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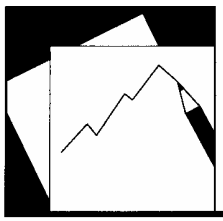

IMF Working Paper

Do Active Labor Market Policies Increase Employment?

Marcello Estevão

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IMF Working Paper

European Department

Do Active Labor Market Policies Increase Employment?

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Authorized for distribution by Luc Everaert

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Abstract

This Working Paper should not be reported as representing views of the IMF.
The views expressed in this Working Paper are those of the author(s) and do not necessarily represent those of the IMF or IMF policy. Working Papers describe research in progress by the author(s) and are published to elicit comments and to further debate.

Using panel data for 15 industrial countries, active labor market policies (ALMPs) are shown to have raised employment rates in the business sector in the 1990s, after controlling for many institutions, country-specific effects, and economic variables. Among such policies, direct subsidies to job creation were the most effective. ALMPs also affected employment rates by reducing real wages below levels allowed by technological growth, changes in the unemployment rate, and institutional and other economic factors. However, part of this wage moderation may be linked to a composition effect because policies were targeted to low-paid individuals. Whether ALMPs are cost-effective from a budgetary perspective remains to be determined, but they are certainly not substitutes for comprehensive institutional reforms.

JEL Classification Numbers: D2, E2, J23

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I. INTRODUCTION

The steady rise in unemployment rates in the 1970s and 1980s in Europe has been variously attributed to mismatches between labor skills demanded and supplied, excessive wages vis-à-vis productivity levels, over-generous out-of-work benefits, and rigid institutions designed to curb labor churning. Among the possible solutions was the introduction of government policies to better mold labor force characteristics to changes in demand, to lower firms' labor costs directly and to increase job-search efficiency. These policies have been grouped under the label of "active labor market policies" (ALMPs).[2] Indeed, during the second half of the 1990s, employment performance improved appreciably in several European countries raising the presumption that such policies actually worked.

This paper evaluates the aggregate effect of ALMPs on employment and finds a positive correlation between spending on ALMPs as a percentage of GDP and the employment rate in the business sector in the 1990s, but not in the late 1980s, when such expenditure was still relatively small. Among all the ALMPs, direct subsidies to job creation were the most effective in raising employment rates, while expenditures on training programs seem to have been largely ineffective. By estimating a wage-setting curve for the same sample of countries, it is also shown that substantial wage moderation (reduction in real wages adjusted by technology for a given rate of unemployment) was associated with increases in ALMPs in the 1990s. These results reveal one of the possible sources of the hitherto unexplained wage moderation in some European countries.[3] However, even though ALMPs do increase employment, they also weigh heavily on the budget. Institutional reforms to lower production costs and enhance labor market flexibility and work incentives are a better way to increase employment rates.

The methodology used here addresses three key shortcomings of previous studies of the effect of ALMPs on the labor market using cross-country aggregated data, which have

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[2] ALMPs consist mainly in training, targeted subsidies to job creation, public employment services and other expenditures aimed at promoting employment. Nontargeted policies to lower labor costs are not included in this definition, as they are considered general macroeconomic policies. That is the case, for instance, of the treatment given by the Organization for Economic Co-operation and Development (OECD) to a large share of the cuts in social security contributions in France in the 1990s.

[3] This moderation has been used as one of the main explanatory variables to explain sharp labor market improvements in the Netherlands and Spain, for instance (Blanchard (2000) and Decressin et al (2001), among others). France has also seen structural labor market improvements apparent in shifts of the equilibrium trade-off between unemployment and wages, seemingly originated from moderation of wage demands (Estevão and Nigar, 2002, and Detragiache and Estevão, 2002).

generally been inconclusive.[4] First, the specification used in many of these studies tends to overestimate the effect of ALMPs on the unemployment rate (very few studies focus on the most appropriate measure of labor market performance, the employment rate). Second, other studies use either pooled cross-country regressions, or panel data with random effects, with no (or very little) within-country variation in ALMP spending. In particular, most of the literature has focused on the effect of institutions on unemployment rates, leaving ALMPs as a control variable. In many cases, such a focus has limited the amount of time variation allowed in the data as institutions tend to be quite constant in time. Third, data used in previous studies did not extend beyond 1995.

The remainder of the paper is organized as follows. The next section explains why ALMPs may be effective in raising employment rates. Section III uses the empirical strategy of previous work as a guideline for the identification challenges to be met in the simple econometric setup used here. Section IV sets up the empirical work and discusses estimates for the effect of ALMPs on employment rates. Section V provides evidence on the link between expenditures on ALMPs and wage moderation in the panel of countries under study. Section VI concludes this paper.

II. Why Might ALMPs Increase Employment?

ALMPs may affect employment through at least five channels. To catalogue these effects consider a simple labor market model with a downward-sloped labor demand and an upward-sloped wage-setting relationship resulting from the wage bargaining models discussed in Layard et al (1991) (Figure 1).[5]

First, ALMPs may generate more efficient matching between job vacancies and unemployed workers because of adjustments in job-seekers' skills (for instance, through training programs) or more effective searching (for instance, through more active employment agencies). The resulting smaller ratio between vacancies and unemployment reduces wage pressure, which causes a downward shift in the wage-setting curve, and, because vacancies are costly to employers, provides an outward shift in labor demand. Both effects will tend to raise employment with an uncertain final effect on real wages.

Second, labor force productivity may increase, owing to either training programs or on-the-job learning, in the case of direct subsidies to job creation. It may also affect non-program participants through an externality effect. This productivity increase would shift labor demand up and lift employment and wages.

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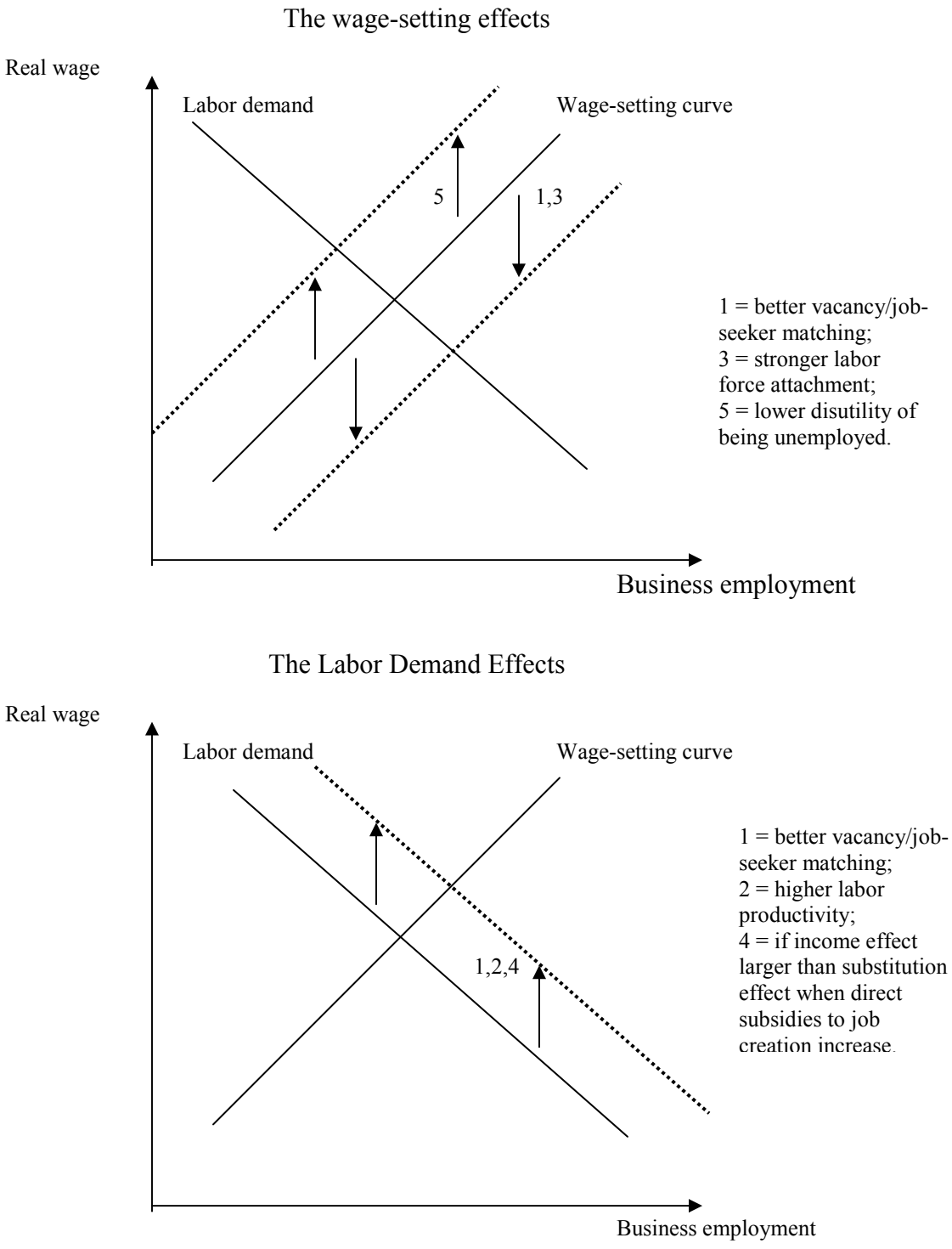
[4] An alternative strategy focusing on institutional details, implementation timing, and microeconomic data can provide satisfactory evaluation of specific policies, but cannot answer the question of how effective aggregate expenditures on ALMPs are in increasing aggregate employment, for instance. Heckman et al (1999) provide an overview of the literature using microeconomic data to evaluate a specific ALMP.

[5] Most of these factors were outlined in OECD (1993).

Figure 1. How Might ALMPs Affect Employment?



Third, ALMPs may keep unemployed workers attached to the labor force, even after a longer period of inactivity. The resulting stronger competition for jobs would shift the wage-setting curve down, raising employment and reducing wages.

Fourth, job creation programs (e.g., direct subsidies to low-skill employment) may generate windfall effects, i.e., substitute for nonsubsidized employment, making ALMPs ineffective. However, the associated income effect from an overall reduction in labor costs could be large enough to increase labor demand, implying higher wages and employment in equilibrium.

Fifth, active policies may lower the disutility of being unemployed, as they provide an occupation to otherwise unemployed workers, some income, and a hope of keeping their labor skills. Workers would then demand higher wages during bargaining and, in equilibrium, employment would be lower.

Finally, an important caveat should be noted. Even if a positive effect on employment might be discerned, the fiscal cost of ALMPs may be very high, raising the question of their overall effectiveness in a general equilibrium or cost-benefit sense.

III. Identification Issues and a Critical Look at Previous Studies

Previous studies of the effect of ALMPs on labor market performance suffer from one or more of the following flaws: (i) the inability to separate the role of labor market institutions from the role of policies, whose resolution calls for using a panel database; (ii) small sample size that leads to insufficient time variation in ALMPs (quite related to (i)); (iii) unstable results depending on the metric used for ALMPs; (iv) the reverse causality from movements in employment to changes in expenditures in ALMPs (e.g., when employment is low, more people sign up for training and consult public employment services, while the government is more likely to enact new or more generous subsidy programs); and (v) a focus on unemployment, which leads to overestimation of the returns of ALMPs on employment and neglect of labor force participation effects.

The first studies used only a very limited number of observations (usually around 20) with countries as individual units and no time variation in the data.[6] Since a few institutional controls cannot be expected to account for all cross-country diversity unrelated to ALMPs, this method is likely to wrongly attribute the influence of some unobserved institutional features on the unemployment rate to ALMP spending.

Subsequently, the work conducted during the second half of the 1990's take advantage of the extended availability of data to use panel methods, therefore improving the

[6] The literature on the effects of active policies on labor market variables using OECD country level data was initiated by Layard, Nickell and Jackman (1991) and immediately pursued in OECD (1993), Forslund and Krueger (1994) and Heylen (1993).

identification of institutional effects on the unemployment rate.[7] However, the same studies tend to pool the data in two periods or average the information on ALMP expenditures to minimize the reverse causality problem going from movements in the unemployment rate to variations in expenditures on ALMPs, which bias the estimates toward finding a positive correlation between both variables. In addition, this averaging neglects variation in the time domain as a source of parameter identification. Other studies have attempted to handle reverse causality by using the ratio of expenditures on ALMPs to unemployment but such a measure only changes the sign of the bias toward finding a negative correlation between ALMPs and unemployment rates.[8]

The focus on the reverse causality problem is not unwarranted, though, as it is likely behind the raw negative correlation between expenditures on ALMPs as a share of GDP and business employment rates (the labor utilization measure used in the next section) across countries (Figure 2).[9] Similarly, passive labor market policies (PLMPs), comprising unemployment compensation payments and early retirement for labor market reasons, are negatively correlated to employment rates, and more so than ALMPs. This is likely because of the mechanical link between lower employment rates, larger unemployment rates and larger unemployment compensation outlays, although one should expect a negative effect on incentives to work from more generous compensation for jobless individuals.

The larger cyclicality of expenditures on PLMPs sheds suspicion on other measures used to evaluate the effect of ALMPs on the labor market, e.g., ALMP expenditure as a share of total labor market expenditure (i.e., expenditure on active and on passive labor market policies).[10] As long as an increase in unemployment leads to a higher increase in passive labor market policy expenditure than in spending on ALMPs, which is probable because of the more mechanical link between unemployment compensation outlays and unemployment rate movements, the effect of ALMP expenditure in reducing unemployment is likely overstated.

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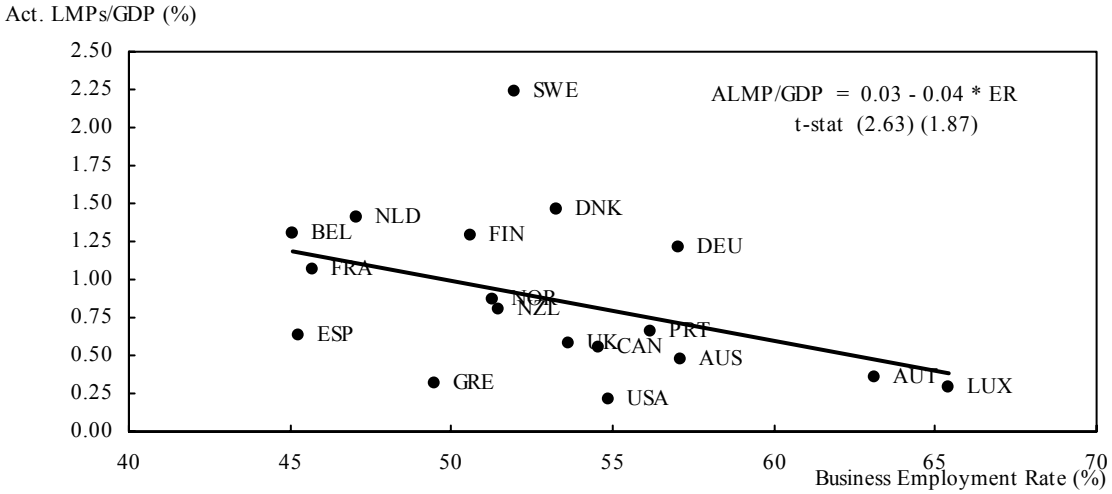
[7] Among the best studies, see Jackman, Layard and Nickell (1996), Nickell and Layard (1999), Bellmann and Jackman (1996), Scarpetta (1996), and Elmeskov, Martin and Scarpetta (1998).

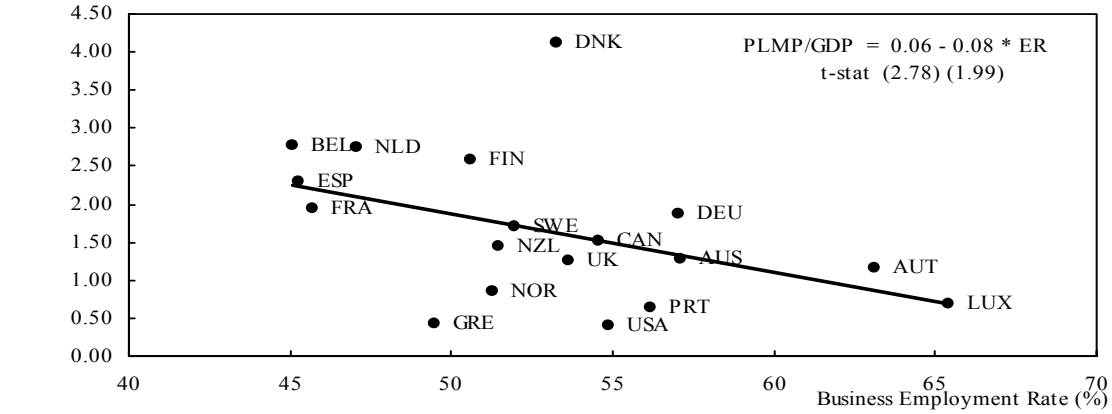
[8] Suppose that ALMP spending had no effect on unemployment: if ALMP spending rises (because of reverse causality) less than proportionally with unemployment, there would be an apparent negative relationship between ALMP spending as a ratio of unemployment, and the unemployment rate.

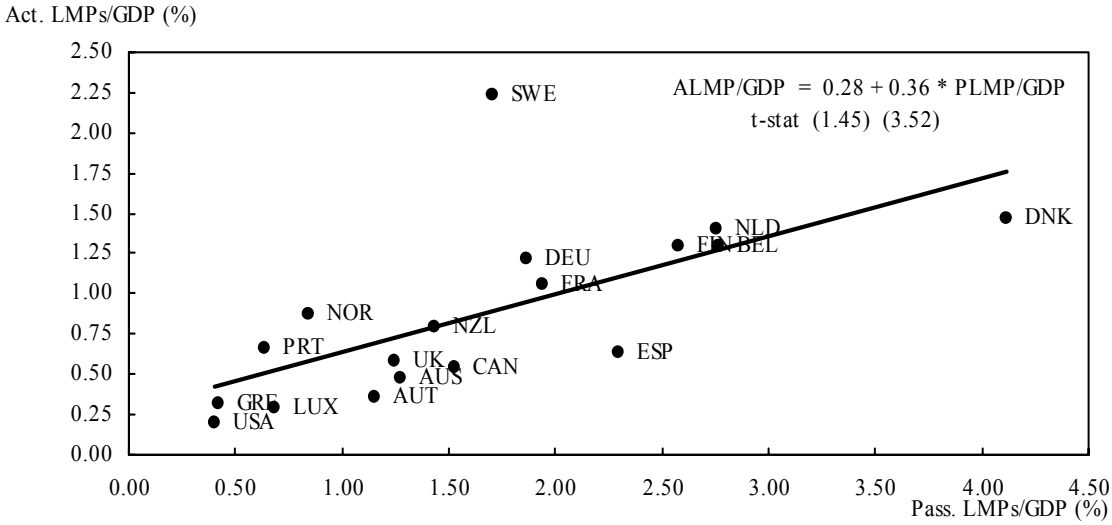
[9] Business sector employment rate is defined as the share of business sector employment in the working-age population. Conversely, reverse causality creates a *positive* bias in estimates of the effect of ALMPs on the unemployment rate. The OECD Labor Market Policies database is described in Appendix I.

[10] For instance, Zetterberg (1993).

Figure 2. Expenditure on Active and Passive LMPs, and Business Employment Rate
(Average from 1985 to 2000)







Source: OECD and author's calculations.

Most previous work focuses on identifying the effect of ALMP expenditure on the unemployment rate but because an increase in ALMP spending might affect labor force participation, it is hard to deduce the final employment creation effect.[11] In addition, the focus on unemployment rates creates a bias because of the exclusion of program participants from unemployment statistics.[12] Finally, total unemployment is not the right target variable when subsidies to private employment are included among ALMPs. Indeed, one would like to count the net job creation from subsidies to the private sector as an effect of the ALMP, unlike a pure accounting effect that would exclude participants in training programs from unemployment.

In summary, existing studies using OECD data might overestimate the actual effect of ALMP on labor market outcomes because the way they define the policy variable (expenditures on ALMPs per unemployed, or some variation of this measure) or because they do not correct for the decrease in unemployment due to program participation. On the other hand, many of the reviewed studies might not identify an effect because of their limited use of the variation in the yearly data and the short sample period: from the mid 1980s to the early 1990s in most studies. Finally, a few of these studies focus on employment rates and none of them, to my knowledge, focuses on employment rates in the business sector.

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[11] The effect of ALMPs on labor force participation has been documented in several of these papers. For instance, Bellmann and Jackman (1996), find that ALMPs increase female labor force participation and a positive impact of ALMP on labor force participation is also found in the Swedish literature (see Calmfors et al., 2002), but not in Nickell and Layard (1999). Nickell and Layard (1999) do not find a significant effect of ALMP when they consider employment to population ratios, unlike their findings for the unemployment rate. Bellmann and Jackman (1996) find a significantly negative correlation between employment growth and ALMP, while they find no significant effect on the unemployment rate. Scarpetta (1996) finds stronger and more significant coefficients for ALMP in the non-employment equation (sum of the inactive and the unemployed divided by the working age population).

[12] As evidence that the number of "hidden" unemployed workers probably increases with unemployment, Scarpetta (1996) mentions the mostly positive correlation between the unemployment rate and the rate of inflows into ALMP (except in Germany and the Netherlands). Calmfors, Forslund and Hermström (2002) use the results of several papers to compute the effect of program participation on total unemployment, i.e. open unemployment minus program participation. To do so, they use simplifying assumptions about the unemployment rate, the program participation rate, as well as expenditure per program participants as a share of per capita GDP. According to their estimates, though, program participation appears to significantly reduce total unemployment in only three cases : Zetterberg (1993), Wolfers and Blanchard (2000), and Scarpetta (1996) for the non-employment specification.

IV. Empirical Identification of the Effect of ALMPs on Employment Rates

The problems with previous studies determine my empirical strategy. First of all, the dependent variable used here is the share of the working-age population employed in the business sector, i.e., the employment rate in the business sector. By focusing on the employment rate, variations in labor force participation due to the effect of ALMPs are accounted for. Also, the focus on *business* employment rates avoids overestimating the policy importance of ALMPs by automatically excluding cyclical increases in public sector employment, which do not represent an improvement in labor market functioning through real labor productivity increases or cost reductions. Finally, while the unemployment rate is the focus of many macroeconomic theories, the employment rate is a better measure of utilization of able-to-work individuals.

Second, to avoid a bias toward estimating a positive effect of ALMPs on employment, expenditures on ALMPs are normalized by GDP and not by unemployment. Such a normalization may bias the results downwards because aggregate output shocks will change employment in the same direction and provoke a spurious negative correlation between ALMPs/GDP and the employment rate. Furthermore, for given GDP levels countries with lower employment rates spend more in ALMPs (Figure 2). However, these effects may be attenuated by carefully controlling for institutions and other country-specific factors, and economic shocks. In any case, the final estimate may be viewed as a lower bound for the effect of ALMPs on employment.

ALMP expenditures are defined as the sum of expenditures (as a share of GDP) on: public employment services and administration, labor market training, youth measures, subsidized employment and measures for the disabled. Alternative specifications excluding the measures for the disabled, as well as including each of the policy measures separately, are also used. These categories are described in detail in Martin (2000) or Martin and Grubb (2001). Complete data were available for 15 industrial countries between 1985 and 2000.[13]

The estimated equation should be interpreted as a reduced form of a model determining employment rates and wages. As discussed in section II, many of the expected effects of ALMPs on employment will occur through variations in wages, which are also a function of ALMPs. So, wages are excluded from the employment rate specification and the estimated effect of ALMPs on employment rates should already incorporate shifts in wage-setting. The benchmark equation is:

$$BE_{it} = \beta_1 \, ALMP_{it} + \beta_2 \, X_{it} + \beta_3 \, Y_t + \beta_4 \, C_i + \varepsilon_{it} \qquad (1)$$

[13] These countries are: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Netherlands, Norway, New Zealand, Spain, Sweden, United Kingdom, and United States. The OECD database with expenditures on labor market policies is described in Appendix I.

Where the indices i and t designate, respectively, year and country. BE is business employment as a share of the working-age population, ALMP is spending on active labor market policy (as a share of GDP), X a vector of control variables capturing changes in institutions and the business cycles, Y a vector of year dummies to control for common shocks, C a vector of country dummies, and ε the error term.

Time and country dummies are very important components of the specification. The time dummies may alleviate the reverse causality problem if the timing of adverse shocks is correlated between countries. Country fixed effects capture all time-invariant institutional and economic features explaining why one country has a different-than-average employment rate. Several studies focused on the effect of specific institutional differences (employment protection laws, extent of coordination in wage bargaining, union membership, and so on) on labor market performance, and often had to exclude country dummies when these institutional measures had no time variation. Obviously, other studies could not include country dummies when performing a simple cross-section regression. The importance of these country-specific effects cannot be minimized. For example, since the mid-1980s, Luxembourg spent on average a lower percentage of GDP on ALMPs than Belgium (1.2 percent for Belgium and 0.2 percent for Luxembourg), yet Luxembourg had a higher business sector employment rate in the sample period (66 percent compared to 45 percent for Belgium). If only variables capturing institutional effects (which, in general, are not very precise) were used to control for country-specific effects, part of the difference in employment driven by other institutional factors would be wrongly attributed to ALMP spending.

Control variables include economic and country-specific institutional variables with time variation (for a detailed description, see Appendix II).The logarithm of per capita GDP in the business sector (in 1995 prices) is used to capture the level of economic activity in a country. Technological growth and the extent of economic openness may affect the level of employment and are also included. The share of GDP spent on PLMPs is an important control variable because of its positive raw correlation with expenditures on ALMPs (Figure 2). The inclusion of expenditures on passive policies will also capture some of the same cyclical factors affecting expenditures on ALMPs and attenuate the reverse causality bias. The institutional variables included in (1) and described in the appendix will capture institutional changes during the sample period. Other control variables commonly used in the literature (such as real long-term interest rates, the ratio of minimum to median wages, and other institutional variables) were not included in the final specification because their effect on employment rates was not significantly different from zero.

As a final note to the identification strategy, the conditional correlation between employment and ALMP expenditure as estimated in (1) could be due to a third variable not included in the regression, which would drive the levels of both ALMP expenditures and employment. Calmfors and Skedinger (1995) propose instruments for ALMP spending, but it is very unlikely that they are affecting unemployment only through ALMP. Lagged values of expenditures on ALMPs were used as instrumental variables for current expenditures on ALMPs in some of the specifications and do not change the results. Other specifications using lagged expenditures on ALMPs as regressors (instead of instruments for current expenditures) to check for dynamic effects were also used.

Estimates of the effect of ALMPs on the employment rate

ALMPs were very effective in increasing business employment rates in the 1990s but not before then. While there is no significant correlation between ALMP expenditures and business employment rates during the whole sample period (Table 1, column (1): coefficient of -0.13 with a t-statistic of -0.21), very different results are found when the sample period is split in two. The coefficient on ALMP spending is -0.12 and not significantly different from zero for 1985-1992 (column (2)), but it is 1.88 (and highly significant) for 1993-2000 (column (3)). Thus, for the 1993-2000 sub-sample, a 1 percentage point increase in ALMP spending (as a share of GDP) is associated with an increase in the business employment rate of 1.9 percentage points (for the 1993–2000 sub-sample).[14]

Various specifications of the model confirm this pattern (Tables 1 to 4). The introduction of a lag in the measure of expenditures in ALMPs to check for dynamic effects shows a cumulative positive effect during 1993-2000 and insignificant effects in the earlier period (Table 1, columns (4) and (5)). Modifications in the cutoff point dividing the two periods (Table 2, columns (2) and (3)) and only using lagged expenditures on ALMPs or on PLMPs as the relevant policy variables (Table 2, columns (4) and (5)) do not change the results. Table 3 shows the importance of country dummies to the positive coefficient estimate for ALMPs (column (3)) and that excluding some particular groups of countries does not alter the basic results (columns (5) to (7)). Interestingly, the exclusion of Nordic countries augments the estimated coefficient of ALMP expenditures to 2.6, a result consistent with Elmeskov, Martin and Scarpetta (1998) and Scarpetta (1996).[15]

[14] The results reported in this section are broadly unchanged if Feasible GLS is used as the estimation procedure and different assumptions are made about residual serial correlation (whether country specific or not) and heteroscedasticity. OLS results were then selected to be presented for transparency reasons and to facilitate replication by other researchers.

[15] Both papers show that the inclusion of Sweden in the sample lower the precision of their estimates, which become significantly different from zero only at the 10 percent level of confidence. Without Sweden, the effect of ALMPs on the unemployment rate (the dependent variable used by them) is much larger and more precisely estimated. Actually, here ALMPs remain a significant explanatory factor of employment improvements in the 1990s in the baseline specification, which includes Sweden.

Table 1. Active Labor Market Policy and Employment
Dep. Var.: Share of the Working Age Population Working in the Business Sector

	(1)	(2)	(3)	(4)	(5)
Time period	1985-2000	1985-1992	1993-2000	1985-1992	1993-2000
Estimation method	OLS	OLS	OLS	OLS	OLS
ALMP Exp.[1]	-0.13 (-0.21)	-0.12 (-0.14)	**1.88 (4.08)**	-1.58 (-1.41)	**1.40 (2.45)**
Lagged ALMP Exp.[1]	---	---	---	1.00 (0.80)	0.87 (1.43)
PLMP Exp.[1]	**-2.67 (-8.33)**	**-3.05 (-5.31)**	**-0.74 (-8.33)**	**-2.29 (-3.31)**	**-0.74 (-2.93)**
Technological growth	**-0.13 (-2.36)**	**-0.14 (-3.19)**	**-0.17 (-3.09)**	**-0.09 (-1.98)**	**-0.17 (-2.93)**
Log GDP Business (per capita)	**0.10 (4.11)**	0.05 (1.70)	**0.14 (4.80)**	**0.12 (3.12)**	**0.13 (4.75)**
Openess	**-0.18 (-6.94)**	-0.04 (-0.82)	**-0.06 (-3.12)**	**-0.18 (-3.42)**	**-0.06 (-3.12)**
Replacement Rate	**-0.16 (-4.05)**	-0.05 (-0.45)	**-0.09 (-2.98)**	0.03 (0.19)	**-0.10 (-3.15)**
Union Memb.	-0.04 (-0.89)	-0.09 (-1.31)	**-0.09 (-2.06)**	-0.11 (-1.45)	**-0.11 (-2.44)**
Share Public Empl.	**-0.65 (-4.44)**	**-0.84 (-4.55)**	-0.27 (-1.47)	**-0.78 (-4.30)**	0.31 (1.67)
Employment protection	-0.02 (-1.12)	**-0.11 (-4.09)**	0.05 (1.24)	**-0.12 (-4.20)**	0.05 (1.25)
Bargaining coordination	0.00 (0.44)	-0.02 (-1.67)	0.02 (1.37)	**-0.03 (-2.13)**	0.03 (1.66)
Tax wedge	**-0.08 (-1.93)**	**0.11 (2.04)**	**-0.17 (-3.31)**	0.04 (0.81)	**-0.18 (-3.41)**
Central Bank Independence	-0.00 (-0.56)	**-0.09 (-4.15)**	-0.00 (-0.47)	**-0.07 (-3.02)**	-0.00 (-0.55)
Time and country dummies	**yes**	**yes**	**yes**	**yes**	**yes**
Obs.	228	115	113	115	113
R-square	0.93	0.97	0.99	---	---

Sources: OECD - Analytical Database, Expenditure in Labor Market Policies Database, and Benefits and Taxes Database; some institutional variables from Nickell and Nunziata (2001) and Debrun (2003); author's estimations.

Notes: 1) Countries: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Netherlands, Norway, New Zealand, Spain, Sweden, UK and USA.
2) t-statistics in parentheses. Bold figures are significant at least at a 5 percent level.

[1]Expenditures in labor market policies expressed as a share of GDP in the relevant fiscal year.

Table 2. Robustness Check: Changes in Period Cutoff and Definitions of LMPs
Dep. Var.: Share of the Working Age Population Working in the Business Sector

	(1)	(2)	(3)	(4)	(5)
Time period	1993-2000	1991-2000	1995-2000	1993-2000	1993-2000
Estimation method	OLS	OLS	OLS	OLS	OLS
	Benchmark results				
ALMP Exp.[1]	**1.88 (4.08)**	**1.90 (3.80)**	**2.20 (4.49)**	---	**1.94 (4.27)**
ALMP Exp. (excl. disabled measures)	---	---	---	**2.00 (3.42)**	---
PLMP Exp.[1]	**-0.74 (-8.33)**	**-1.46 (-5.87)**	**-1.55 (-3.59)**	**-0.68 (-2.61)**	---
PLMP Exp. (excluding early retirement)	---	---	---	---	**-0.75 (-3.27)**
Technological growth	**-0.17 (-3.09)**	**-0.12 (-3.42)**	-0.06 (-0.73)	**-0.18 (-3.18)**	**-0.16 (-2.96)**
Log GDP Business (per capita)	**0.14 (4.80)**	**0.12 (4.57)**	**0.13 (3.34)**	**0.14 (4.70)**	**0.13 (4.58)**
Openess	**-0.06 (-3.12)**	**-0.10 (-4.97)**	**-0.06 (-2.68)**	**-0.07 (-3.11)**	**-0.06 (-3.11)**
Replacement Rate	**-0.09 (-2.98)**	-0.04 (-1.09)	-0.02 (-0.35)	**-0.10 (-2.95)**	**-0.10 (-3.23)**
Union Memb.	**-0.09 (-2.06)**	**-0.17 (-4.65)**	-0.04 (-0.67)	**-0.09 (-1.95)**	**-0.10 (-2.23)**
Share Public Empl.	-0.27 (-1.47)	**0.65 (3.64)**	**0.85 (3.06)**	0.33 (1.75)	0.34 (1.87)
Employment protection	0.05 (1.24)	**0.07 (2.94)**	**-0.06 (-2.58)**	0.05 (1.10)	0.05 (1.23)
Bargaining coordination	0.02 (1.37)	**0.06 (5.31)**	-0.01 (-0.37)	0.01 (0.71)	0.03 (1.59)
Tax wedge	**-0.17 (-3.31)**	**-0.16 (-3.55)**	-0.09 (-1.33)	**-0.17 (-3.21)**	**-0.16 (-3.09)**
Central Bank Independence	-0.00 (-0.47)	-0.00 (-0.81)	0.00 (0.37)	-0.00 (-0.59)	-0.00 (-0.61)
Time and country dummies	**yes**	yes	yes	yes	yes
Obs.	113	143	83	113	113
R-square	0.99	0.98	0.99	0.99	0.99

Sources: OECD - Analytical Database, Expenditure in Labor Market Policies Database, and Benefits and Taxes Database; some institutional variables from Nickell and Nunziata (2001) and Debrun (2003); author's estimations.

Notes: 1) Countries: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Netherlands, Norway, New Zealand, Spain, Sweden, UK and USA.
2) t-statistics in parentheses. Bold figures are significant at least at a 5 percent level.

[1]Expenditures in labor market policies expressed as a share of GDP in the relevant fiscal year.

Table 3. Robustness Check: Effects of Ommiting Variables and/or Countries
Dep. Var.: Share of the Working Age Population Working in the Business Sector

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Time period	1993-2000	1993-2000	1993-2000	1993-2000	1993-2000	1993-2000	1993-2000
Estimation method	OLS	OLS	OLS	OLS	OLS	OLS	OLS
	Excl. passive policies	Excl. institutions	Excl. instit. and country dummies	Excl. "economic" control variables and	Excl. Nordic countries 2\	Excl. Anglo-Saxon countries 3\	Excl. France and Germany
ALMP Exp.[1]	**1.36 (3.07)**	**1.48 (3.65)**	**-3.47 (-3.75)**	**2.62 (4.06)**	**2.60 (3.42)**	**1.71 (3.29)**	**1.90 (3.87)**
PLMP Exp.[1]	---	-0.50 (-1.87)	-0.92 (-1.63)	**-2.59 (-8.93)**	**-1.01 (-3.86)**	-0.57 (-1.93)	**-0.58 (-2.05)**
Technological growth	**-0.22 (-4.15)**	**-0.20 (-3.31)**	-0.00 (-0.02)	---	-0.04 (-0.68)	**-0.18 (-2.82)**	**-0.18 (-2.92)**
Log GDP Business (per capita)	**0.16 (5.36)**	**0.10 (3.90)**	**0.11 (5.31)**	---	0.04 (1.31)	**0.16 (5.00)**	**0.12 (3.72)**
Openess	**-0.06 (-2.92)**	**-0.07 (-3.18)**	**-0.03 (-2.19)**	---	**-0.05 (-2.80)**	**-0.06 (-2.37)**	**-0.06 (-2.98)**
Replacement Rate	**-0.07 (-2.23)**	---	---	**-0.12 (-2.59)**	**-0.09 (-2.40)**	-0.07 (-1.84)	**-0.09 (-2.85)**
Union Memb.	-0.60 (-1.32)	---	---	**-0.38 (-7.76)**	**-0.09 (-2.00)**	-0.11 (-1.90)	-0.08 (-1.69)
Share Public Empl.	0.29 (1.50)	---	---	0.47 (1.75)	-0.11 (-0.44)	**0.58 (2.54)**	0.37 (1.67)
Employment protection	0.04 (0.94)	---	---	0.04 (0.81)	**0.27 (3.99)**	-0.01 (-0.25)	0.06 (1.14)
Bargaining coordination	0.03 (1.49)	---	---	-0.02 (-0.79)	**0.15 (4.83)**	0.01 (0.72)	0.02 (1.27)
Tax wedge	**-0.18 (-3.41)**	---	---	-0.11 (-1.87)	**-0.23 (-4.29)**	**-0.19 (-3.05)**	**-0.13 (-2.13)**
Central Bank Independence	0.00 (0.58)	---	---	-0.00 (-0.60)	-0.00 (-0.24)	-0.00 (-0.11)	-0.00 (-0.05)
Time dummies	**yes**	**yes**	**yes**	no	**yes**	**yes**	**yes**
Country dummies	**yes**	**yes**	no	**yes**	**yes**	**yes**	**yes**
Obs.	113	114	114	117	90	90	97
R-square	0.99	0.99	0.45	0.97	0.99	0.99	0.98

Sources: OECD - Analytical Database, Expenditure in Labor Market Policies Database, and Benefits and Taxes Database; some institutional variables from Nickell and Nunziata (2001) and Debrun (2003); author's estimations.

Notes: 1) Countries: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Netherlands, Norway, New Zealand, Spain, Sweden, UK and USA.
2) t-statistics in parentheses. Bold figures are significant at least at a 5 percent level.

[1]Expenditures in labor market policies expressed as a share of GDP in the relevant fiscal year.

[2]Excludes Sweden, Norway and Denmark.

Table 4. Robustness Check: Detailed Breakdown of ALMPs
Dep. Var.: Share of the Working Age Population Working in the Business Sector

	(1)	(2)	(3)	(4)
Time period	1985-1992	1985-1992	1993-2000	1993-2000
Estimation method	OLS	OLS	OLS	OLS
ALMP Exp.[1]				
PES[2]	-8.48 (-1.21)	-4.30 (-0.47)	**-6.51 (-2.63)**	-1.30 (-0.42)
Labour Market Training[3]	-0.49 (-0.26)	0.18 (0.08)	-0.43 (-0.36)	0.35 (0.23)
Youth Measures[4]	1.12 (0.23)	-3.35 (-0.59)	**-3.52 (-1.98)**	2.08 (0.88)
Subsidized Employment[5]	1.28 (0.64)	-3.35 (-1.21)	**3.68 (3.75)**	**3.33 (2.87)**
Measures for the disabled[6]	3.67 (0.47)	16.44 (1.25)	**3.11 (2.21)**	-0.64 (-0.35)
Lagged PES[2]	---	-3.00 (-0.19)	---	-3.97 (-0.93)
Lagged Labour Market Training[3]	---	-1.15 (-0.60)	---	0.09 (0.08)
Lagged Youth Measures[4]	---	2.30 (0.38)	---	**-6.65 (-2.51)**
Lagged Subsidized Employment[5]	---	**6.91 (2.71)**	---	1.42 (1.49)
Lagged Measures for the disabled[6]	---	-19.45 (-1.43)	---	**8.19 (4.24)**
PLMP Exp.[1]	**-3.76 (-6.88)**	**-3.62 (-5.75)**	**-1.01 (-4.06)**	**-0.94 (-3.71)**
Other variables as in benchmark spec.				
Obs.	115	101	112	111
R-square	0.97	0.97	0.99	0.99

Sources: OECD - Analytical Database, Expenditure in Labor Market Policies Database, and Benefits and Taxes Database; some institutional variables from Nickell and Nunziata (2001) and Debrun (2003); author's estimations.

Notes: 1) Countries: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Netherlands, Norway, New Zealand, Spain, Sweden, UK and USA.
2) t-statistics in parentheses. Bold figures are significant at least at a 5 percent level.

[1]Expenditures in labor market policies expressed as a share of GDP in the relevant fiscal year.

[2]PES: Public employment services and administration.

[3]Training for unemployed adults and those at risk, and training for employed adults.

[4]Measures for unemployed and disadvantaged youth, and support of aprenticeship and related forms of general youth training.

[5]Subsidies to regular employment in the private sector, support of unemployed persons starting enterprises, and direct job creation (public or non-public).

[6]Vocational rehabilitation and work for the disabled.

A detailed breakdown of the five policies within the ALMP aggregate provides some evidence that direct subsidies to employment creation and measures for the disabled were the main driving force behind the positive effect of ALMPs on the employment rate in the 1990s (Table 4). Public employment services and administration (PES), and youth measures were associated with lower employment rates while expenditures in training programs for unemployed and employed adults seemed irrelevant. Direct subsidies to job creation were even significant within a dynamic specification including lagged variables for the earlier period (Table 4, column (2)). Excluding the same groups of countries defined in Table 3 when analyzing the breakdown of ALMPs does not change the results (not shown).[16]

The control variables were in general estimated to have the expected signs. PLMPs have a consistent negative effect on employment rates in all periods but, as discussed above, part of this effect represents the expected reverse causality. When excluding it, the coefficient of ALMP expenditures is reduced from 1.88 in the benchmark specification to 1.36 (Table 3, column (1)), showing that including PLMP expenditures likely helps to attenuate the negative reverse causality bias on the coefficient of ALMPs.[17] Technological growth affects employment rates negatively as it tends to save labor during the production process. Business GDP per working-age population, used to capture the level of economic activity, comes with a consistent positive sign. The coefficients for the extent of economic openness, unemployment benefits replacement rates, union membership, the tax wedge on labor income, and central bank independence tend to be negative.[18] The share of public employment, the extent of wage bargaining coordination and the employment protection index change signs depending on the period under study. The first two variables have a negative effect on employment rates in the earlier period but a positive one during the 1990s. The employment protection index follows the same pattern but Table 2 shows that its effect may be sensitive to the cutoff point defining the latter period (columns (2) and (3)). Additional results not shown here include: 1) a positive effect of ALMPs on labor force

[16] The sign and significance of the coefficients of each ALMP were robust to marginal changes in time periods and specifications but their estimated sizes were more sensitive to these changes than the specifications in Tables 1 to 3.

[17] It is also possible that a more complete model would include an equation for expenditures on PLMPs and the specification excluding them from the ALMPs equation would be the right reduced form. Also, a dynamic relationship between PLMP and ALMP disbursements could be biasing the ALMP coefficients in the preferred specification in Table 1. In any case, the still-positive and significant coefficient for ALMPs when PLMPs are excluded (Table 3, column 1) suggests that these potentially important issues are not driving the main result.

[18] An index of central bank independence was included as different institutional setups for monetary policy may affect wage bargaining and, therefore, equilibrium employment rates. However, the estimated coefficient for this variable was often insignificantly different from zero. The economic openness indicator captures only a partial equilibrium effect for these developed countries. It disregards the expected positive effect on world GDP of reduced widespread reduction of international trade barriers.

participation; 2) a larger effect of ALMPs on total employment rates (to be expected since increases in ALMP expenditures tend to increase employment in the public sector mechanically); 3) indices of employment protection for both regular and temporary employment were used and generated the same results; 4) the coefficient of ALMP increases a bit when government current receipts, as a share of GDP, are included in the regression; and 5) surprisingly, the ratio of minimum to median wages does not affect equilibrium employment rates in most of the specifications tried.

V. ALMPs and Wage-Setting Behavior

To assess the effect of ALMPs on wage-setting, the following "wage curve" was estimated:

$$\log\left(\frac{BW_{it}}{P_{it}A_{it}}\right) = \alpha_1 \log(u_{it}) + \alpha_2 \text{ ALMP}_{it} + \alpha_3 \text{ X}_{it} + \alpha_4 \text{ Y}_t + \alpha_5 \text{ C}_i + \eta_{it} \quad (2)$$

where BW_{it} = wage per person in the business sector, P_{it} = consumer price index, A_{it} = technology, u_{it} = unemployment rate, $ALMP_{it}$ = expenditures on ALMP as a share of GDP, X_{it} = vector of country-specific characteristics, Y_t = year dummies, C_i = country dummies, and η_{it} = residual. This wage curve may be obtained theoretically using the same wage bargaining models behind the discussion in Section II. In these models, variables affecting workers' utility from being employed vis-à-vis the alternative of unemployment shift this curve and should be included in X. All institutional variables included in (1) were tested but only the ones found (ex post) to be significant were retained in the final specification.

ALMPs are associated with wage moderation throughout the sample (Table 5). However, estimates for the first half are not significantly different from zero (column (2)). Correction for possible simultaneity between wages, unemployment and ALMPs yields identical results (columns (4) and (5)). Remarkably, the estimated elasticity of wages to the unemployment rate is exactly -0.1, confirming the claim in Blanchflower and Oswald (1994)—substantiated by their estimates of different "wage curves" using national micro data—that this is a universal value.[19] The main results are insensitive to the inclusion of lagged ALMPs to capture possible dynamic effects (Table 6, column (2)).

[19] Several papers have been written since Blanchflower and Oswald (1994) showing that there may be some variation around the -0.1 estimate. Card (1995), in particular, raises doubts on their basic specification and notices that elasticities for the United States could be smaller than alluded in the book. More recently, Estevão and Nigar (2002) have shown this elasticity to be exactly -0.1 for France using micro data from the French labor force survey and a different methodology. This general result does not seem to be unique to more developed industrial economies: Estevão (2003) estimates, also using micro data and different methods, an elasticity of about the same size (but a bit smaller) for Poland.

Table 5. Estimates of the Wage-Setting Curve
Dep. Var.: Logarithm of economy-wide wages deflated by the CPI and technology level

	(1)	(2)	(3)	(4)	(5)
Time period	1985-2000	1985-1992	1993-2000	1985-1992	1993-2000
Estimation method	OLS	OLS	OLS	IV	IV
Log unemployment rate	**-0.10 (-4.53)**	-0.04 (-0.70)	**-0.10 (-5.73)**	-0.12 (-1.32)	**-0.12 (-5.02)**
ALMP Exp.[1]	**-6.19 (-1.99)**	-9.01 (-1.19)	**-6.62 (-4.37)**	5.30 (0.46)	**-7.52 (-4.63)**
Openess	**-0.30 (-2.39)**	-0.27 (-0.72)	**-0.27 (-4.34)**	-0.07 (-0.18)	**-0.24 (-3.61)**
Share Public Empl.	**1.07 (1.97)**	-0.92 (-0.57)	**1.53 (2.78)**	-0.62 (-0.37)	**1.56 (2.60)**
Employment protection	**-0.31 (-4.19)**	**-0.52 (-2.17)**	-0.25 (-1.71)	-0.35 (-1.44)	-0.21 (-1.37)
Benefits duration	**0.44 (4.45)**	**0.56 (2.23)**	2.03 (1.81)	0.31 (1.28)	1.88 (1.63)
Time dummies	**yes**	**yes**	**yes**	**yes**	**yes**
Country dummies	**yes**	**yes**	**yes**	**yes**	**yes**
Obs.	232	114	124	100	118
R-square	0.99	0.99	0.99	---	---

Sources: OECD - Analytical Database, Expenditure in Labor Market Policies Database, and Benefits and Taxes Database; some institutional variables from Nickell and Nunziata (2001) and Debrun (2003); author's estimations.

Notes: 1) Countries: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Netherlands, Norway, New Zealand, Spain, Sweden, UK and USA.

2) t-statistics in parentheses. Bold figures are significant at least at a 5 percent level.

3) Instrumental variables estimation uses lagged log unemployment rate and lagged ALMP expenditures as a share to GDP.

[1]Expenditures in labor market policies expressed as a share of GDP in the relevant fiscal year.

Table 6. Robustness Check: Effects of Ommiting Countries and Detailed Breakdown of ALMPs
Dep. Var.: Logarithm of economy-wide wages deflated by the CPI and technology level

	(1)	(2)	(3)	(4)	(5)	(6)
Time period	1993-2000	1993-2000	1993-2000	1993-2000	1993-2000	1993-2000
Estimation method	OLS	OLS	OLS	OLS	OLS	OLS
	Benchmark Results	Including lagged ALMPs	Detailed ALMPs	Excl. Nordic countries 7\	Excl. Anglo-Saxon countries 8\	Excl. France and Germany
Log unemployment rate	**-0.10 (-5.73)**	**-0.10 (-5.72)**	**-0.15 (-6.64)**	**-0.15 (-5.22)**	**-0.15 (-6.43)**	**-0.11 (-5.97)**
ALMP Exp.[1]	**-6.62 (-4.37)**	**-5.91 (-3.41)**	---	---	---	---
PES[2]	---	---	**26.59 (2.75)**	**40.63 (3.29)**	**24.15 (2.30)**	**33.84 (4.37)**
Labour Market Training[3]	---	---	**-10.33 (-3.51)**	5.98 (0.87)	**-11.00 (-3.56)**	**-12.20 (-5.40)**
Youth Measures[4]	---	---	1.86 (0.29)	-5.61 (-0.60)	4.81 (0.71)	7.09 (1.21)
Subsidized Employment[5]	---	---	**-5.80 (-2.33)**	-7.00 (-1.77)	**-6.40 (-2.42)**	**-5.00 (-2.61)**
Measures for the disabled[6]	---	---	-7.75 (-1.72)	-44.98 (-1.92)	-8.04 (-1.64)	**-8.35 (-2.45)**
Lagged ALMP Exp.[1]	---	-1.02 (-0.56)	---	---	---	---
Openess	**-0.27 (-4.34)**	**-0.27 (-4.32)**	**-0.22 (-3.41)**	**-0.24 (-3.28)**	**-0.19 (-2.20)**	**-0.26 (-5.23)**
Share Public Empl.	**1.53 (2.78)**	**1.54 (2.79)**	**1.56 (2.75)**	-0.74 (-0.78)	**1.64 (2.40)**	**2.16 (5.00)**
Employment protection	-0.25 (-1.71)	-0.26 (-1.74)	-0.30 (-1.69)	-0.21 (-0.99)	**-0.45 (-2.16)**	**-0.38 (-2.31)**
Benefits duration	2.03 (1.81)	2.03 (1.80)	1.87 (1.67)	0.17 (0.13)	**3.79 (2.53)**	0.37 (0.38)
Time dummies	**yes**	**yes**	**yes**	**yes**	**yes**	**yes**
Country dummies	**yes**	**yes**	**yes**	**yes**	**yes**	**yes**
Obs.	124	124	101	100	100	107
R - square	0.99	0.99	0.97	0.99	0.99	0.99

Sources: OECD - Analytical Database, Expenditure in Labor Market Policies Database, and Benefits and Taxes Database; some institutional variables from Nickell and Nunziata (2001) and Debrun (2003); author's estimations.

Notes: 1) Countries: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Netherlands, Norway, New Zealand, Spain, Sweden, UK and USA.

2) t-statistics in parentheses. Bold figures are significant at least at a 5 percent level.

[1]Expenditures in labor market policies expressed as a share of GDP in the relevant fiscal year.

[2]PES: Public employment services and administration.

[3]Training for unemployed adults and those at risk, and training for employed adults.

[4]Measures for unemployed and disadvantaged youth, and support of aprenticeship and related forms of general youth training.

[5]Subsidies to regular employment in the private sector, support of unemployed persons starting enterprises, and direct job creation (public or non-profit).

[6]Vocational rehabilitation and work for the disabled.

[7]Excludes Sweden, Norway and Denmark.

[8]Excludes Canada, USA and UK.

Within the components of ALMPs (column (3)), direct subsidies to employment creation and measures for the disabled (although the estimate for the latter policy has a higher standard error) have contributed to wage moderation, while larger expenditures on public employment services and administration (PES), and youth measures (the latter with a positive but statistically insignificant effect) had the opposite effect. These results show that PES and youth measures have a negative effect on employment likely because they lower the disutility of being unemployed, shifting the wage-setting curve upwards. At first sight, expenditures in training programs have kept wages low even though they have not affected employment rates. However, this result is sensitive to the exclusion of the Nordic countries from the sample (column (4)), while the sign of the remaining policies remained unchanged. The introduction of lagged policy variables (not shown) leaves these results unchanged.

The relevance of direct subsidies to job creation in shifting the wage-setting relationship downward suggests that part of the wage moderation might be due to a composition effect owing to a rise in the proportion of the employment of less-skilled workers. Following the schematic approach discussed in Section II, if effective, these subsidies should put upward pressure on wages since lower non-wage labor costs open up a margin for wage increases to attract more labor. However, many of the subsidies to direct job creation are targeted to low-paid workers, which would reduce average wages through a composition effect. The adjustment for technological growth in each country likely corrects only part of this bias.

The remaining control variables posted consistent effects throughout all the specifications studied although causality effects cannot be directly inferred from most of the estimates. A higher degree of economic openness may lower paid wages adjusted for technology and prices as international competition keeps wage demands in check. However, lower real labor costs also increase external competitiveness and, therefore, economic openness. A larger share of public employment wages are associated to higher business sector wages. That may be explained by a cost-induced displacement of workers from high-wage businesses to the public sector. Alternatively, countries with larger public employment may also have faced larger increases in public sector wages, which contaminated labor compensation in the business sector. More employment protection reduced wages, likely to keep labor attractive to employers. As expected, longer unemployment benefits boosted wages by lowering the costs of being unemployed.

VI. FINAL REMARKS

ALMPs seem to have been effective, on average, in raising employment rates in the business sector of 15 industrial countries. Among such policies, direct subsidies to job creation seemed the most effective, which is consistent, at least, with recent studies using microeconomic data for Sweden and for France.[20] Increases in ALMP spending were also correlated to less real wage growth after allowing for technological growth, changes in the unemployment rate and institutional and other economic factors. This wage moderation might have been one of the causes for the association of ALMPs with better employment rates. However, part of the causality going from larger ALMP expenditures as a share of GDP and wage moderation could be only apparent as some ALMPs are directed to low-skill low-paid workers, and the resulting composition effect toward lower average wages could be generating an spurious relationship.

Whether ALMPs are cost-effective from a budgetary perspective remains to be determined. Despite their overall positive impact on employment rates, their budgetary cost is high and they are likely to be subject to diminishing returns as employment rates rise. At the present level of employment rates, ALMPs could recoup their cost (or not) if they place benefit recipients into jobs and these benefits are phased out. However, this type of accounting does not consider, among other factors, the social benefits of lowering unemployment. In any case, given the negative effect of current institutional arrangements on European employment, institutional reforms seem to be a better bet for improving labor utilization without unduly high costs to the society as a whole. Among the many possible reforms, the estimated coefficients for the (admittedly rudimentary) institutional variables used in my econometric work suggest that reductions in tax wedges, in benefits replacement rates, in public sector employment, and, more generally, in insiders' wage bargaining power, are a must.

[20] Calmfors et al (2002) discuss the studies on Sweden. Crépon and Dezplatz (2001) provide strong evidence that about 450,000 jobs were either created or maintained in France between 1994 and 1997 due to reductions in employers' social security contributions targeted to the hiring of low-skilled workers. These cuts in social security contributions would work the same way to increase employment rates as the employment subsidies discussed in the text.

THE OECD LABOR MARKET POLICIES DATABASE

The OECD Labor Market Policies database includes expenditures on programs targeted to particular labor market groups, therefore excluding general employment or macroeconomic policies.[21] So, some important policies, as nontargeted reductions in taxes and social security contributions, would not be considered expenditures in labor market programs even if they lowered labor costs. The data for ALMPs are broken down into five categories:

a. *Public employment services and administration* – It includes placement, counseling, and vocational guidance; job-search courses; support for geographic mobility and similar costs in connection with job-search and placement. It also encompasses overhead costs of labor market and unemployment benefit agencies, and other administrative costs.

b. *Labor market training* – It includes measures related to labor market policies that are not targeted to youth or disabled individuals. It is broken down in two parts: (i) training for unemployed adults and those at risk; and (ii) training for employed adults.

c. *Youth measures* – It includes only special programs for youth in transition from school to work and is broken down in two parts: (i) measures for unemployed and disadvantaged youth; and (ii) support of apprenticeship and related forms of general youth training.

d. *Subsidized employment* – It comprises targeted measures to promote employment for unemployed individuals (other than youth or the disabled) and is broken down in three parts: (i) subsidies to regular employment in the private sector; (ii) support of unemployed persons starting enterprises; and (iii) direct job creation (public or non-profit).

e. *Measures for the disabled* – It includes only special programs for the disabled, limited to two types of policies: (i) vocational rehabilitation; and (ii) work for the disabled.

The identification of the effect of expenditures on these policies will depend on controlling for expenditures in PLMPs to account for the strong positive correlation between them (displayed in Figure 2). The OECD database has information on PLMPs broken down in two categories:

f. *Unemployment compensation* – It comprises all forms of cash benefits to compensate for unemployment, except early retirement. In addition to unemployment

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[21] For further information on this database see OECD (1993), Chapter 2, Annex 2.B, and Martin and Grubb (2001).

insurance and assistance, it includes publicly funded redundancy payments and other compensation for jobless workers due to firms permanent or seasonal shutdown.

g. *Early retirement for labor market reasons* – It includes special schemes in which retirement pensions are paid to individuals without work or otherwise because of labor market policies. Only subsidized early pensions rather than funded schemes within regular pension plans (e.g., by actuarially calculations of the amounts paid) are taken into consideration.

The strict classification of programs into these categories may leave out key national policies which national researchers could consider important employment programs. Tables I.1 and I.2 below give a detailed breakdown of the active and passive labor market policies included in the data for France for the sake of illustration. The tables show the breadth of the OECD social expenditure data but at the same time reveal the absence of some high-profile policies. Most prominently, the data do not include cuts in social security contributions associated with the 35-hour workweek laws of June 1996 (*Loi Robien*), June 1998 (*Aubry I*), and January 2000 (*Aubry II*) as these were perceived as general labor/macroeconomic policies, instead of targeted labor market programs. Nevertheless, some expenditures on programs linked to work time reorganization are included.

Table I.1. ALMPs in France Included in the OECD - LMP Database

1 . Public employment services and administration

1a. Employment agencies

- ANPE (*Agence Nationale Pour L'Emploi* - receives government subsidies)
- APEC (managerial and some white-collar occupations)

1b. Administration of unemployment subsidies and early pensions

2. Labor market training

2a. Training for unemployed adults and those at risk

2a1. Unemployed adults

- Functioning
  Financed by the federal government
  Regional councils (1983 decentralization)
- Rémunération des stagiaires
  Financed by the federal government
  Regional councils (1983 decentralization)
  Unedic (*conventions de conversion* and AFR)
- Investments
  Financed by the federal government
  Regional councils (1983 decentralization)

2a2- Supervision of firms restructuring
Agreement FNE of training and re-adaptation

2b- Training for employed adults

2b1- Financed by the federal government

- FFPPS and other ministries
  FFPPS of which *Engagements de développement*
  Other ministries
- FNE, APFA, subsidies to enterprises, CIF
- Rebate of training tax

2b2- Financed by the regions

3. Youth measures

3a. Subsidies linked to youth hiring (business sector)

- Unskilled youth
- First-job youths

3b. Social security contributions (SSCs) cuts linked to youth in the *contrat d'apprentissage* or in the *contrat en alternance* (business sector)

- SSC cuts for apprentices
- SSC cuts for training (*Contrats de Qualification*)
- Subsidies to the hiring of youth in training programs (including apprentices before 1997)
- Subsidies to the hiring of apprentices (1996 law)

3c. Temporary employment (nonbusiness sector)

- Public utility jobs (TUC)
- *Contrat emploi-solidarité* (CES) (targeted age: 16-25 years)
- *Contrat emploi de ville*
- *Emplois Jeunes* (*Nouveaux services, nouveaux emplois*)

3d. Internships

- *Action de formation alternée* (*CFI Jeunes* and *Paque* program)
- *Stages des Régions* (1993 decentralization)

3e. Follow-ups and advisory activities

- Local programs and *Permanences d'accueil et d'orientation* (PAIO)
- Suppervision of CFI *Jeunes* and *PAQUE*
- TRACE and other advisory and suppervision activities
- Orientation classes, help to job-search and DIJEN

Table I.1. ALMPs in France Included in the OECD - LMP Database (cont.)

4. Subsidized employment

4a. Subsidies to regular employment in the private sector

- Cuts in SSCs and other subsidies to the hiring of long-term unemployed: 1) *Contrat initiative emploi* (CSI); 2) *Contrat de Qualification Adultes*
- Other cuts in SSCs linked to hiring: 1) Cuts targeted to self-employment; 2) Cuts in other territories (DOM - Perben law, art.4); 3) Cuts in urban (ZRU), and rural (ZRR) areas; 4) Other sectoral cuts in SSC (HCR, CLP).
- Cuts in SSC associated to hiring "first-time-job-holder" and incentives to part-time employment.
- Subsidies to the reduction and re-organization of working time (excludes Robien law and other 35-hour workweek initiatives.)
- Local initiatives and social experiments: 1) Agreements to promote employment (including orientation sessions, *emplois verts* , DOM, Ville); 2) *Aides au conseil* ; 3) *Audit économique et social* ; 4) *Gestion prévisionnelle de l'emploi.*
- Other subsidies to employment: 1) *Allocations Temporaires Dégressives* ; 2) Cooperation agreements (UNEDIC).

4b. Support of unemployed persons starting enterprises

- *ACCRE* and *Chèque - conseil*
- Incentives to the creation of new enterprises (EDEN)

4c. *Insertion par l'économique :*

- *Entreprises d'insertion*
- *Entreprises de travail temporaire d'insertion*
- *Associations intermédiaires*
- *Fonds départemental de soutien aux structures d'insertion*

4d. Direct job creation for long-term unemployed in non-profit organizations

- *Contrats emploi-solidarité* (CES) (> 25 ans)
- *Contrats emplois consolidés* (CEC), CIA/DOM

5 . Measures for the disabled

5a. Professional re-adaption

- Preparation and following-up of occupation upgrading
- AGEFIPH [*] programs: support to job finding; subsidies to return to work; follow-up and evaluation.

5b. Employment programs targeted to handicapped workers

- *Ateliers de travail protégé* (AP)
- Subsidies to firms' equipment upgrading
- Department programs of return to work
- Resources guarantees (GRTH): in *Centres d'Aide par le Travail* ; in *Ateliers Protégés* ; in ordinary workplaces.
- Subsidies to worker re-classification and workplace modification

[*] Association nationale de gestion du Fonds pour l'insertion professionnelle des handicapés.

Table I.2. PLMPs in France Included in the OECD - LMP Database

6 . Unemployment compensation

6a. Unemployment compensation of full-time workers

- Payments from unemployment insurance system
- Payments from social solidarity system
- Others (excluding administrative expenditures)

6b. Part-time insurance

6c. Special benefits to dock workers due to temporary unemployment

6d. Special benefits to construction workers

6e. Payments due to enterprise shutdown (*congés de conversion*)

- *Congés de conversion* (1985 law)
- *Congés de conversion* for steel and shipbuilding workers
- Other transfers for skill upgrading and restructuring follow-ups

7 . Early retirement for labor market reasons

7a. Resource guarantees (60-65 years of age)

- Pension validation

7b. Special transfers from FNE

- AS-FNE (55-59 years of age)
- complimentary transfers

7c. Progressive pre-pensions (PRP)

7d. *Allocation de remplacement pour l'emploi* (UNEDIC)

7e. Targeted anticipated retirement (CATS)

7f. Sectoral regimes and transfers to immigrant labor

- Sectoral regimes (steel industry, agriculture, trade, craftsman)
- Transfers to the return and employment of immigrant workers

DATA DEFINITIONS AND SOURCES

Most of the data used to build the variables used in this study came from the OECD Analytical Database (AD), the OECD Expenditure in Labor Market Policies database (LMPD), and the OECD Benefits and Taxes database (BTD).[22] Institutional variables either built or made available by Nickell and Nunziata (2001) (NN) were also used.[23]

Data for the employment rate in the business sector come from the AD. Data for the share of GDP diverted to ALMPs expenditures come from the LMPD. GDP data are an aggregation of quarterly series to match each country's fiscal year. (All the LMP data are in fiscal-year units.) Business sector wages and the consumer price index were obtained from the OECD – Analytical Database.

Control variables include:

a) Expenditures on PLMPs (unemployment compensation and early retirement for labor market reasons) from the LMPD are expressed as a percentage of GDP.

b) Logarithm of per capita GDP in the business sector (in 1995 prices), to provide some country specific time varying measure of the economic conditions in the business sector. Real long-term interest rates were also used but in general were not deemed significant.

c) Technological growth in the business sector measured as:[24]

$$\Delta A = \frac{(\Delta Y - \alpha \Delta L - (1-\alpha)\Delta K)}{\alpha} \qquad (0.1)$$

Where Y is the GDP, L employment, K capital, and α labors share in income, where all variables are business sector measures (Δ denotes the difference in logs).

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[22] Data for public expenditures on labor market policies, participant inflows and many institutional and labor market variables can be found in: http://www1.oecd.org/scripts/cde/members/LFSDATAAuthenticate.asp . Additional indicators and derived statistics can be found in: http://www1.oecd.org/scripts/cde/members/LFSINDICATORSAuthenticate.asp .

[23] Their database goes from 1960 to 1995. Debrun (2003) extends part of the data up to 1998 and kindly provided the database. When used here, institutional data from Nickell and Nunziata (2001) for 1999 and 2000 are assumed to be constant at their 1998 level.

[24] This variable is equivalent to the traditional Solow residual adjusted for the elasticity of labor in the production function. It is a proxy for labor-augmenting (Harrod neutral technical) progress to allow for balanced growth in a dynamic setup. The measure proposed here is a proxy for this variable and has also been used in Blanchard (1997), Blanchard and Wolfers (2000), Estevão and Nigar (2002), and Estevão (2003).

d) Average gross replacement rate during the first year of unemployment from the OECD Benefits and Taxes database. That is a rough approximation for the ratio between unemployment benefits and work income but there are no available time series for net replacement rates.[25]

e) Other institutional variables: (i) Union Membership, as a percentage of employees, using data from the OECD webpage. Missing values are replaced by previous year's value (or the following value when there is no previous value). Alternative measures from NN were used, generating similar results.[26] (ii) An index of employment protection made available by NN and originally built by Blanchard and Wolfers (2000).[27] (iii) Tax wedge data from the OECD webpage. It includes social security contributions of employees and employees and labor income taxes. Data stopped in 1997 and assumed unchanged between 1998 and 2000. (iv) The second bargaining coordination variable (COW) provided by NN. (v) An index of central bank independence from Debrun (2003). (vi) The index of unemployment benefits duration from NN.

f) Changes in the size of government might also have an impact on business employment rates. To control for this effect, the share of public sector in total employment is included in the regression.

g) Degree of economic openness determined by the ratio: (Exports+Imports)/GDP.

h) Government current receipts as a share of GDP was obtained from OECD-AD.

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[25] The average replacement rate computed by the OECD is not a very attractive measure, since it gives equal weight to replacements rates in year 1, in year 2-3, and 4-5. Alternative specifications use the average in the second and third years, as well as the overall OECD measure. All these measures are only available for every other year, and average of adjacent years were used to complete missing observations.

[26] Collective agreement coverage, which is the share of employees covered by a collective agreement, was also used in some specifications. This variable is available for 1980, 1990 and 1994 (for 1985–89, the average of 1980 and 1990 was used; for 1990–93, the 1990 value was used; for 1994–2000, the 1994 value was used).

[27] Other specifications including a breakdown of the employment protection index, also broken down between regular and temporary employment protection indices were also tried. Measures of employment protection were available for 2 periods: late 1980's and late 1990's (the average of the two measures were used for 1990–94).

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