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6 An Evaluation of the Swedish Active Labor Market Policy: New and Received Wisdom

Anders Forslund and Alan B. Krueger

A visitor to Sweden is struck by the breadth and generosity of the labor market programs designed to limit the adverse effects of unemployment and expand employment. These programs include extensive job training, public sector relief work, recruitment subsidies, youth programs, mobility bonuses, and unemployment benefits. About 3 percent of GNP was spent on government labor market programs in Sweden in 1990, compared to 2 percent in Germany and less than 0.5 percent in the United States. Several prominent observers have argued that the active Swedish labor market policies are responsible for the enviable unemployment experience of Sweden in the 1970s and 1980s. Layard, Nickell, and Jackman (1991, 473) go so far as to recommend that Sweden's "active labor market" programs serve as a model for other countries.

Figure 6.1 illustrates the Swedish unemployment rate semiannually over the past twenty-five years. In the 1970s, Sweden managed to maintain a low unemployment rate in the face of adverse oil price shocks that caused high unemployment and severe recessions in other industrialized countries. The unemployment rate in Sweden also remained low in the 1980s, while it trended upward in other European countries. But a dramatic increase in the unemployment rate can be seen beginning in 1991. In July 1993, the U.S. Bureau of Labor Statistics calculated that the unemployment rate in Sweden reached 9.5 percent, on a comparable basis to the U.S. unemployment concept. The U.S. rate at the same time was 6.8 percent. For the first time in our lifetimes, the

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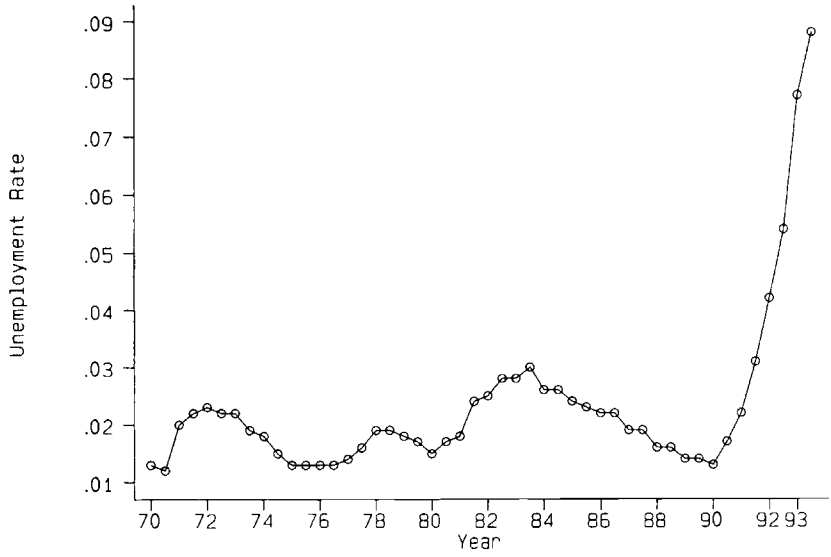

Fig. 6.1 Swedish unemployment rate, by half year, 1970–93

unemployment rate is higher in Sweden than in the United States! The dramatic increase in unemployment in Sweden over the last two years casts doubt on the ability of the active labor market policies to blunt unemployment. At the same time, Sweden's history of low unemployment in the 1980s suggests that its labor market programs are not responsible for the 1991–93 downturn because the programs were substantially as generous in the 1980s as in the early 1990s.

The expense of the Swedish labor market programs may be justifiable if they produce benefits that exceed their costs. But the programs are a very expensive luxury if unemployment is high and if the programs are not effective at reducing unemployment or raising workers' skills. Given the rising level of unemployment and other changes in the Swedish economy, an assessment of the effectiveness of the active labor market programs is especially timely.

As the pattern in figure 6.1 suggests, macroeconomic indicators can give a possibly misleading indication of the efficacy of Sweden's labor market policies. In this paper, we first review microeconometric evidence on two major active labor market programs in Sweden: public relief work and job training. One concern with public relief work is that such programs may displace other workers. We provide new evidence on "fiscal substitution" between public relief workers and other workers using county-level data. Specifically, we find evidence that public relief workers tend to displace private construction workers, which potentially limits the usefulness of public relief workers in reducing unemployment. The evidence is less clear on whether relief workers displace

social welfare workers, which is another major sector in which relief workers are dispatched.

We also review previous evidence on the effect of job-training programs on wages and reemployment probabilities. Owing to the small samples used in past studies, we find it very difficult to draw precise conclusions about the payoff to job-training programs. In sum, our view of the microeconometric evidence is that one should remain agnostic about the effectiveness of job-training and public relief programs in fighting unemployment.

We then attempt to reconcile the macroeconomic and international evidence—which has been cited by many as support for the effectiveness of Sweden's active labor market programs—with the microeconometric evidence. We first provide evidence on the stability of the Beveridge curve in the 1980s across counties in Sweden. One possible explanation for the stable Beveridge curve is that rapid expansion of public sector employment has absorbed unemployed workers. We test this hypothesis with county-level data and find little support for it. Second, we evaluate and update the cross-country unemployment rate analysis that Layard, Nickell, and Jackman (1991) and others have performed. Using 1993 unemployment rate data, we find that greater spending on active labor market programs has a statistically insignificant and positive effect on unemployment. This finding is in sharp contrast with estimates for the 1980s. We also discuss several statistical limitations of the cross-country approach.

Finally, we present evidence on the reaction of employment and unemployment to regional shocks in Sweden. Specifically, we compare our findings on regional evolutions in Sweden to comparable results for the United States based on Blanchard and Katz (1992) and for the rest of Europe based on Decressin and Fatas (1993). These results suggest that Sweden's response to shocks is not particularly different from other countries', implying that Sweden's extensive labor market programs have not had a marked effect on regional labor market adjustments.

In our judgment, the evidence provides little support for the view that Sweden's past success in maintaining low unemployment stemmed primarily from its active labor market policies. On the other hand, the extensive labor market programs in Sweden are most likely not the cause of Sweden's current economic crisis. But our analysis of the evolution of unemployment suggests that there is a real danger that the current high level of unemployment will persist for some time in the future. We conclude by considering policies that might help improve the active labor market programs in the current economic climate.

6.1 Overview of Programs

By way of background, it should be noted that, within the central blue-collar trade union (LO) in the early 1950s, the question of how to combine full em-

ployment and price stability was discussed.[1] These discussions led to the formulation of a program subsequently adopted by the Social Democratic government, based on a few cornerstones, one of which was active labor market policies. First, LO would pursue a so-called solidaristic wage policy. In its original form, this policy aimed at "equal pay for equal work," irrespective of the productivity levels of individual firms. Later, the policy principle (still under the same name) changed to one of unconditional wage equalization, or "equal pay for unequal work." Second, a strict stance of stabilization policies (primarily fiscal policy) was advocated in order to keep inflation low. One intended result of these two principles was shut downs of low-productivity firms and layoffs. This motivated the third cornerstone of the program, "active labor market policies," which were given the role of transferring laid-off workers to expanding high-productivity firms.

Two points about the origin of the programs are worth noting. First, labor market policies are not considered a substitute for stabilization policies. Second, labor market policies entail the so-called work principle—the aim of the programs is to accomplish a smooth and rapid transfer of laid-off workers to new employment rather than to provide welfare for the unemployed (i.e., "workfare" rather than welfare). Starting in the 1950s, a system of manpower policy emerged based on active labor market policies. The present system can be described in terms of the following main ingredients: unemployment insurance, measures to create employment, mobility-enhancing measures, and measures targeted at the handicapped.

6.1.1 Unemployment Insurance

Unemployment compensation is provided in two forms: First, there are a number of so-called certified unemployment insurance (UI) funds, run by the trade unions at the industry level, but to a large extent tax financed. In 1990, the coverage was slightly less than 80 percent of the labor force. Second, in addition to the UI system administered by the trade unions, since 1974 there has also been a supplementary compensation system (*kontant arbetsmarknadsstöd,* KAS), mainly designed for new entrants in the labor market, who usually are not members of any UI fund. UI fund members are entitled to compensation for 300 days (450 days for workers over age fifty-five), whereas cash benefit assistance runs for 150 days (300 days for those over age fifty-five, 450 days for those over age sixty). Daily compensation in the UI fund system is, within limits, fixed by the government regulating minimum and maximum levels at 80 percent (90 percent before 5 July 1993) of the recipient's normal income prior to unemployment. The level of compensation in cash benefit assistance is significantly lower than the average paid by the certified UI funds (in 1990, SKr 174 vs. SKr 402 per day). Carling et al. (1996) find that the duration of

1. For excellent overviews of the labor market programs, see Björklund (1990), Calmfors (1993), Flanagan (1987), and Stafford (1981).

unemployment spells for those on KAS benefits is only slightly shorter than for those on UI benefits, in spite of the large benefit differential.

A special feature of the UI fund system is that fund coverage roughly coincides with wage-bargaining units, as the funds are run by trade unions at the industry level. But the state grants to the UI funds are designed so that the marginal cost of extra unemployment among a fund's members is zero.[2]

A number of criteria, many of which are common to the UI funds and KAS, have to be met in order for a person to be entitled to unemployment compensation. The two most important conditions are that recipients actively search for a job at a public employment office and that an offer of "suitable" work must be accepted. Refusal to accept a job offer might lead to expulsion from compensation. To receive compensation from a UI fund, a "membership condition" and a "work condition" have to be met: the claimant must have paid membership fees to the UI fund for at least twelve months and must have been working for at least seventy-five days distributed over at least four months during the twelve months preceding the current unemployment spell. Participation in relief work as well as in labor market retraining programs counts as work in this respect.

Workers who do not meet the membership condition are entitled to KAS benefits if they meet either a work requirement of roughly the same type as for UI fund compensation or an "education condition." The education condition is met if individuals have finished at least one year of school in excess of the nine compulsory years and searched for a job at a public employment office for at least ninety days.

As the duration of compensation is limited in principle, the system also creates incentives to find a job before compensation runs out.[3] This aspect has been stressed by Layard, Nickell, and Jackman (1991) as a key factor behind the high observed Swedish real wage sensitivity to changes in unemployment. This, in turn, is a potential explanation for Sweden's favorable unemployment experiences during the 1980s. It is important to note, however, that the system has recently changed. Since the late 1980s, participation in labor market programs qualifies for new periods of unemployment compensation, so in practice there is no limit on the amount of time a jobless person can spend outside the regular labor market by switching between training and unemployment compensation.[4] There is some indirect evidence suggesting that this is the case: Axelsson and Löfgren (1992), studying the effects of retraining programs on income, found a significant positive effect on those who finished training pro-

2. Changes in the UI system initiated in 1994 make membership compulsory and add funds administered by the state.

3. When unemployment compensation runs out, individuals are eligible for social security, which offers significantly less generous compensation.

4. The change in the system pertains to training programs; relief work has always been considered "work."

grams in 1981, whereas Regnér (1993) finds significant negative income effects for 1989 and 1990 program participants. A possible explanation for this difference is that, in the latter period, training qualified for unemployment compensation, so the negative income effect therefore reflects negative selection of program participants. Unfortunately, there is a lack of direct evidence (e.g., in the form of event histories) on the extent of a "circular flow" between unemployment and programs.

6.1.2 Measures to Create Employment

The principal measure to create employment has for a long time been public relief work. The primary stated aim is to counteract temporary downturns in labor demand, but relief jobs have also been targeted for groups with permanently high unemployment risks. Unemployed UI fund members who run out of unemployment compensation are in principle granted the right to a relief job. To qualify for a relief job, one must be registered as an unemployed job applicant at a public employment office for a minimum number of days (about a week). The duration of relief jobs is normally capped at six months, and payment is according to collective agreement in the regular labor market. Relief workers are obliged to accept suitable job offers and can be expelled from relief jobs on refusal. Relief work can be arranged by central or local governments or (rarely) by the private sector. The typical relief job has traditionally been in building and road construction, but the emphasis has gradually changed to jobs in health and welfare. From the "workfare" point of view, relief work offers a "work test": if the employment office fails to find a suitable job for the applicant, it can test his or her willingness to work by offering a relief job.

Recruitment subsidies, introduced in 1984, aim at facilitating employment for the long-term unemployed and at creating permanent jobs in the local public sector for the long-term or partially unemployed. Subsidies normally amount to at most 60 percent of the total wage cost and can be given for a maximum of 6 months.

Beginning in 1984, a variety of special "youth measures" have been used, and their use has intensified recently. The most recent form (introduced in July 1992) is called *youth practice* and is targeted at youths between eighteen and twenty-four years of age. Participants receive compensation roughly equal to unemployment benefits, and employers receive free labor. In addition to keeping participants out of unemployment, youth practice offers a work test of the same kind as relief work. The combination of youth practice and a deep recession is believed to have weakened significantly the incentives to hire youths.

Finally, since January 1993, the unemployed can prolong their period of unemployment compensation by taking part in so-called labor market developments. These last for at most six months, and the participant receives income equivalent to unemployment compensation benefits. The employer, normally

organizations, associations, or the public sector, gets free labor. To prevent crowding out, participants are supposed to perform duties that would otherwise not have been performed. As the number of participants has increased rapidly, this last condition might prove to pose problems: either participants do what they are supposed to do, in which case large numbers of people perform superfluous tasks, or, alternatively, crowding out will prove to be an important issue.

6.1.3 Mobility-Enhancing Measures

The traditional mobility-enhancing measure is the employment service administration. The Swedish employment service is not limited to just a brokerage function—another important function is to administer both unemployment insurance and selection to labor market programs. A distinguishing feature of the Swedish setup regarding job brokerage is that the public employment service has had a legal monopoly position. Since the late 1970s, there has also been compulsory notification of vacancies through the public employment service.[5]

Another mobility enhancing measure is "mobility grants/starting allowances." These grants are intended to facilitate geographic mobility by making moving an economically feasible alternative to unemployment in the home region. To qualify, one must be an unemployed person looking for a job in another region through the public unemployment service. Other, more strict criteria, such as belonging to certain "scarce" professions, have also been applicable from time to time.

Last, but not least, among the mobility-enhancing measures is labor market retraining. The official aims are to help the unemployed or those facing unemployment risks get a job, help those with little education or obsolete education attain a stronger position in the labor market, and help firms find workers with adequate education. Labor market retraining comes in many different forms and is produced by a plethora of educational institutions on requisition by county-level authorities under the National Labor Market Board. Retraining eligibility is conditional on being unemployed or facing the risk of unemployment and job search through public employment service. Compensation under retraining programs is roughly equivalent to unemployment compensation.

6.1.4 Measures Targeted for the Disabled

There are four basic measures targeted at the disabled: employment in community enterprises, public sheltered work, wage-subsidized employment, and vocational rehabilitation. A common feature of these measures is that their goal is to provide work for those who, owing to various disabilities, have difficulty obtaining employment in the regular labor market.

5. One side benefit of the employment service's monopoly is that Swedish vacancy data are likely to be of high quality.

Table 6.1 **Comparison of Labor Market Policies in Sweden, the United States, and Germany**

Labor Market Policy	Sweden 1982	Sweden 1990	United States, 1990	Germany, 1990
Average unemployment compensation per recipient[a]	10,843	17,655	2,111	12,782
Average training costs per recipient[b]	9,214	6,568	2,035	N.A.
Trainees as a proportion of labor force[c]	.0085	.0094	.0103	.0102
Trainees as a proportion of unemployed[c]	.32	.62	.19	.16
Public relief workers as a proportion of unemployed	.39	.12	.00	.04
Proportion of GNP devoted to labor market policies[d]	.039	.028	.004	.021

Sources: Unemployment benefit data for United States are from 1991 Green Book, p. 466. Training data for the United States are from 1991 Green Book, pp. 1454–56, and pertain to JTPA IIA, and JTPA IIB, and Job Corps programs. Swedish data are from *Statistisk Arsbok 1992* and *OECD Economic Surveys*. German data are from Statistisches Bundesamt (1993) and *Zahlen zur Wirtschaftlichtlichen Entwicklung der Bundersrepublik Deutschland 1992*, Institut der Deutschen Wirtschaft.

Note: All monetary figures (rows 1 and 2) are in 1990 U.S. dollars. Swedish kronor were converted to dollars using the exchange rate and were converted from 1982 to 1990 dollars with the CPI-U. N.A. = not available.

[a]Only certified UI fund benefits are included for Sweden.

[b]Net training costs are reported for Sweden (i.e., average unemployment benefits have been subtracted off). For the United States, training programs include the Job Training Partnership Act (JTPA) and the Job Corps.

[c]Only trainees who receive government compensation are included for Germany.

[d]Policies included in U.S. figure are job training, summer youth employment, unemployment benefits, and employment services. Policies included in Sweden figure include job training, relief worker, youth measures, unemployment benefits, and handicapped programs. Policies included for Germany include unemployment benefits, retraining, employment services, preretirement benefits, subsidized employment programs, compensation for short-time workers, compensation of construction workers during inclement weather, and administrative costs.

6.1.5 Quantitative Description

Table 6.1 summarizes the magnitude of key labor market programs in Sweden, the United States, and Germany in various years. It is clear that Sweden spends much more on training and unemployment benefits per recipient than the United States. Sweden's unemployment benefits are particularly generous by comparison to the United States.[6] Since workers who are in training programs also qualify for unemployment benefits, the total amount spent on work-

6. Sweden reduced its replacement ratio by 10 percentage points in 1993, but benefits are still well above the U.S. level.

ers undergoing training is roughly of the same order of magnitude as the cost of tuition, room, and board for a year at Harvard![7]

Readers may be surprised to see, however, that 1 percent of the labor force is enrolled in public training programs in the United States, which is slightly *higher* than the comparable figure for Sweden or Germany. This fact casts some doubt on the relative importance of "disguised unemployment" in labor market programs in Sweden. Even if one counted all Sweden's workers who are on training or public relief programs as unemployed, the unemployment rate in the 1980s would have increased only by roughly 1 percentage point. Thus, disguised unemployment cannot account for much of Sweden's historically low unemployment rate.

Although the proportion of the labor force receiving training is about the same, a much higher proportion of the unemployed undergo training in a given year in Sweden than in the United States. In 1990, government training participants represented 62 percent of the number of unemployed workers. Moreover, a sizable proportion of the unemployed are also placed in public relief jobs in Sweden, a program for which there is no current analog in the United States. Sweden devotes about 3 percent of GNP to labor market programs, which exceeds the amount spent in Germany (2.1 percent) and the United States (0.4 percent). The increase in unemployment in Sweden in the past two years can be expected to cause a substantial increase in expenditures on labor market programs relative to GNP.

The changing importance of some of the main Swedish labor market programs is illustrated in figure 6.2. The figure presents the proportion of the labor force that is directly involved in retraining, relief work, youth programs, or recruitment subsidies. A number of features stand out. First, relief work shows a clear countercyclic pattern. Second, the incidence of relief work has trended steadily downward in the 1980s. Third, labor market retraining has not had the same cyclic variability as relief work, again except for the past few years. Fourth, the incidence of retraining gradually trended upward in the 1980s. As a result of these contrasting trends, the relative importance of retraining has grown in the 1980s and 1990s, while the relative importance of public relief work has declined. Sixth, there has been a dramatic increase in the prevalence of youth measures in recent years. Finally, the incidence of retraining measures declined in 1993. This decline was partly a result of budgetary cutbacks and partly a result of greater participation in "labor market ventures."

6.2 Theoretical Framework

The Swedish labor market programs are diverse and extensive. It is important to consider each program in this overall context. For example, one must

7. As Richard Freeman has pointed out to us, this is also roughly equivalent to the cost of a year in a high-security prison in the United States.

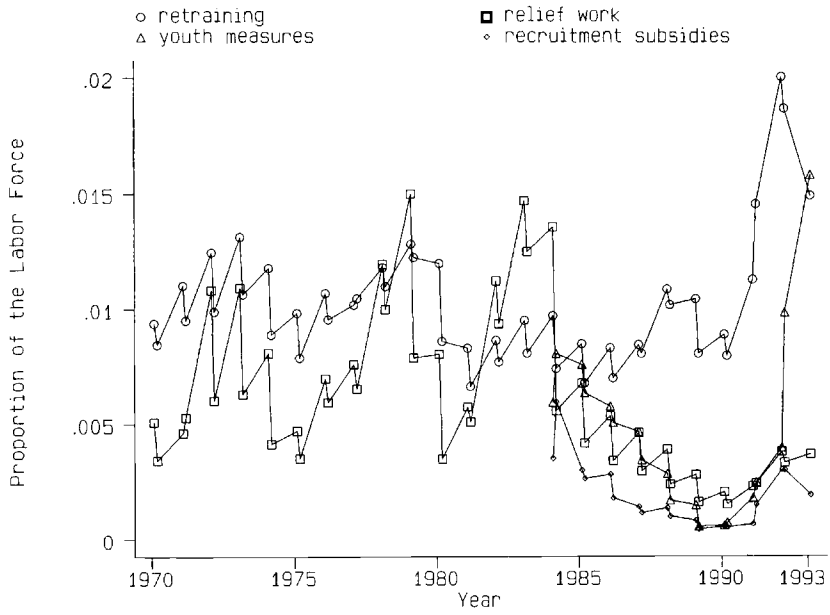

Fig. 6.2 Participation in labor market programs as a fraction of the labor force, 1970:1–1993:2 (semiannually)

recognize that solidarity wage policy is likely to set a floor on wages; workers whose productivity levels fall below this floor will find it difficult to obtain employment (see Edin and Topel, chap. 4 in this volume). Thus, the benefit of raising worker productivity through government training, say, is greater given the preexisting wage rigidity. Similarly, wage subsidies to employers of low-wage employees will relax the constraint imposed by the solidarity policy and thus could increase employment and enhance efficiency.

Moreover, the social cost of unemployment (or low productivity) is especially high in Sweden because unemployed workers qualify for generous transfer benefits, retraining, and public relief work. The high income tax also raises the social cost of unemployment or low productivity because tax revenue is forgone, which requires even higher tax rates (which in turn probably cause further labor supply distortions). And the fact that income taxes are progressive reduces the incentive to invest in human capital and search for better-paying jobs. The adverse effects of these distortions could be reduced by effective government intervention to encourage training, mobility, and employment.[8]

If one takes the network of government programs as given, then the proper

8. Notice, however, that government intervention does not necessarily have to involve government-provided training. For example, the government could provide vouchers to individuals for private training, or it could lower tuition costs through grants or loans.

theoretical framework is to start from a situation with preexisting distortions. As is well known, in this second-best setting, government intervention could improve economic efficiency. In this framework, the benefits of successful labor market programs in Sweden are potentially greater than in the United States, which may explain why the Swedish labor market programs are more extensive. But, if the external environment changes (if there is, e.g., a reduction in marginal tax rates or unemployment benefits—as has been the case in Sweden), then this theoretical framework suggests that the social benefit of active labor market programs may be reduced.

One must also consider possible indirect effects of labor market programs on wage and employment outcomes. Theoretical bargaining models predict that labor market programs will exert upward pressure on wages. Aggregate time-series studies provide some empirical support for this prediction (Calmfors and Forslund 1991; Calmfors 1993; and Calmfors and Lang 1995), although Edin, Holmlund, and Östros's (1993) county-level analysis finds that labor market programs do not put upward pressure on wage bargains. It is thus possible that labor market programs cause higher wages and depress employment.

The total social costs and benefits of labor market programs must be compared to determine their optimal level. Rational design of policy would take into account the efficacy of labor market programs. If, on the margin, a krona spent on retraining has a higher reward than a krona spent on public relief work, then the retraining program should receive a larger share of the available resources. Such cost-benefit comparisons are especially important given the rising expense of labor market programs and the rising government budget deficit. Next, we present an evaluation of the effectiveness of retraining programs and public relief works, drawing on the past literature and some new analysis.

6.3 Displacement Effects of Public Relief Workers

There was a large shift away from public relief work and toward job training in the 1980s. Nevertheless, over 10 percent of unemployed workers were placed on public relief jobs in 1990, and there is some discussion of expanding public relief in response to the current economic crisis. One potential drawback of public relief work is that public relief workers may displace private sector workers. There is an extensive literature on this topic in the United States, beginning with Johnson and Tomola (1977). The theoretical argument is straightforward: if the public sector provides relief workers to a local government agency or private sector firm, the local government or private firm will hire fewer workers than it otherwise would have hired.

Johnson and Tomola conclude that public sector employment programs used in the United States in 1966–75 tended to displace other workers, on net creating few additional jobs after six quarters. This conclusion is not without con-

troversy. Borus and Hamermesh (1978) argued that Johnson and Tomola's estimates are sensitive to their Almon lag specification and nonrobust because of strong multicollinearity in their aggregate time-series data. Adams, Cook, and Maurice (1983) estimate displacement effects using a panel data set of annual observations on cities in 1970–79. They find that public sector employment grants had a significant negative effect on payrolls in 1978 and 1979 but not in 1977. In 1978, for example, seventy-seven cents of every dollar in public sector employment grants were reflected in higher city payrolls. Adams, Cook, and Maurice attribute the finding of less of a displacement after 1977 to a redesign of the program, which tightened eligibility and required specific projects.

There has been only one previous study of the displacement effects of public relief workers in Sweden. That study, by Gramlich and Ysander (1981), analyzes fourteen annual time-series observations from 1964 to 1977. The authors focus on the two largest categories of public relief expenditures and employment: health and welfare workers and road construction workers. They estimate aggregate time-series models, similar to Johnson and Tomola. Gramlich and Ysander find evidence of considerable displacement in road construction but not in the health and welfare sector.

We investigate the displacement effects of public relief workers using annual data for twenty-four counties in Sweden over the period 1976–91 for all construction workers and over the period 1982–90 for health and welfare workers.[9] Specifically, we estimate employment equations of the form

$$(1) \qquad E_{it} = \beta_0 + \beta_1 \mathrm{PRW}_{it-1} + \beta_2 W_{it} + \beta_3 X_{it} + \mu_i + \tau_t + \varepsilon_{it},$$

where E_{it} is employment in county i in year t, PRW_{it-1} is the total number of public relief workers in county i in year $t-1$, W_{it} is the log of the average real wage in county i in year t, and X_{it} is a vector of cyclic demand measures, such as the unemployment rate and vacancy rate. We also include unrestricted county fixed effects (μ_i) and unrestricted year effects (τ_t). Equation (1) is estimated separately for construction workers and for health and welfare workers. Relief workers should not be counted among the workers included in the dependent variable. Thus, fiscal substitution (i.e., displacement) will imply a negative coefficient on PRW, and complete fiscal substitution will imply a coefficient of -1.0. We have also experimented with specifications using various lags of public relief workers and with subsets of the covariates.

Results for construction workers are presented in table 6.2. Each specification shows a negative and statistically significant coefficient on public relief workers, implying substantial displacement. Column 6, which includes the largest set of covariates, indicates that 0.69 fewer private construction workers are employed for every additional public relief worker hired. The lowest estimate of displacement that we find is -0.36, in specifications where we omit the year effects.

9. The health and welfare workers series is shorter because of comparability problems with the county-level data in earlier years.

Table 6.2 **Displacement Effects of Public Relief Workers (dependent variable: number of private construction workers)**

	Model					
Variable	(1)	(2)	(3)	(4)	(5)	(6)
Relief workers	−.65	−.59	−.36	−.59	−.36	−.69
$(t-1)$	(.11)	(.17)	(.11)	(.18)	(.13)	(.19)
County dummies	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	No	Yes	No	Yes	No	Yes
Log wage	...	...	1.65	−12.38	1.65	−11.88
(× 1,000)			(.22)	(6.62)	(.22)	(6.27)
Vacancy rate	...	...	64.77	95.28	66.78	94.27
(× 1,000)			(28.31)	(50.36)	(37.89)	(49.83)
Unemployment rate	...	...	...	...	.97	44.64
(× 1,000)					(12.18)	(23.24)
R^2	.98	.98	.98	.98	.98	.98
Sample size	384	384	360	360	360	360

Note: Standard errors are in parentheses. Equations also include intercept terms. Mean of dependent variable is 9,385. Observations in cols. 1–2 are for 1976–91; observations in cols. 3–6 are for 1976–90. There are twenty-four counties in the sample each year.

The results for health and welfare workers, reported in table 6.3, are much less clear. The estimated displacement effect for health and welfare workers is not stable when different sets of covariates are included—it bounces from −2.26 to +0.91. Moreover, the standard errors are quite large, and the estimated effect is statistically insignificant in column 6, which includes the full set of covariates. Unfortunately, it is difficult to draw much of a conclusion about the extent of displacement for this group of workers.

One potential problem with our estimates of displacement is that causality may run in the reverse direction. A prolonged downturn in the economy may stimulate the use of relief workers, thus generating a negative correlation between (lagged) relief workers and nonrelief employment. We include cyclical demand measures (unemployment and vacancy rates) in the regressions to control for this possibility. Nevertheless, in a highly cyclical industry like construction, reverse causality may still be a concern. To explore this issue further, we also estimated vector autoregressions for employment and relief workers in each sector. These estimates are reported in table 6.4. The results indicate that lagged relief workers and lagged employment have a statistically significant effect in the employment equations but that lagged employment does not have a statistically significant effect in the relief worker equations. This finding suggests that causality does not run from employment to relief workers, but, with our relatively short time period, it is hard to draw firm conclusions from the vector autoregressions.

Table 6.3 **Displacement Effects of Public Relief Workers (dependent variable: number of health and welfare workers)**

	Model					
Variable	(1)	(2)	(3)	(4)	(5)	(6)
Relief workers	−2.26	−1.09	.91	−.46	.58	−.56
$(t-1)$	(.39)	(.59)	(.40)	(.62)	(.43)	(.63)
County dummies	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	No	Yes	No	Yes	No	Yes
Log wage	...	...	12.61	48.76	17.45	53.15
(× 1,000)			(2.02)	(26.55)	(3.09)	(27.00)
Vacancy rate	...	...	343.95	375.34	374.06	365.43
(× 1,000)			(146.90)	(198.88)	(146.39)	(199.17)
Unemployment rate	...	...	...	...	123.91	72.04
(× 1,000)					(60.21)	(73.81)
R^2	.98	.99	.99	.99	.99	.99
Sample size	240	240	216	216	216	216

Note: Standard errors are in parentheses. Equations also include intercept terms. Mean of dependent variable is 33,140. Observations in cols. 1–2 are for 1982–91; observations in cols. 3–6 are for 1982–90. There are twenty-four counties in the sample each year.

As a final check on the plausibility of our estimates, we estimated a vector autoregression for the durable manufacturing sector, an industry that is *not* directly affected by public relief workers. Since the durable manufacturing sector is highly cyclic, this industry provides a test of whether our previous results of the construction industry are spuriously reflecting cyclical patterns. The p value for a joint test of three lags of the public relief variable in the employment equation for durable manufacturing workers is .11 ($F = 2.03$). The corresponding test for construction workers has a p value of .0000 ($F = 9.07$). These results suggest that the effect of relief workers on construction employment is not just spuriously reflecting the business cycle.

To summarize, we find evidence of substantial displacement in the construction sector but not in the health and welfare sector. This conclusion is very much like Gramlich and Ysander's, even though we analyze data for a more recent time period, exploit county-level data, and use different estimation methods.

6.4 Job Training

In view of the large amount of resources devoted to job retraining in Sweden, one would expect to find a vast microeconometric literature on the effectiveness of training programs. This is not the case. There have been only about

Table 6.4 **Vector Autoregressions for Employment and Relief Worker, by Sector**

	Construction		Health and Welfare	
Variable	Employment	Relief Workers	Employment	Relief Workers
Relief workers ($t-1$)	−.68	1.12	.020	.79
	(.15)	(.06)	(.654)	(.05)
Relief workers ($t-2$)	.37	−.71	−.38	−.21
	(.20)	(.08)	(.85)	(.07)
Relief workers ($t-3$)	−.35	.37	−.72	.04
	(.16)	(.06)	(.60)	(.05)
Employment ($t-1$)	.79	−.02	.58	−.007
	(.06)	(.02)	(.08)	(.007)
Employment ($t-2$)	−.15	.01	−.13	−.009
	(.08)	(.03)	(.09)	(.008)
Employment ($t-3$)	−.19	.02	.13	−.005
	(.07)	(.03)	(.07)	(.006)
F statistic for relief workers[a]	9.07	137.68	2.31	150.02
	[.00]	[.00]	[.08]	[.00]
F statistic for employment[b]	146.19	.64	28.16	.54
	[.00]	[.59]	[.00]	[.65]
Sample size	288	288	168	168

Note: Equations also include county dummies, year dummies, log average wage, vacancy rate, and unemployment rate. Standard errors are given in parentheses.

[a]p value for lagged relief workers is in brackets.

[b]p value for lagged employment is in brackets.

a half dozen studies of the effect of job training on earnings with Swedish data. These studies use a variety of econometric models and data sets, and some studies use several estimation techniques. In Sweden, as in the United States, there is considerable uncertainty regarding the proper estimation method and specification for estimating the "treatment effect" of job training. But, in Sweden, problems of imprecise estimates are at least as important as model specification. In summarizing the literature, we report fixed effects estimates when multiple estimates were available.[10]

Figure 6.3 summarizes the past literature on the effect of job training on earnings. The figure shows the estimated payoff to training as a proportion of earnings, with a bound of plus or minus two standard errors around the estimate. As a benchmark for these estimates, one should bear in mind that, if job training raises participants' annual earnings by 3 percent for twenty years, then the present value of the payoff to the training roughly equals its costs.[11] Thus, one should hope that studies have enough precision to detect payoffs on the

10. For a thoughtful summary of this literature, see Björklund (1990).

11. In making this calculation, we assume that the typical participant earns $15,000 per year, that job training increases annual earnings permanently by 3 percent, and that the individual works

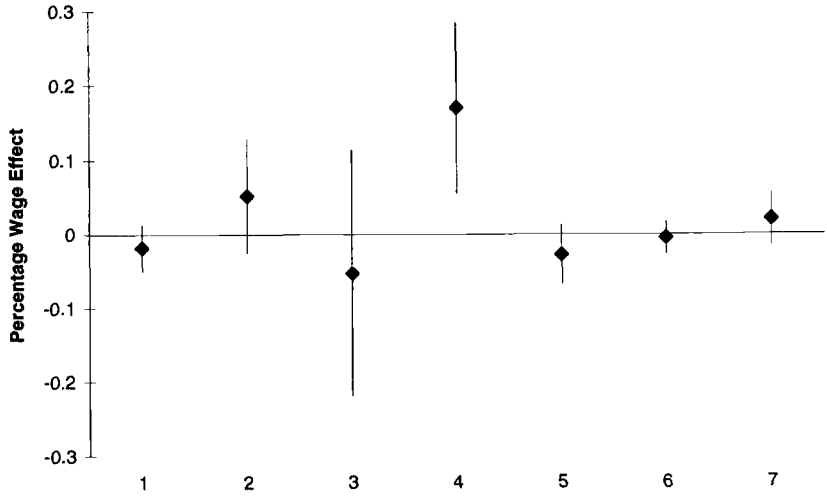

Fig. 6.3 Returns to retraining programs in Sweden—selected estimates with plus/minus 2 standard error band

Note: Studies: 1, Edin (1989); 2, Björklund (1989); 3, Ackum (1991); 4, Axelsson and Löfgren (1992); 5, Regnér (1993); 6, Inverse-variance weighted average; 7, Arithmetic average.

order of 3 percent. Unfortunately, there is a wide range of estimates, and each of the estimates has a large standard error. Two of the estimates are significantly below .03, and one is significantly above .03.

To improve the precision of the estimates, we calculated the weighted average of the estimates, using as weights the inverse sampling variance of the estimate. (We also calculated the standard error of the weighted-average estimate.) This is reported as study 6 in figure 6.3. The weighted-average payoff is slightly negative (−0.8 percent) but not statistically different from zero (SE = 1.2 percent). One could, however, reject the null hypothesis of a payoff on the order of 3 percent using the weighted average of the estimates. On the other hand, the arithmetic average of the estimated effects in the studies is positive, but it is not statistically different from zero or from 3 percent.

These studies show that there is not enough support to reject the null hypothesis that training has no effect on participants' subsequent earnings. If we use the weighted average of the estimates, we would reject the null hypothesis that the payoff is on the order of 3 percent, which is roughly the break-even level for the training programs.

Individually, the studies of earnings lack sufficient power to reach a convincing conclusion on this critical issue. A high priority for researchers in Sweden

for twenty years. If we apply a real interest rate of 3 percent to future earnings, the present value of the payoff to training is $6,695, which exceeds the average cost of $6,568 in 1990. This calculation ignores the time costs of participants while they undergo training.

should be the construction of data sets that permit precise estimates of the effect of job-training programs. The following calculation indicates approximately how large a sample is required to draw reasonably precise inferences.[12] Suppose a standard error of about 1 percent is desired. If we take Regnér's (1993) sample and estimates as representative, we would need a sample of roughly forty-one thousand observations to achieve a standard error of .01, compared to the actual sample of five thousand observations. We feel that Björklund's (1990, 12) recommendation is worth repeating: "More attention must be paid to these—less glamorous—issues of data quality in order to get estimates of reasonable precision." In the light of Heckman and Smith's (1993) finding that JTPA (Job Training Partnership Act) experimental and nonexperimental evaluations yield similar results when the comparison sample for nonexperimental sample is carefully selected, we feel that this suggestion is particularly prescient.

There is an even smaller set of studies to review that examine the effect of training on subsequent employment probabilities. A careful study by Björklund (1989) finds that retraining programs raise the probability that participants are subsequently employed by 4.4–5.5 percent if a linear control function is estimated and by 2–8 percent if a fixed-effects model is estimated, depending on the period. Only the 8 percent estimate is significantly different from zero, however. Duration models estimated by Korpi (1992) indicate that longer experience in labor market programs is associated with greater employment stability for youths in Stockholm and that youths who found jobs directly after participating in manpower programs tended to stay on the job longer.

Until sufficient data are available to make precise estimates for Sweden, we believe that estimates for the United States could prove informative for Sweden. The U.S. literature consistently finds that job-training programs have their largest percentage payoff for women. Men tend to have smaller payoffs, and the available estimates for youths suggest that training has little effect on their subsequent labor market outcomes (see LaLonde 1992). Although selection into training programs and the content of programs in Sweden are likely to be quite different, the American estimates may provide a rough indication of the likely returns in Sweden. In the absence of compelling evidence to the contrary, we suspect that a similar qualitative pattern will hold in Sweden. Moreover, the small payoff to training based on the weighted-average study in figure 6.3 is consistent with the modest payoffs found in the American literature. All this suggests to us that one should not expect heroic returns from job-training programs. The benefits may justify the costs (especially in Sweden because of preexisting distortions noted earlier), but the returns are likely to be in the neighborhood of 3 percent higher income per year.

12. Another issue to consider is the proper statistical methods and specifications to estimate the payoff to job training.

6.5 Beveridge Curve

The stability of the unemployment-vacancy relation, or Beveridge curve, is one of the features of the Swedish labor market that many observers have pointed to. One possible explanation for the stable Beveridge curve in Sweden is that active labor market policies have improved the matching of workers to vacancies. But there are alternative explanations as well. First, the public relief jobs and training programs may mask unemployed workers. Second, public sector employment has grown rapidly in Sweden, with the percentage of Swedish workers directly employed by the government increased from 20 percent in 1965 to 38.2 percent in 1985. The increase in public sector employment is even more dramatic for women, rising from 29.5 percent in 1965 to 54.8 percent in 1985. Government employment may have soaked up workers who otherwise would be unemployed, preventing an outward shift in the Beveridge curve.[13] We explore these alternative explanations for the stable Beveridge curve.

We consider two sources of unemployment data: labor force survey data and register data. Figure 6.4*a* documents the stability of the Beveridge curve using biannual unemployment data from the labor force survey. Figure 6.4*b* contains the corresponding plot using register data. The unemployed counted in the register data consist of people looking for work and immediately available to take a job. In both figure 6.4*a* and 6.4*b,* the vacancy rate is measured by the number of vacancies listed in the register divided by the labor force.

The unemployment–vacancy rate relation is fairly stable over time when the unemployment rate is derived from the labor force survey. The register data, by contrast, indicate that the unemployment-vacancy relation shifted in somewhat between 1990 and 1992 (see fig. 6.4*b*). Both these patterns present a sharp contrast with most other industrialized countries, which experienced a shift out of the unemployment-vacancy locus in the 1970s and 1980s. We utilize the register data in our county-level analysis because the relatively small sample size in the labor force survey would induce considerable sampling variability in county-level estimates. Our goal then is to explain why the Beveridge curve has shifted in for Sweden.

Table 6.5 presents estimates of the Beveridge curve using county-level data for Sweden for 1981–91. In the first four columns, the unemployment rate derived from the registers is the dependent variable. Columns 5 and 6 contain estimates that use a broader measure of the unemployment rate as the dependent variable; the broader measure also counts workers on public relief jobs, training programs, and youth programs as among the unemployed. Results with either dependent variable cast some doubt on the importance of public sector employment for the stability of the Beveridge curve in Sweden.

The regression reported in column 1 reveals a negatively sloped relation

13. This explanation is hypothesized by, e.g., Lindbeck (1990) and OECD (1992).

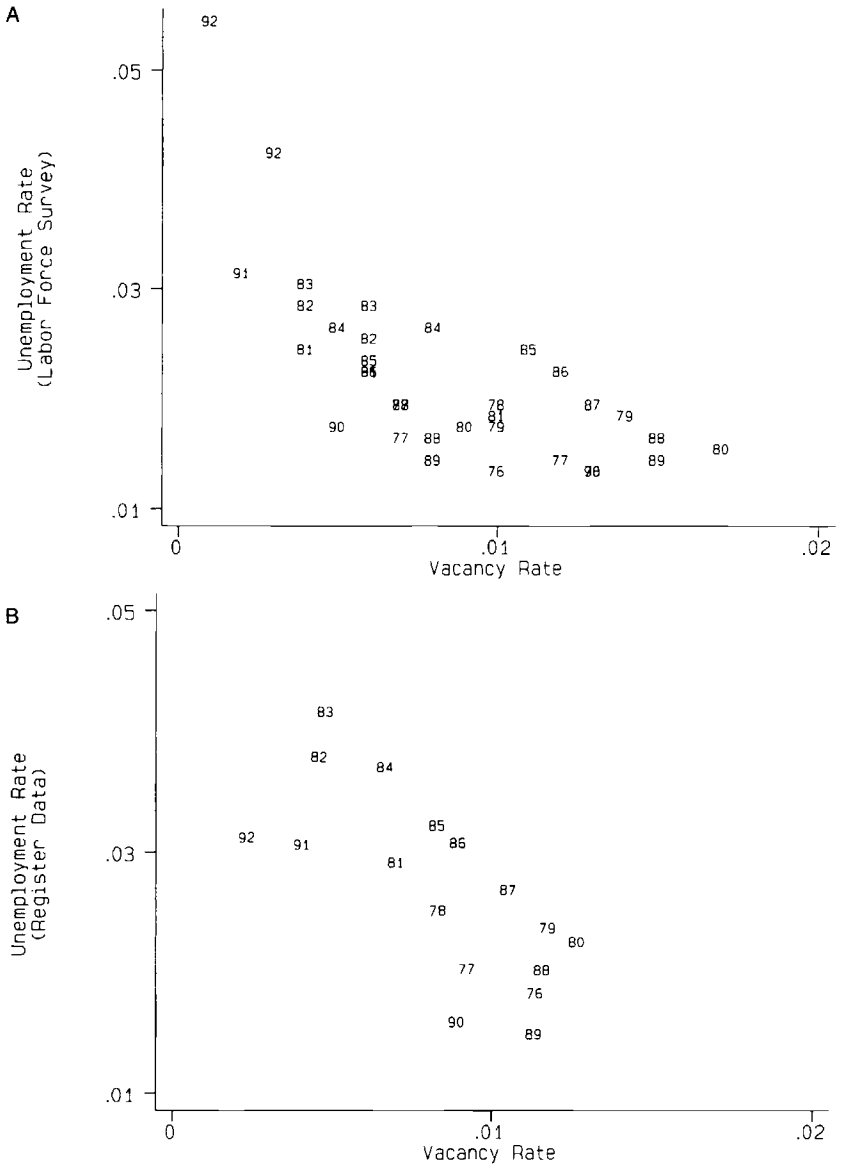

Fig. 6.4 Beveridge curve. *a,* **Survey data.** *b,* **Register data.**

Table 6.5 **Exploration of Stability of Beveridge Curve in Sweden, County-Level Data, 1981–91**

	Dependent Variable					
	Unemployment Rate				UR + Programs	
Variable	(1)	(2)	(3)	(4)	(5)	(6)
Vacancy rate	−2.34	−1.70	−1.83	−1.76	−2.07	−2.22
	(.19)	(.16)	(.18)	(.16)	(.25)	(.25)
Year (÷ 100)	...	−.16	...	−.19	−.22	−.31
		(.01)		(.02)	(.02)	(.03)
Proportion public sector	...	...	−.13	.052	...	.123
			(.02)	(.025)		(.039)
23 county dummies	Yes	Yes	Yes	Yes	Yes	Yes
R^2	.69	.80	.74	.81	.80	.81
Sample size	264	264	264	264	264	264

Note: Regressions also include constants. Proportion public sector is the proportion of the labor force employed in the public sector. Vacancy rate is the number of registered vacancies relative to the labor force. Unemployment rate is the unemployment rate derived from the registers. "UR + Programs" is (unemployed + relief workers + number on training programs + number on youth programs)/labor force. Standard errors are given in parentheses.

between the unemployment rate and the vacancy rate. Notice that the coefficient on the linear time trend reported in column 2 indicates that the county-level Beveridge curve has shifted in, as expected from figure 6.4*b* above. In the model in column 3, we substitute a variable measuring the proportion of workers in the county who are employed in the public sector for the time trend. The estimates in column 3 are consistent with the view that public sector employment has absorbed unemployed workers, as the public sector share has a negative and statistically significant effect on the county unemployment rate. However, once we add a linear year trend to the model in column 4, the public sector employment variable changes sign. Moreover, the year trend is hardly affected by the inclusion of the public sector employment variable. In columns 4 and 5, we use the broader definition of the unemployment rate. These results also indicate that the Beveridge curve has shifted in and that the proportion of workers employed in the public sector has a positive effect on unemployment when a linear time trend is included.

From the estimates in table 6.5, one may be tempted to conclude that a growing public sector absorbed many unemployed workers, only that the growth in public sector employment was roughly constant, making it difficult to distinguish from a linear time trend. In other words, including both public sector employment and the time trend causes a multicollinearity problem. Although this interpretation is possibly correct, the time path of public sector employment differed across counties, enabling us to estimate the model with both variables in columns 4 and 6. Importantly, the standard error of the estimate

for the proportion in the public sector increases only slightly once the time trend is added to the model, suggesting that multicollinearity is not a serious problem.

We are also aware that a valid criticism of the regressions in table 6.5 is that public sector employment is possibly an endogenous variable. Nevertheless, we consider these results suggestive that growing public sector employment does not account for the inward shift of the Swedish Beveridge curve. In addition, when we use a broader measure of unemployment—one that includes program participation as well as open unemployment—we still find that the Beveridge curve has shifted in. Thus, we have no satisfactory explanation for the time trend in the Beveridge curve in Sweden.

Although the reasons for Sweden's unemployment-vacancy relation are unclear, we should stress that a stable or inward shift of the Beveridge curve is not necessarily a virtue if the unemployment rate has increased. If the Beveridge curve had shifted out, at least there would be substantial job vacancies at the prevailing high unemployment rate, and the issue would be matching people to jobs. But, in Sweden's current economic environment, the level of vacancies is low, and the level of unemployment is high. Unless we were confident of steps that would move the Swedish labor market down along a stable Beveridge curve, this is not a desirable situation.

6.6 International Evidence on Active Labor Market Programs

Our main approach in this paper has been to try to measure the effect that specific labor market programs (such as public relief work) have on key outcome variables (such as construction worker employment). For the programs and outcome measures that we have been able to study, this analysis provides little support for the view that Sweden's labor market policies have greatly enhanced the operation of the labor market. Most of the favorable impression of active labor market policies, however, is due to a different approach—cross-country analyses. In these studies, an aggregate measure of a country's labor market performance (usually the unemployment rate) is related to institutional characteristics of the country, such as variables measuring the extent of its active labor market programs and other economic variables (e.g., Bean, Layard, and Nickell 1986; and Layard, Nickell, and Jackman 1991). The international evidence has generally found that countries with greater spending on active labor market policies tend to have lower unemployment. In this section, we review, update, and evaluate the international evidence on the effectiveness of labor market programs.

In their influential book, Layard, Nickell, and Jackman (1991, chap. 1) present a cross-country regression of the average unemployment rate for 1983–88 on a variable measuring active labor market programs and several other variables. Their sample consists of twenty OECD countries. Active labor market programs are measured by expenditures on these programs per unemployed

person relative to GDP per capita in 1987. Their regression coefficients (t-ratios in parentheses) are reported below:

$$\begin{aligned}\text{unemployment rate (\%)} = {} & 0.24\ (0.1) \\ & + 0.92\ (2.9)\ \text{benefit duration (years)} \\ & + 0.17\ (7.1)\ \text{replacement ratio (\%)} \\ & - 0.13\ (2.3)\ \text{active labor market spending (\%)} \\ & + 2.45\ (2.4)\ \text{coverage of collective bargaining (1–3)} \\ & - 1.42\ (2.0)\ \text{union coordination (1–3)} \\ & - 4.28\ (2.9)\ \text{employer coordination (1–3)} \\ & - 0.35\ (2.8)\ \text{change in inflation (\% points)},\end{aligned}$$

$$R^2\text{–adj.} = 0.91, \quad \text{SE} = 1.41, \quad N = 20.$$

The statistically significant point estimate on the active labor market variable implies that the derivative of the unemployment rate with respect to the share of the labor force in programs equals -1.5, so the reduction in open unemployment therefore exceeds the direct effect of lifting people out of unemployment by means of active labor market policies (see Calmfors 1994, n. 18).

In related work, Zetterberg (1993) pools time-series data for nineteen OECD countries for the period 1985–91 and regresses unemployment on the ratio of expenditures on active labor market measures relative to total expenditures on labor market policies. Consistent with Layard, Nickell, and Jackman, he finds that, as the share of expenditures on labor market policies increases, the national unemployment rate declines.

We think that there are two major weaknesses with the cross-country analyses that limit their usefulness in evaluating active labor market programs. The first problem arises because the source of variability in the countries' labor market policies is unclear. In this situation, one would like to control for a great many variables that might influence the unemployment rate and national labor market policy. However, with only twenty observations, the number of variables that one can hold constant is greatly restricted.

A related issue is that cause and effect in the cross-country regressions are very difficult to ascertain. If a nation is in a prolonged downturn, it may be difficult to deny generous unemployment insurance benefits to unemployed workers. In this scenario, high unemployment causes high UI replacement rates and long benefit durations, not vice versa. A possible approach to solving this simultaneity bias problem would be to instrument for the labor market variables, but valid instrumental variables are difficult to find for this problem.

A similar concern arises with the active labor market variables. As Grubb (1993) and OECD (1993) point out, spending on active labor market measures tends to rise less than in proportion with unemployment in most OECD countries. As spending on unemployment benefits typically varies approximately in proportion to unemployment, this has induced a negative correlation between unemployment and spending on active labor market measures per unemployed

worker and between unemployment and the share of total labor market program expenses devoted to active labor market programs.[14]

Our second, and perhaps more important, concern is that the cross-country evidence on the active labor market programs is not very stable over time. The cross-country evidence has been conducted mainly using data for the 1980s, when the unemployment rate in Sweden and other countries with extensive active labor market programs was relatively low. The situation has changed quite dramatically in the early 1990s. To probe the stability of the international evidence, we have conducted a cross-country analysis of the 1993 unemployment rate that is similar in spirit to the work of Layard, Nickell, and Jackman (1991) and Zetterberg (1993).

Specifically, we regress the unemployment rate in 1993 on two measures of active labor market programs, the change in inflation and the same institutional variables used by Layard, Nickell, and Jackman (1991). For comparison, we present corresponding estimates for the years 1983–88, the period analyzed by Layard, Nickell, and Jackman. We measure the importance of active labor market programs in two ways. First, we calculate the fraction of GDP spent on active labor market programs. Second, we use Zetterberg's (1993) variable, which equals the share of expenditures on active labor market measures relative to total expenditure on labor market programs. Both these measures have problems. Most obviously, active labor market expenditures relative to GDP may rise when unemployment rises because more people become eligible for programs—the simultaneity problem we noted previously. The simultaneity bias is likely to impart the opposite bias for the share of expenditures on active labor market programs relative to total expenditures on labor market programs. But bear in mind that our main interest here is in examining whether the effect of the active labor market variables has changed between the 1980s and 1993, not whether the estimates are biased at any one time.[15]

Table 6.6 summarizes the main regression results.[16] The table indicates a striking change in the coefficients for the active labor market variables. In the period 1983–88, both active labor market variables have a negative association with unemployment, whereas they both have a positive association in 1993. The t-ratio for a test of the difference between the estimates for the active labor variable in columns 3 and 4 is 1.89. It is also worth noting that the union coverage and union coordination variables have changed signs and become statistically insignificant in 1993. On the other hand, the duration and generos-

14. This point is demonstrated in OECD (1993, annex 2.A), which shows that the significant effect of active labor market programs found by Layard, Nickell, and Jackman vanishes when spending on active labor market programs is instead related to the total wage bill.

15. The correlation between Layard, Nickell, and Jackman's active labor market variable (expenditures on active labor market programs per unemployed worker relative to GDP per capita in 1982) and ours (the fraction of GDP devoted to active labor market programs ca. 1993) is .82.

16. Because the sample size is small, in each model we use the largest available sample. This leads to different samples of countries in different years. However, our results are qualitatively similar when we restrict the samples to a common set of countries.

Table 6.6 **Models for Cross-Country Differences in Unemployment, 1983–88 and 1993 (dependent variable: unemployment rate [%])**

	Year			
Independent Variable	1983–88	1993	1983–88	1993
ALM spending relative to GDP	−.42 (1.18)	1.73 (1.42)	...	...
ALM spending relative to all labor market programs	...	...	−8.78 (3.19)	10.19 (9.49)
Union coverage (1–3)	2.68 (1.38)	−.79 (2.12)	3.00 (1.05)	1.48 (1.59)
Union coordination (1–3)	−1.98 (.84)	1.16 (1.57)	−2.01 (.66)	1.48 (1.59)
Employer coordination (1–3)	−4.42 (.77)	−5.15 (1.22)	−3.76 (.64)	−6.31 (1.44)
Unemployment insurance replacement ratio	.15 (.03)	.25 (.07)	.14 (.02)	.32 (.07)
Unemployment insurance duration (years)	.96 (.36)	1.68 (.60)	.60 (.36)	1.60 (.72)
Change in inflation	−.39 (.15)	−1.04 (.89)	−.41 (.13)	−.99 (.84)
Sample size	20	19	20	17
R^2-adj.	.85	.63	.91	.75
SE	1.79	2.96	1.41	2.51

Note: Standard errors are in parentheses. The ALM (active labor market) spending relative to GDP and ALM spending relative to all labor market program variables pertain to 1987 in cols. 1 and 3 and available years between 1991 and 1993 in cols. 2 and 4 (*source:* OECD 1993). The change in inflation variable is for 1983–87 in cols. 1 and 3 and 1992–93 in cols. 2 and 4 (*source: OECD Main Economic Indicators*). All other explanatory variables are from Layard, Nickell, and Jackman (1991).

ity of unemployment insurance benefits continue to have a positive association with the unemployment rate, and an increase in the inflation rate continues to have a negative (albeit statistically insignificant) effect on the national unemployment rate in 1993.

One could argue that 1993 is an aberration—that the international evidence in other years suggests that active labor market programs have reduced unemployment. But, together with the statistical issues that we raised previously, we think that the results of the updated cross-country regressions challenge the favorable impression of active labor market programs that several observers have drawn from international comparisons.

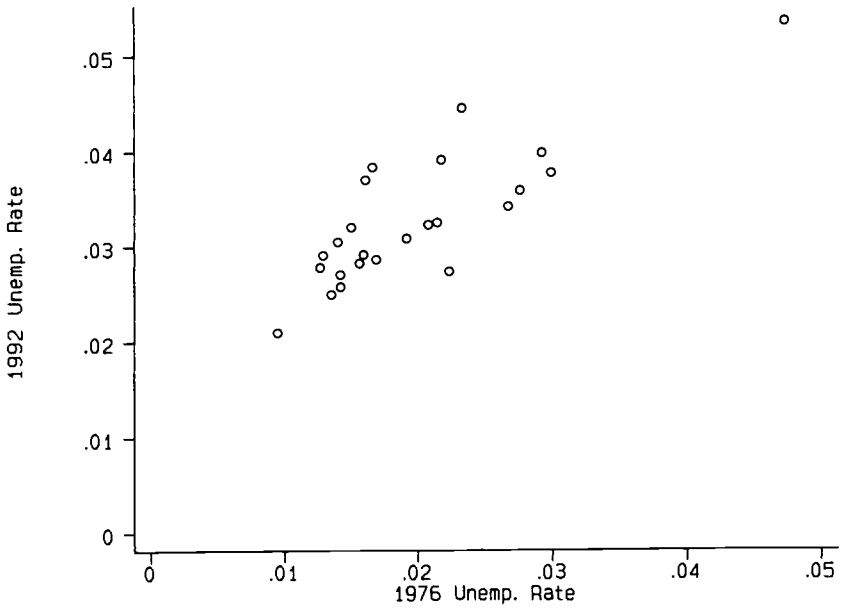

Fig. 6.5 Persistence of county-level unemployment

6.7 Comparison of Regional Evolutions

Finally, we examine the responsiveness of employment and unemployment to regional shocks in Sweden. This analysis is motivated by two issues. First, if Sweden's labor market policies are unusually successful, we would expect economic shocks to have less persistent effects in Sweden than in other countries. Second, Sweden's past record of adjustment to economic shocks may tell us something about how the labor market will react to the current economic downturn.

Specifically, we investigate the evolution of employment and unemployment using pooled time-series and cross-sectional data for the twenty-four counties in Sweden. As a first look, figure 6.5 presents a plot of the unemployment rate in 1992 against the unemployment rate in 1976 using data on each of the twenty-four counties in Sweden. There is considerable persistence in the level of unemployment across regions in Sweden. This is similar to the pattern found for regions in France, Germany, Spain, and the United Kingdom by Decressin and Fatas (1993) but quite different from the pattern for states in the United States found by Blanchard and Katz (1992). Figure 6.6 shows a plot of each county's percentage growth in employment between 1983 and 1991 against its growth between 1976 and 1983. There appears to be little persistence in employment growth rates across counties in Sweden. Again, the pattern for Sweden more closely resembles the European pattern found by Decressin and Fatas than the U.S. pattern found by Blanchard and Katz.

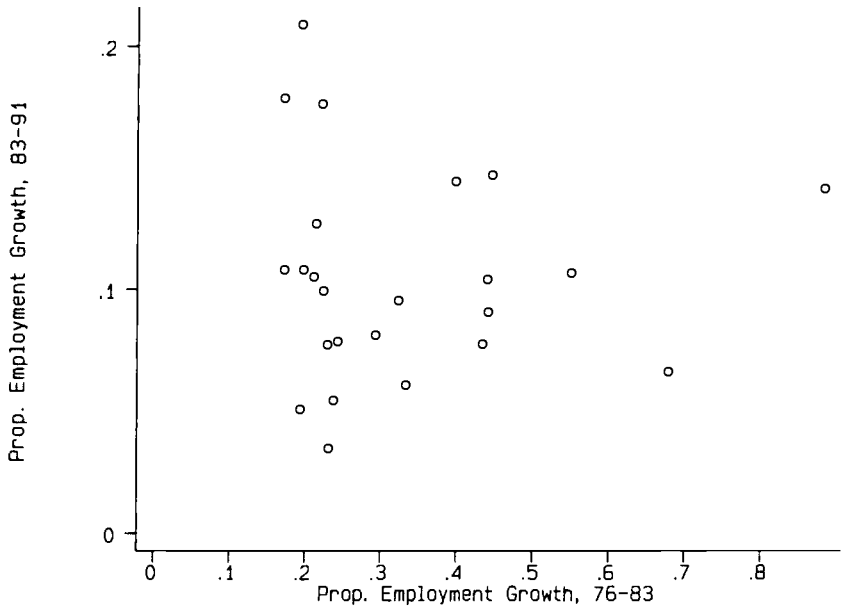

Fig. 6.6 Evolution of county-level employment growth

Following Blanchard and Katz (1992), we define $\Delta\eta_{it}$ as the change between year t and $t - 1$ in the logarithm of employment in county i minus the change in the logarithm of employment in Sweden nationwide between year t and $t - 1$. We estimate the same univariate process for employment as Blanchard and Katz:

$$\Delta\eta_{it} = \alpha_i + \beta(L)\Delta\eta_{it-1} + \varepsilon_{it}, \tag{2}$$

where we allow four lags in $\Delta\eta_{it-1}$, α_i represents a county fixed effect, and ε_{it} is an idiosyncratic error term.[17]

Results are presented in table 6.7, and the implied impulse response function is shown graphically in figure 6.7. For comparison, we also report Blanchard and Katz's estimates for the fifty U.S. states. Regional shocks to relative employment have lasting effects in Sweden; they are 86 percent of their original size after twenty years. In the United States, regional employment shocks also have permanent effects, but they tend to be amplified over time. Interestingly, Decressin and Fatas (1993) find that the Swedish pattern is more typical of other European countries.[18] The United States would thus seem to be the outlier here, not Sweden.

17. A Dickey-Fuller test did not reveal a unit root in the Swedish county-level employment series. Nevertheless, we estimate the same specifications as Blanchard and Katz for comparability.

18. Decressin and Fatas's results are not directly comparable to our estimates and to Blanchard and Katz's because they deviate regional employment from country-specific coefficients times

Table 6.7 **Univariate Models of Relative Employment and Unemployment across Regions**

Coefficient on Lagged Dependent Variable	United States		Sweden	
	Δ Log Employment (1)	Unemployment Rate (2)	Δ Log Employment (3)	Unemployment Rate (4)
One lag	.492	.899	−.103	1.020
	(.023)	(.032)	(.039)	(.051)
Two lags	−.099	−.159	−.028	−.289
	(.025)	(.033)	(.038)	(.052)
Three lags	.010	...	−.026	...
	(.024)		(.024)	
Four lags	−.054	...	−.003	...
	(.022)		(.022)	
σ_ε	.017	.083	.018	.002
Sample period	1952–90	1972–90	1981–91	1978–92
	Implied Impulse Responses			
Year 1	1.00	1.00	1.00	1.00
Year 2	1.49	.90	.90	1.02
Year 3	1.63	.65	.88	.75
Year 4	1.67	.44	.86	.47
Year 5	1.62	.29	.86	.26
Year 10	1.52	.04	.86	.00
Year 20	1.53	.01	.86	.00

Note: Models include state dummies (United States) or county dummies (Sweden). Columns 1 and 2 are from Blanchard and Katz (1992). Change in log employment and unemployment rate are measured relative to national levels. Standard errors are given in parentheses.

Next, we examine the evolution of relative unemployment rates. Specifically, we follow Blanchard and Katz and estimate

$$\mu_{it} = \alpha_i + \beta_1 \mu_{it-1} + \beta_2 \mu_{it-2} + \varepsilon_{it}, \tag{3}$$

where μ_{it} is the unemployment rate in county i in year t minus the aggregate unemployment rate in Sweden in year t, α_i is a county effect, and μ_{it-1} and μ_{it-2} are one- and two-year lags of the relative unemployment rate.

As shown in table 6.7 (cols. 3 and 4) and figure 6.8, the relative unemployment rate series in both Sweden and the United States displays less persistence than the relative employment growth series. Half the effect of an innovation in a county's relative unemployment rate is predicted to dissipate three years after

aggregate European employment. But their country coefficients are close to one, and they report similar results for the United States as Blanchard and Katz when they apply their procedure to U.S. data.

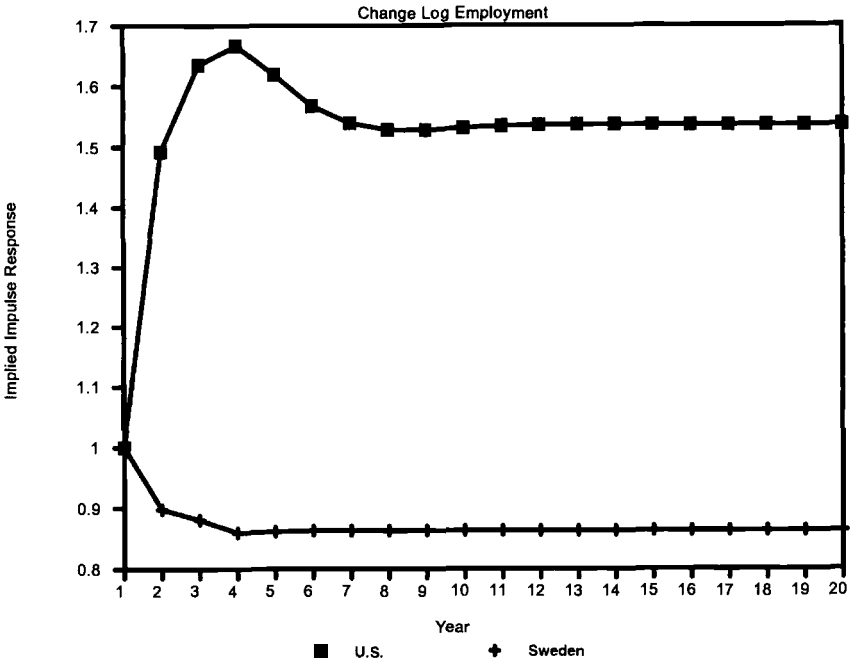

Fig. 6.7 Impulse response function, Sweden and United States: Change log employment

the initial shock. Ten years after a shock, the innovation is predicted to have completely dissipated.

The implied impulse response functions for the unemployment rate are quite similar in Sweden and the United States, and Decressin and Fatas find a similar pattern for regional data in several European countries. Our finding of similar regional evolutions in the relative unemployment rate series in Sweden, the United States, and Europe suggests that active labor market programs in Sweden have not had a marked effect on unemployment adjustment in regional labor markets in Sweden.

6.8 Conclusions

We conclude by considering what our review of the literature and our original analysis imply for the current problems facing the Swedish labor market. We also consider possible lessons from Sweden's experiences for labor market policy in the United States and elsewhere.

One important question that we can partially address is whether the recent dramatic increase in unemployment in Sweden is likely to have a persistent effect. We can base our estimate on the estimated unemployment rate equation in table 6.7 above if we make two strong assumptions: (1) the regional shocks that identify the autoregressive models in table 6.7 have similar effects as the

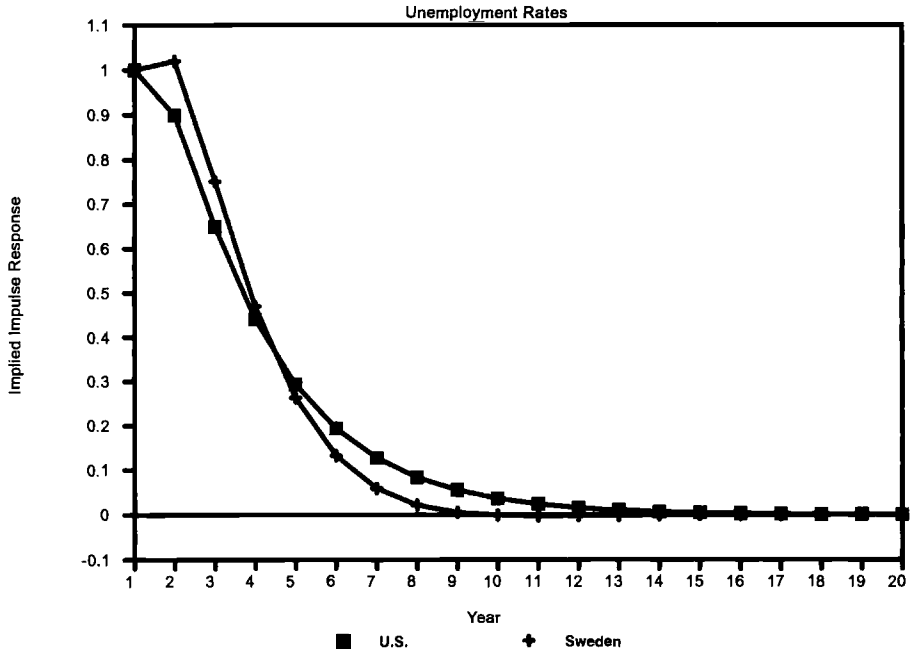

Fig. 6.8 Impulse response function, Sweden and United States: Unemployment rates

shocks causing the current depression in the Swedish labor market; and (2) the 7 percentage point increase in the unemployment rate in Sweden between 1990 and 1993 is the entire innovation to the unemployment rate series. If these assumptions are valid, the coefficients in table 6.7 imply that the Swedish unemployment rate will gradually decline but will still be at historically high levels for at least the next few years, and probably longer.

Our analysis also suggests that the active labor market programs are not as effective at combatting unemployment or enhancing workers' skills as some observers believe. How might certain policy changes affect the labor market programs, especially in the current high-unemployment environment? The answer to this question is particularly important if the high rate of unemployment persists in the future. Indeed, relatively generous unemployment benefits (compared to the United States) is a reason why one might expect the high rate of unemployment to persist.

First, Sweden's UI fund benefits are very generous by U.S. standards and are available for a long duration. Benefits last for three hundred days, which is more than twice the maximum duration of unemployment benefits in the United States. Furthermore, the maximum duration of unemployment benefits in Sweden may be effectively longer given the possibility of requalifying for benefits after working on public relief jobs or undergoing retraining. The extent to which individuals rotate between receiving unemployment benefits and par-

ticipating in labor market programs should be investigated. If this appears to be a widespread phenomenon, one possible response would be to limit the total duration that individuals may receive unemployment benefits in a specified window of time.

A second possible response is an expanded set of programs to encourage entrepreneurial activity by unemployed workers. Experimental evidence and experience in the United States suggests that a minority of unemployed workers are interested in self-employment and that government assistance can help increase the number of unemployed who start their own businesses. For example, the state of Washington has had favorable results from providing unemployment benefits in a lump sum to those who are interested in obtaining seed capital to start their own business (U.S. Department of Labor 1992). In addition, training in business activities and other support services may prove useful. The social reward to pursuing this kind of a policy is likely to be greater in Sweden, where high marginal tax rates discourage entrepreneurial ventures. Another possible issue to study is that, to encourage more entrepreneurial activities, the government might allow some "tax and regulation havens" in which start-up businesses are exempted from tax and regulatory requirements for a specified period of time. Although only a small minority of the unemployed could possibly become successful entrepreneurs, this is a margin in which employment could possibly be expanded, especially in a downturn.

Third, our review of studies of training lead us to the same conclusion reached by Robert Flanagan (1987): "There is disappointingly little evidence that these expenditures have improved the productivity of the Swedish work force." Although the handful of studies on the effect of training employ state-of-the-art statistical methods, the data have proved insufficient for deriving precise estimates of the payoff to training. Aggregating over several studies, we conclude that the payoff is modest, at best. The U.S. evidence supports a similar conclusion. Furthermore, the immediate benefit of job training when the labor market is weak is likely to be smaller than when the labor market is strong. An important question is whether some training expenditures could be more profitably redirected, perhaps toward programs that would stimulate aggregate demand. From a research standpoint, it would be useful if any policy changes could be implemented in such a way as to facilitate evaluation of the effect of the policies. Specifically, this may include selection of individuals for certain policies on the basis of an arbitrary criterion (e.g., birthday falls after certain date) and administrative monitoring of nonparticipants and program exhaustees for data-collection purposes and subsequent analysis. Finally, our results and those of Gramlich and Ysander (1981) suggest that, in the past, public relief workers have displaced other workers, on net creating few new jobs in the construction sector. It is possible that displacement effects could be limited by requiring local governments to propose new projects in order to qualify for relief workers. If public relief work assumes a greater role in the current downturn, this issue would be worthy of further study.

What does our analysis imply for the United States? The United States seems to be moving in the opposite direction of Sweden, having in 1992 elected a president with a platform of "putting people first" by improving the skills of the workforce. In addition, unemployment benefits have recently been extended in the United States in some regions, whereas the level of benefits was recently cut in Sweden. It is possible that both countries are moving in the "optimal" direction since the active labor market programs in the United States are much smaller than those in Sweden. The optimal level of labor market programs may lie somewhere in between the two countries. Nevertheless, Sweden's experience that active labor market programs alone are not capable of fending off high levels of unemployment should be instructive to the United States and other countries. Countries should not expect supernormal returns from government labor market programs. Policy makers in Eastern European countries who look to Sweden as a model for labor market institutions would be well advised to keep this lesson in mind.

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