject to considerable uncertainty, and different investigators have achieved different results. 1/ Setting higher values for the displacement coefficients or the voucher effectiveness coefficient, or allowing for a positive labor supply response to the vouchers would obviously lead to smaller predicted effects on unemployment. However, many of these effects are large enough to remain substantial even once generous allowance has been made for uncertainty.

For most OECD countries, of course, the long-run labor demand elasticities exceed the short-run ones by a considerable margin. Thus the BTP may be expected to remain effective over the longer haul even if the displacement coefficients are substantially higher in the long run than in the short run and the subsidy effectiveness coefficient is substantially lower. Table 2 provides an illustrative example. 2/ The displacement coefficients are now set $\alpha_I = 0.6$, so that 60 percent of the additional jobs created through the vouchers are lost through displacement of incumbents and short-term unemployed people. The voucher effectiveness coefficient is now set at $\Theta = 0.3$, so that the vouchers are assumed to be only 30 percent as effective as an equivalent wage reduction. We leave the parameters $\sigma_I = 0.2$ and $\gamma = 0.2$.

As above, it is important to keep in mind that these are just very rough ball-park figures; but it is undeniable that their overall thrust is to suggest that the BTP may be a powerful tool for combating unemployment even in the longer run.

VIII. Concluding Thoughts

In concluding, it is important to keep in mind not only the employment potential of the Benefit Transfer Program, but also the potential objections and pitfalls that need to be overcome.

Objection 1

The first pitfall is a political economy problem. The political process whereby economic theory is transformed into economic policy is certainly not a matter of faithful, literal translation. Policymakers have an understandable tendency to fit new ideas into old pigeon holes; in so doing, they instinctively, often inadvertently, shy away from the novel

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1/ See, for example, Alogoskoufis and Manning (1988) and Newell and Symons (1985).

2/ As in the short-run exercise, the long-run labor demand elasticities are taken from Layard, Nickell, and Jackman (1991), except for those of Canada, France, Germany, and the United Kingdom, which are taken from Bean, Layard, and Nickell (1986).

Table 2. Illustrative Calculations of the Long-Run Effects of the BTP

Country	Long-Run Elasticity	Employment Effect (%)	Unemployment Rate Effect (%)
Austria	-0.267	0.3	-5.8
Belgium	-0.589	2.6	-16.2
Canada	-0.42	1.4	-12.5
Denmark	-0.692	5.8	-41.9
France	-0.61	2.6	-18.9
Germany	-0.83	4.7	-51.6
Netherlands	-0.6	3.4	-43.9
Spain	-1.382	11.7	-35.8
Sweden	-0.25	0.8	-8.3
United Kingdom	-0.63	1.1	-10.9
United States	-0.32	0.3	-4.7

Source: Author's caculations as discussed in text.

insights and concentrate on those features of a proposal that lie in the well-trodden terrain of their past policy experience. If this experience contains a long sequence of unsuccessful measures--and the battle against unemployment is replete with it--then the new ideas, once implemented, are frequently doomed to repeat old failures.

Along these lines it could be argued that implementing the BTP may do more harm than good, since it may turn out that the policymakers will stay clear of its distinctive features (linking the employment vouchers to unemployment benefits, letting the vouchers rise gradually with unemployment durations and fall gradually with subsequent employment durations, and letting potential employers and employees choose freely between recruitment and training vouchers). Instead, they may interpret the program as yet another attempt at wage subsidies, or as a call to eliminate employers' national insurance contributions for workers who have been unemployed for more than a year, or as an effort to subsidize training programs run in the private sector, or as an initiative to offer long-term unemployed people extra assistance when they accept work in the public or private sectors, or any number of other possibilities. These latter measures may suffer from well-known and well-tried deficiencies; they may, for instance, require significant increases in government expenditures or they may create more unemployment than they remove, for instance. The case against the BTP, then, is that it could become an excuse for implementing other policies, that share the shortcomings of past policy experiments.

This argument is a bit similar to the argument that no new medical drugs should be approved, because if doctors do not prescribe them properly, they kill more people than they save. The reason that this argument looks peculiar is not that doctors don't make mistakes--misprescriptions of new drugs are virtually inevitable. Rather, it is that we ought to be able to rely on the doctors to learn enough about these drugs to apply them appropriately. Similarly, we ought to be able to rely on economic policymakers to take note of the BTP's distinctive features and learn how to implement them, so that they don't wind up repeating past policy mistakes. Admittedly, it would be naive to believe that the learning process is simple; but it would be foolish to veto new employment policies merely as a vote of no confidence in politicians and civil servants.

The only case in which such a vote of no confidence may be warranted is when a proposal makes impossible demands on the policymakers. To take a well known macroeconomic example, if there are long and variable lags between changes in the money supply and changes in nominal GNP, then monetary stabilization policy requires central bankers to predict the future course of the business cycle and the future delays in the GNP response to monetary shocks; and central bankers simply cannot be expected to do this. The BTP, however, makes no analogous demands on policymakers. Once it is in place, they need to make no further discretionary decisions on how much to stimulate employment. After all, the BTP is an automatic stabilizer, which necessarily provides the greatest stimulus when unemployment is highest.

Objection 2

The second objection concerns targeting. Some may argue that it is a mistake to target the long-term unemployed--as the BTP does--because targeting usually creates special disincentives to work. For example, the greater the employment vouchers received by the long-term unemployed, the smaller the job-seeking incentives of the short-term unemployed become. In fact, if the vouchers of the long-term unemployed are sufficiently large relative to those of the short-term unemployed, the latter group may find it worthwhile actually to stop seeking jobs, thereby economizing on job search costs now and qualifying for higher vouchers in the future. Clearly, if all unemployed workers received the same subsidy, such disincentives could not arise.

This objection--which could be used as an argument for favoring broad-based employment schemes, such as reducing social insurance contributions for low-wage workers--needs to be taken very seriously, since the various major employment policies that have been proposed in recent years differ dramatically in their targeting. Several issues are relevant here. First, the disincentive effects for the short-term unemployed can of course be mitigated through the enforcement of rules requiring people to accept available job offers in order to qualify for unemployment benefits. If the short-term unemployed lose their unemployment benefits when they stop seeking jobs, they may lose their incentive to "invest in long-term unemployment."

Second, whatever remains of the disincentive effect for the short-term unemployed must be set against the advantages of targeting. One major advantage is that it economizes on the government outlay necessary to achieve a given reduction in unemployment. If we accept the widespread view that long-term unemployment is the most serious problem posed by unemployment, then targeting the employment stimulus at the long-term unemployed is bound to be an efficient way of dealing with this problem. 1/

Third, another advantage of targeting is that it reduces the upward pressure on wages from a given level of subsidy expenditure. A non-targeted employment subsidy or payroll tax reduction improves the re-employment prospects of current job-holders, who then have less to lose by making higher wage claims. Targeting the stimulus at the long-term unemployed largely avoids this danger, since the current employees generally face a much greater likelihood of becoming short-term unemployed, in response to an

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1/ The act of targeting, of course, may well create other difficulties, such as a rise in short-term unemployment or a displacement of current employees. In that case, we are replacing a serious social problem by a number of less serious problems.

excessive wage claim, than of becoming long-term unemployed after that. 1/ In fact, the targeting of the BTP may actually lead to a reduction, rather than an increase, in real wages 2/ since the vouchers may increase the search efforts of the long-term unemployed and thereby increase the degree of competition for the available jobs.

Fourth, as noted, the long-term unemployed are disadvantaged in the labor market and non-targeting policies clearly do nothing to improve their employment opportunities relative to the short-term unemployed and currently employed workers. In short, targeting serves equity objectives that are important in their own right.

Finally, when we examine the full range of prominent employment policy proposals, we find that choice is not between those targeted at the long-term unemployed and those that are not targeted at all. Rather, the choice is between targeting one group of workers or another. For example, reducing social insurance contributions for low-wage workers is obviously another form of targeting, which introduces disincentives of its own, namely, a disincentive to acquire training and thereby earn higher wages. And insofar as this proposal subsidizes the employment of a larger group of workers, however, it is inevitably associated with more deadweight.

Objection 3

A third objection is that the employment impact of the recruitment and training vouchers becomes seriously eroded through deadweight and displacement. It is a fact of life that no practicable voucher scheme can wholly eradicate these twin evils. But that would be a poor argument for not trying to contain them. As we have seen, the BTP seeks to do so by letting the size of the voucher rise with the duration of unemployment and fall with the duration of subsequent employment. Most wage subsidy schemes that have been implemented thus far do not have these features.

Policymakers may wish, in addition, to impose an explicit anti-displacement provision, such as not granting vouchers to firms who are merely replacing employees that have left. The advantage of this approach is that, in refusing to reward displacement, it helps keep the BTP from endangering the jobs of incumbent workers and thereby becoming a socially divisive policy. This may well help gain political acceptance for the policy. It also may avoid inducing incumbents to engage in a variety of rent-seeking activities to restore their job security. The disadvantage is that it substantially weakens the capacity of the BTP to function as an automatic stabilizer, for in times of recession many firms shed labor and

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1/ In addition, if current employees would take the employment opportunities of the long-term unemployed into account at all, the value of these opportunities to them would be heavily discounted through time. For a formal case in favor of targeting, see for example Calmfors (1993).

2/ I have argued that this is a particularly likely outcome in the short-run.

none of these firms would qualify for recruitment or training vouchers (unless their subsequent hiring exceeded their firing and quits). Thus the vouchers would not be offered when the need for them is greatest.

Different anti-displacement provision--such as giving displaced incumbents the right of complaint and imposing fines on firms for which the complaints are substantiated--do not share this disadvantage, at least not to the same degree. Beyond that, of course, displacement is unlikely to be a serious problem in sectors of the economy where labor turnover costs are high. 1/

In any event, the presence or absence of anti-displacement provisions will help determine the main channels through which the BTP influences employment. In the presence of such provisions, the main effect of the BTP may be expected to fall directly on new recruits to the active workforce, whose labor costs to the firms will fall. In the absence of these provisions, however, the BTP may well generate substantial displacement in sectors with low turnover costs. In exposing insiders to greater competition with the outsiders, this displacement may be expected to put downward pressure on wages, which in turn will stimulate employment. But even without this wage effect, the replacement of incumbent employees by people who were previously long-term unemployed may be expected to raise employment, for the simple reason that the incumbents tend to be more skilled, motivated, and in tune with employers' needs than the long-term unemployed, and thus the incumbents generally have much better chances of finding new jobs.

Objection 4

Another potential pitfall of the BTP, briefly alluded to in the previous section, is that it might be far less effective in the long run than in the short run. The extreme theoretical form of this argument is what may be termed the "wage subsidy ineffectiveness proposition," according to which any wage subsidy leads to an equal rise in workers' take-home pay over the long run, so that labor costs remain unchanged. The underlying argument appears to lie more in the realm of theory than practice, but since the proposition has had significant influence among some economists, it deserves to be addressed here. In brief, the argument is that, when the wages paid by firms are the outcome of Nash bargaining, a wage subsidy that falls in equal proportions on both the employee's negotiated take-home pay

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1/ In those countries (such as Spain) in which large segments of the labor market have extremely low labor turnover costs and where the costs of creating and closing firms is very low as well, there is a danger that employers may seek to exploit the voucher scheme by closing existing firms and creating new ones with subsidized employees. To avoid this form of displacement, it may be necessary to restrict the vouchers to firms that have already been in existence for a limited period of time (say, two years).

wage and on his fall-back income (*viz*, his income when negotiations break down) will raise the take-home pay by the amount of the subsidy. 1/

There is, however, little if any reason to expect this argument to hold in practice, particularly with regard to subsidies targeted at the long-term unemployed, such as those of the BTP. First, there is no reason why a wage subsidy should affect the fall-back income of a previously long-term unemployed person by as much as his take-home pay. After all, the fall-back income of a previously unemployed person may be expected to depend heavily on wage floors determined by the minimum wage and unemployment benefits, and there is no reason for the latter to rise by the amount of the subsidy. But if, over the long run, the subsidy raises take-home pay relative to fall-back income, then the firm's long-run labor costs will fall and its employment will rise.

Second, the BTP's training voucher--and, to a lesser degree, its recruitment voucher--may be expected to reduce the labor turnover rate (i.e., the rate of entry and exit from the workforce) of people at the bottom end of the wage distribution (the previously unskilled, disadvantaged workers). This will generally raise their long-run employment level, since people's probability of retaining employment generally exceeds the probability of gaining employment.

Third, the vouchers may be expected to induce people to move from inactivity to active job search, thereby increasing the economy's effective supply of labor, putting downward pressure on wages and thereby raising employment.

Finally, the BTP would also promote employment when wages are set by firms with a view to motivating employees, to attracting and retaining the particularly productive ones, and to discouraging quits (in line with the efficiency wage theory). To see why, suppose that employees' take-home pay rose proportionately to the voucher, leaving labor costs unchanged. Then the resulting rise in take-home pay relative to nonwage income would induce these employees to work harder, shirk less, and quit less. Consequently, firms would no longer need to rely as much as previously on wages as an incentive device. So the wages firms pay would fall and thus employment would rise.

1/ Specifically, let the Nash maximand be the product of (a) the difference between the employee's take-home pay and his fall-back income, both of which are proportionately related to the subsidy (by assumption) and (b) the difference between the firm's profit and its fall-back returns, both of which depend on the product wage. Then the subsidy can be factored out of the Nash maximand, leaving the negotiated wage paid by the firm (the solution to the Nash maximization problem) unchanged. A form of this argument, applied to taxes on labor, is found in Layard, Nickell, and Jackman (1991, p. 108).

Objection 5

Yet another potential pitfall of the BTP is that the vouchers would stigmatize workers in the eyes of their prospective employers, thereby undoing the employment-creating effect of the fall in labor costs. There is some limited evidence of such stigmatization in U.S. experiments with bonuses to the employers of previously unemployed people. 1/ Here workers often failed to reveal that their employers were entitled to bonuses in order to avoid being classified as unproductive.

There is, however, little reason to believe that this stigma effect, if present in the United States, would be equally evident in Europe. The reason is straightforward. The United States has little long-term unemployment, since unemployment benefits and most associated forms of support run out after a limited period of time (about half a year) and thus people who fail to get jobs within that period often tend to become inactive. In many European countries, by contrast, a variety of welfare state benefits are conditional on being unemployed and long-term unemployment is a serious problem, particularly in the aftermath of recessions. This difference is important, because long-term unemployment is a far better sign of low productivity than is inactivity: people who have been engaged in prolonged, unsuccessful job search are more likely to be unproductive than people who have simply been out of the labor force. Thus a European employer who knows a job applicant's unemployment duration has more information about the applicant's productivity than an American employer who knows the applicant's duration of inactivity. Consequently, whereas an employment voucher may be able to stigmatize an American worker, it is most unlikely to do so for a European worker, since people's unemployment histories are public knowledge and vouchers for the European long-term unemployed cannot impose any stigma beyond that arising from these unemployment histories.

So, to conclude, the bottom line on benefit transfers is this: in view of the various new features that differentiate benefit transfers from previous wage subsidies, it is difficult to assess what the precise employment effect of the BTP is likely to be. But one thing is clear: as long as unemployment benefits are positive, the BTP will undoubtedly reduce labor costs. Thus it will clearly have *some* positive effect on employment and training. And since it is voluntary, not inflationary, and costs the government nothing, what is there to lose?

1/ Three large-scale experiments have been undertaken in Illinois, New Jersey, and Washington State. See, for example, Woodbury and Spiegelman (1987).

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