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FRANCE

Selected Issues

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Approved by European I Department

September 24, 2003

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OVERVIEW

1. As most industrial countries, France experienced a revival in trend growth in the second half of the 1990s, but impending negative forces now loom. Increased structural employment accompanied by low inflation during the last cycle resulted largely from wage moderation, labor market reforms, and policies that supported labor demand and supply.[1] Opposing forces have been, however, also at work: French labor force growth has been declining—it is expected to become negative in 2006 as the demographic shock sets in; the statutory workweek was shortened to 35 hours; and a steady increase in taxes during the 1990s raised the French tax burden to one of the highest in the OECD by 2000.

2. This selected issues paper first explains the recent increase in trend growth, and then discusses how labor market and tax policies could best sustain it.

- The recent recovery of French trend growth resulted mostly from an increase in structural employment as well as from capital deepening made possible by investment but also, in a minor way, by enhanced use of shift work. These forces more than offset the decline in total factor productivity growth in the 1990s (Chapter I).

- France's strong employment performance in the second half of the 1990s can be partly explained by the labor market policy mix it pursued. Policies favored subsidies to direct job creation, and put less resources into training programs. Consistently, measures with a positive employment effect also contributed to wage moderation. However, as these policies have a high budgetary cost, they are not a good substitute for reform of labor market institutions that affect employment negatively (Chapter II).

- With a view to promoting growth, since 2001, France has reduced personal and corporate income taxes, local business taxes, social security contributions, and introduced a refundable tax credit, but the budgetary room left for further meaningful tax cuts is virtually inexistent. Nonetheless, even a revenue-neutral change in France's tax structure could benefit and foster durable growth. A promising avenue includes: altering the tax structure away from labor and toward a broader basis, widening the VAT tax base by curtailing the extent of exemptions and reduced rates, cutting corporate and capital taxes and improving their neutrality, and simplifying local taxes (Chapter III).

3. Policy implications are straightforward. Policies that enhance labor market flexibility, increase incentives to labor force participation, and promote domestic and foreign investment—inter alia via modifications in the French tax system structure—are needed to offset the adverse effects of demographics and sustain trend growth in the medium term.

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[1] See France: Selected Issues, *IMF Country Report No. 02/249*, November 2002.

I. Potential Growth of the French Economy[1]

A. Introduction

4. Most industrial countries experienced a slowdown in trend growth after 1973. During the second half of the 1990s, however, there was a revival largely attributed to the IT revolution in the United States but also reflecting policy changes in several European countries as from the beginning of the decade. For France, Doisy (2002) concluded that trend growth increased from 2 percent to 2.5 percent in the second half of the 1990s as a result of an increase in structural employment, and capital accumulation (Figure I.1). Productivity, measured as business sector output per hour worked (PPP adjusted), remained high and second only to the United States (Figure I.2). On the other hand, French labor force growth has been declining, and is expected to become negative in 2006, and the labor force participation rate remains one of the lowest in Europe (Figure I.3). Also, since 1998, the introduction of the 35-hour workweek, while accompanied by cuts in social security contributions and a reorganization of labor market practices, detracted further from the contribution of labor. In sum, these factors are weighing negatively on French trend growth.

5. This chapter asks whether French trend growth increased in the second half of the 1990s. Trend growth is estimated using a Cobb-Douglas production technology, with total factor productivity growth treated as an unobservable variable. The main novelty is the use of the Banque de France's (2000) measure of the intensity in the use of capital to adjust the net stock of capital for its weekly operating time. The use of that measure eliminates the effect of cyclical components in total factor productivity growth, and thus removes the downward bias in its measurement caused by the underestimation of excess capacity. The chapter's main conclusion is that French trend growth indeed increased during the second half of the 1990s. This was not due to a recovery of total factor productivity growth, however, which remained at its lowest level since the late 1970s. The recovery of French trend growth seems instead due to an increase in trend employment as well as to a deepening of capital made possible via investment and also, in a minor way, by increased recourse to shift work. These developments were facilitated by a gradual move in the early 1990s toward policies intended to make the labor market more flexible, and by an environment of low real interest rates. Looking forward, policies that further enhance labor market flexibility, increase incentives to participate in the labor force, and promote domestic and foreign investment, inter alia through modifications in the tax system, would help sustain the revival in trend growth—all the more needed to counter the adverse effects on growth of the reduction of the workweek, which occurred mostly beyond the sample period used in this chapter, and the impending demographic shock.

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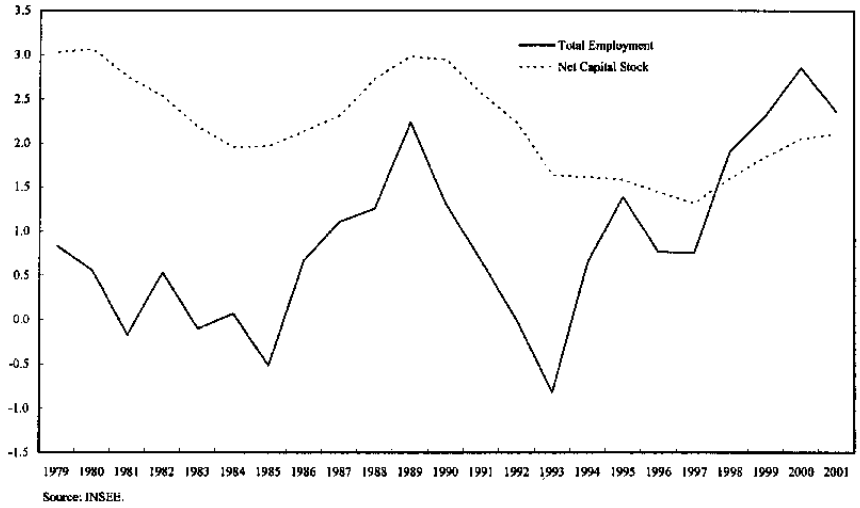
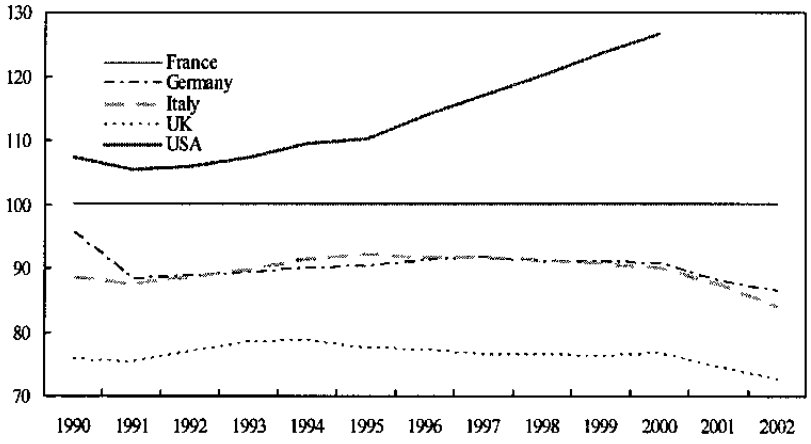
[1] Prepared by Francisco Nadal De Simone.

Figure I.1. France: Total Employment and Net Capital Stock
(Annual Percent Change)



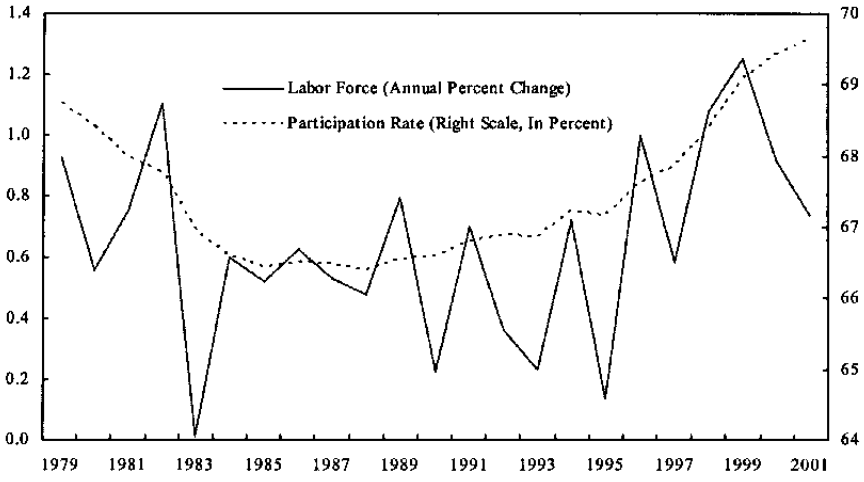
Source: INSEE.

Figure I.2. France: Business Sector Output per Hour Worked PPP (1995 Prices)



Source: OECD, Economic Outlook.

Figure I.3. France: Labor Force Growth and Participation Rate



Source: INSEE.

B. Production Function Approach to Estimating Trend Growth

6. The production function approach to estimate output trend growth is an extension of growth accounting.[2] It has been favored by those interested in analyzing the economic forces behind output developments, including changes in the net capital stock, the intensity in its use, labor force participation, demographics, and so on (European Commission, 2002). Such analysis hinges crucially on the assumption that the country's production process can be represented by an aggregate production function. The technology postulated in the production function has to be justified: with a Cobb-Douglas production technology, for instance, the assumption of constant returns to scale, the measurement of the capital stock, and the determination of the natural level of inputs pose theoretical and empirical challenges.[3] Finally, as the production function approach often derives total factor productivity as a residual, empirical work usually treats as exogenous a non-negligible part of overall growth.

7. This chapter calculates French trend growth estimating simultaneously a Cobb-Douglas production technology and total factor productivity. Following Lucas' (1970) insight, the stock of capital is adjusted to proxy a measure of intensity of capital services by using variations in the weekly operating time of equipment in French industry obtained from the Banque de France's annual survey.[4] Both the assumption of constant returns to scale, and the stability of the parameters over the sample are tested and accepted. Possible endogeneity problems are addressed by testing for cointegration between output, labor, and capital. Having accepted that there is no cointegration, the production function is simultaneously estimated with total factor productivity growth as a latent variable.

8. The Cobb-Douglas production function with constant returns to scale is defined in terms of the flow of services of the factors labor (N) and capital (Z). Labor services are represented by the total number of hours worked by the labor force ($L = N H_N$). The services

---

[2] See Guarda (2002) for a recent survey of methods to estimate potential output, Färe *et al* (1994) for a detailed survey on production frontiers work, and Temple (1999) for a related survey on the empirical research on growth.

[3] There are also econometric issues such as simultaneity, and the possible instability of the parameters of the function as policy changes affect consumers' and firms' optimal choices.

[4] In his 1970 paper, Lucas argued that if empirical estimates of Cobb-Douglas production functions are to be consistent with the lack of factual evidence of diminishing returns to labor, and the absence of countercyclical real wage movements, they have to take into account the fraction of the production period over which capital is used.

of the net capital stock are represented by the number of hours the capital stock is used ($K=Z\,H_Z$). Formally[5]:

$$Y = A(NH_N)^{\alpha}(ZH_Z)^{\beta}, \tag{1}$$

where Y is output, and A is total factor productivity. Therefore, when the factors of production are properly measured in a competitive equilibrium, A summarizes technical progress, including the degree of efficiency in the utilization of the factors of production (total factor productivity). The exponents α and β represent the relative shares of total output accruing to labor services and to capital services, respectively. When $\alpha + \beta = 1$, the production function is the Cobb-Douglas linear production function which exhibits constant returns to scale.

9. Since Solow's (1967) work, a standard practice in the calculation of A has been, first, to either compute α and β from national accounts as the shares of output accruing to the factors of production, or to estimate a Cobb-Douglas production function with constant returns to scale. In either case, the residual has then been viewed as a proxy for total factor productivity, and has been dubbed the "Solow residual." The production function has usually been estimated in the first differences of the logarithms of output and measures of labor and capital services because the series are often not cointegrated:

$$\Delta Y_t = \alpha\Delta\left(N_t H_{Nt}\right) + (1-\alpha)\Delta\left(Z_t H_{Zt}\right) + \varepsilon_t . \tag{2}$$

The next section analyzes the statistical properties of the time series used in this paper.

Data issues

10. Output is annual real GDP, and labor services L_t are actual hours worked. Both time series are from INSEE, the French statistical office. Services from the capital stock are proxied using the French stock of net capital from the Annual Macroeconomic Data Base (AMECO), and the series on the weekly operating time of capital in French industry published by the Banque de France.[6] The sample period is 1978–1999.

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[5] For an analysis of the decentralized equilibrium of an economy with this type of production function, see Dupaigne (1998, 2002), and for an extension that links intensity in the use of the capital stock to shift work, see Garofalo and Vinci (2000).

[6] Given the difficulties involved in directly measuring the operating time of heterogeneous capital equipment, the survey conducted by the Banque de France takes an indirect approach. It computes capital operating time as the product of the number of hours worked per week per employee and the weighted mean of the number of shifts per week. Thus, while the length of the contractual workweek and the organization of labor are the structural determinants of capital operating time, the latter will also reflect the rate of capacity

(continued)

11. Total economy net capital stock services are obtained as follows: the business sector net capital stock $Z_{B,t}$ is removed from the total economy net capital stock Z_t^T, and then it is added back once it has been adjusted by the intensity in the use of capital in industry. Formally,

$$Z_t = Z_t^T - \lambda Z_t^B + \lambda Z_t^B H_{Zt}, \tag{3}$$

where λ is the weight given to the adjustment, i.e., when $\lambda = 1$, the adjustment of the total net capital stock assumes that the intensity in the use of capital in the business sector is exactly the same as in industry. Annex 1 displays a sensitivity analysis to gauge the importance of this assumption. It shows that results are not much altered even assuming that only one-tenth of the net capital stock in the business sector is subject to the same intensity in the use of capital as industry.

12. Tests for stationarity and cointegration suggest that a first difference specification is preferable for the purpose of estimating the production function. While the levels of all time series are nonstationary, when a constant and a time trend are included in the alternative hypothesis (Table I.1),[7] the rates of change of all variables are stationary when the alternative hypothesis includes a constant. The model in the levels of output, labor, and capital services is not properly identified. The cointegration tests reject the null hypothesis of no cointegration at the 95 percent confidence level, and accept that there is one cointegrating vector (Table I.2).[8] Residuals are normal, and there is no serial correlation. Full identification of the model with one cointegrating vector requires two common trends (i.e., two weakly exogenous variables). A weak exogeneity test accepts that real GDP and net capital stock services are weakly exogenous. The weak exogeneity of real GDP is difficult to explain. Moreover, the test of exclusion from the cointegration space is accepted for all variables. In

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utilization without and with new hiring, which is also calculated by the survey. The rate of capacity utilization without new hiring will proxy changes in the duration of the workweek over the cycle—through overtime and temporary lay-offs—and will affect the measure of capital operating time. The rate of capacity utilization with new hiring—when more or less machines are brought on stream—which does not necessarily affect the duration of the workweek or the organization of labor, will also be reflected in the measure of capital operating time.

[7] The unit root test is the augmented Dickey-Fuller test proposed by Elliott, Rothenberg, and Stock (1996). Lags are determined according to Schwarz information criterion, and checking that the residuals are white noise.

[8] Confidence levels are corrected for small sample bias (Cheung and Lai, 1993).

Table I.1. France: Elliot, Rothenberg, and Stock Test for Unit Roots[1]
Statistics for $\rho = 0$
(1978-1999)

Levels [2]			First differences [3]		
Variables	Lags	$\Delta FGLS^{\tau}$	Variables	Lags	$\Delta FGLS^{\tau}$
GDP	2	-2.77	GDP	1	-2.51*
Labor hours	2	-2.19	Labor hours	2	-2.35*
Capital stock	1	-1.27	Capital stock	1	-2.28*
Capital services	1	-2.12	Capital services	1	-2.98*

Source: Fund staff estimates.
[1] All variables are measured in natural logarithms. Lags are determined according to Schwarz information criterion and checking that the residuals are white noise.
[2] The $DFGLS^{\tau}$ has a null of unit root with a constant and a linear trend. The 5 percent critical value is -2.89.
[3] The $DFGLS^{\tau}$ has a null of unit root with a constant. The 5 percent critical value is -1.95.

Table I.2. France: The Johansen-Juselius Maximum Likelihood Test for Cointegration
(1978-1999)

Eigen values	Lags	λ max	Trace	$H_0 : r$ [1]	λ max 95% [2]	Trace 95% [2]
0.8207	3	32.66*	52.55*	0	23.73	49.65
0.6153		18.15	19.89	1	19.43	25.92
0.0875		1.74	1.74	2	6.49	6.49
Exclusion [3]	$\chi_1^2 = 3.84$	GDP: 1.09	Labor: 3.63	Capital: 0.17		
	$\chi_2^2 = 5.99$	GDP: 10.93*	Labor: 17.31*	Capital: 7.45*		
Weak exogeneity [4]	$\chi_1^2 = 3.84$	GDP: 1.05	Labor: 4.43*	Capital: 2.63		
	$\chi_2^2 = 5.99$	GDP: 17.46*	Labor: 19.98*	Capital: 9.70*		
Residuals normality [5]	$\chi_6^2 = 4.96$ (0.55)		Serial correlation	LM(1) [6]	$\chi_9^2 = 10.41$ (0.32)	
				LM(4) [6]	$\chi_9^2 = 10.50$ (0.31)	

Source: Fund staff estimates.

The models include a drift term in the variables but not in the cointegration space.
[1] Column r refers to the number of cointegrated vectors.
[2] The λ max and the trace statistics critical values are corrected for small samples using Cheung and Lai (1993).
[3] This is a test of long-run exclusion of the relevant variable from the cointegration space. It is distributed as a chi square variable with r degrees of freedom.
[4] This is a test of weak exogeneity of the relevant variable. It is distributed as a chi square with r degrees of freedom.
[5] It is a multivariate version of the Shenton-Bowman test for normality of individual series.
[6] The LM are Lagrange multiplier tests. The p values are between parentheses.

order to accept that all variables belong to the cointegration space, there should be two cointegrating vectors, a hypothesis already rejected.[9]

The econometric estimation

13. The model estimated in the first differences of the logarithm of the series is:

$$\Delta Y_t = \Delta A_t + \alpha \Delta L_t + \beta \Delta K_t + \varepsilon_t . \quad (4)$$

14. Total factor productivity growth (i.e., the unobserved variable ΔA_t) is modeled as an autoregressive process of order one.[10] This model choice implies that shocks to total factor productivity growth will not have permanent effects, although they could be persistent. Formally, and with $\rho < 1$:

$$\Delta A_t = \rho \Delta A_{t-1} + v_t . \quad (5)$$

15. Equations (4) and (5) are put in state-space form, and the model is estimated using the maximum likelihood estimator based on the prediction error decomposition generated by the Kalman filter. As the model is just identified, the maximum likelihood estimator provides the same results as instrumental variables (Hamilton, 1994), the standard approach to simultaneity in non-cointegrated models. The simultaneity concern is further mitigated because it is unlikely that current output shocks influence current investment in such a way that both current output and the current capital stock are simultaneously affected.

16. Estimates of the model with capital services taking into account the operating time of capital yield results consistent with constant returns to scale technology and output elasticities of capital and labor in line with factor shares. In the unrestricted model (model 1), these elasticities are about 0.8 and 0.3, respectively (Table I.3), and their sum is not

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[9] Mindful of the effect of the low power of currently available unit root tests on cointegration analysis, the long-run elasticities of the Cobb-Douglas production function (i.e., in the levels of the variables) were also estimated using the nonlinear dynamic least squares estimator of Phillips and Loretan (1991). However, long-run factor elasticities had no relationship with values expected from national accounts data.

[10] Two other models of total factor productivity growth were estimated. First, the autoregressive process of order one with a constant produced the same results as the ones reported for the autoregressive process of order one without a constant; the constant was statistically insignificant. Second, lag two of the autoregressive process of order two was insignificant.

statistically different from one.[11] The autoregressive coefficient of total factor productivity growth is 0.91, and is highly statistically significant, suggesting persistence in total factor productivity growth. When restrictions are imposed (model 2), the coefficient on labor falls to about 0.7. Moreover, a likelihood ratio test shows that the model estimated with the restriction that the parameters sum to one (model 2) is not statistically different from the unrestricted model 1.

Table I.3. France: Parameter Estimates of the Cobb-Douglas Production Function with TFP as a Latent Variable (1978-1999)

Log likelihood	Variables	Estimates	Standard errors	K-S levels [1]	K-S squared [1]	Tests
Model 1: Unconstrained parameters and TFP growth as an AR(1) process						
		Unadjusted net capital stock				
60.60	Labor	0.86	0.19	0.17	0.52	
	Capital	1.01	0.11			
	Autoregressive	0.57	0.59			
		Intensity-of-use adjusted net capital stock				
64.29	Labor	0.84	0.18	0.32	0.57	1.58 [3]
	Capital	0.34	0.13			0.44 [4]
	Autoregressive	0.91	0.04			
Model 2: Constrained parameters and TFP growth as an AR(1) process						
63.57	Labor	0.67	0.14	0.22	0.50	1.43 [5]
	Capital [2]	0.33	-.-			
	Autoregressive	0.92	0.04			

Source: Fund staff estimates.
[1] The Kolmogorov-Smirnov satistic is 0.31 at the10 percent level.
[2] The sum of the coefficients in the Cobb-Douglas production function is restricted to one.
[3] Chow test using a dummy variable equal to one from 1992 onward and zero otherwise distributed as an F statistic with 3,14 degrees of freedom. The 95 percent critical value is 3.34.
[4] Chow test using a dummy variable equal to one until 1991 and zero otherwise distributed as an F statistic with 3,14 degrees of freedom. The 95 percent critical value is 3.34.
[5] The value of the likelihood ratio test that the unrestricted and restricted models are equal is 2.71 at the90 percent confidence level.

17. The level of the residuals is white noise although the square of the residuals is not.[12] Chow tests for the stability of the coefficients in the unrestricted model indicate that the parameters are stable over the sample period. Model 2 is thus the preferred model, and henceforth we shall refer to it unless otherwise stated.

[11] To the extent that the test of a "good" production function estimate is elasticities near labor's and capital's income shares, these results are encouraging.

[12] The hypothesis that serial correlation in the square of the residuals could be due to business cycle asymmetries by which shocks to the economy affect output differently depending on whether the economy is expanding or contracting was rejected. This remains an issue for future research, however.

18. These results confirm Lucas' (1970) insight and subsequent findings in the literature on the importance of taking into account variations in the intensity of capital stock utilization; they contrast sharply with estimates in which capital services are measured by the capital stock only. In the latter case, the unrestricted production function estimation (model 1) yields labor and capital shares of about 0.9 and 1, respectively, which are clearly excessive. As in Mankiw, Romer, and Weil's (1992) paper, unadjusted capital services result in an elasticity of capital services much higher than what is implied by the share of capital in national accounts, and the autoregressive coefficient describing total factor productivity growth is not statistically different from zero.[13] In this model, total factor productivity growth ranges between 0 and 0.2 percent per annum, which is inconsistent with most observers' view on total factor productivity developments in France during the sample period (e.g., Doisy, 2002).[14]

Estimated total factor productivity

19. Total factor productivity growth (as measured by the Solow residual) is higher when the net stock of capital is adjusted by the intensity in its use than when it is left unadjusted. Total factor productivity growth has fallen from about 1.7/1.6 percent per annum at the beginning of the 1980s to about 0.5 percent per annum in 1999.[15] When compared with the adjusted Solow residual, estimated total factor productivity growth is clearly free from cyclical components (Figure I.4). This suggests that net capital stock measures understate excess capacity, generating unrealistically high input shares and, consequently, unrealistically low total factor productivity growth. As a result, unobserved input movements such as changes in the intensity in the use of capital are bound to be interpreted as changes in total factor productivity growth.[16] These results accord well with Finn (1995), Shapiro (1996), Baxter and Farr (2001), Chen (1997), and others.

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[13] This finding led Mankiw *et al* (1992) to consider a variant of the Solow model in which human capital as well as physical capital is accumulated.

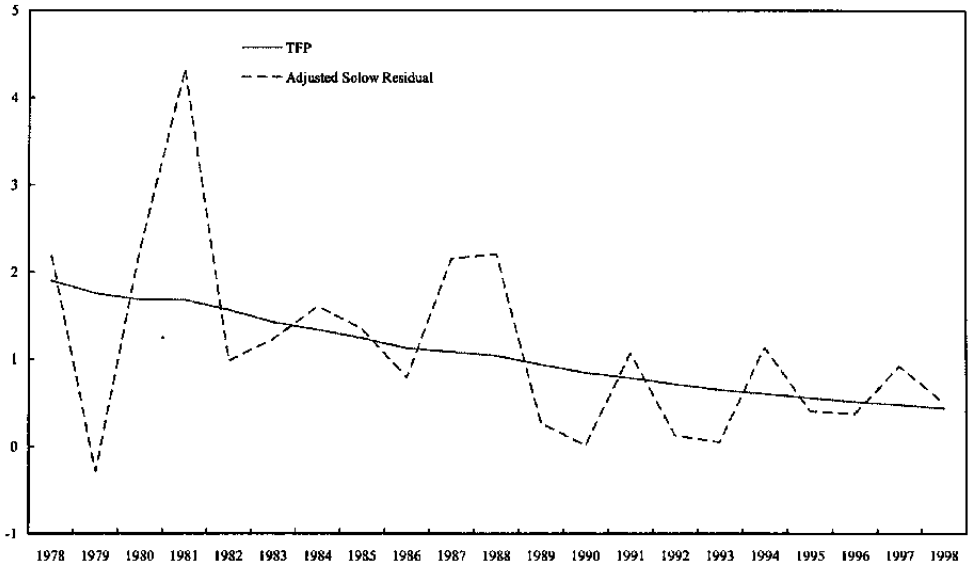
[14] Bernanke and Gürkaynak (2001) test a Solow model with a proxy for human capital using Summers-Heston database in a cross-country framework, and find that although the coefficient on human capital takes on reasonable values (between 0.3 and 0.4), the coefficient on physical capital becomes unreasonably low, and sometimes even not significantly different from zero.

[15] See Everaert and Nadal-De Simone (2003) for an estimation of total factor productivity growth in the French business sector which shows a similar pattern of behavior in the period 1970-2001.

[16] The extent of the bias is large if we take the variance of the error in measurement as reflected by the difference in growth rates of the net capital stock unadjusted and adjusted.

(continued)

Figure I.4. France: TFP Growth: Estimates and Adjusted Solow Residual
(Annual Percent Change)



Source: INSEE; Bank of France; and Fund staff calculations.

20. Given that total factor productivity growth has been estimated as a latent variable, it is desirable to assess its plausibility further by relating it, as well as the Solow residual (unadjusted and adjusted), to other work in the area. First, it seems that the intensity of use of the net capital stock can account for most of the observed cyclicality of total factor productivity growth, without having to make reference to increasing returns to scale in production.[17] Second, a regression of the unadjusted Solow residual on the intensity in the use of capital measure transforms the residual in white noise.[18] Stressing this point, the correlation between output growth and the unadjusted Solow residual is 77 percent; it drops to 48 percent when the Solow residual is adjusted. Instead, the correlation between GDP growth and estimated total factor productivity growth is insignificant.

The variance is 2.8 with full adjustment of the capital stock, and 1.3 with an adjustment factor for the capital stock of only 10 percent of the workweek of capital.

[17] For example, while the correlation between changes in capacity utilization (used here as a proxy for the business cycle) and the unadjusted Solow residual is 43 percent, it drops dramatically, and becomes non significant statistically, either in the case of the adjusted Solow residual or estimated total factor productivity growth. Notice that given the sample size, any correlation below 43 percent is not significantly different from zero.

[18] The estimated regression is: Unadjusted Solow residual$_t$ = 0.004 Workweek of capital$_t$ + res$_t$, with a t-statistic for the slope of 7.71. Residuals are white noise.

21. The volatility of the adjusted Solow residual is 1.1 while the volatility of the estimated total factor productivity growth is about half of that. Such a reduction in volatility compares with reductions of between 15 to 23 percent for the industrial sector alone reported for Canada and the United States by Baxter and Farr (2001) using various proxies for the intensity in the use of the capital stock.

22. A final comparison of estimated total factor productivity growth is with Bernanke and Gürkaynak's (2001) results. The authors have shown that a constant, national savings, and labor force growth explain 48 percent of total factor productivity growth in their cross-country growth-accounting exercise comprising the sample period 1980-1995. Similarly, 51 percent of the estimated French total factor productivity growth is explained by national savings and hours worked.[19] Growth of the labor force is, instead, not statistically significant.

C. Trend Growth Calculation

23. The trend growth rate for France is calculated as follows:

$$\overline{Y}_t = N_t \overline{P}_t \left(1 - Nairu_t\right)^{\alpha} \overline{K}_t^{1-\alpha} \overline{A}_t, \tag{6}$$

where bars over variables represent trends, and all variables are in annual growth rates. $\overline{Y}_t$ is natural trend growth, N_t is the population of working age, $\overline{P}_t$ is trend in the participation rate, $\overline{K}_t$ is trend growth in capital stock services, and $\overline{A}_t$ is trend in total factor productivity growth. The calculation of French trend growth is done using constant returns to scale because, as stated above, the hypothesis that $\alpha + \beta = 1$ cannot be rejected.

24. The calculation of trend output and trend output growth assumes that all factors of production are used at their natural level. As indicated above, the correction of the net capital stock by the intensity in its use removes most of the cyclicality of total factor productivity. It is to be expected, however, that there is still a relevant difference between actual and potential capital stock services, and actual and potential labor effort. For instance, the hours worked used in the estimation have been affected by changes in the rate of labor force participation, changes in the age structure of the population or in the labor force growth rate, and changes in patterns of shift work and part-time work, possibly both as a result of preference changes as well as policy changes. It is therefore necessary to assess the natural level of this factor of production, and this implies determining the trends of the participation rate, and the unemployment rate.

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[19] The estimated regression is: $\Delta A_t = 0.006 + 0.05\ \Delta savings_t - 0.30\ \Delta labor\ hours_t + res_t$ with t-statistics 4.79, 3.37, and -4.48, respectively, and $R^2 = 0.51$. Bernanke and Gürkaynak's (2001) national savings elasticity is similar, 0.07, and their labor force elasticity is -0.50.

25. The approach taken here is to calculate time series trends using the ideal band-pass filter developed by Ouliaris (2001).[20] The filter only requires to take a view on the business cycle duration range. This duration range is defined for France as comprising between two and seven years, which is consistent with the analysis of French business cycle characteristics in Nadal-De Simone (2002) using Harding and Pagan's (2002) methodology. This filtering procedure is applied to the capital stock services, to estimated total factor productivity, and to the labor force participation rate.[21]

26. Finally, the definition of the potential or natural contribution of employment to output is made consistent with the non-accelerating inflation rate of unemployment (Nairu). The Nairu time series was kindly provided by the European Commission. The Nairu series is the one used by the institution to calculate member countries' output gaps.[22]

27. The French trend growth rate averaged 2.5 percent per annum in the period 1979-1999 (Figure I.5). The trend growth rate, however, shows three distinct periods. The first period comprises 1979-1989, during which France experienced an average annual trend growth rate of 2.8 percent. During the second period, which started in 1990, trend growth rates fell and bottomed at 1.8 percent in 1993. Finally, in the rest of the sample period, France recorded an acceleration of trend growth to an average annual rate of 2.1 percent.

28. French trend growth clearly increased during the second half of the 1990s. One advantage of the production function approach to trend growth estimation is the possibility of analyzing the macroeconomic relations between short-run departures of inputs growth as well as GDP growth from their trends. Based on the analysis of this chapter, it can be argued that there was indeed a rise in French trend growth in the second half of the 1990s in a context of a persistent decline in total factor productivity growth since the late 1970s. It is true that the rate of decline in total factor productivity decelerated during the second half of the 1990s, but its contribution to French trend growth was nevertheless small.

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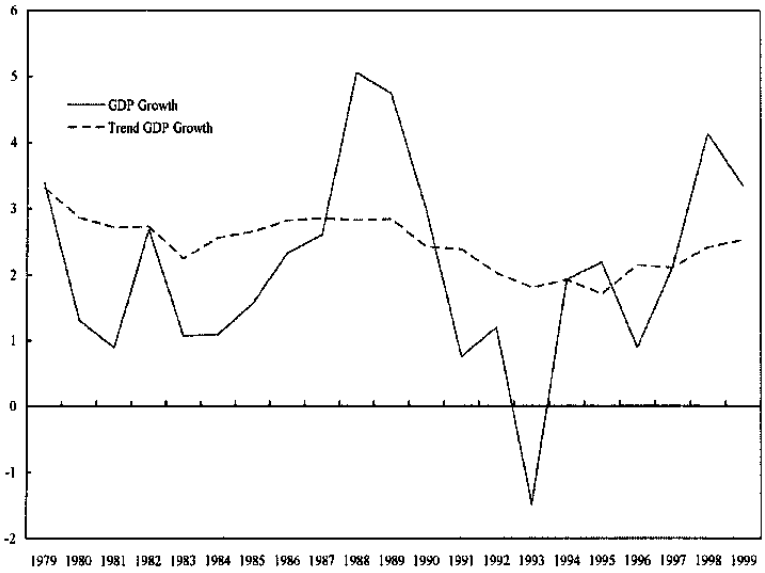
[20] This filter is not affected by leakage from the zero frequency component of nonstationary series. Importantly for practitioners, in contrast to Baxter and King's band-pass filter, the filter does not involve the loss of observations at either end of the series, and it is consistent. The standard Hodrick-Prescott filter was not used because it is bound to introduce spurious cycles, and it suffers from end-of-sample bias (Cogley and Nelson, 1995).

[21] The application of the filter to estimated total factor productivity growth left the series practically unchanged, as it contained no significant cyclical component.

[22] The European Commission calculates the Nairu as a Kalman filter estimate that assumes that the deviation of unemployment from the Nairu is negatively related to the change in wage inflation after controlling for temporary shocks to wage inflation such as the terms of trade. Thus, wage inflation is linked to the cyclical component of unemployment plus other exogenous or predetermined variables using a Phillips curve relationship.

Figure I.5. France: Growth and Trend in French Real GDP
(Annual Percent Change)

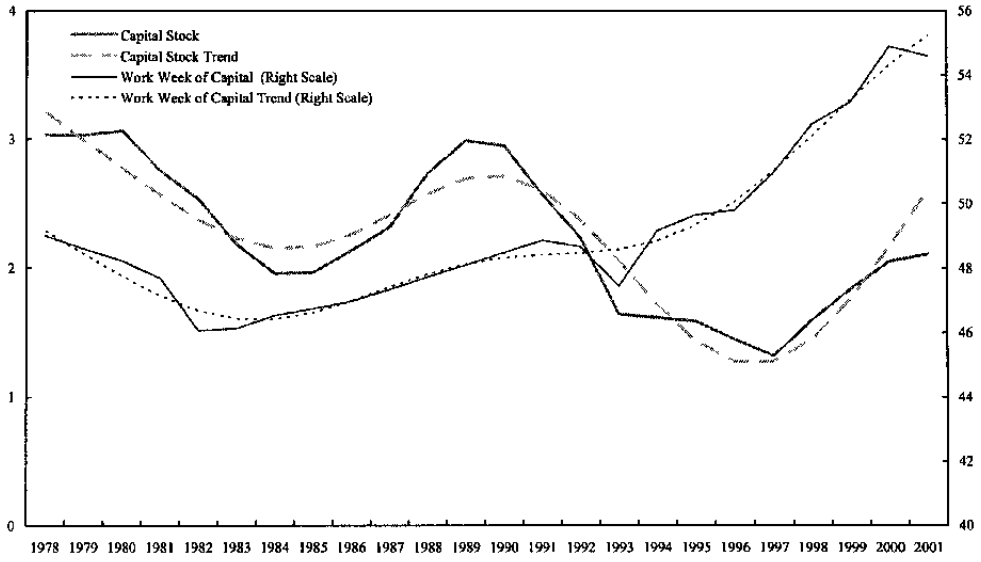


Source: INSEE; Bank of France; and Fund staff calculations.

29. Therefore, the recovery of French trend growth in the second half of the 1990s is to be attributed to increases in the average use of factors of production, as suggested by Doisy (2002). Judging from the analysis of trends in factor inputs, however, it is difficult to ascribe the increase in trend growth to capital accumulation. Although French capital stock growth accelerated in the second half of the 1990s, it was still well below the peak of the 1980s. Instead, there was a clear acceleration in trend growth in the intensity of the use of the capital stock (Figure I.6).[23] Similarly, trend growth in employment and hours worked increased since 1993 (Figure I.7), as well as trend growth in the labor force and the trend participation rate (Figure I.8).

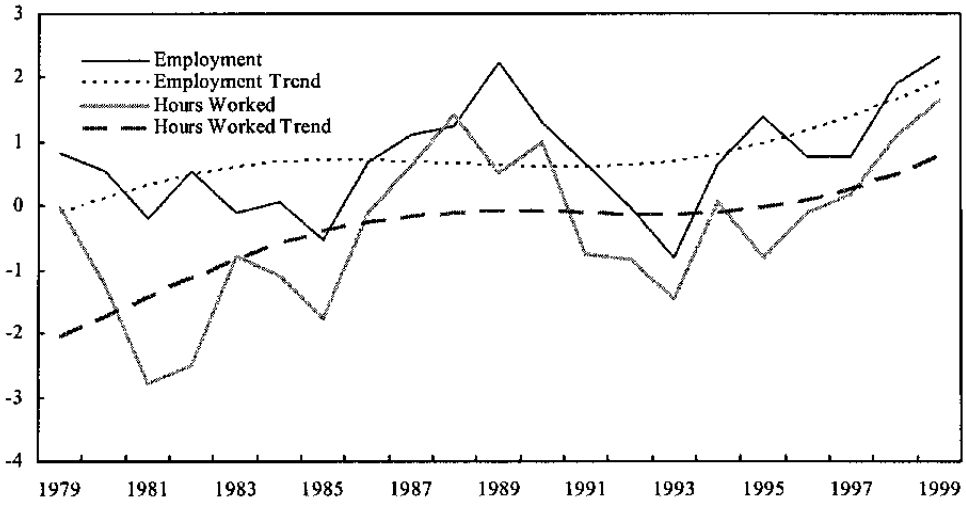
[23] Everaert and Nadal-De Simone (2003) argue that the intensity in the use of capital also had a major role in the increase in trend growth in the business sector during the second half of the 1990s.

Figure I.6. France: Capital Stock Growth and the Work Week of Capital
(Annual Percent Change, Hours per Week)



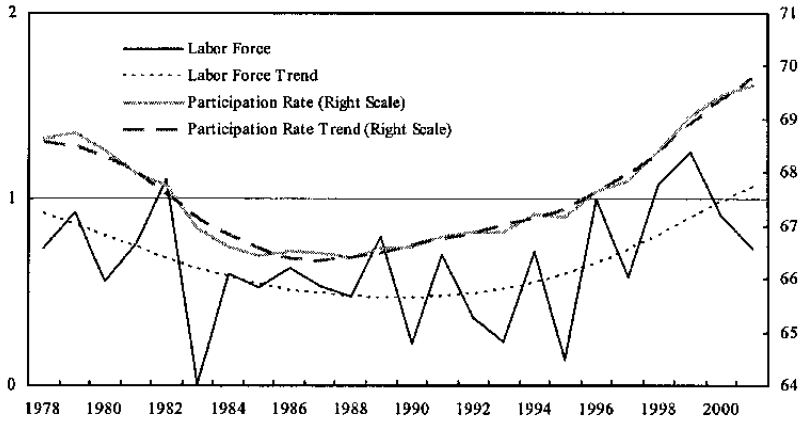
Source: INSEE; Bank of France; and Fund staff calculations.

Figure I.7. France: Employment and Hours
(Annual Percent Change)



Source: INSEE and Fund staff calculations.

Figure I.8. France: Labor Force Growth and Participation Rate
(Annual Percent Change)



Source: INSEE and Fund staff calculations.

D. Conclusion and Policy Implications

30. This chapter asked whether French trend growth rates increased in the second half of the 1990s. Trend growth was estimated using a Cobb-Douglas production technology, with total factor productivity growth treated as an unobservable autoregressive process of order one. The main novelty was the adjustment of capital services to take into account capital operating time. This resulted in estimates of the production function more aligned with factor shares and total factor productivity growth lost basically all its cyclical components. The use of adjusted capital services made the estimation of total factor productivity growth more robust.

31. The main conclusion is that French trend growth indeed increased during the second half of the 1990s to an average annual rate of 2.1 percent, from 1.8 percent in 1993. This was not due to a recovery of total factor productivity growth, however, which remained at its lowest level since the late 1970s. The recovery of French trend growth seems instead due mostly to an increase in trend employment and trend hours worked, and in a minor scale to a deepening of capital made possible via investment. The increase in the intensity in the use of capital was associated with a rising trend in the labor force participation rate, and in a small part with changes in labor organization that reduced the cost of shift work and continuous work (although the full impact of the introduction of the 35-hour week is outside the sample period used in this study). A gradual move in the early 1990s toward policies intended to increase labor market flexibility facilitated the process. Social security contributions were lowered first for part-time employees and subsequently for minimum-wage workers, a reduction that was gradually extended up the pay-scale in the context of the reduction of maximum workweek.

32. Looking forward, a key policy question is whether the upward change in French trend growth in the late 1990s will be sustained. The question takes a particular relevance because the sample period used in this study does not include developments that have the potential to

affect trend growth either negatively or positively. An illustration of policy measures that can offset, at least partially, the observed revival in trend growth is the full implementation of the reduction in the workweek to 35 hours; on the structural front, a major event is the looming negative growth of the labor force expected after 2006. On the other hand, examples of policy changes expected to have a positive effect on growth are: the recent pension reform with its beneficial effect on the labor participation rate; the relaxation of the implementation of the 35-hour workweek for small- and medium-size enterprises and the increased flexibility of overtime rules; further cuts in social security contributions; and active policies to promote business employment. In summary, the sustainability of the revival in French trend growth is contingent on the implementation of policies that further enhance labor market flexibility, increase incentives to participate in the labor force, and promote investment.

Annex I France: Sensitivity of coefficient estimates of a Cobb-Douglas production function for the French economy to adjustments to the net capital stock by the intensity of its use[1]

Sector/capital	Model for TFP	Restrictions	TFP range				Estimated coefficients											
			Unadjusted	Factor = 1	Factor = 0.5	Factor = 0.1	LA	KA	AR(1)	LA F=1	KA F=1	AR(1) F=1	LA F=0.5	KA F=0.5	AR(1) F=0.5	LA F=0.1	KA F=0.1	AR(1) F=0.1
Capital stock																		
	AR(1)	Unconstrained	0.2-0.0				0.86	1.01	0.00									
	AR(1)	Constrained	3.1-1.6				1.08	-0.08	0.96									
Capital services [2]																		
	AR(1)	Unconstrained		1.7-0.4	1.6-0.3	1.4-0.3				0.84	0.34	0.91	0.83	0.35	0.91	0.82	0.42	0.90
	AR(1)	Constrained		1.6-0.4	1.5-0.4	1.4-0.5				0.67	0.33	0.92	0.67	0.33	0.92	0.64	0.36	0.93

Source: Fund staff estimates.

PS: Coefficients that are not statistically significant at least at the 90 percent confidence level are shown as zero.

[1]The factor of correction F took the values 1, 0.5 and 0.1. The capital stock series for the whole economy was adjusted consequently. The sensitivity of total factor productivity growth, the estimated input elasticities as well as the AR(1) coefficient was tested by running the same econometric model with the different meaures of capital services. The table shows that correcting the capital stock to measure better the services it provides to the production process is crucial to obtain elasticities and total factor productivity growth that accord with factual evidence on factor shares. The results are quite robust to the share of the net capital stock adjusted.

[2] The bias and inconsistency due to error in measurement in one regressor is directly proportional to the variance of the measurement error. If all the measurement error were corrected by the adjustment to the capital stock growth rate by using the intensity-of-use measure, the variance in measurement error would be 2.8 in case of full adjustment and 1.8 in case of adjustment by a factor of 0.1.

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II. Employment and Wage Effects of Active Labor Market Policies[24]

A. Introduction

33. 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 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).[25] Indeed, during the second half of the 1990s, employment performance improved appreciably in several European countries, especially in France, raising the presumption that such policies actually worked.

34. This chapter evaluates the aggregate effect of ALMPs on employment and wages 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 active labor market policies, direct subsidies to job creation were the most effective in raising employment rates, while expenditures on training programs seem to have been largely ineffective. It is noteworthy that France devoted relatively more resources to the former. 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 shed some light on the sources of the hitherto unexplained wage moderation observed in France.[26] 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.

35. 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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[24] Prepared by Marcello Estevão.

[25] Active labor market policies 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 OECD to a large share of the cuts in social security contributions in France in the 1990s.

[26] Estevão and Nigar (2002) and Detragiache and Estevão (2002) provide measurements and discussions of the short- and long-term implications of this wage moderation in France.

generally been inconclusive.[27] 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.

36. The remainder of the chapter is organized as follows. The next section explains why ALMPs may be effective in raising employment rates. Section C describes the identification challenges to be met in the empirical work using the empirical strategy of previous work as illustration. Section D sets up the empirical work and discusses estimates for the effect of ALMPs on employment rates. Section E provides evidence on the link between expenditures on ALMPs and wage moderation in the panel of countries under study. Section F briefly discusses the actual role of ALMPs to determine employment rates in France in the 1990. Section G concludes this chapter.

B. Why Might ALMPs Increase Employment?

37. Active labor market policies 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 II.1).[28]

38. First, active labor market policies 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.

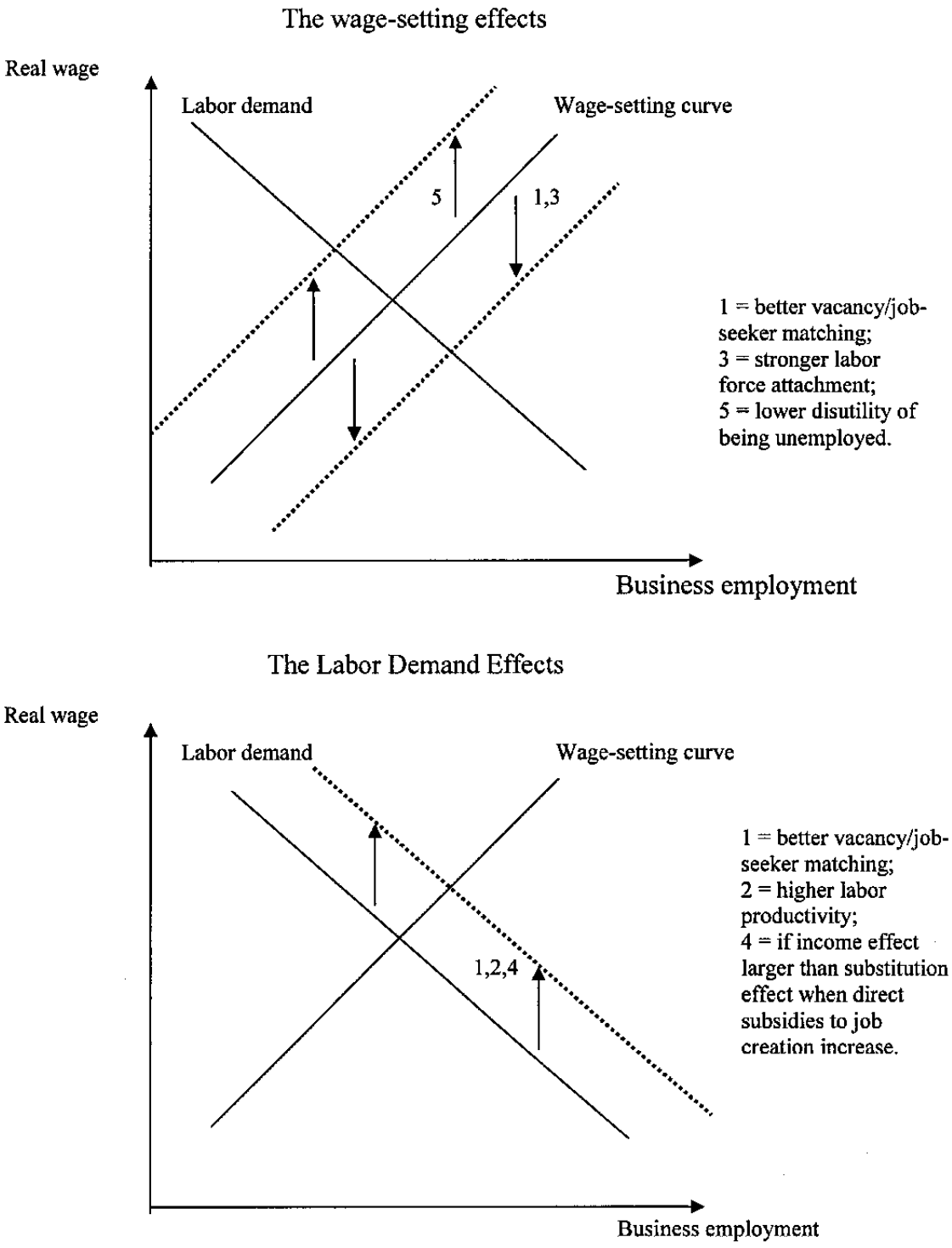
39. Second, labor force productivity may increase, owing to either training programs or on-the-job learning, in the case of direct subsidies to job creation. It may also affect non-

[27] 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.

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

program participants through an externality effect. This productivity increase would shift labor demand up and lift employment and wages.

Figure II.1. France: How Might ALMPs Affect Employment?



40. Third, active labor market policies 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.

41. 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.

42. 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.

43. 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.

C. Identification Issues and a Critical Look at Previous Studies

44. Previous studies of the effect of ALMPs on labor market performance suffer from one or more of the following flaws:[29] (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) short sample size that leads to insufficient time variation in ALMPs (quite related to (i)); (iii) instability of the 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.

45. Earlier studies used only a very limited number of observations (usually around 20) with countries as individual units and no time variation in the data. 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.

46. Studies conducted during the second half of the 1990's take advantage of the extended availability of data to use panel methods, therefore improving the identification of institutional effects on the unemployment rate. However, the same studies tend to pool the

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[29] Estevão (2003a) presents a detailed discussion of this literature and its relationship with the econometric methodology used here. Appendix I summarizes some of the key results in this field.

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. This averaging, however, 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.[30]

47. The focus on the reverse causality problem is not unwarranted, though, as it is likely behind the negative correlation between expenditures on active labor market policies as a share of GDP and business employment rates (the labor utilization measure used in the next section) across countries (Figure II.2).[31] 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.

48. 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). 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.

49. 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. In addition, the focus on unemployment rates creates a bias because of the exclusion of program participants from unemployment statistics. 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,

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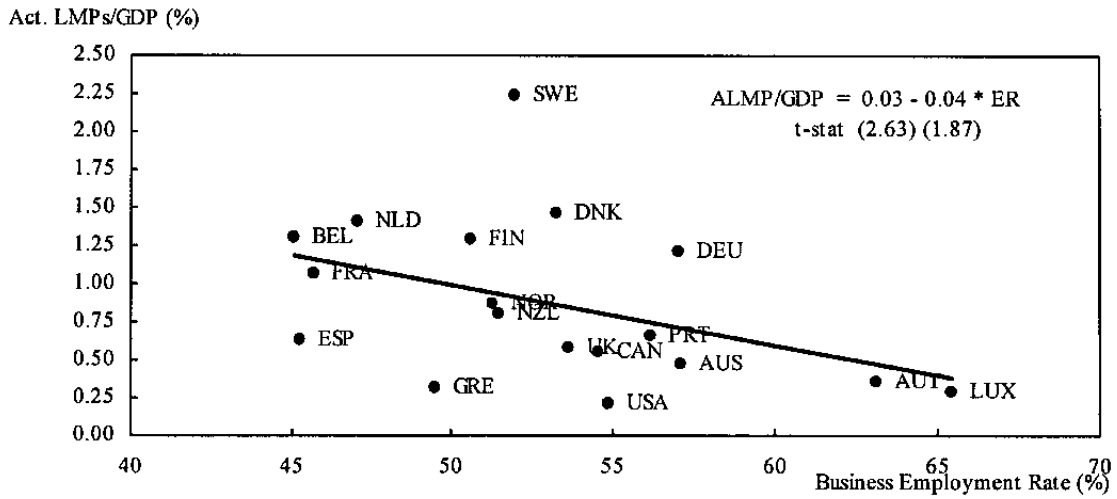
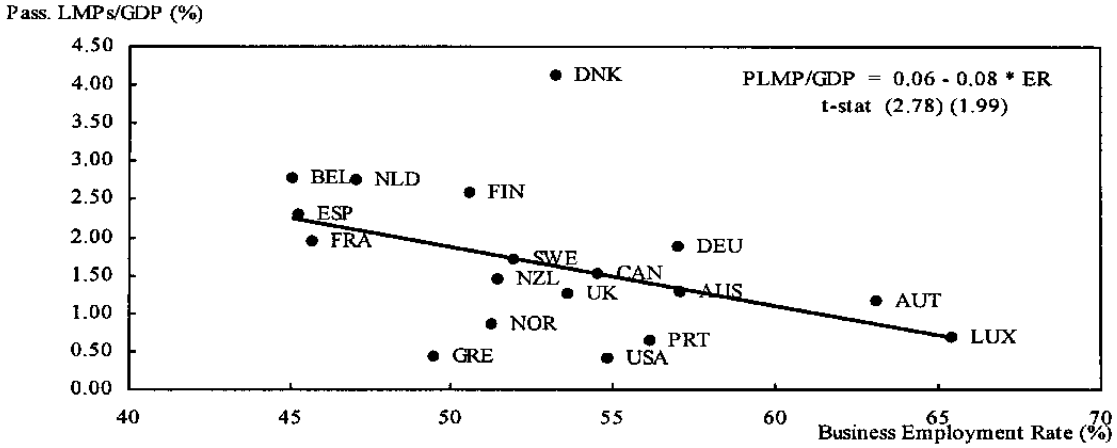
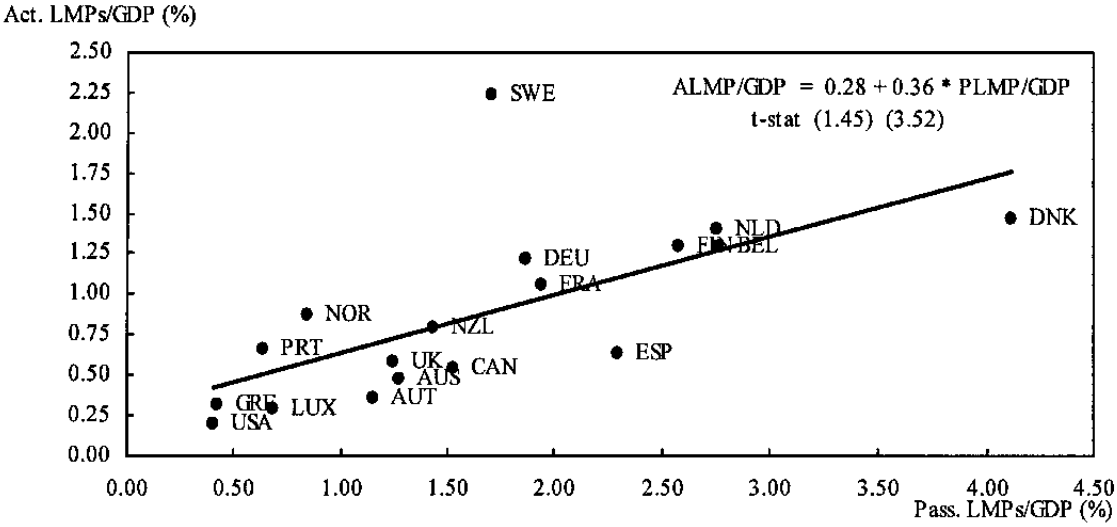
[30] Suppose that ALMP spending had no effect on unemployment: if ALMP spending rises (because of reverse causality) less than proportionally with unemployment, there would be an apparent negative relationship between both variables.

[31] 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 II.

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







Source: OECD and author's calculation.

unlike a pure accounting effect that would exclude participants in training programs from unemployment.

50. 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.

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

51. The problems with previous studies determine the empirical strategy of this chapter. 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.

52. 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, as discussed above, countries with low employment rates tend to spend more on ALMPs. However, this effect may be attenuated by carefully controlling for institutions and economic shocks. In any case, the final estimate may be viewed as a lower bound for the effect of ALMP on employment.

53. Expenditures on ALMPs are defined as the sum of expenditure (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 OECD countries between 1985 and 2000.[32]

54. The estimated equation should be interpreted as a reduced form of a model determining employment rates and wages. As discussed in section B, many of the expected effects of ALMPs on employment will occur through variations in wages, which are also a

[32] These countries are: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Netherlands, Norway, New Zealand, Spain, Sweden, United Kingdom, and United States.

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:

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

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.

55. 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.

56. 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 passive labor market policies is an important control variable because of its positive raw correlation with expenditures on ALMPs (Figure II.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.

57. 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

58. Active labor market policies 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 II.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).[33]

59. Various specifications of the model confirm this pattern (Tables II.1 to II.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 II.1, columns (4) and (5)). Modifications in the cutoff point dividing the two periods (Table II.2, columns (2) and (3)) and only using lagged expenditures on ALMPs or on PLMPs as the relevant policy variables (Table II.2, columns (4) and (5)) do not change the results. Table II.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).[34]

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[33] 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 (if country specific or not) and heteroscedasticity. OLS results were then selected to be presented for transparency reasons and to facilitate replication by other researchers.

[34] Both papers show that the negative effects of ALMP expenditures on unemployment is only significantly different from zero at the 10 percent level of confidence when Sweden is included in their panel. Without Sweden, the effect of ALMPs on the unemployment rate is much larger and more precisely estimated. Here, ALMPs remain a significant explanatory factor of employment improvements in the 1990s in the baseline specification which includes Sweden.

Table II.1. France: 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 II.2. France: 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 II.3. France: 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.

[3]Excludes Canada, USA and UK.

Table II.4. France: 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 vari 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, Swe
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-

[6]Vocational rehabilitation and work for the disabled.

60. 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 II.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 II.3, column (2)). Excluding the same groups of countries defined in Table II.3 when analyzing the breakdown of active labor market policies does not change the results (not shown).[35]

61. The control variables were in general estimated to have the expected signs. Passive labor market policies 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 II.3, column (1)), showing that including PLMP expenditures helps to attenuate the negative reverse causality bias on the coefficient of ALMPs. 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.[36] 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 II.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 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;

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[35] 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 II.1 to II.3.

[36] 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.

and 5) surprisingly, the ratio of minimum to median wages does not affect equilibrium employment rates in most of the specifications tried.

E. ALMPs and Wage-Setting Behavior

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

$$\log\left(\frac{BW_{it}}{P_{it}A_{it}}\right) = \alpha_1 \log(u_{it}) + \alpha_2 \text{ ALMP}_{it} + \alpha_3 X_{it} + \alpha_4 Y_t + \alpha_5 C_i + \eta_{it} \qquad (2)$$

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 B. 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.

63. Active labor market policies are associated with wage moderation throughout the sample (Table II.5). However, estimates for the first half are not significantly different from zero (column (2)). Correction for possible simultaneity between wages, unemployment and

Table II.5. France: 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 U
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.

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.[37] The main results are insensitive to the inclusion of lagged ALMPs to capture possible dynamic effects (Table II.6, column (2)).

Table II.6. France: Robustness Check: Effects of Omitting 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 Including lagged ALMPs	OLS	OLS Excl. Nordic countries 7\	OLS Excl. Anglo-Saxon countries 8\	OLS Excl. France and Germany
	Benchmark Results		Detailed ALMPs			
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)**	**33.83 (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.

64. Within the components of ALMP policies (column (3)), direct subsidies to employment creation and measures for the disabled (although the estimate for the latter

[37] 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 US 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 (2003b) estimates, also using micro data and different methods, an elasticity of about the same size (but a bit smaller) for Poland.

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.

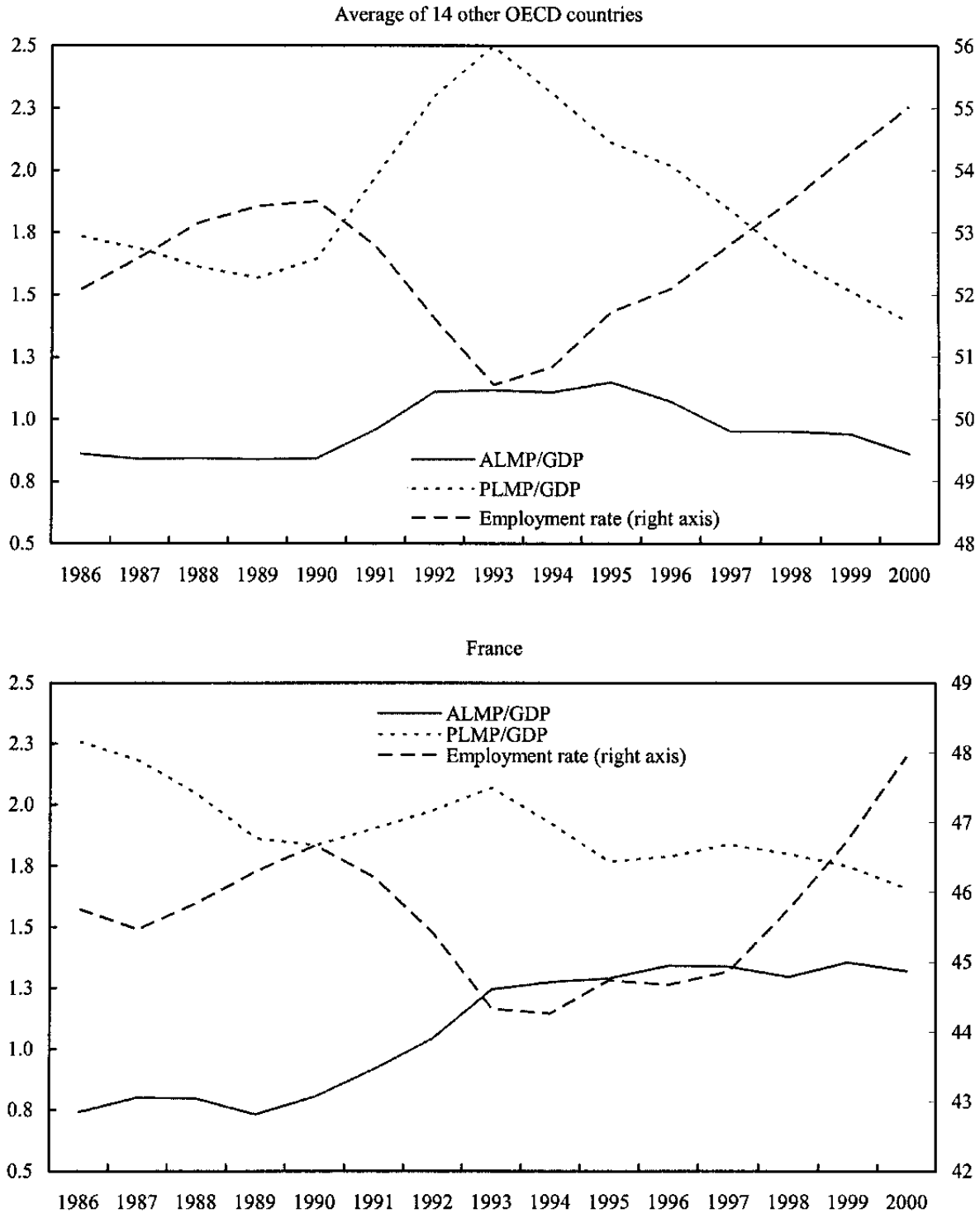
65. The relevance of direct subsidies to job creation in shifting the wage-setting relationship downward suggests that part of the wage moderation might be due to a composition effect owing to a rise in the proportion of the employment of less-skilled workers. Following the schematic approach discussed in section B, 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.

66. 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.

F. Expenditures on ALMPs in France

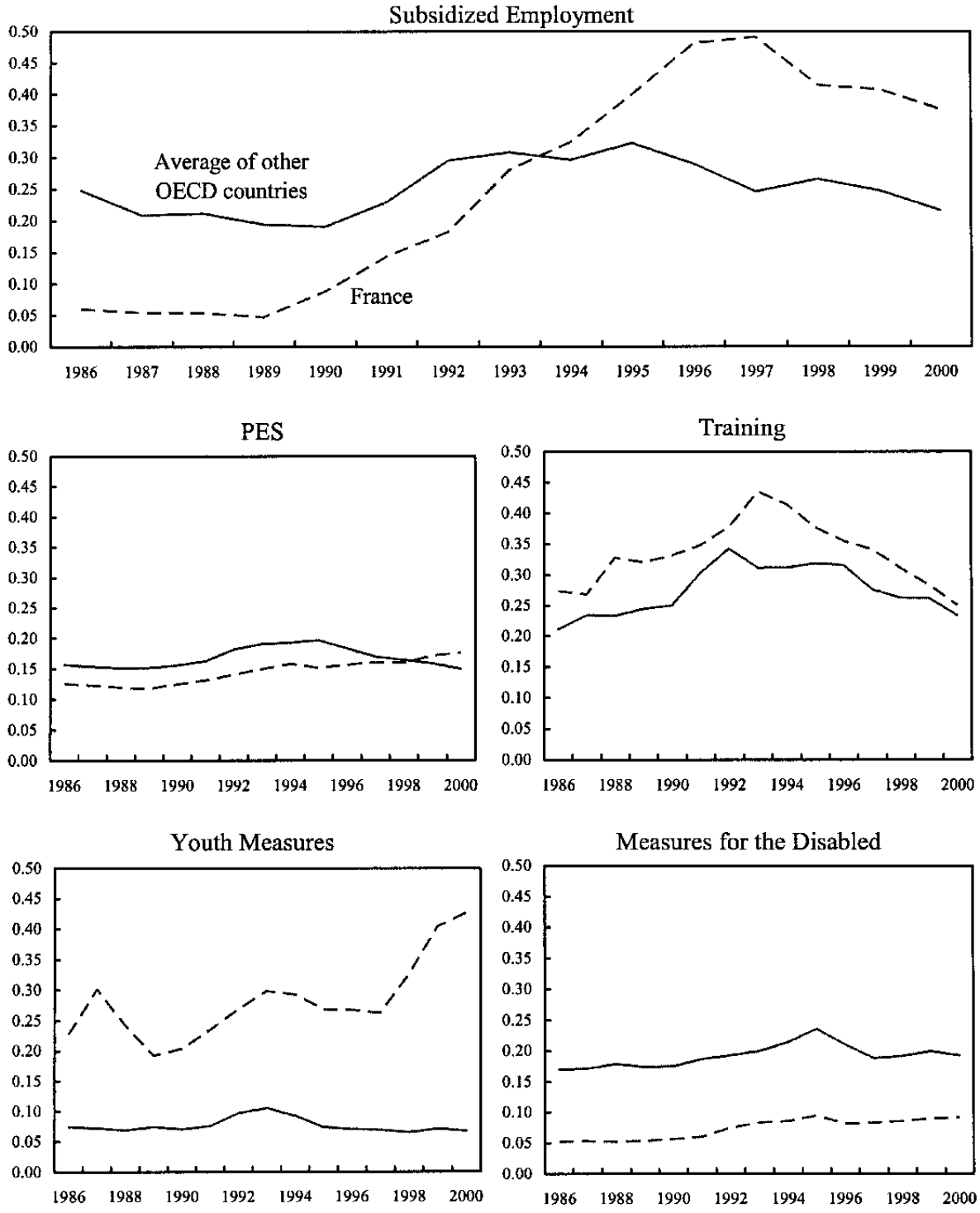
67. While the econometric evidence presented here shows that ALMPs had a positive effect on employment rates after controlling for institutional and other economic and policy variables, it does not pinpoint their actual effect neither in France nor elsewhere. Actually, expenditures on ALMPs have remained roughly constant, on average, as a share of GDP for the countries in our database excluding France (Figure II.3). Certainly, this average information hides important cross-country differences, but it serves as a contrast to the increase in ALMP expenditures as a share of GDP in France.

Figure II.3. France: Business Employment Rates, and ALMP and PLMP Expenditures as a Share of GDP



Source: OECD Labor Market Policies and Analytical Databases; and author's calculations.

Figure II.4. France: Expenditures in ALMPs as a Share of GDP



Source: OECD Labor Market Policies and Analytical Databases; and author's calculations.

68. The accumulated increases in expenditures on ALMPs as a share of GDP contributed to raise French employment rates by almost 1 percentage point in 2000. This estimate would be somewhat different, probably with a stronger positive impact on employment rates throughout the sample period, if expenditures on active labor market policies were broken down into their main components. In particular, France has invested a rising share of GDP into subsidies to job creation, and have spared some resources from ineffective training programs (Figure II.4).

69. Even if small in terms of percentage points, the increase in expenditures on ALMPs in France as a share of GDP since 1985 represented a concerted effort to offset institutional arrangements that have boosted French unemployment rates since the 1960s, as documented more recently in Debrun (2003). According to their estimated effects on business employment rates, institutional improvements imply substantial reductions in tax wedges, replacement rates, public sector employment as a share of the labor force and insiders' power in wage bargaining.[38] These changes would not only lower labor costs but raise work incentives. Active labor market policies have helped to keep insiders' wages down but these institutional changes would likely go much further without negative fiscal consequences.

G. Final Remarks

70. Active labor market policies were effective in raising employment rates in the business sector in the 1990s among OECD countries. Among such policies, direct subsidies to job creation were the most effective, which is consistent, at least, with recent studies using microeconomic data for Sweden and for France.[39] Active labor market policies seem to have affected employment rates by reducing real wages below the levels allowed by technological growth, changes in the unemployment rate and institutional and other economic factors. However, part of this wage moderation may be only apparent as some of the active labor market policies are directed to low-skill low-paid workers, which may cause a composition effect toward lower average wages even in the presence of adjustments for a possible slower technological growth.

71. 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 the employment rate rises. At the present level of employment rates, it seems that ALMPs would recoup their cost only

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[38] Tax wedges, the share of public employment and the employment protection index have trended slightly up in France since 1985 while benefits replacement rates remained flat at a high level (60 percent). The extent of labor force unionization and bargaining coordination declined a bit.

[39] 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.

if they place benefit recipients into jobs and these benefits are phased out. Furthermore, given the negative effect of current institutional arrangements on European employment rates, institutional reforms seem to be a better bet for improving labor utilization without unduly high fiscal costs.

Synthesis of the Relevant Literature

Study	Data	Measure of ALMP	Effect on Unemployment	Calmfors et al. (2002) effect of participation on unemployment		Comments
Layard, Nickell and Jackman (1991)	1983-88, cross section	ALMPU *	Negative	Negative	0	
OECD (1993)	1983-88, cross section	ALMP as percentage of wage bill (wage * LF)	Negative but non-significant (NS) (for Layard et al. 1991 exact specification)	Negative		Finds a positive effect for interaction between GDP and training/public employment exp.
Heylen (1993)	Second half of the 1980s, cross section	Real ALMP expenditure per unemployed person	Negative	Negative	0	
Zetterberg (1993)	1985-1991	Percentage of ALMP expenditure on total LMP expenditure	Negative	Negative	Negative	
Forslund and Krueger (1994)	1983-88 and 1993, cross section	Both 1) ALMP as a percent of GDP and 2) Zetterberg's measure	1) Negative (NS) for 83-88 Positive (NS) for 1993 2) Negative for 1983-88 Positive (NS) for 1993	1) 0 for (83-88) 2) Negative for (83-88), Positive (1993)	2) 0 for (83-88)	
Bellmann and Jackman (1996)	1975-1993 (missing observations), panel	Real ALMP expenditure per unemployed (deflated by the gross domestic product-price index for the USA, 1990=100)	Negative (NS) Negative for long-term unemployment They find a significant negative effect on employment growth	Not computed in Calmfors		Measure of ALMP is exp. in PES, training, and subsidy for private sector employment. Also find that PES and training are negatively associated with long-term unemployment. ALMP found to be positively associated with women LFP.
Jackman, Layard and Nickell (1996)	Average of two periods 1983-1988 and 1989-1994	ALMPU in 1987 and 1991(Unemployment 1977-79)	Negative (NS) Negative for long-term unemployment	0 Negative for long-term unemployment		Random effects, dummy for 1989-94. ALMP exp. is all active spending, except on the disabled.
Scarpetta (1996)	1983-1993, panel	Average of ALMPU on the whole period	Negative (significant at 10% in most	Mostly negative, but	Positive	Random effects. The magnitude and significance increases

			specifications. Stronger effect for non-employment.	positive for employment/ population.		when Sweden is not included.
Elmeskov, Martin and Scarpetta (1998)	1983-95, panel	Average of ALMPU on the whole period	Negative (significant at 10% in most specifications)	Negative	0	Random effects. Magnitude and significance increases when Sweden is excluded. Considers interactions, such as the level of ALMP with replacement rates.
Nickell and Layard (1999)	Average of two periods 1983-88 and 1989-94	ALMPU in 1987 and 1991 (average Unemployment 1977-79)	Negative (for both unemployment and long-term unemployment)	Negative (for both unempl. and long-term unempl.)	Positive	Random effects, dummy for 1989-94. Add total tax rate (+) and Owner Occupation (+) as explanatory variable. ALMP exp. is all Active spending, except on the disabled.
				Calmfors measure is 0 for employment/pop.		
Blanchard and Wolfers (2000)	1960-95 (five year averages)	Nickell and Layard's measure	Negative (in many specifications)	Negative	Negative	Includes country and time effect. The coefficients reported are those of the interaction with adverse shocks.

* ALMPU : Spending per unemployed person (as a fraction of GDP per capita ; for Nickell and Layard, and Jackman, Layard and Nickell, as a fraction of GDP per member of the labor force).

THE OECD LABOR MARKET POLICIES DATABASE

72. The OECD Labor Market Policies database includes expenditures on programs targeted to particular labor market groups, therefore excluding general employment or macroeconomic policies.[40] 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 active labor market policies 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.

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

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

[40] 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.

b. *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.

74. The strict classification of programs into these categories may leave out key national policies which national researchers could consider important employment programs. Tables II.A.1 and II.A.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 table shows the breadth of the OECD social expenditure data but at the same time reveals the absence of some high-profile policies. Most prominently, the data do not include cuts in social security contributions associated to 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 II.A.1. France: Active Labor Market Programs 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 II.A.1. France: Active Labor Market Programs 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 II.A.2. France: Passive Labor Market Programs 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

75. 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).[41] Institutional variables either built or made available by Nickell and Nunziata (2001) (NN) were also used.[42]

76. 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.

77. Control variables include:

a) Expenditures in passive labor market policies (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:[43]

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

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[41] 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 .

[42] 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.

[43] 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).

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).

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.[44]

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.[45] (ii) An index of employment protection made available by NN and originally built by Blanchard and Wolfers (2000).[46] (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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[44] 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.

[45] 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).

[46] 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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III. Tax Reform and Potential Growth in France[47]

78. The tax burden in France is very high by international standards, and is dominated by social security contributions and direct taxes on labor income with high marginal rates. While high taxes are thought to depress employment, investment, and growth, the evidence on the direct links between taxation and growth is mixed. Nevertheless, to address mounting concerns related to the heavy tax burden on individuals and corporations, a series of tax cuts has been initiated, though without altering the basic tax structure.

79. Against this background, this paper reviews France's tax system, and recent tax reform initiatives, in the context of their possible impact on economic efficiency, with a view to suggesting feasible reform options. It pays particular attention to the taxation of labor, capital, and consumption, and its impact on growth through incentives to work, the demand for labor, and total factor productivity via savings and capital formation. Section A reviews the literature, including the main reform options proposed for tax reform in advanced economies. Section B describes the French tax system, focusing on its structure and the tax burden on production factors. Sections C reviews recent tax reforms, while Section E suggests options for further reform.

A. Brief Overview of the Literature

80. In an endogenous growth model where output depends on the combination of labor and capital factors, taxes may affect both output and growth. The taxation of output, labor, and capital affects the remuneration of factors and the alternative uses of income (consumption and savings). This in turn affects the supply of labor (through work incentives and decisions affecting the entry or exit from the labor market); the demand for labor versus capital; the demand and supply of capital; and total factor productivity. In particular, labor taxation (through payroll or income taxes) creates a tax wedge between labor costs and labor remuneration, thus affecting labor supply (via the trade-off between work and leisure) and labor demand (if higher labor costs cannot be fully shifted to the labor factor). Similarly, capital taxation (through corporate and personal income taxes, and taxes on wealth) affects the rate of return on capital and distorts investment and savings decisions; this may discourage otherwise profitable investments, entail inter-temporal efficiency costs, and reduce capital accumulation over time—ultimately affecting both the level and the growth rate of output. Finally, through its impact on labor and capital, taxation can distort the combination of these two factors, with a potentially negative impact on output and growth.

81. From the point of view of the intertemporal budget constraint faced by an individual taxpayer, several tax equivalence results hold in a world of perfect markets (Atkinson and Stiglitz, 1980). A proportional tax on wages (plus inheritance) is equivalent to a tax on consumption (plus bequests) in present value terms. A proportional tax on income (*excluding* interest income) is equivalent to a consumption (plus bequests) tax. A proportional tax on income excluding savings is also equivalent to a consumption tax. Finally, a proportional tax

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[47] Prepared by Eric Mottu. Helpful comments (without endorsement) were received from Benoît Bohnert, Luc Everaert, Wim Fonteyne, Guy Gilbert, Michael Keen, Henri Lamotte, Hervé Le Floc'h-Louboutin, Alessandro Leipold, Sandy MacKenzie, Laurent Ménard, Francisco Nadal de Simone, Janet Stotsky, and Howell Zee.

on interest income is equivalent, for the taxpayer, to a tax on wealth. While these results offer a benchmark to assess various types of taxes, the assumptions necessary to yield them rarely hold in models with more complex tax and market structures (e.g., progressive tax rates, unionized labor markets, and, more generally, imperfect markets). It also follows from these results that a tax on income (*including* interest income) is not equivalent to a tax on consumption, since the former taxes capital income in addition to wage income (Tanzi and Zee, 2000; Zee, 2002).

Tax policy and growth in OECD countries

82. Although theories differ as to the magnitude of the impact of taxes and welfare benefits on employment and growth, there seems to be a general presumption that higher average tax burdens have an adverse impact. However, there is no clear empirical evidence from cross-country comparisons to support this general proposition (Gerson, 1998; Disney, 2000). In the end, the specific effect of taxes on employment and growth may be an empirical issue in each individual country and for each tax and benefit system.

83. **Some authors find that tax policy plays a fundamental role in affecting the long-run growth performance of countries but others disagree.** Prescott (2002) and Lucas (2003) find a large negative impact of taxes on economic activity, suggesting for example that heavy labor and consumption taxation is responsible for the low output per working-age person in France, which is estimated to be 30 percent lower than in the United States.[48] In general, policies that improve the neutrality of taxation and promote the accumulation of human capital may have the potential to enhance growth. In this regard, the structure of taxation could have important implications for growth (Tanzi and Zee, 1997). Not all authors agree, however. Harberger conjectured in 1964 that in practice tax policy is ineffective to influence growth, after observing that the tax mix did not produce significant effects on savings and investment rates in the United States. Stokey and Rebelo (1995) and Mendoza, Milesi-Ferretti, and Asea (1997) similarly find that tax reform has little impact on long-term growth, although the latter acknowledge that altering the tax mix may yield welfare gains induced by efficiency gains on the *levels* of consumption and output.[49]

84. **Studies generally assume a negative relation between taxes on labor, and employment and growth in OECD countries.** Social security contributions, payroll taxes, and personal income taxes may adversely affect the cost of labor (if industrial relations or regulatory constraints prevent the labor tax wedge to be fully borne by workers) and, thus, reduce labor demand by firms, employment and, eventually, economic growth. To the extent that part of the burden of labor taxes and social security contributions is shifted to workers, these taxes may also generate disincentives to seek work or raise work effort (OECD, 1995;

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[48] According to these authors, reducing the tax wedge in France to that of the United States would increase welfare by 19 percent (in terms of consumption), through an increase in the labor factor and its impact on capital accumulation.

[49] Thakur, Keen, Horváth, and Cerra (2003) note that these results may be biased by the emphasis on one side of the government's budget constraint only.

OECD, 2001b). High labor taxation may also induce a drift into the informal economy, if tax enforcement is weak (OECD, 2001b). In reviewing the evidence, Zee (1997) and others point to several stylized facts:

- High employers' social security contributions and payroll taxes, which usually bear heavily on low-income workers, tend to be reflected in higher labor costs (because of labor market rigidities) and to reduce labor demand (this effect is usually reflected in high average tax wedges on labor).

- High marginal effective tax rates (due to the combination of tax and benefit systems) can have a significant impact on labor supply by affecting the choice between additional work and leisure, entailing a disincentive to job search and increased work effort. Very high marginal rates (close or above 100 percent) may create so-called poverty or inactivity traps.[50]

- Several groups of individuals are most likely to be negatively affected by high marginal effective tax rates: low-income workers eligible for in-work benefits; high-income workers, which face high tax rates and may be more mobile; individuals considering entering the labor force (e.g., young people, and married women); and workers nearing retirement. For these groups facing complex budget constraints with high effective tax rates over certain segments, empirical studies find a significant labor supply response to policy changes (Disney, 2000).

- Regarding unemployment benefits, high replacement ratios associated with these benefits may reduce the incentive to seek work.

- Taxes and benefits, however, are not the only factor explaining employment and growth. Taxation may exacerbate the impact of existing distortions, labor market rigidities, and union-employers bargaining processes.

85. Recently, the negative impact of **labor taxation** on employment and growth was emphasized by Daveri and Tabellini (2000) who attributed the slowdown in growth in Europe, associated with persistent unemployment, to the rapid growth in labor costs, particularly due to taxes on labor. With strong and decentralized trade unions, labor taxes are shifted into real wages thus reducing labor demand; this, in turn, leads to substitution away from labor and downward pressure on the marginal product of capital, reducing investment and growth. The authors estimate that the observed rise in labor tax rates (by 14 percentage points) between 1965-1995 in the European Union (EU) accounts for a decline in the rate of growth by 0.4 percentage points per year and a rise in unemployment of about 4 percentage points.

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[50] Progressive labor income taxation may also discourage investment in human capital, by taxing the returns more heavily than the deductible implicit costs (reduced wages during education).

86. **Consumption taxes** are deemed to create fewer distortions. They do not affect savings and investment decisions (since current and future consumption are treated equally) and remain neutral with respect to various sources of income (labor, transfer, and capital income) and with respect to international trade. Daveri and Tabellini (2000) find that consumption taxes have no impact on employment (and growth), because they do not create a wedge between labor income and unemployment benefits—both being taxed the same way and absorbed by the labor factor.[51] Milesi-Ferretti and Roubini (1995) show that while consumption taxes as well as income taxes have a negative impact on growth through their distortion of the choice between labor and leisure, the latter involve additional distortions in the production function (raising the capital/labor ratio, thus reducing the return on capital) that further reduce capital accumulation and growth. Kneller, Bleaney, and Gemmell (1999) validate empirically for OECD countries that consumption taxes have a non-distortionary effect on growth, suggesting that reducing distortionary taxes by 1 percent of GDP could raise the growth rate by 0.1-0.2 percent per year. Tanzi and Zee (2000) find that consumption taxes have a smaller negative impact on savings than income taxes (and confirm empirically that the interest elasticity of savings is positive).

87. The **value-added tax (VAT)**, as a general tax on consumption, is regarded as relatively non-distortionary—and has indeed been adopted by most OECD countries. In practice, however, it still suffers from an imperfect implementation. Differentiated rates, product and sector-related exemptions, and significant problems with cross-country trade in the EU tend to distort competition and consumption patterns while increasing compliance costs. Complexities also reduce the capacity to detect tax evasion and fraud, thus further distorting competition (Joumard, 2002).

88. In addition to raising the required rate of return on investment and depressing investment, **corporate taxes** in OECD countries tend to favor debt financing over equity financing or retained earnings, which may lead to an inefficient allocation of resources (in addition to raising insolvency risks and potentially discriminating against small companies that have more difficulties borrowing). These distortions arise because tax systems provide a more favorable tax treatment to interest payments than to distributed or retained profits, or because they maintain double taxation of dividends (once at the corporate level and once at the shareholders' level). Corporate taxes are also non-neutral given the widespread use of rebates, exemptions, and special regimes for specific sectors or regions (OECD, 2001b; Joumard, 2002). Imperfectly coordinated tax regimes in the OECD may affect location decisions, which, as a result, may not be efficient, and give firms ample opportunities for tax avoidance (Bond *et al.*, 2000). Empirical studies in the EU have documented significant distortions: tax systems tend to favor debt financing and investment in intangibles and machinery. There are also considerable differences across countries in the treatment of subsidiary companies of a parent company, depending on their location (European Commission, 2001). Empirical studies also suggest that large companies bear a smaller tax

[51] While the authors admit that their theoretical formulation of consumption taxes is rather simplistic, they verify empirically that consumption taxes did not affect employment and growth in 14 major OECD countries between 1965-95.

burden than small enterprises, suggesting that the former are more successful in avoiding taxes, possibly through tax planning and fiscal engineering (Nicodème, 2002).

89. **Taxation of capital income** (interest income, dividends, and capital gains), although relatively low in the EU, remains distortionary. While there is little evidence in the literature that taxes affect the aggregate level of savings, they may affect its composition and location. Many EU countries tend to grant favorable treatment to specific savings instruments, such as retirement schemes and housing investment. Moreover, they generally apply a preferential treatment to non-residents, thus distorting savings flows and potentially enhancing tax evasion possibilities associated with cross-border investment (OECD, 2001b; Joumard, 2002). The EU recently adopted a tax directive to exchange information between tax administrations on interest income paid to non-resident individuals (three countries will impose withholding taxes instead), aimed at reducing these distortions and tax evasion possibilities.

Broad reform options in the literature

90. Studies generally point to two complementary directions for reform to increase employment and growth. First, direct reforms to reduce institutional labor market rigidities (such as improving skill mismatches, increasing labor mobility, reducing high minimum wages, and widening wage differentials); and second, reforms of tax and benefit systems, especially with less than fully flexible labor markets (Zee, 1997; IMF, 2003).

91. In general, lowering the **tax burden on labor** while also reducing labor market rigidities may lead to increases in both labor supply and demand, thus boosting employment and growth (Joumard, 2002). However, for tax cuts to be seen as permanent and, thus, to have their desired effects on agent's behavior, reductions in the overall tax burden should—in cases where fiscal sustainability is in question—be matched with corresponding reductions in public expenditure. If the latter cannot be achieved, shifting the tax burden away from labor to other tax bases, such as consumption, in a revenue-neutral manner may in itself have positive employment effects (OECD, 1995; Zee, 1997; Tanzi and Zee, 1997 and 2000; Daveri and Tabellini, 2000; and European Commission, 2000). Specifically, key reform options include:

- Shifting the tax burden from payroll taxes to broader-based taxes, such as consumption taxes. This would broaden tax bases, since the consumption out of other income (capital, property, income transfers) would be taxed; remove the pressure on labor costs stemming from payroll taxes and contributions; reduce disincentives to work effort, to the extent that marginal rates are reduced; and indirectly reduce the taxation of savings, thus potentially encouraging capital accumulation;

- Introducing tax relief for employers of low-skilled and low-income workers to reduce labor costs for those categories, mainly through targeted reductions in employers' payroll taxes so as to reduce the high tax wedge faced by these categories of workers; and

- Addressing poverty and inactivity traps for low-income earners by reducing effective marginal tax rates. This can be done by directly lowering marginal tax rates for these income categories, increasing general deductions, or introducing income support schemes such as an earned income tax credit.

92. Some studies suggest that shifting taxes from labor to **consumption** (such as the VAT) could have a positive impact on growth, employment, and investment. Using a general equilibrium macroeconomic model (QUEST), the European commission (2000) estimated that such tax reform, with the shifting of 1 percent of GDP from labor taxes to the VAT, could increase the level of GDP by 0.4 percent after 10 years.[52] Other studies, however, suggest that the impact on employment and growth of such reform is likely to be moderate, especially if wages and social benefits are increased to compensate for the rise in consumption taxes (OECD, 1995).

93. Streamlining the **VAT** structure by minimizing exemptions and the scope for reduced rates is generally suggested as a way to reduce distortions. Using reduced VAT rates for social and redistributive purposes is an ineffective and costly instrument. Consumption patterns are not very differentiated across income classes, which means that high income consumers generally benefit as much as low-income ones from reduced rates, and even more so in absolute terms since they consume more. This makes such policies extremely untargeted and, consequently, costly to the budget. A more effective policy would be to target specific income or social groups with cash transfers (Ebrill, Keen, Bodin, and Summers, 2001).[53] Moreover, reducing VAT rates selectively to boost employment in labor-intensive sectors is also likely to be costly to the budget and moderately effective.[54] Finally, simplifying cross-border trade regimes for the VAT in the EU would reduce distortions, increase trade, and cut compliance costs.[55]

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[52] This is the least favorable simulation, whereby unemployed workers and other transfer recipients would be compensated for the increase in consumer prices. Without such compensation, GDP would rise by close to 0.7 percent. Moreover, a reduction in labor taxation by 1 percent of GDP without compensating increase in other taxes would yield an increase in GDP of 0.8 percent after 10 years.

[53] In the case of the United Kingdom, Fund staff estimated that only 11.5 percent of the implicit transfer induced by the zero-rating of food benefited the poorest 20 percent of the population, while 29 percent benefited the 20 percent of highest income earners (IMF, 2002b).

[54] Bourguignon and Bureau (1999), Conseil des Impôts (2001). The impact on employment of such VAT cuts is only indirect, via the demand effect of the price reduction for the selected goods and services. In contrast, targeted reductions in social security contributions would have, in addition to the indirect effect, a direct impact on factor prices leading to a substitution from capital into labor, and they would be less costly to the budget. An evaluation of country experiments confirmed these views (European Commission, 2003).

[55] The transitional VAT regime for cross-border trade, implemented since the elimination of customs controls between EU countries, is complex and applied non-uniformly across countries (for details, see Joumard, 2002, and Conseil des Impôts, 2001).

94. To improve the neutrality of **capital income taxation** with respect to different sources of income, several Nordic countries[56] moved toward a so-called *dual income tax* system in the early 1990s. Under this system, all capital income (interest income, dividends, and capital gains) and corporate profits are taxed at a low uniform, proportional rate, while labor income is taxed at higher, progressive rates. This is in contrast to a system of a *global income tax*, which taxes the sum of all types of income according to a single, progressive schedule, but taxes corporate income separately at lower rates. Thus, the dual income tax is deemed to ensure greater neutrality between capital and corporate incomes and reduce the opportunities for tax arbitrage between those types of income and across borders (Keen, 2003; and Cnossen, 1999).[57]

95. In the area of **corporate taxation**, reform options include improving the neutrality of taxation regarding various forms of corporate financing, in particular by reducing the tax advantage given to debt financing; eliminating double taxation of dividends; and streamlining special corporate tax regimes and relief to "level the playing field." A general lowering of corporate tax rates (possibly associated with a broadening of the base by reducing depreciation allowances, as done recently in Germany—see Keen, 2002) may contribute to minimizing the impact of existing distortions. In addition, simplifying administrative requirements and tax filing obligations for business may increase compliance and reduce costs, especially for small and medium-size enterprises.

B. The French Tax System: Stylized Facts and Issues

96. After reaching a high of 45.5 percent of GDP in 1999, tax revenue in France dropped below 44 percent of GDP in 2002. Social security contributions figured prominently as the main source of revenue, representing over 51 percent of total revenue (although the generalized social contribution (*CSG*) has many characteristics of a direct income tax and could be deducted from that figure). Local taxes were relatively marginal, representing only 11 percent of total (Table III.1).

97. Since the early 1990s, social security contributions increased steadily from 19.6 percent of GDP in 1990 to 22.5 percent of GDP in 2002, while taxes remained relatively stable around 23 percent of GDP on average. Following the tax cuts effected in 2000–02, however, tax revenue dropped to 21.4 percent of GDP, below social contributions (Figure III.1).

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[56] Finland, Norway, and Sweden.

[57] See also Sorensen (1994) and Cnossen (2000). On Finland, see Joumard and Suyker (2002). The main drawback cited against the dual income tax relate to the tax treatment of self-employed, for which it is difficult to distinguish between labor income and the return on capital.

Table III.1. France: Structure of General Government Revenue, 2002

	€ b.	In percent of GDP	In percent of total
Central government	242.1	15.9	36.3
Value-added tax	107.3	7.1	16.1
Excises on oil products (*TIPP*)	23.6	1.6	3.5
Personal income tax	45.6	3.0	6.8
Corporate income tax	40.1	2.6	6.0
Other [1]	25.5	1.7	3.8
Local government	75.6	5.0	11.3
Local business tax (*Taxe professionnelle*)	18.7	1.2	2.8
Real estate tax (*Taxe foncière*)	17.1	1.1	2.6
Housing tax (*Taxe d'habitation*)	9.5	0.6	1.4
Other [2]	30.3	2.0	4.5
Social security	342.8	22.5	51.3
Generalized social contribution (*CSG*)	63.3	4.2	9.5
Social contributions	250.3	16.5	37.5
Other [3]	29.2	1.9	4.4
European Union	7.1	0.5	1.1
Total	667.6	43.9	100.0

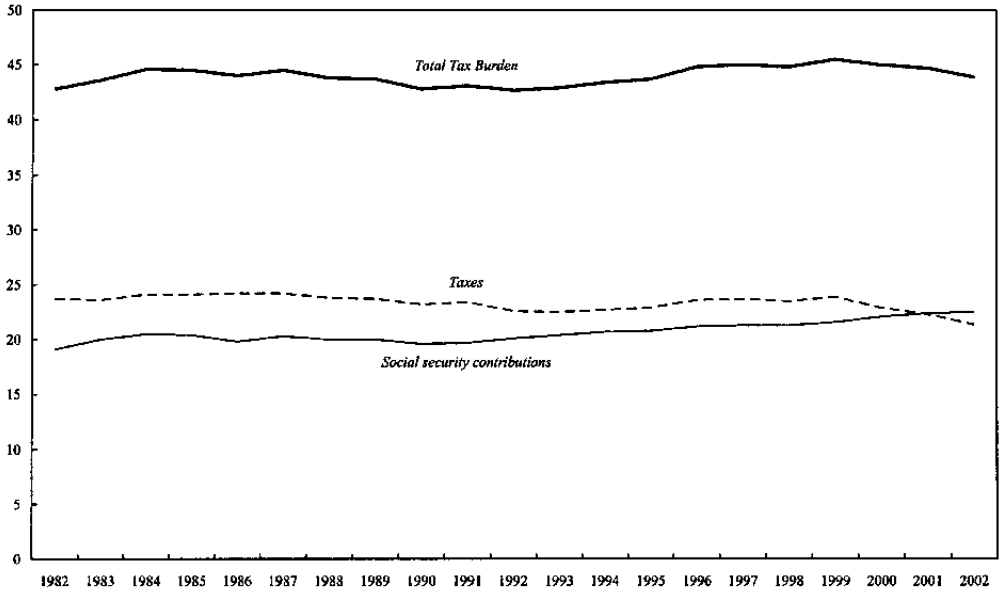
Source: Direction de la prévision; INSEE.

[1] Excluding tax transfers to local governments and social security.

[2] Mostly local indirect taxes and tax transfers from central government.

[3] Including "other central government institutions" which are mostly social security contributions.

Figure III.1. France: Tax Burden, 1982-2002
(In percent of GDP)

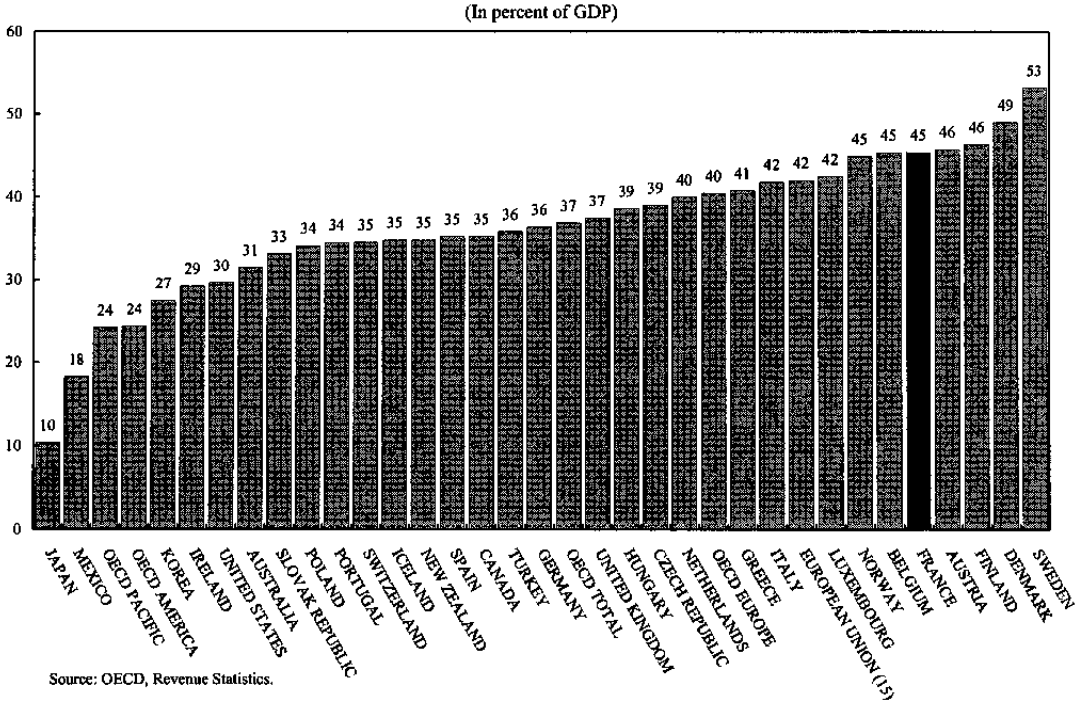


Source: Ministry of Economy and Finance, *Economic, Social, and Financial Report 2002*; and INSEE, April 2003.

Tax burden

98. **The tax burden in France is among the highest in the OECD.** After dropping to 42.7 percent of GDP in 1992, the tax ratio increased sharply during the second half of the 1990s, buoyed by economic growth, tax measures in the run-up to the third stage of the EMU, and the need to finance rising social security benefits and transfers, reaching an all-time high of 45.5 percent of GDP in 1999 (Figure III.1). Although it was reduced in 2000-02, the tax ratio remained much higher than the OECD average of 37 percent of GDP and even than the EU average of 42 percent of GDP in 2001 (Figure III.2).[58] To address this issue, the authorities engaged in several rounds of tax cuts over the period 2000-2003.

Figure III.2. France: General Government Total Tax Revenue, 2001
(In percent of GDP)



Source: OECD, Revenue Statistics.

Tax structure or tax mix

99. **The tax structure in France is dominated by social security contributions and, to a lesser extent, indirect taxes.** These account for about 40 percent and 34 percent of total tax revenues, respectively (Table III.2).[59] In contrast, the share of direct taxes on households and businesses (20 percent and 6 percent of total, respectively) is relatively low compared to other OECD countries.

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[58] In comparing tax burdens across countries, it should be noted that a higher tax burden usually reflects greater public provision of goods and services or larger transfers. In France, state-provided social security services are relatively high.

[59] In the OECD classification, the *CSG* is considered a direct tax on households, not a social security contribution, presumably because its base is broader than only wages.

Table III.2. France: Structure of General Government Revenue in Selected OECD Countries, 2003 (Projections)
(In percent of total)

	Social security contributions	Indirect taxes	Direct taxes on business	Direct taxes on households	Total
France	**39.7**	**33.7**	**6.4**	**20.2**	**100.0**
Austria	37.0	32.1	5.1	25.8	100.0
Belgium	34.2	28.0	7.6	30.3	100.0
Canada	15.0	39.0	10.1	36.0	100.0
Czech Republic	42.5	31.1	12.5	14.0	100.0
Denmark	5.4	35.0	4.7	54.9	100.0
Finland	29.0	29.9	8.2	32.9	100.0
Germany	45.0	28.4	1.6	25.0	100.0
Iceland	8.9	45.7	3.4	42.0	100.0
Ireland	17.9	42.5	14.0	25.5	100.0
Italy	30.7	34.8	5.8	28.7	100.0
Japan	41.0	30.1	11.6	17.3	100.0
Korea	17.4	53.2	12.6	16.8	100.0
Netherlands	36.0	33.3	10.7	20.0	100.0
New Zealand	4.6	37.5	16.0	42.0	100.0
Norway	22.1	31.6	18.9	27.3	100.0
Poland	40.6	39.2	6.4	13.8	100.0
Portugal	33.0	40.8	10.5	15.7	100.0
Slovak Republic	38.3	41.7	10.6	9.4	100.0
Spain	38.8	32.1	9.2	19.9	100.0
Sweden	31.2	29.6	5.5	33.6	100.0
United Kingdom	21.1	36.4	8.5	34.0	100.0
United States	25.9	27.8	7.6	38.7	100.0
Turkey	0.0	64.8	7.0	28.2	100.0
Average OECD (unweighted)	**27.3**	**36.6**	**8.9**	**27.2**	**100.0**
Euro Area	**38.3**	**32.1**	**5.7**	**23.9**	**100.0**

Source: OECD, Analytical database (December 2002).

Taxation of labor, capital, and consumption[60]

100. **The French tax system is characterized by the high taxation of labor.** France's effective tax rate on labor (LETR) is estimated by the European Commission at close to 42 percent in 2001, much higher than in the EU (36 percent) and in the United States and

[60] Effective tax rate calculations are subject to methodological differences, which may lead to differing results. In particular, the definition of effective tax rates is not settled in the literature, and their calculation faces various data limitations and practical problems, such as the difficulty to attribute some tax categories to the labor and capital factors. This paper considers mainly the comprehensive and recent calculations published by the European Commission (2000) and Martinez-Mongay (2000) on one hand, and Carey and Rabesona (2002) from the OECD Secretariat on the other hand. Earlier studies include Mendoza, Razin, and Tesar (1994), Carey and Tchilinguirian (2000), and OECD (2001a).

Japan (24 percent and 21 percent, respectively).[61] Although these rates declined in 2000-01, the differential between France and other countries remained. About 68 percent of the LETR is due to non-wage labor costs (social security contributions and other payroll taxes) and the remaining 32 percent to personal income taxes. As a result, while non-wage labor costs are as high as 32 percent of total labor costs in France, they are only 24 percent on average in the EU and as low as 11 percent in the United States in 2001 (Table III.3). Alternative calculations by the OECD Secretariat for the overall period 1990-2000 yield broadly similar conclusions (Table III.4). At 40½ percent, the effective taxation of labor in France was higher than on average in the EU (38 percent) and much higher than in the OECD (32 percent).[62]

Table III.3. France: Effective Tax Rates in the European Union, 2001
(In percent)

	Non-wage labor costs paid by employers	Non-wage labor costs	Effective tax rate on labor (LETR)	Effective tax rate on capital (KETR)	Tax rate on consumption (CITR)	Total tax wedge on labor
European Union						
France	**22.5**	**31.9**	**41.8**	**21.8**	**23.9**	**55.7**
Austria	13.2	26.2	39.3	17.3	24.1	54.0
Belgium	19.0	25.5	43.6	23.5	20.8	55.3
Denmark	1.1	6.1	43.0	29.0	29.6	59.9
Finland	20.7	23.4	42.8	24.3	24.9	57.0
Germany	17.4	31.1	42.0	14.8	18.4	52.7
Greece	18.1	23.5	29.3	17.8	20.8	44.1
Ireland	7.7	11.2	22.6	19.5	24.7	41.7
Italy	22.4	23.1	35.1	25.4	22.9	50.0
Luxembourg	9.8	20.9	30.4	32.2	26.7	49.0
Netherlands	5.2	25.0	32.9	23.3	20.2	46.5
Portugal	15.5	20.5	28.7	26.0	23.8	45.7
Spain	17.7	21.9	30.0	18.5	18.3	42.8
Sweden	20.2	28.4	50.6	27.3	24.2	62.5
United Kingdom	7.1	11.9	24.7	34.0	18.4	38.6
Euro Area (EU-11)	**18.5**	**27.5**	**38.5**	**20.0**	**21.2**	**51.5**
European Union (EU-15)	**16.1**	**24.2**	**36.2**	**23.0**	**20.9**	**49.5**
Other countries						
Japan	10.4	17.4	21.3	17.6	13.8	32.1
United States	6.3	11.3	23.9	22.9	9.1	30.8

Sources: Martinez-Mongay (2000), European Commission (2000).

[61] The LETR is the ratio of employers' and employees' social security contributions (and other payroll taxes) and personal income taxes on labor income over total labor income, as calculated in European Commission (2000) and Martinez-Mongay (2000).

[62] Carey and Rabesona (2002).

101. **Estimates of effective taxation of consumption vary**. It is estimated by the European Commission at 24 percent in 2001, much higher than the EU average of 21 percent (Table III.3).[63] In contrast, the OECD estimates this tax to be only 15 percent on average over 1990-2000, lower than the EU average of 18 percent, but close to the average in the OECD of about 16 percent (Table III.4). The OECD data suggests that there is room for increasing taxes on consumption.

Table III.4. France: Effective Tax Rates in Selected OECD Countries, Average 1990-2000
(In percent)

	Capital	Labor	Consumption	Labor and Consumption
European Union				
France	**33.2**	**40.5**	**15.1**	**51.3**
Austria	24.3	39.6	16.2	51.2
Belgium	32.7	41.3	15.0	51.7
Denmark	39.5	39.9	20.6	56.0
Finland	26.0	45.0	18.7	58.0
Germany	21.2	35.0	13.4	44.9
Greece	12.9	34.9	15.5	46.5
Ireland	...	26.3	21.2	41.9
Italy	31.0	37.7	13.9	47.9
Netherlands	32.7	36.4	18.0	47.9
Portugal	17.6	23.9	19.9	39.0
Spain	20.0	30.7	14.5	40.8
Sweden	35.7	49.6	19.8	59.6
United Kingdom	34.0	22.6	15.7	34.8
European Union (EU-15) [1]	**28.7**	**38.0**	**17.8**	**48.9**
Other countries				
Japan	27.9	24.1	6.4	29.4
Norway	24.7	36.2	25.7	52.5
United States	27.3	23.4	6.4	28.3
OECD Total [1]	**28.1**	**32.3**	**15.7**	**42.6**

Source: OECD, Carey and Rabesona (2002).

[1] Unweighted average.

[63] The tax rate on consumption (CITR) is the ratio of indirect taxes over final private and public consumption (excluding government wages).

102. **Capital taxation in France is estimated to be at or above the EU average.** While the European Commission estimates the effective tax rate on capital in France at 22 percent, slightly lower than the average in the EU and in the United States (23 percent) (Table III.3),[64] the OECD finds higher values for France (33 percent) than on average in the EU (29 percent) (Table III.4). This would suggest that there may be room for reducing taxes on capital income.

103. **The combination of high taxes on labor and consumption leads to a large total tax wedge on labor income.** The total tax wedge on labor income, resulting from wages being taxed directly and indirectly (through consumption), is estimated by the European Commission to reach close to 56 percent in 2001—much higher than the EU average of 50 percent, and than the United States at 31 percent. In fact, France has among the highest labor tax wedges in the EU, topped only by Sweden, Denmark, and Finland (Table III.3). Similar results are found by the OECD with total labor and consumption taxation reaching 51 percent in France, against 49 percent on average in the EU and 43 percent in the OECD (Table III.4).

104. **Employers face very high non-wage costs on labor.** Non-wage labor costs (social security contributions and other payroll taxes) paid by employers represent 22.5 percent of total compensation of employees, the highest rate in the EU with an average of 16 percent (Table III.3).

105. **Micro-simulations of the tax wedge on labor income suggest broadly similar conclusions.** Table III.5 presents average and marginal tax wedges on labor income calculated for an average worker in the manufacturing sector earning the average gross wage (OECD, 2003a). The average labor tax wedge is much higher in France than on average in EU and OECD countries for single as well as for married wage earners (48 percent of gross labor costs in France against 41 percent in the EU for a single worker; 39 percent against 29 percent in the EU for a married couple with two children and one wage earner; and 40 percent against 34 percent for a married couple with two children and two wage earners). The difference with the EU is less striking, however, with respect to the marginal labor tax wedge (it is even lower in France than in the EU for a married couple with two children and one income earner).

Marginal effective tax rates

106. **France's marginal tax rates on labor income are close to the EU average** (about 50 percent of total labor costs for revenues up to 167 percent of the average production wage, Table III.5). High income earners, however, face higher marginal rates, mainly due to the

[64] The effective tax rate on capital is the ratio of corporate and property taxes, as well as the share of personal income taxes attributable to capital, over the adjusted gross operating surplus, as calculated in EC (2000) and Martinez-Mongay (2000). Interestingly, the tax burden on capital income is not very different across OECD countries, presumably because of competition over capital taxation resulting from international capital mobility. Similarly, consumption taxes have tended to converge within the EU, probably caused by VAT harmonization efforts (Martinez-Mongay, 2000).

sharp progressivity of the personal income tax, which has a maximum rate of close to 50 percent (plus 8 percent for the *CGS* and the *CRDS*), and the absence of ceilings on health insurance contributions (Debonneuil and Fontagné, 2003; OECD, 2001c and 2003b). These high marginal tax rates may induce a reduced labor supply, in addition to tax avoidance or relocation decisions.[65] In addition, wealthy individuals face an annual tax on their net wealth.

Table III.5. France: Average and Marginal Tax Wedge in Selected OECD Countries, 2002 [1]
(In percent of labor costs)

	Average Labor Tax Wedge				Marginal Labor Tax Wedge			
	Single, no children	Single, no children [2]	Married, 2 children 1 income earner	Married, 2 children 2 income earners [3]	Single, no children	Single, no children [2]	Married, 2 children 1 income earner	Married, 2 children 2 income earners [3]
European Union								
France	**47.9**	**50.5**	**39.2**	**39.9**	**52.5**	**54.0**	**43.9**	**50.0**
Austria	44.8	50.0	29.6	34.4	55.6	61.1	55.6	55.6
Belgium	55.3	61.1	40.1	48.5	66.4	70.1	63.4	66.7
Denmark	43.4	51.2	30.9	38.4	62.9	62.9	57.4	62.9
Finland	45.4	51.2	38.5	39.3	56.6	61.1	56.6	56.6
Germany	51.3	55.8	32.5	43.0	64.5	49.6	58.7	61.7
Greece	34.7	40.2	35.1	34.8	44.1	54.0	44.1	44.1
Ireland	24.5	34.4	9.0	16.9	33.2	50.0	33.2	33.2
Italy	46.0	49.9	34.0	41.8	54.2	59.0	54.2	54.2
Luxembourg	31.5	39.0	9.0	15.4	44.8	52.6	24.4	38.5
Netherlands	35.6	40.4	25.2	32.6	50.9	52.0	50.9	50.9
Portugal	32.5	38.0	23.4	27.1	39.4	47.5	37.8	37.8
Spain	38.2	41.9	31.4	34.7	45.8	48.9	41.2	45.8
Sweden	47.6	52.0	40.5	42.7	49.5	62.7	49.5	49.5
United Kingdom	29.7	32.9	18.2	22.4	39.2	30.2	72.6	39.2
European Union (EU-15) [4]	**40.6**	**45.9**	**29.1**	**34.1**	**50.6**	**54.4**	**49.6**	**49.8**
Other countries								
Japan	24.2	27.1	20.3	22.6	29.0	37.4	26.3	26.3
Norway	36.9	43.5	27.2	31.4	43.1	55.1	43.1	43.1
United States	29.6	35.2	17.6	25.0	34.3	45.4	53.9	34.3
Total OECD [4]	**35.9**	**40.8**	**25.9**	**30.8**	**44.6**	**49.6**	**45.9**	**44.1**

Source: OECD (2003).

[1] Income tax plus employee and employer contributions less cash benefits, for wage earners at the income level of the average production worker.

[2] 167 percent of the average production wage.

[3] The second earner's income level is two-thirds of that of the average production worker.

[4] Unweighted average.

107. **Certain combinations of taxes and benefits induce high marginal effective rates of taxation for low-income households.** High METRs may lead to strong disincentives to work and "inactivity traps" for certain groups, in particular low-wage and older workers, as

[65] Piketty (1999), however, finds a low tax-elasticity of labor supply for very high income earners, although empirical estimates are subject to considerable limitations.

well as spouses of low-income earners.[66] Although several reforms implemented before 2000 (in particular, reductions in the *CSG* for low-income workers) have reduced some cases of high METRs, they have not succeeded in eliminating all of them (Mahfouz, 2000).

108. **Reforms in benefits, as well as the introduction of the earned-income tax credit (*prime pour l'emploi*) in 2001 have contributed to reducing high METRs for low-income earners.** Successive reforms to the minimum income support scheme (*RMI*) and to the housing subsidy have succeeded in removing a great deal of inactivity traps. In particular, METRs of 100 percent and over seem to have disappeared, although METRs remain high in some cases and time horizons, particularly for benefit recipients seeking part-time employment (Hagneré and Trannoy, 2001). Incentives to work remain low for some categories, such as single mothers with children, because their benefits are high and their potential wages are low (Gurgand and Margolis, 2001). Nevertheless, by supplementing the income of low-wage workers, recent reforms may have potentially stimulated labor supply and, by moderating wage pressures, stimulated labor demand as well (OECD, 2001c).[67]

Corporate taxation

109. **Corporate income taxation is high.** Estimates by the European Commission (2001) suggest that France, with a rate of 33 percent, had the highest effective marginal rate in the EU in 1999, and, at over 37 percent, the second-highest average rate after Germany (Table III.6). High corporate tax rates may have powerful negative effects on incentives to invest and, thus, on growth.[68] Other calculations by Devreux, Griffith, and Klemm (2002), however, suggest that marginal and average effective tax rates in France are broadly in line with the major EU and OECD countries (Table III.7). These results may reflect, in part, the reductions in the statutory corporate tax rate implemented in France in 2001.

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[66] Bourguignon and Bureau (1999) found METRs of over 100 percent for households around the minimum wage (*SMIC*) in 1994.

[67] Crépon and Desplatz (2001) find that the policy of lowering social security contributions for low-earning workers, initiated in 1993, increased employment by 2.6 percent annually in the industrial sector and by 3.4 percent in the tertiary sector, corresponding to about 460,000 jobs created or maintained between 1994-97.

[68] France applies an imputation system that avoids double taxation of distributed profits, with a view to reducing the bias against equity financing of corporate investment. In this system, dividend recipients are granted a tax credit corresponding to the corporate tax on distributed profits. This does not, however, ensure full neutrality with respect to cross-border investment flows, since imputation credits are not systematically transferable abroad (OECD, 2001b; Zee, 2002). Moreover, Germany, Italy, and the United Kingdom recently abandoned the imputation system for a reduction in both corporate and personal income tax rates on dividends (Keen, 2002 and 2003).

Table III.6. France: Statutory and Effective Tax Rates on Corporations in the EU, 1999 [1]
(In percent)

	Statutory corporate tax rate	Effective marginal tax rate (EMTR)	Effective average tax rate (EATR)	
			EC (2001)	TKHC (2003)
France	**40.0**	**33.2**	**37.5**	**47.5**
Austria	34.0	20.9	29.8	38.4
Belgium	40.2	22.4	34.5	44.5
Denmark	32.0	21.9	28.8	36.8
Finland	28.0	19.9	25.5	32.4
Germany	52.4	31.0	39.1	57.7
Greece	40.0	18.2	29.6	43.3
Ireland	10.0	11.7	10.5	13.0
Italy	41.3	-4.1	29.8	34.0
Luxembourg	37.5	20.7	32.2	38.3
Netherlands	35.0	22.6	31.0	40.0
Portugal	37.4	22.5	32.6	42.0
Spain	35.0	22.8	31.0	40.0
Sweden	28.0	14.3	22.9	31.0
United Kingdom	30.0	24.7	28.2	35.7
European Union (EU-15)	**34.7**	**20.2**	**29.5**	**38.3**

Sources: European Commission, 2001, Tables 7 and 8; Thakur, Keen, Horvath, and Cerra (2003).

EMTR: Effective tax rate on a marginal investment earning a normal after-tax real rate of return of 5 percent.
EATR: Effective tax rate on a profitable (infra-marginal) investment with a pre-tax real rate of return of 20 percent.

[1] Only corporation taxes, including surcharges and local taxes.

Table III.7. France: Statutory and Effective Tax Rates on Corporations in Selected OECD Countries, 2001 [1]
(In percent)

	Statutory corporate tax rate	Effective marginal tax rate (EMTR)	Effective average tax rate (EATR)
France	**36.4**	**20.8**	**29.9**
Austria	34.0	17.4	27.0
Belgium	40.2	25.6	34.0
Canada	34.6	24.0	30.0
Finland	29.0	19.5	24.8
Germany	38.3	28.3	33.9
Greece	37.5	27.7	33.2
Ireland	10.0	6.6	8.4
Italy	40.3	9.2	28.6
Japan	40.9	31.8	36.9
Netherlands	35.0	24.3	30.3
Portugal	35.2	20.3	28.9
Spain	35.0	29.5	32.5
Sweden	28.0	16.1	22.8
United Kingdom	30.0	20.3	25.7
United States	39.3	23.8	32.8
Average (unweighted)	**34.0**	**21.6**	**28.7**
EU countries (unweighted)	**33.0**	**20.4**	**27.7**

Source: Institute for Fiscal Studies; Devereux, Griffith, and Klemm (2002).

EMTR: Based on an investment in plant and machinery, financed by equity or retained earnings.
No economic rent. Real discount rate 10 percent. EATR: Economic rent and real discout rate 10 percent.

[1] Only corporation taxes, including local taxes.

Value-added taxation

110. **The standard VAT rate in France (19.6 percent) corresponds exactly to the average in the EU, but is higher than the average in the OECD (17.6 percent).** The reduced rates (2.1 percent and 5.5 percent) are lower, however, than in most EU countries, and the difference with the standard rate is rather large, implying significant losses for the budget (Table III.8).

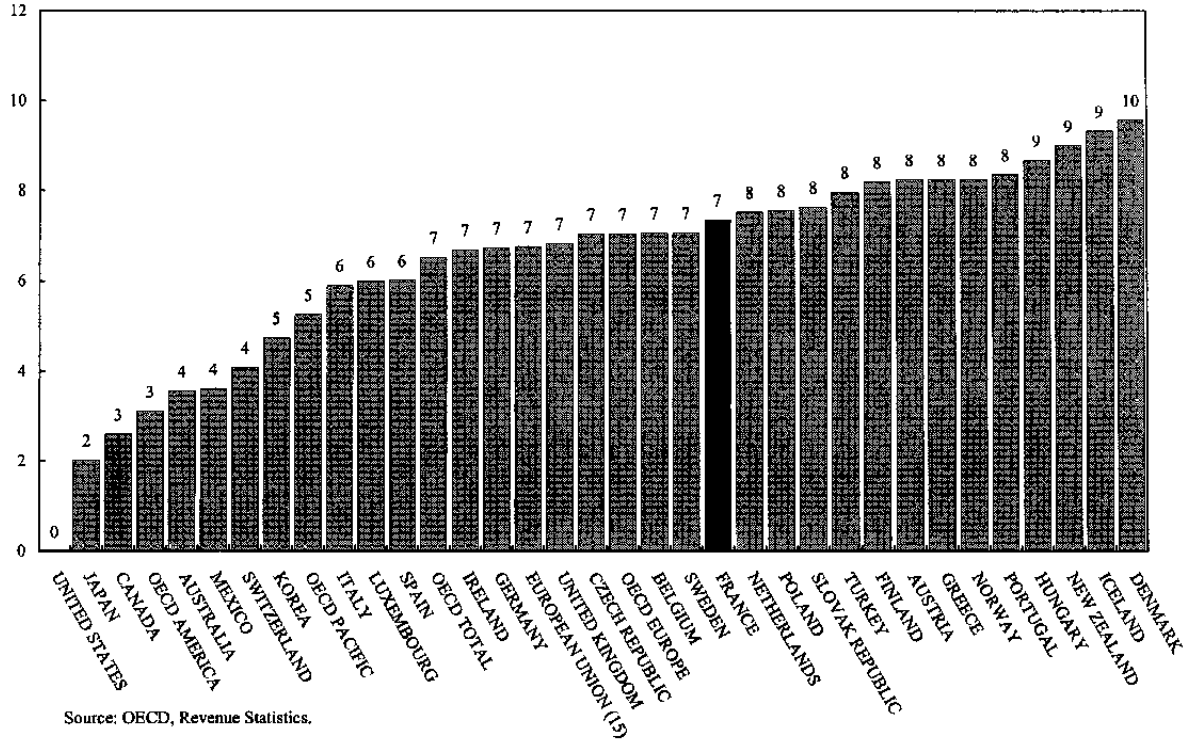
Table III.8. France: VAT Rates in the EU and OECD Countries, 2002
(In percent)

	Standard Rate	Other Rates
European Union		
France	**19.6**	**2.1; 5.5**
Austria	20	10; 12
Belgium	21	6; 12
Denmark	25	--
Finland	22	8; 17
Germany	16	7
Greece	18	4; 8
Ireland	21	4.3; 12.5
Italy	20	4; 10
Luxembourg	15	3; 6; 12
Netherlands	19	6
Portugal	17	5; 12
Spain	16	4; 7
Sweden	25	6; 12
United Kingdom	17.5	5
European Union (EU-15)	**19.5**	--
Euro Area (EU-12)	**18.7**	--
Selected OECD countries		
Australia	10	--
Canada	7	--
Czech Republic	22	5
Hungary	25	12
Japan	5	--
New Zealand	12.5	--
Norway	24	7; 12
Poland	22	3; 7
Switzerland	7.6	2.4; 3.6
Turkey	18	1; 8; 26; 40
Total OECD	**17.6**	--

Source: European Commission, OECD, and IMF Staff.

111. **While still high, the yield of the VAT has steadily eroded over time.** With VAT revenues at 7.4 percent of GDP in 2001, France is only slightly above the average in the EU and the European countries of the OECD (6.8 and 7.0 percent of GDP, respectively), and many OECD countries have higher yields, up to 10 percent of GDP in Denmark (Figure III.3). Revenue from the VAT fell further to 7.1 percent of GDP in 2002. Moreover,

Figure III.3. France: VAT Revenue, 2001
(In percent of GDP)

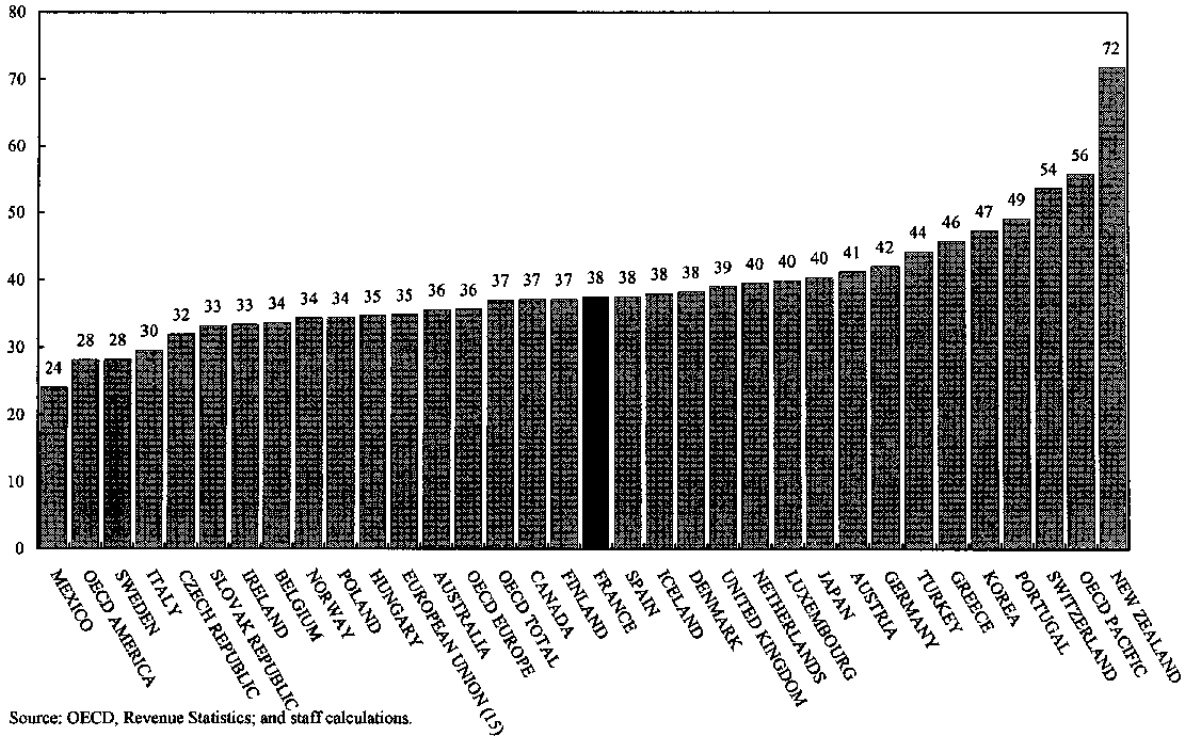


Source: OECD, Revenue Statistics.

the efficiency ratio of the French VAT is not exceptionally high at about 38 percent, indicating the widespread use of reduced rates, exemptions and, possibly, collection inefficiencies (Figure IV.4).[69] Finally, France is one of the few EU countries to have seen its VAT revenue-to-GDP ratio decline since 1980 (Figure IV.5). This was the result of successive rate cuts, the elimination of the augmented rates, and the extension of exemptions. In particular, the standard rate was reduced by 1 percentage point in 2000 and the coverage of the reduced rate was extended to renovations and repairs of private dwellings, domestic care services, and cleaning services in private households (at a budgetary cost estimated at about 0.6 percent of GDP).

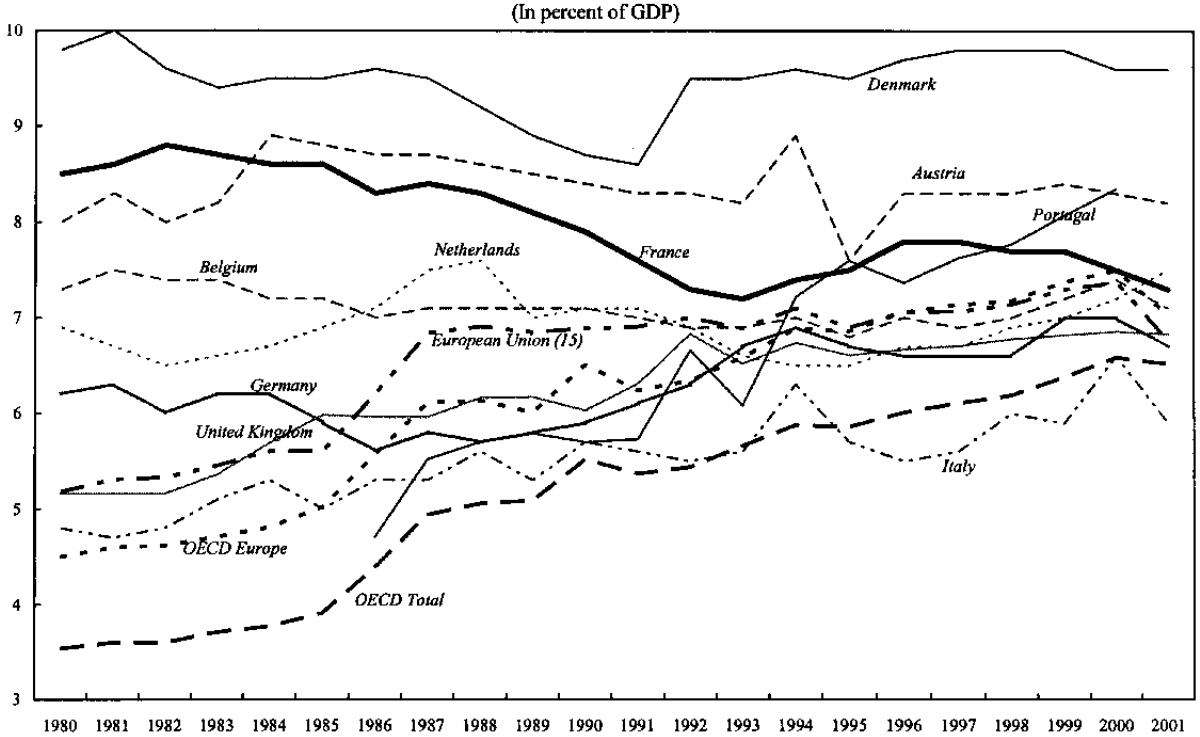
[69] The VAT efficiency ratio is calculated here as the ratio of VAT revenue-to-GDP over the normal VAT rate. It indicates how much 1 point of VAT rate yields as a percentage of 1 point of GDP. A ratio of 100 percent could be interpreted as the VAT fully taxing its GDP base, but could also mean that inefficient tax cascading is increasing the yield of the tax. Since consumption is the base of the VAT, total consumption could be used instead of GDP, but results for France would be similar (see OECD, 2001b).

Figure III.4. France: VAT Efficiency Ratio, 2001
(In percent)



Source: OECD, Revenue Statistics; and staff calculations.

Figure III.5. France: VAT Revenue in Selected OECD Countries, 1980-2001
(In percent of GDP)



Source: OECD Revenue Statistics, 2002

Local taxes

112. **France levies two unusually-designed local taxes which yield low revenues** (1.8 percent of GDP in 2002). First, local governments levy a tax on businesses (*taxe professionnelle*) based on the rental value of commercial and industrial buildings and equipments and, until 2003, part of the payroll of the company. Rates vary between municipalities, and the tax is levied regardless of the actual turnover or profits of the enterprise. Because this tax is capped, increasing amounts have been covered by the central government (over 60 percent of total revenue of the tax). Second, local governments levy a housing tax (*taxe d'habitation*), which is due by individuals based on the notional rental value of the occupied dwelling, with numerous deductions depending on the family situation and varying rates between municipalities.

113. **Real estate taxation is moderate but on the high side of the OECD average.** Real estate taxes (*taxe foncière*), which are collected by local governments, yielded only 1.1 percent of GDP in 2002. In contrast, real estate taxes represented 3.3 percent of GDP in the United Kingdom and 2.6 percent of GDP in the United States, while the average in the OECD was below 1 percent of GDP.

Tax administration

114. **The tax system is managed by several administrations and entails heavy administrative requirements for taxpayers.** Direct taxes and social contributions are assessed and collected through various administrations and channels. Social security contributions (including the *CGS* on wages) are collected from employers by a specialized semi-public agency (*URSSAF*); personal and (until 2003) corporate income taxes are assessed by the tax administration (*DGI*) but collected by a separate unit, the public accounting administration (*DGCP*); and the VAT is managed entirely by the *DGI*. Taxable bases, procedures, and filing periods vary across taxes. Unlike most EU countries which withhold most personal income taxes at source, in France only the *CSG* and social contributions are withheld at source. Filing under the PIT is mandatory for every resident, even if there is no tax liability, making this tax costly to administer, while being subject to considerable collection lags. Finally, the tax code is complex and difficult to understand for both taxpayers and the tax administration (Conseil des Impôts, 2002).

Progressivity of the tax system

115. **The French tax system is considered fairly progressive.** While this paper does not deal with the equity of the tax system, this remains an important consideration. In this regard, the VAT and social security contributions are considered more or less proportional, while direct income taxes are somewhat progressive (Bourguignon and Bureau, 1999), although the small yield of the personal income tax limits its redistributive impact.

C. Recent Tax Policy Reforms

116. This section summarizes the main tax reforms implemented in France during the period 2001–2003.[70]

- **Personal Income Tax (PIT):** The rates of the PIT were reduced by the previous government by 1.25 to 3 percentage points between 1999 and 2002, corresponding to reductions of about 2 to 29 percent. During that period, the highest rate was reduced from 54 percent to 52.75 percent, and the lowest rate from 10.5 percent to 7.5 percent. The current government extended these reductions by cutting all rates by another 5 percent in 2002 and by 1 percent in 2003, bringing down the highest rate to 49.58 percent and the lowest rate to 7.05 percent in 2003 (Table III.9). Income taxes will be cut by another 3 percent in 2004.

Table III.9. France: Personal Income Tax Rates, 1999-2003 [1]

Taxable income (in €) [2]	Marginal tax rate (In percent)					
	1999	2000	2001	2002		2003
				Initial	After 5% red.	
Lower than 4,191	0	0	0	0	0	0
Up to 8,242	10.5	9.5	8.25	7.50	7.13	7.05
Up to 14,506	24.0	23.0	21.75	21.00	19.95	19.74
Up to 23,489	33.0	33.0	31.75	31.00	29.45	29.14
Up to 38,218	43.0	43.0	41.75	41.00	38.95	38.54
Up to 47,131	48.0	48.0	47.25	46.75	44.41	43.94
Over 47,131	54.0	54.0	53.25	52.75	50.11	49.58

Source: Ministry of Economy and Finance.

[1] On income from the previous year.

[2] Brackets for 2001 onward.

- Despite these high marginal rates, the average rate faced by the top decile of taxpayers is only 12 percent, owing to the large deductions equal to 28 percent of net income, up to a ceiling,[71] and the system of *quotient familial* limiting the impact of progressive rates for couples and families. Only about half of taxpayers have a positive tax due. Nevertheless, the PIT remains quite progressive, with the 10 richest

[70] For earlier reforms, see Mahfouz (2000) and OECD (2001c).

[71] This deduction results from the combination of a 10 percent lump-sum deduction for employment expenses (*déduction forfaitaire*) and a 20 percent supplemental deduction (*abattement*).

percent of taxpayers contributing 73 percent of total collections in 2002[72] while earning about 30 percent of total income.[73]

- **The earned income tax credit** (*PPE*) was introduced in 2001 and benefited about 8.5 million taxpayers in 2002. The *PPE* is a refundable tax credit for low-income workers. Benefits are maximum for workers earning the minimum wage (*SMIC*) and decrease as revenues increase up to twice the *SMIC*. Benefits under the *PPE* were increased in 2002 and in 2003, and modified to address the bias against part-time work, bringing its total cost to about 0.2 percent of GDP. Although this scheme is smaller than similar programs in the United Kingdom and the United States, it is fairly well-targeted and may create less disincentive effects on labor market participation for secondary earners that these programs entail, because both earners can claim the *PPE* (Detragiache, 2001).

- **Corporate income tax (CIT):** The 10 percent surcharge on the CIT, introduced in 1995, was eliminated in three stages between 2001 and 2003, bringing its rate back to the statutory rate of 33⅓ percent. However, changes in the rules for the taxation of dividends between subsidiaries will increase slightly the corporate tax burden in 2003.

- **Local business tax:** The gradual elimination of wages from the tax base of the *taxe professionnelle*, initiated in 1995, was achieved in 2003.

- **Social security contributions** were cut for workers earning wages below 1.8 times the *SMIC*, starting progressively in 2001, to reduce labor costs and encourage job creation, particularly among the low-skilled. They will be cut further to compensate for part of the increase in the minimum wage.

- A reform of the **tax administration** aimed at transferring the tax collection function from the *DGCP* to the *DGI* was attempted in 2000 but canceled due to opposition from unions and local governments. Smaller scale reforms were implemented instead to coordinate the activities of the *DGI* and the *DGCP*, resulting in the transfer, in 2003, of the collection of the CIT to the *DGI* in 2003. Another positive step was the creation of a large taxpayer unit (*DGE*) in 2002 covering about 23,000 taxpayers (accounting for about 25 percent of VAT collections and 45 percent of corporate income tax revenues) and offering a one-stop window for companies with respect to their VAT and CIT obligations.

117. **All in all, reforms in 2001-03 have succeeded somewhat in reducing the tax burden.** The tax burden is estimated to have declined by 1.2 percentage points of GDP between 2000 and 2003.[74] Further modest reductions are envisaged over 2004–06.

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[72] Ministry of Economy and Finance, *Economic and Financial Report 2002*.

[73] Bourguignon and Bureau (1999).

[74] Ministry of Economy and Finance, *Economic Perspectives 2003-04*, March 2003.

D. Reform Options

118. Reducing the absolute and marginal tax burdens is likely to spur growth provided tax cuts are seen as credible, thus accompanied by expenditure reduction. Nonetheless, efficiency gains could be had from altering the overall tax structure, mainly away from labor and toward consumption. Such reforms would be most effective to increase employment and growth if accompanied by overall labor market reforms aimed at reducing institutional rigidities.

119. The previous sections highlighted several stylized facts and issues regarding the French tax system. The overall tax burden is high and in particular weighs heavily on labor. Marginal tax rates on labor are higher than the OECD average, but close to the EU for average wage earners; however, marginal effective tax rates remain high for low- as well as for high-income earners. Capital taxation and corporate taxes are higher or close to the EU average. Revenue from the VAT is not particularly high and has been eroding over time. Finally, local governments levy two atypical taxes yielding low revenues.

120. Against this background, it appears that consideration should be given to tax reforms along the following lines: (i) shifting from labor to consumption taxation; (ii) continuing to selectively reduce taxes on low and high-income earners; (iii) improving the yield and efficiency of the VAT; (iv) reducing corporate taxation; and (v) eliminating low yielding and costly local taxes, to be replaced by more efficient revenue sources. In addition, administrative reforms and simplifications could reduce compliance costs and potentially improve tax revenues while reducing government collection costs.

Rebalancing the tax burden from labor to consumption

121. **Rebalancing the tax structure away from taxes on labor and toward taxes on consumption may have the potential to raise the level of output in the medium term.** A shift in the tax mix may alleviate pressures on labor costs (to the extent that firms are unable to resist wage pressures associated with taxes on wages) and, thus, increase labor demand, employment, investment and growth. Reducing the marginal labor tax wedge may improve incentives to work and participate in the labor market, eventually increasing labor supply. Finally, taxing consumption may broaden the tax base, since income from other sources than labor (i.e., capital, property, pension benefits and other income transfers) would be taxed through consumption, thus reducing distortions against labor (despite the equivalence, in an inter-temporal setting, between taxing wages and taxing consumption).

122. **Switching part of the tax burden from labor to consumption could be implemented by reducing social security contributions while simultaneously increasing the VAT or the *CSG* in a revenue-neutral way.** As noted in Section B, there may be some room for moderate increases in the VAT rate, which currently is not above the average in the EU. The financing of social security could be decoupled from exclusive reliance on wage contributions, and instead would be financed in part by general taxation.[75] If a tight budget

[75] This would partially sever the link between social security benefits and direct contributions, which may be seen as insurance rather than taxation. However, in a system with pay-as-you-go pension

(continued)

constraint on social security spending is of order, contributions could be replaced by a fixed number of points of VAT, specifically allocated to social security.[76] An alternative would consist in increasing the *CSG* while lowering regular social security contributions, since the former has a broader taxable base that includes non-wage incomes.

Reforming direct income taxation

123. **Continuing to selectively reduce marginal rates of income taxes or social contributions would improve incentives to increase labor supply,** especially if the cuts are targeted in favor of low- and high-income earners which have a relatively high income-elasticity in their labor supply. The policy of targeted rebates on social security contributions for low-skilled workers, which may have reduced labor costs for these categories, could be maintained though its cost-effectiveness from a budgetary perspective should be established.

124. **The wide difference between marginal and average effective tax rates of the PIT points to the need for a comprehensive overhaul of this tax.** As noted earlier, the top marginal rate is as high as 50 percent but the average rate for the top decile is only 12 percent, suggesting a large disincentive effect accompanied by small tax collections. While the authorities have cut PIT rates considerably over the past few years, more could be done to reduce marginal rates while broadening the tax base—which would involve restructuring the tax schedule and reducing deductions. Lowering PIT rates, by reducing the taxation of capital income, would also increase savings incentives.

125. **Consideration should be given to integrating the PIT and the *CSG* into a unified personal income tax.** In principle, both taxes share broadly the same income base—although the PIT base is significantly reduced by various deductions and is based on the previous year's income—and unification would simplify the tax system. The PIT and the *CSG* could be integrated into a single tax comprising a unified tax schedule, with a proportional base rate and a progressive component, and a unified tax base—preferably the broad base of the *CSG*. The integrated tax could be based on the current year's income, and withheld at source. However, because the *CSG* is currently earmarked to financing social security, its integration with the PIT would require an overhaul of the relations between the government budget and the various social security institutions.

Improving the yield and efficiency of the VAT

126. **Streamlining the VAT would greatly reduce distortions, cut compliance costs, and facilitate international trade.** The French VAT is not particularly buoyant because of its reduced rates and exemptions. Best practices suggest that the VAT should be used

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contributions with defined benefits and health care contributions dependant on income, that link is already tenuous as best.

[76] The positive impact of rebalancing the tax structure on growth could be reduced in case of full indexation of wages and social benefits to price increases induced by the VAT raises. Considerable indexation mechanisms exist in France, even if they come into play with a lag, in particular for civil servant wages and for pension benefits.

primarily as a financing instrument and not as a means to pursue sectoral or redistributive objectives (Ebrill, Keen, Bodin, and Summers, 2001). The following measures, which would contribute to improving the yield and efficiency of the tax, should be considered:

- Eliminating the 2.1 percent super-reduced rate;
- Increasing the 5.5 percent reduced rate to a level closer to the standard rate (19.6 percent) while limiting its scope;
- Narrowing the extent of exemptions;
- Increasing the standard 19.6 percent rate, which currently is not above the average in the EU; and
- A simplification of the cross-border VAT regime, which, however, requires agreement at the EU level.

127. **Reduced rates are costly ways to achieve sectoral policy objectives, miss the mark as they are often regressive, and create additional distortions.** Alternative policies such as a reduction in labor costs would be much more effective and less costly. Appropriate compensation, in the form of targeted social transfers, could mitigate the impact of the proposed measures on low-income households.

Reducing corporate and capital taxation, and improving its neutrality

128. **There is scope for further reducing corporate income tax rates** (e.g., from 33 percent to 25-30 percent) to align them with major economic partners and competitors, especially considering the relatively low yield of the CIT (2.8 percent of GDP in 2001). The German tax reform may be instructive in this regard, and may also prompt a review of the French imputation system to achieve greater neutrality with respect to cross-border investment flows (Keen, 2002).

129. **Consideration might be given to moving toward a Nordic dual income tax system,** so as to improve neutrality with respect to various incomes from capital or corporations. The dual income tax is characterized by a low tax on all capital income accompanied by a progressive tax on labor income, instead of taxing all personal income (from labor and from capital) under a unified tax (and taxing corporate income separately). To the extent that it reduces the taxation of capital income, such reform may improve incentives toward savings and promote growth. It could be considered along with the reform of the PIT mentioned earlier.

Simplifying local taxes

130. **Low yielding and costly local taxes should be eliminated—specifically the local business tax and the local housing tax.** The resulting revenue loss for subnational government should be compensated by other taxes in a revenue-neutral way (see below). The local business tax, since it is levied independently of actual turnover and profits, may

constitute an impediment to entrepreneurship, in particular for small firms and new companies.[77] The local housing tax serves no defined purpose and has become somewhat of a nuisance tax, following its gradual erosion by numerous deductions, exemptions, and reductions designed to bring its base closer to taxpayers' ability-to-pay. Consequently, it would be better integrated with the PIT or with local property taxes.[78]

131. **Subnational governments should be assigned simple and buoyant taxes.** There are various options for local taxation, which go beyond the scope of this paper.[79] To replace the eliminated local direct taxes, consideration could be given to introducing a low rate but broadly-based *local surcharge on personal and corporate income taxes* (or a surcharge on the *CSG*) specifically allocated to local governments. It could be redistributed to local governments according to the origin principle, or according to needs or equalization objectives. Rates could be set by each local government according to its own needs or preferences. Another potential source of local revenues lies in *real estate taxation*. Developing this source may improve the redistributive characteristics of the tax system, although it would necessitate updating real estate values and harmonizing valuation rules and rates. Finally, a local tax on businesses' value-added, along the lines of the Italian *IRAP*, could be considered—although its base, which includes wages, may cause a direct increase in labor costs.[80]

132. **Gains from a reform of local taxation may be substantial in the long run, despite the almost certain short-term political economy costs.** There may be large efficiency gains to be reaped from designing local taxes on a sound and economic basis. Moreover, this may improve the transparency and simplicity of the overall tax system—possibly improving economic conditions for businesses—as well as the fiscal accountability of local governments. The political economy cost of a reform of local taxes may be large, however, given the large number of parties involved and the complexity of the existing financing arrangements among various levels of local governments and with the central government.

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[77] The *Conseil des Impôts* (1997) proposed a complete overhaul of the local business tax, with a view to reducing its burden and transforming it into a national tax to be distributed to municipalities in such a way as to better match local resources and needs, and introduce some equalization.

[78] The elimination of the local housing tax was suggested by the *Conseil des Impôts* (2000), which, for direct taxation of individuals, proposed to focus only on two taxes: the *CSG*, which is broad-based and proportional, to finance social security; and the PIT, which is progressive.

[79] For a survey, see Norregaard (1997).

[80] The Italian *Imposta regionala sulle activita produttive* (*IRAP*) is a regional tax, collected by the central government, payable by businesses on their sales minus material purchases and depreciation—essentially their value-added or the sum of wages and profits. As with the VAT, the tax is meant to be passed on to consumers. The central rate is currently 4.25 percent, but regions can vary the rate by 1 percentage point in either direction and differentiate by economic sector. Revenue from the *IRAP* is substantial, at about 2.5 percent of GDP (Keen, 2003).

Simplifying income taxes and reducing tax administration costs

133. **The compliance costs for taxpayers and the tax administration could be reduced significantly by introducing withholding at source for the PIT and by rationalizing tax administration.** Introducing generalized withholding of income taxes at source, following the successful model of the *CSG*, would greatly simplify the collection of direct taxes, reduce costs for taxpayers and for the tax administration, and improve compliance, eventually increasing revenues. Furthermore, the necessity of mandatory filing for all taxpayers under the PIT should be reconsidered. At the very least, systematic advance payment of taxes would reduce the burden of the tax administration in verifying millions of annual declarations. Finally, rationalizing the various administrations dealing with assessment and collection of taxes and social security contributions would entail significant savings for the public sector and for taxpayers.

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