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ITALY

Selected Issues

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Approved by the European I Department

October 7, 2002

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I. Introduction and Overview

1. Achieving higher growth, especially through raising employment, was a central issue for the 2002 Article IV consultation with Italy, and this theme is touched on in each of the following chapters. The first provides an estimate of the output gap and potential output for Italy, and examines the sensitivity of the results to assumptions regarding employment and productivity growth. The second focuses on the labor market more directly by examining the linkages between wage bargaining systems, regional wage differentiation, and regional unemployment disparities. The third provides an assessment of the government's tax reform program, including its potential to increase incentives for employment and investment. All three of these studies draw to on the experience of, and evidence from, other advanced economies, especially in Europe.

2. Chapter II presents updated production function estimates of potential output for Italy, which imply a lower output gap in 2001, but similar potential growth (of around 2 percent) going forward. The new output gap estimate for 2001 falls within the range of those of the EU Commission, the Italian authorities, and the OECD. The downward revision of the gap for 2001 (from -2 to -1 percent) follows largely from lower than earlier expected output growth from 1997–2001. Underlying this was a sharp decline in measured growth of total factor productivity (TFP)—larger than experienced elsewhere in Europe—accompanied by a sharp rise in employment, including of persons who were perhaps less productive than those in the existing workforce.

3. Looking forward, the projections point to potential growth rising only slightly over the next few years, in contrast to those of the OECD and the authorities which anticipate a more substantial increase. Underlying this modest rise is a moderation in the rate of employment growth (bringing it slowly back into line with its historical past), offset by a rebound in TFP growth (bringing it closer to that of large European countries). In contrast, the OECD and the authorities anticipate a much smaller decline in the rate of employment growth, and a slightly stronger rebound in TFP growth. However, as also argued by the OECD, maintaining such high rates of employment growth may require further substantial labor market liberalization. Moreover, the staff view that such employment growth may require employing less productive persons, thereby dampening productivity growth.

4. Chapter III picks up on the theme of employment by examining the link between regional wage differentiation and regional unemployment. It presents evidence that in comparison with other euro-area countries, Italy has very low regional wage differentiation, despite very high regional unemployment disparities; the gap between unemployment in the North and the South is currently about 15 percentage points. The study argues that Italy's very centralized and coordinated wage bargaining system is one of the reasons for its low regional wage differentiation. Previous literature has argued that a centralized wage bargaining system, although it may facilitate moderate inflation, is often dominated by the leading region (in terms of productivity), causing uniform regional wages, and high unemployment in regions with lower productivity.

5. The empirical evidence presented suggests that regional wage differentials are likely to increase in Italy if a more decentralized wage bargaining system were adopted. According to these results, if Italy's wage bargaining system were decentralized, regional wage differences would increase by more than 5 percentage points (ceteris paribus). This would bring Italy's regional wage dispersion slightly below the euro area average, with the remaining difference explained by other wage determinants.

6. Chapter IV provides an account and assessment of the government's tax reform program, embarked upon since coming to office in 2001. The program envisages both a substantial reduction in the overall tax burden, and far-reaching changes in the structure of the tax system. The chapter examines each of the major tax categories affected—namely those on labor, corporate, and capital incomes, together with the regional tax on value-added (IRAP)—and assesses the effects of the reform program on incentives to work and invest. The chapter notes that the program of tax reform now underway largely undoes the series of reforms introduced in the late 1990s by the previous government. These had been aimed at removing various tax distortions, including the bias in favor of debt finance, the lock-in problems of the capital gains tax, and the dependence of regional governments on a multitude of taxes with relatively narrow bases.

7. To some degree, the present reforms align the system closer to that in other EU countries, and address some shortcomings emerging under the previous system. The personal income tax was in clear need of further restructuring and simplification, and the introduction of consolidation provisions promises a useful rationalization of the taxation of businesses. The changes however, represent a fundamentally different approach to tax reform, focused less on neutrality—indeed the present reforms reintroduce a number of distortions—and more on simplification and, in particular, establishing a system closer to those found elsewhere in other large EU countries.

II. New Estimates of Potential Output[1]

A. Introduction

8. This chapter presents updated estimates of the output gap and potential growth for Italy, and compares these with those of the OECD, the EU Commission and the Italian authorities. Estimates of potential output play an important role in guiding the staff's analysis and policy recommendations. The output gap combined with potential growth provide a measure of the scope for noninflationary growth over both the short and longer term. Estimates of the output gap also play a central role in assessing fiscal policy: the current stance and appropriate policy for the short term.

9. It is timely to update the estimates of potential output given that actual output growth has been relatively low over recent years. Previous staff estimates (using data up to 1996) had suggested that over the late 1990s potential output growth was around 1.9 percent per year,[2] that actual output was well below potential—by as much as 2.7 percent in 1999—and hence, that growth of more than 2 percent for a number of years was required to close this gap. However, actual growth averaged only 2 percent from 1997 to 2001 (and 1.6 percent over the past decade).

10. Indeed, new estimates of potential output suggest that the output gap and potential growth were somewhat lower over the past few years than suggested by previous staff estimates. The new estimates of the output gap are in line with the latest estimates from the EU Commission, OECD, and the Italian authorities, while new estimates of future potential output growth (at around 2 percent per year) are considerably lower than those of the OECD and the Italian authorities.

11. A key feature of output growth over recent years has been the decline in productivity growth (both labor and total factor productivity, TFP), coupled with a substantial rise in employment growth (Figure 1). Higher employment growth has more recently offset the decline in TFP growth, so that potential output growth has now recovered to around 2 percent. These developments raise two key questions relating to future potential output growth. First, what are the prospects for employment growth? Second, what are the prospects for a reversal of the trend decline in TFP growth? In answer to the first question, it appears that without additional and far-reaching measures to liberalize labor markets, employment growth is likely to moderate—bringing its growth rate down to its historical average (relative to GDP). The answer to the second question draws on the historical experience for Italy, as well as that of selected European countries. This suggests that a rebound in the rate of productivity growth is likely, helped perhaps by a moderation of employment growth.

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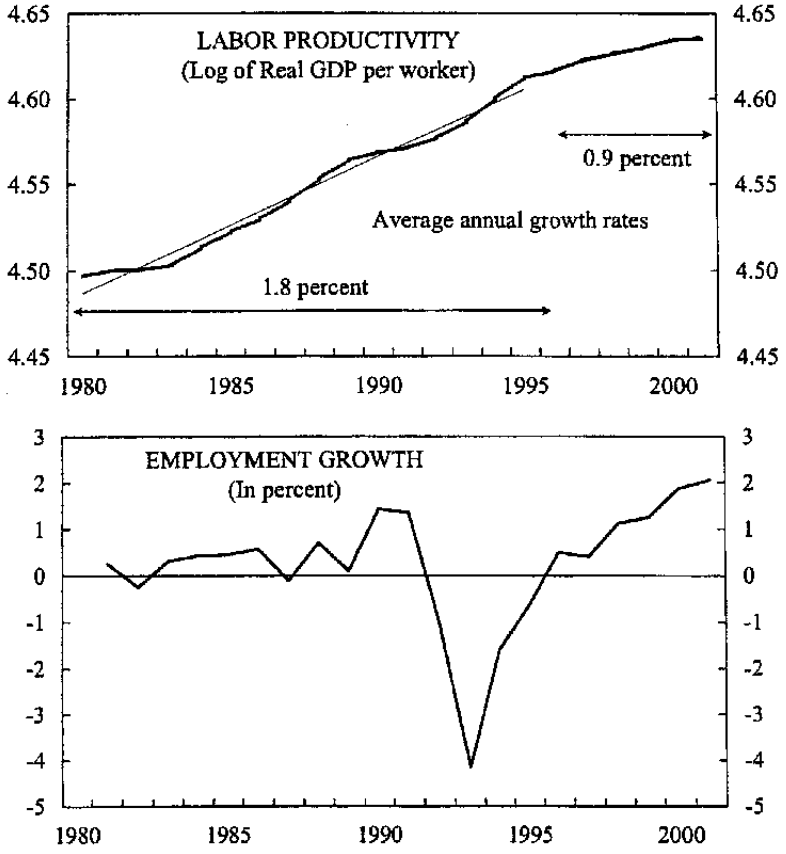
[1] Prepared by Christopher Kent.

[2] But rising to 2.0 percent in 2000.

Figure 1. Employment Growth and Labor Productivity, 1980-2001



Sources: For sources here, and elsewhere, see Appendix I.

12. The chapter is organized as follows. The next section outlines the production function approach to estimating potential output. Section C presents the data, and discusses the likely future trends for TFP growth—drawing in part on cross-country comparisons of TFP growth over the past decade. Production function estimates of potential output are then presented, and compared with earlier staff estimates. Section D compares the new production function estimates of the staff with those of the OECD, the EU commission, and the Italian authorities, focusing especially on likely future trends in employment growth. Conclusions are drawn in Section E.

B. The Production Function Approach

13. The production function approach to estimating potential output starts with a production function linking output to labor and capital inputs, and total factor productivity

(TFP).[3] Potential output is calculated as the level of output that would arise when at full employment (that is, consistent with the nonaccelerating inflation rate and a "normal" level of labor force participation), when capacity utilization is at "normal" levels, and when TFP is at its trend level. Assuming a Cobb-Douglas production function, with constant returns to scale implies:[4]

$$\log(Y_t) = a\log(L_t) + (1-a)\log(K_t) + TFP_t \tag{1}$$

where: Y is real GDP; L and K are measures of labor and capital inputs respectively; and TFP is total factor productivity (see Appendix I for a description of the data). Assuming also competitive markets implies that a is equal to the (constant) labor share of income (which for Italy averaged 0.7 from 1980 to 2001).[5] TFP can then be measured as the residual of equation (1).

14. There are a number of variations to this basic setup, attempting to measure factor inputs more precisely by adjusting for the intensity with which the input is used, and/or its effectiveness. The most basic measure of the labor input is simply the number of (full-time equivalent) employed persons, E. Alternatively, employment can be adjusted by the average hours worked per employee, as follows:

$$L = E \times HW = (WP \times pr)(1-u)\,HW \tag{2}$$

where: WP is the working age population; pr is labor force participation rate; u is the unemployment rate; and HW is the average hours worked (per full-time equivalent employee).[6] The breakdown of employment into the two bracketed terms in equation (2), is a convenient formulation for projecting future potential output because it allows changes in employment to be explicitly derived from the combination of changes in demographics, and labor force participation and unemployment rates.

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[3] De Masi (1997) provides a survey regarding the application of this approach within the IMF. Mc Morrow and Roeger (2001) describe the production function approach and compare it with other approaches to estimating potential output.

[4] Willman (2002) examines the more general constant elasticity of substitution (CES) production function. He presents evidence based on the euro area that suggests the Cobb-Douglas function provides a good approximation and, moreover, that output gap estimates are relatively insensitive to alternative parameterizations and functional forms of the underlying production function.

[5] The labor share does vary over time—rising from 0.71 in 1970 to 0.77 in 1975 and then declining steadily to 0.62 by 2001. Estimates of the gap and potential output growth presented below are, however, broadly unchanged if instead the labor share is assumed equal to the level of 2001. Giving greater weight to the capital input in this way reduces the output gap in 2001 by only 0.06 percentage points, and increases potential growth by 0.1 percentage points (by 2007) relative to results presented in Tables 3 and 4. For a discussion of the determinants of the labor share and its evolution in the OECD see Bentolila and Saint-Paul (1998).

[6] Another possibility is to acknowledge differences in the quality/skill of different labor inputs (as done, for example, in Brandolini and Cipollone, 2001, discussed below).

15. Another possible adjustment is to account for the cyclical impact of the capacity utilization rate, *util*, which can be done directly as follows:

$$\log(Y) = a\log(L) + (1-a)\log(K \times util) + TFP \qquad (3)$$

Measures of capacity utilization—which are survey based—may also partially reflect the intensity with which labor is used, and typically refer only to the industrial sector. Therefore, it makes sense to examine a formulation that allows the coefficient on *util* to differ from that on capital. Though not reported here, results from such a formulation showed that the coefficient on *util* was not significantly different from (1-*a*), but it was significantly different from zero.[7] It makes sense, therefore, to adopt the formulation shown in equation (3). Despite this adjustment, it appears that measured TFP remains relatively volatile (see below) and contains what appears to be a cyclical element, suggesting the need to smooth TFP in order to obtain a measure of trend or potential TFP growth.

16. Potential output is obtained by substituting "potential factor inputs" into equation (3), and replacing TFP with a measure of trend TFP. The potential capital stock is assumed to be the actual capital stock. For the labor input components: potential *WP* is taken to be the actual; a Hodrick-Prescott (HP) filter is applied to *pr* and *hw*; and the NAIRU is used in the place of *u*. Finally, an HP filter is also applied to *util* and to TFP.

17. The use of the HP filter in this fashion can be problematic because of the end-point problem, whereby trends at the end of the sample period are disproportionately affected by the most recent observations.[8] This is especially noticeable during a period of rapid change in the variables of interest, which is the case for both TFP growth and participation since 1996. One way to overcome this is to artificially extend the sample period using projections of the variables in question.

C. Data Description, Trend TFP, and Potential Output

Data description

18. Data is annual from 1980 to 2001. For the purpose of applying HP filters beyond the current period, variables are projected out to 2007, which also corresponds to the current horizon of the IMF *World Economic Outlook* (WEO)—in fact, at least initially, projections are generally based on the most recent WEO. The implications of shorter horizons and of alternative projections are discussed in the results section below. Further details are provided in Appendix I.

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[7] In short, this was done by regressing TFP measured as per equation (1) on *util*, a constant, and a time trend, and then testing whether the coefficient on *util* was significantly different from a=0.7.

[8] Of course the same problem applies also to the beginning of the sample, but for policy purposes the focus is on the current output gap and future potential output.

19. Table 1 provides a summary of the relevant factor inputs, in terms of their growth rates, their contributions to actual output growth, and measured TFP growth (based on existing WEO projections for the period 2002–07). Of particular interest is the sharp decline in TFP growth in the late 1990s, coinciding with a strong reversal in the contribution of labor—from -0.5 percentage points from 1990–96, to 0.9 percentage points from 1997-2001. Also, while the current WEO projections imply a rebound in TFP growth, it remains considerably below its average prior to 1996. Before turning to the derivation of potential output, a series for potential TFP is required.

Table 1. Summary Statistics—Annual Averages

	1981-89	1990-96	1997-2001	2002-07 1/
	(Growth rates; in percent)			
Real GDP	2.3	1.4	2.0	2.1
Capital: *K*util*	2.7	1.7	2.5	2.0
Labor: *(WP.pr)*(1-*u*)*HW*	0.0	-0.7	1.3	0.7
	(Contribution to actual output growth; in percentage points) 2/			
Capital: *K*util*	0.8	0.5	0.8	0.6
Labor: *(WP.pr)*(1-u)*HW*	0.0	-0.5	0.9	0.5
Measured TFP growth	1.5	1.4	0.3	1.0

Sources: See Appendix I.
1/ Staff estimates and projections.
2/ Contributions are calculated by multiplying capital and labor factors by 0.3 and 0.7, respectively.

Potential TFP

20. To obtain trend or potential TFP, measured TFP needs to be stripped of possible cyclical and/or erratic components using either structural, or nonstructural estimation methods. The trend component may be either deterministic (as implied by neoclassical growth models) or may ultimately depend on the investment behavior of households, businesses and government (as suggested by theories of endogenous growth, with vintage capital, human capital, and/or research and development capital). Mc Morrow and Roeger (2001) present estimates based on a vintage capital stock model of TFP with a broken trend and the average age of the capital stock as explanatory variables; the cyclical or erratic component is captured by the residual.

21. An alternative, nonstructural approach to estimating trend TFP is to use an HP filter.[9] This has the advantage of simplicity, but suffers from the end-point problem.[10] This can be addressed by extending the sample period through the use of projections.[11] While this necessarily introduces an element of subjectivity (that is, forecasting errors), the structural approach itself also suffers from this problem (arising through the choice of the structural model), as well as the end point problem (to the extent that it still relies on some form of deterministic trend, as in Mc Morrow and Roeger, 2001).

22. While there has been a sharp slowdown in TFP growth in Italy since 1997, there are a number of reasons why this is not expected to continue. This would make the end-point problem associated with the HP filter especially problematic at the current juncture. Several developments could explain the decline in measured TFP growth from 1997 to 2001, and suggest that it might be reversed in the future:

- Foremost is the rapid growth of employment since 1997.[12] Employment growth may have altered the composition of the workforce, thereby influencing TFP growth as measured by the simple production function used here—that is, one that treats workers and jobs as homogeneous. In order to examine the implications of compositional change in the workforce for measured TFP growth, there are at least three cases worth considering:

  (i) The first case assumes (not unreasonably) that education (outside of the workplace) leads to more productive workers. In this case, the average productivity of the workforce would have risen steadily over time in line with the increase in the average years of schooling per person in Italy. Brandolini and Cipollone (2001) account for this by scaling the labor input by an index of the average years of schooling of the workforce. This implies, however, that measured TFP growth is consistently lower over the *whole* sample period than implied by the estimates presented above (since

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[9] This is the standard approach used by the IMF and the OECD when applying the production function methodology (European Commission 1999).

[10] Baxter and King (1995) show that the HP filter tends to give a disproportionate emphasis to the end-points of the cycle (the first and last 3–4 observations), if no corrective measures are applied. Mc Morrow and Roeger (2001) also find this when estimating potential output for EU countries by applying an HP filter to real GDP. They find that a forecasting error of plus or minus 0.5 percentage points alters the estimate of the output gap by around 0.2 percentage points. Moreover, this sensitivity is similar across EU countries and does not appear to be strongly related to the cyclical position.

[11] It is worth distinguishing the two roles played by these projections. The first is to help mitigate the impact of the end-point problem on *estimates* of the output gap up to 2001. The second is to provide inputs to form a *projection* for future potential output growth.

[12] The growth of employment over the late 1990s occurred despite weaker growth in labor productivity in part because of wage moderation (Decressin and others, 2001). Also, labor market reforms allowed for more flexible use of labor—including the use of atypical contracts (see Staff Report)—supporting greater employment of women, and of youth.

years of schooling has increased in a linear fashion over time). In other words, this phenomenon cannot explain the sudden decline in measured TFP growth after 1997.

(ii) The second case assumes that on-the-job training and experience increase a worker's productive abilities. In this case, a surge in newer, and hence inexperienced workers, would lead to a reduction in the average productivity of the workforce—as seems to have been the case since 1997, especially given the sharp decline in unemployment. In this respect, the experience of Italy over this period appears to have been quite similar to that of the Netherlands, where there was a large fall in measured TFP growth—by 1 percentage point on average from 1990–96 to 1997–2001 (Table 2 below)—at the same time as average annual employment growth rose sharply—from 1.8 to 2.8 percent. Looking ahead, two factors are likely to work to raise the average quality of the pool of employed persons in Italy. First, employment growth is projected by staff to almost halve, from an average annual rate of around 1.3 percent from 1997 to 2001 (and as high as 2.0 percent for 2000–01) to a rate of 0.7 percent (from 2002–07)[13]—implying a more gradual inflow of inexperienced persons into the workforce. Second, those newly employed in recent years should gain on-the-job experience and training.[14]

(iii) The third case assumes that a worker's productive capacity depends on the type of job they fill. Two obvious distinctions are jobs in different sectors and regions of the economy—for example, an additional worker in the South may be less productive than in the North if the former has less capital/infrastructure available per worker (OECD, 2002). However, changes in the employment patterns across broad categories of regions and sectors do not appear significant since 1997: the share of employment in the Northern, Central and Southern regions has remained unchanged; while employment in the service sector has risen only slightly (from 61 to 63 percent) at the expense of agriculture and industry. Even so, there has been a sharp rise in the use of part-time and fixed-term labor contracts over the late 1990s (see Staff Report). It may be that many of these jobs are less productive, leading to a decline in measured TFP growth.[15]

- A second factor contributing to the lower growth of measured TFP is the current slowdown in economic activity (which has occurred without a commensurate decline

[13] This argument is similar to one made in the authorities' new medium-term program (*Documento di Programmazione Economico-Finanziaria*, DPEF, July 2002), although the authorities assume annual employment growth to slow to only 1.6 percent. Though partly cyclical in nature, there is already evidence of slower employment growth in 2002.

[14] Indeed, to the extent that on-the-job experience/training is facilitated by the initial level of education, the trend rise in schooling will help to reinforce this process.

[15] Cases (ii) and (iii) may be closely related, since the relaxation of constraints on these forms of employment is likely to have facilitated the entry of otherwise less experienced/productive persons into the workforce.

in employment growth). For the existing data, this is somewhat evident in 2001, but it is a more important consideration when extending the sample through the use of projections, given that GDP growth in 2002 is likely to be especially low (at less than 1 percent, see Staff Report). During slowdowns in economic activity, labor hoarding and low capacity utilization are likely to be prevalent especially given rigidities in the labor market arising from strong employment protection legislation in Italy (see Chapter III of this report). These developments may not be adequately reflected in the measures of hours worked, or capacity utilization (also because these apply only to the industrial sector). Other things equal, this would lead to a temporary decline in measured TFP growth.

- A third factor that should help to boost productivity going forward is the delayed impact of recent labor and product market reforms (for a discussion of these see Staff Report; a similar argument is made in the DPEF). Scarpetta and others (2002) find that industry productivity performance is negatively affected by strict product market regulations.[16] On labor market regulation, they conclude that high hiring and firing costs seem to hinder productivity.

23. A comparison of Italy with selected European economies also suggests that TFP growth in Italy will rebound from its very low level recorded in recent years. Table 2 compares both actual and HP-filtered TFP growth across selected countries.[17] After 1997, TFP growth declined in Germany and the Netherlands, and it was broadly stable for France and the United Kingdom (while it rose slightly for the United States). In all cases, however, actual and trend TFP growth (measured by the HP filtered series) remained considerably above that of Italy. It appears likely that TFP growth in Italy will converge to a rate that is at least close to that of these other economies, which enjoy similar institutional features and per capita incomes. This result is implied by empirical evidence from Bloom, Canning, and Sevilla (2002), based on a model of technological diffusion, and using a large cross-section of countries.[18] While Italy already enjoys high levels of both labor and total factor productivity—comparable with other developed countries (see Hall and Jones, 1999; and Staff Report)—there is little reason to expect the growth rate of productivity to be substantially lower in Italy over an extended period.

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[16] Ahn (2002) provides a comprehensive review of the empirical literature in this area and confirms that the link between product market competition and productivity growth is positive and significant.

[17] Calculations are from Decressin (2002)—kindly provided by the author—based on OECD business sector data. Table 1 and 2 data are not exactly comparable, since the former are based on economy-wide measures of growth. Nevertheless, at least for Italy the difference in measured TFP growth is not significant.

[18] Laxton (1999) also finds evidence of catch-up of levels of labor productivity in Italy to that of the United States over the longer term. These findings of TFP convergence are similar in spirit to the finding of "conditional convergence" (see for example, Barro and Sala-i-Martin, 1995) based on catch-up of the capital stock to steady state levels.

Table 2: TFP Growth 1/

	Actual TFP Growth			HP-Filtered TFP Growth		
	1981-89	1990-96	1997-2001	1980-89	1990-96	1997-2001
Italy	1.6	1.3	0.2	1.7	1.1	0.7
France	2.4	0.7	1.2	2.0	1.1	1.0
Germany	1.3	2.0	1.0	1.5	1.6	1.3
Netherlands	2.3	1.9	0.9	2.1	1.8	1.2
United Kingdom	2.1	1.6	1.1	1.9	1.2	1.2
Memorandum item:						
United States	1.2	1.3	1.4	1.0	1.2	1.4

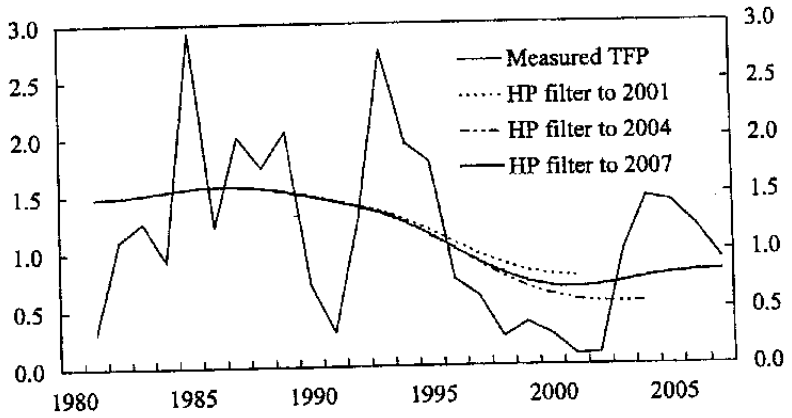
Source: Decressin (2002), using OECD Economic Outlook data on the business sector (which excludes the public sector, though not public sector enterprises).

1/ The qualitative results are not sensitive to the exact periods chosen. In particular, similar results are obtained if instead the second period, 1990-96, is either cut short or extended by one year (with a corresponding change to the third period), or if the third period, 1997-2001 is truncated at 2000.

24. In light of this discussion, it seems reasonable that trend TFP growth in Italy will recover to a rate comparable to that of these other selected European economies. This would also be consistent with TFP growth returning to the level seen in Italy in the first half of the 1990s. For this to occur, actual TFP growth will have to be slightly above that implied by the current WEO projections. This can be seen in Figure 2, which shows the estimates of actual TFP (as well as projections for 2002–07, as implied by current WEO projections for output, investment and employment growth). The rise in TFP from 2003 onwards arises from the expectation of economic recovery (with growth above the rate of potential output in order to close the current output gap). Figure 2 also shows the application of the HP filter to measured TFP—with the filter applied to data up to 2001, to 2004, and to 2007. Using these WEO projections implies that even with the anticipated rebound in actual TFP, trend TFP growth would be at most 0.8 percent per year,[19] still somewhat below both the current rate for these other selected European countries, and Italy prior to 1997.

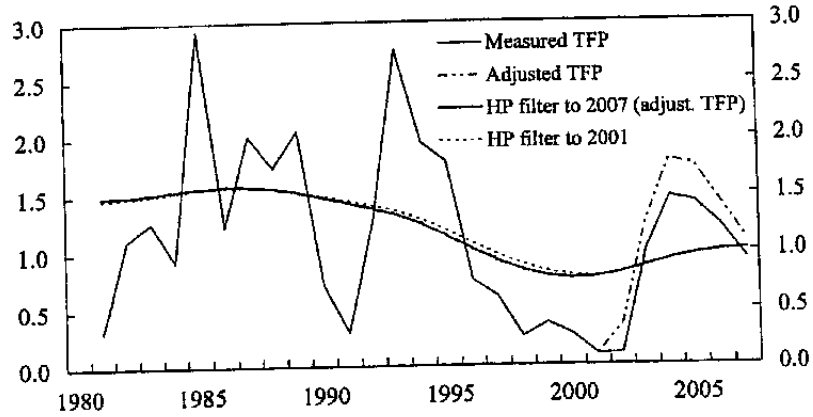
[19] Trend TFP growth as implied by applying the HP filter up to 2004 (that is, the correction for the end-point problem suggested by Baxter and King, 1995) is only 0.5 percent per year, while extending the filter to 2007 implies trend TFP growth in 2001 of only 0.7 percent. Both of these are lower than obtained by ignoring the end-point problem—that is, applying the HP filter up to only 2001.

Figure 2. TFP Growth—Measured and Filtered, 1981–2007
(In percent)



25. To achieve trend TFP growth in Italy of around 1.0 percent (by 2007), would imply annual actual TFP growth from 2002–07 of around 1.3 percent, somewhat above recent WEO projections. Figure 3 shows the required adjustment to actual TFP required for the period 2002-2007, and the HP filter applied to this series up to 2007. The chapter proceeds to calculate potential output on the basis of these new assumptions.

Figure 3. Adjusted TFP Growth, 1981–2007
(In percent)



Production function results

26. Table 3 presents the new production function estimates of the output gap, and potential growth, and compares them with the previous staff estimates. It also presents estimates based on a simple application of the HP filter to real GDP.

Table 3. Output Gap and Potential Growth Estimates

	Output Gap (In percent of potential GDP)			Potential Output Growth (In percent)	
	1999	2000	2001	2001	2007
Production function estimates					
Previous staff estimates	-2.7	-1.9	-2.0	2.0	2.0
New staff estimates	-1.7	-0.8	-0.9	1.9 1/	2.1
Other estimates					
HP filter of real GDP (to 2001)	-0.5	0.5	0.5	1.8	...
HP filter of real GDP (to 2007) 2/	-0.7	0.2	-0.1	2.0	2.3

1/ This rises to steadily to 2.0 percent in 2003. Half of this rise is due to a slowing in the assumed rate of population decline, the rest (in equal measure) by increases in the growth rates of trend participation and TFP.
2/ Uses GDP estimates consistent with the adjusted TFP growth for 2002–07 described in paragraph 25.

27. Compared with the previous estimates, the new production function estimates imply a lower output gap (over recent years), and somewhat lower potential growth in 2001, but rising steadily to 2.1 percent by 2007. The revised output gap follows from lower-than-earlier-expected GDP growth from 1997 to 2001; this is reflected in relatively low TFP growth, especially given the higher-than-earlier-expected employment growth over this same period. Staff projections suggest future potential growth will recover to around 2.1 percent, in line with the anticipated gradual recovery in trend TFP growth, and continued employment growth (albeit at a more moderate pace than recent years). The sensitivity of these projections to employment growth is addressed when comparing these results with those of the Italian authorities in the following section.

28. Estimates based on a simple HP filter of real GDP imply a negligible output gap in the past two years, but similar potential growth in comparison with the production function results. Applying the HP filter to GDP (using the sample extended to 2007 to correct for the end-point problem) leads to a smaller output gap estimate than that of the production function approach. This difference primarily reflects the fact that the NAIRU estimate underlying the latter is somewhat below the unemployment rate from the mid to late 1990s, a period of gradual disinflation, and increased labor market flexibility (see Appendix II).

D. Comparison with EU, OECD and the Italian Authorities Estimates

29. This section provides a comparison of the production function estimates of the staff with those of the OECD, the EU Commission, and the Italian authorities. In terms of the current output gap, the new staff estimates are closer to the others, and the authorities than are the previous staff estimates (Tables 3 and 4). In contrast to the staff, OECD, and authorities, the new EU estimates imply that output was close to potential in 2000 and 2001.

30. The EU, OECD, and the authorities have higher projections of future potential growth than staff. This is especially true for the OECD and the authorities, which project a sizable rise in potential growth around the middle of this decade. These differences generally reflect greater optimism regarding employment growth, and a stronger reversal of the decline in trend TFP growth.

Table 4. Output Gap and Potential Growth, Production Function Estimates

	Output Gap			Potential Output Growth			Implied Output Growth 1/
	(In percent of potential output)			(Annual average, in percent)			
	1999	2000	2001	2001	2002	2004–07	2002–07
New staff estimates	-1.7	-0.8	-0.9	1.9	2.0	2.1	2.2
EU Commission	-0.5	0.2	-0.3	2.3	2.3	2.4 2/	2.4
OECD	-1.4	-0.8	-1.4	...	2.0	2.5	2.7
Italian authorities	...	...	-0.8	2.3 3/	2.3 3/	2.7 4/	2.7

Sources: EU Commission; OECD; *DPEF*; and Fund staff estimates and projections.

1/ Assumes that the output gap closes by 2007. Where potential growth estimates are not available to 2007, they are assumed to continue to grow at the same rate as in the last year provided.

2/ Applies to 2004 only.

3/ The average for 1995 to 2003.

4/ The average for 2004 to 2006, with a rising trend to 2.8 percent by 2006.

31. Differences between staff estimates and those of these other institutions reflect a variety of factors:

- EU Commission: The much lower output gap estimates follow largely from the relatively high NAIRU estimate of the EU[20]—at 9.9 percent in 2001, it is above Italy's current unemployment rate of 9.5 percent, and the staff estimate of the NAIRU of 8.8 percent in 2001. Staff estimates imply a more sizable decline in the NAIRU since the mid 1990s to a level that is below the current unemployment rate, as suggested by continuing wage moderation (Appendix II). The difference in the potential growth estimates is less marked. It partly follows from the fact that the EU

[20] To estimate the NAIRU, the EU adopt a combined Kalman filter and Phillips curve approach, whereby the deviation of unemployment from the NAIRU is negatively related to the change in wage inflation, controlling for other temporary shocks to wage inflation. One feature of their approach is that the unemployment gap is restricted to have a mean of zero over the sample period (so as to also ensure a symmetrical output gap over the sample).

assumes the same labor share of value, a, for all EU countries (equal to 0.63). Applying this to the staff model would raise potential output growth in Italy by about 0.1 percentage point per year—since the capital stock is projected to be growing faster the labor input. The EU also assume a slightly more rapid rebound in TFP growth from 2002 onwards.[21]

- OECD: The larger output gap of the OECD appears to mostly reflect a higher estimate of trend TFP in 2001. This difference follows largely from the fact that the OECD apply the HP filter only over existing data. Doing this for the staff model would increase the estimated gap to -1.2 percent. The OECD estimate of the unemployment gap (that is, the ratio of actual unemployment to the NAIRU) is similar to that of the staff, especially for 2001 (see Appendix II). Hence, this is not a factor behind differences in the current output gap estimates. As for potential output growth, the main difference is based on the OECD projection of stronger employment growth. They project a steady rise in participation and a decline in the NAIRU, based on the impact of current reforms, together with the expectation of ongoing reform sufficient to achieve (at least to some extent), the Lisbon commitments on employment rates (OECD, 2002). Staff also anticipate a lagged impact of existing reforms on employment (mostly through participation), but base projections only on currently announced policies.

- The Italian authorities: The authorities have a similar output gap in 2001, but the difference in potential output growth is sizable—reaching 0.7 percentage points by 2006. While the authorities (implicitly) project higher trend TFP growth (of about 0.1 percentage point annually), most of the difference in potential growth is accounted for by their assumption of higher employment growth—1.6 percent annually, compared with staff projections of average annual growth of 0.7 percent from 2002–07. Underlying this is a sizable fall in unemployment (to 6.8 percent in 2006, compared with a staff projection of 8.6 percent), and a large rise in the participation rate (to 65 percent in 2006, compared with a staff projection of 63.5 percent).[22, 23] The ambitiousness of these targets is illustrated in Figure 4, which shows the elasticity of employment with respect to real GDP. This rose sharply in the late 1990s, rebounding

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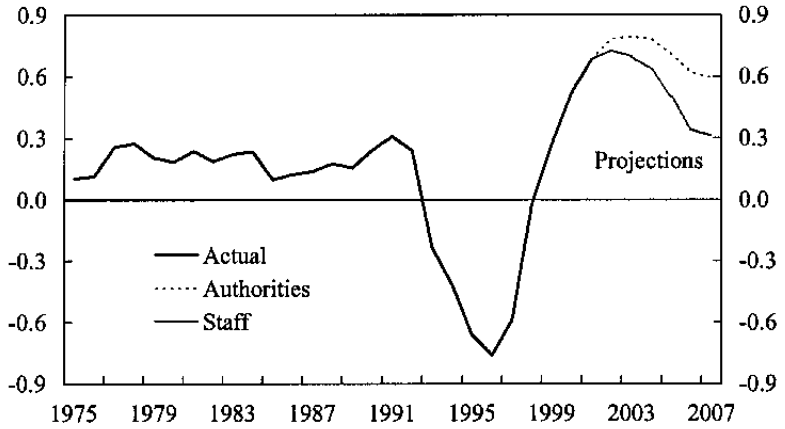
[21] As in this chapter, the EU estimate trend TFP growth by using the HP filter and extending the sample period beyond 2001 using projections.

[22] The DPEF does not specify participation rates. These are calculated by assuming that the projections for working age population are the same as those used by the staff (see Appendix I). Just over half of the difference in projected employment growth rates is accounted for by the lower unemployment rate projected by the authorities, the remainder by their higher participation rate projection.

[23] Using the authorities projections for participation within the staff model would imply an increase in the estimated 2001 output gap of around 0.4 percentage points. This arises from the fact that assuming a higher future participation rate reduces the gap between the current actual and trend participation rates to near zero (the staff estimate this gap to be 0.5 percentage points in 2001).

from earlier declines in unemployment. Staff projections imply that this elasticity will gradually return toward its historical average, while the authorities assume that it will stay well above this level. Achieving this would likely require additional and far-reaching labor market reforms. However, even if these were to be undertaken, the resulting employment growth may lead productivity growth to fall short of that underlying the authorities existing growth targets; in a similar fashion to the productivity slowdown from 1997 to 2001.[24]

Figure 4. Employment Elasticity with Respect to GDP, 1975–2007
(Over previous 5 years)



32. The OECD and the authorities project much higher actual output growth than both the staff and the EU. The last column of Table 4 shows the annual average growth rates of output implied by the various institutions. These are calculated by assuming that the existing output gap is closed by 2007, and, therefore, provides a summary of the combined impact of the estimates of the output gap and projections of potential output growth. While the EU projects higher potential growth than the staff, the impact of this on output growth is partially offset by the smaller output gap estimated by the EU for 2001. In contrast, the difference between staff and the OECD regarding potential growth, combined with the larger output gap of the OECD for 2001, implies substantially higher output growth. The comparison between implied GDP growth rates of the staff and the authorities is made even more stark if GDP growth of only 0.6 percent is assumed for 2002 (as currently projected by staff and the authorities; see Staff Report). In this case, average annual growth for 2003–07 implied by staff projections is 2.5 percent, compared with 3.2 percent for the authorities.

[24] The OECD (2002) argue that rapid employment growth (toward the Lisbon target levels) would suppress productivity growth because it implies bringing into the workforce a large number of persons not previously employed (especially from the South), for whom the productivity level is on average lower than that of the existing workforce.

E. Conclusion

33. New staff estimates suggest that the output gap in 2001 is lower than implied by previous estimates, but within the range of those of the EU Commission, the Italian authorities, and the OECD. This revised gap—of around -1 percent versus the previous estimate of -2 percent—largely reflects lower-than-earlier-expected output growth over the past few years. It falls within the range of the latest estimates from the EU Commission, the Italian authorities, and the OECD of -0.3, -0.8 and -1.4 percent, respectively. The much smaller gap estimate of the EU Commission reflects their higher NAIRU estimate, which is slightly above the current level of actual unemployment. In contrast, staff estimates imply a more sizable decline in the NAIRU over recent years—following from earlier labor market reforms—to a level still below the current unemployment rate, as suggested by continued moderate wage increases.

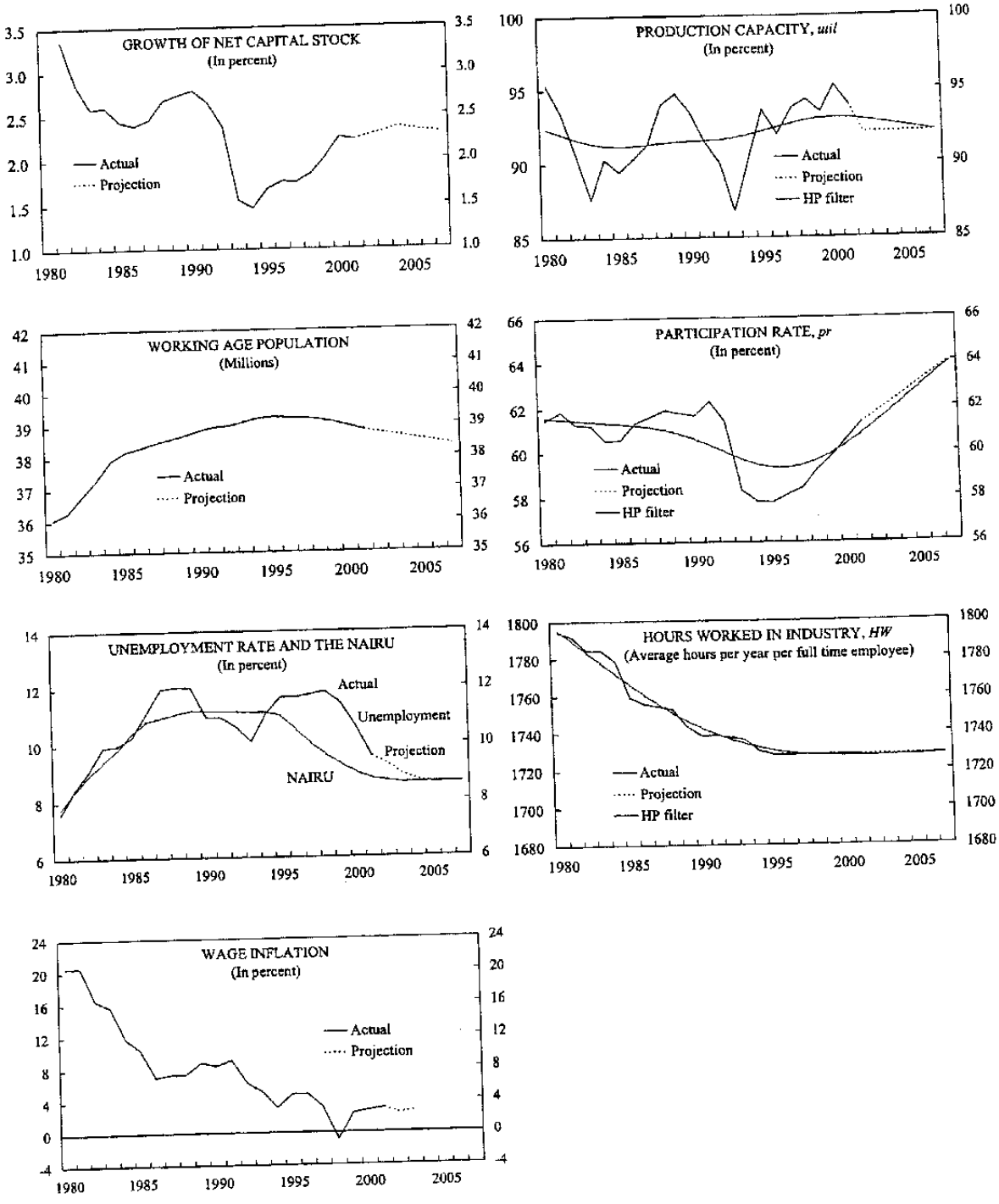
34. Though trend TFP growth has declined steadily over recent years, staff anticipate this to gradually recover, and for potential GDP growth to rise to slightly above its current level of 2.0 percent. The decline in Italian TFP growth since 1997 (as in the Netherlands) was more substantial than it was for the other large European economies, and it coincided with a surge in the growth rate of employment. Staff project employment growth to decline below the rapid pace of recent years, and for trend TFP growth to recover toward its pre-1997 level, in line with TFP growth of other European countries with similar institutional features and per capita incomes. This implies future potential output growth rising to 2.1 percent per year. The OECD and Italian authorities project much higher potential growth, driven mostly by projections of higher employment growth. Both recognize that continued employment growth of this magnitude will require further substantial labor market liberalization. Although, if this were to occur, it may work to dampen productivity growth by bringing less productive persons into the workforce.

DATA

35. The following provides additional information regarding the data used, including the sources and nature of estimates and projections. Figure A1 shows a number of these series, including their HP filters where relevant.

- *a*: labor share of income is calculated from ISTAT data by scaling upwards the share dependent employment income in value added (at market prices, excluding financial intermediation services indirectly measured, FISM), by the ratio of total employment to dependent employment.
- *Y*, *K*, *E*: output, net capital stock, and employment data are from ISTAT, forecasts are based on current WEO projections.
- *util*: survey measure of production capacity in use in industry, provided by the Bank of Italy. It is assumed to return to its sample average in 2002 and beyond, which at 92 percent is above the level of the first quarter 2002, but below the average of 2001 (around 93 percent). Potential utilization is based on the HP filter of this series.
- *WP*: working age population data from the OECD, growth rates are as projected by ISTAT.
- *HW*: hours worked in industry from ISTAT. For 2002 and beyond, it is assumed constant at the 2001 level. Potential hours worked is the HP filter of this series.
- *u* and labor force: unemployment rate and labor force are from the ISTAT labor force survey. Forecasts are based on WEO projections.
- *pr*: participation rate is the ratio of the labor force to *WP*. Under current WEO projections, this ratio grows steadily to 64 percent by 2007.
- *NAIRU*: see Appendix II.
- *W*: wages are the compensation rate of the business sector (annual salary per employee, in euros); data are from the OECD.

Figure A1. Italy: Actual Data, Projections, and HP Filtered Series, 1980-2007



NAIRU ESTIMATES

36. This appendix describes the construction of the NAIRU used in this paper, and compares it with OECD estimates.

37. The NAIRU is estimated using a simple method described by Giorno and others (1995).[25] This starts by defining the NAIRU as the level of unemployment above (below) which inflation is falling (rising):[26]

$$D^2 \log W = -\alpha\,(U - NAIRU), \qquad \alpha > 0 \tag{A1}$$

where: W is the nominal wage level, U is the actual unemployment level, and D is the first difference operator. An estimate of α can be obtained by applying the approximation that the NAIRU is constant between any two consecutive periods, in which case:

$$\hat{\alpha} = -D^3 \log W / DU \tag{A2}$$

Combining equations (A1) and (A2) provides an estimate of the NAIRU:

$$NAIRU = U - D^2 \log W / \hat{\alpha} \tag{A3}$$

38. The resulting series is smoothed to eliminate erratic components.[27] Figure A2 compares actual employment with this (initial) estimate of the NAIRU (labeled NAIRU1). Further smoothing is conducted to produce the final estimate of the NAIRU (labeled NAIRU2)—these modifications reflect the view that the true NAIRU is not likely to have declined in the early 1990s (as implied by NAIRU1), and that labor market reforms are likely to have led to a decline in the NAIRU in the mid 1990s (somewhat earlier than suggested by NAIRU1).

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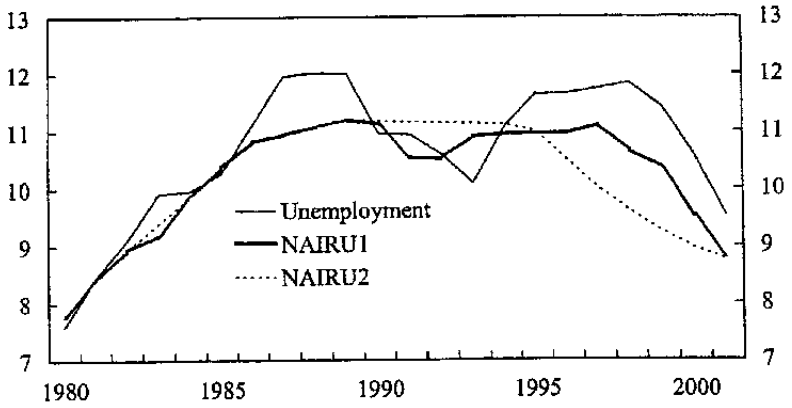
[25] This method was originally espoused by Elmeskov (1993) who showed that the estimates were similar to those from comparable methods based on the alternative Okun's law or Beveridge curve relationships.

[26] Wage inflation is used, since the link to unemployment gap is more direct than it is for inflation of goods and services.

[27] This is done by first replacing outlying observations—arising in a few periods when wage inflation is almost constant between two years—with linear interpolations, and then applying a moving average filter to the series. Also, the sample period is extended to 2003 using forecasts to help avoid the end-point problem.

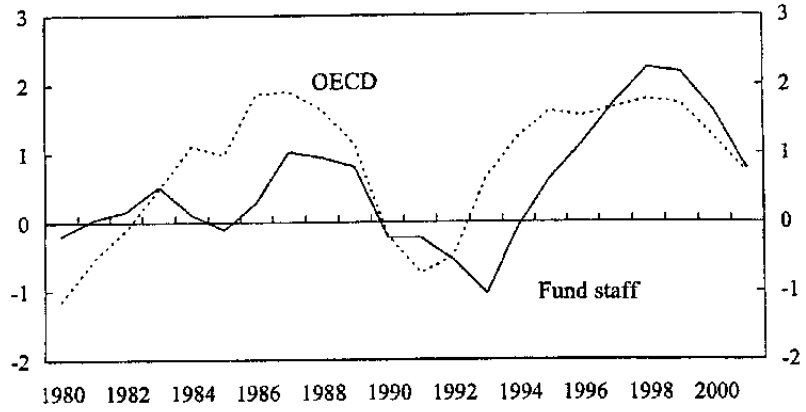
Figure A2. Unemployment Rate and the NAIRU, 1980-2001
(In percent)



39. Four comments regarding the NAIRU estimate are warranted:

- First, the new estimates imply an unemployment gap (the difference between unemployment and the NAIRU) that is relatively close to that produced by the OECD, especially in 2001 (Figure A3).

Figure A3. Unemployment Gap Estimates
(In percentage points)



Sources: OECD; and Fund staff estimates

- Second, the unemployment gap from 1980 to 2001 is estimated to have been positive on average, due largely to observations after 1994 (the average gap until that time was only 0.1 percentage point). The gap was especially large from 1997 to 1999. While this was a period when reforms were leading to greater labor market flexibility, it was also a time of sizable adverse shocks to labor demand—following from tighter monetary policy and sizable fiscal consolidation necessary to help meet the Maastricht criteria. Hence, it was possible for unemployment to remain high, and even rise, at a time when the NAIRU was thought to be on the decline.

- Third, these estimates are comparable to those implied by the bivariate model of the NAIRU presented by Boone and others (2002). Their model produces a range of estimates depending on the specification of the volatility of the NAIRU relative to the unemployment gap. Using a range of values for this volatility parameter that they argue is "reasonable" produces a range of NAIRU estimates spanning those presented above; these estimates also imply a persistent unemployment gap over the past decade or more.

- Fourth, staff project that on current policies, the NAIRU will decline only in the coming years, from 8.8 percent in 2001, to 8.7 percent in 2002, and 8.6 percent thereafter.

REFERENCES

Ahn, S., 2002, "Competition, Innovation and Productivity Growth: A Review of Theory and Evidence," OECD Economics Department Working Paper, No. 317.

Barro, R. and X. Sala-i-Martin, 1995, *Economic Growth* (New York: McGraw-Hill).

Baxter, M. and R.G. King, 1995, "Measuring Business Cycles: Approximate Band-Pass Filters for Economic Time Series," NBER Working Paper No. 5022 (Cambridge, Massachusetts: National Bureau of Economic Research).

Bentolila, S. and G. Saint-Paul, 1998, "Explaining Movements in the Labour Share," CEPR Discussion Paper No. 1958 (London: Centre for Economic Policy Research).

Bloom, D.E., D. Canning, and J. Sevilla, 2002, "Technological Diffusion, Conditional Convergence, and Economic Growth," NBER Working Paper No. 8713 (Cambridge, Massachusetts: National Bureau of Economic Research).

Boone, L., M. Juillard, D. Laxton, and P. N'Diaye, 2002, "How Well Do Alternative Time-Varying Parameter Models of the NAIRU Help Policymakers Forecast Unemployment and Inflation in the OECD Countries," IMF Working Paper, forthcoming.

Brandolini, A. and P. Cipollone, 2001, "Multifactor Productivity and Labour Quality in Italy, 1981–2000," Bank of Italy, Economic Research Discussion Paper No. 422.

De Masi, P.R., 1997, "IMF Estimates of Potential Output: Theory and Practice," IMF Working Paper 97/177 (Washington: International Monetary Fund).

Decressin, J., 2002, "Growth and Adjustment in Germany: Perspectives and Prospects," forthcoming IMF Selected Issues Paper.

Decressin, J., and others, 2001, *Selected Euro-Area Countries: Rules-Based Fiscal Policy and Job-Rich Growth in France, Germany, Italy, and Spain*, IMF Country Report No. 01/203 (Washington: International Monetary Fund).

Elmeskov, J., 1993, "High and Persistent Unemployment: Assessment of the Problem and Its Causes," OECD Economics Department Working Paper No. 132.

European Commission, 1999, "Comparison of Trend Estimation Methods," issues paper for the EPC Working Group on output gaps, II/346/99/EN.

Giorno, C., P. Richardson, D. Roseveare, and P. van den Noord, 1995, "Estimating Potential Output, Output Gaps and Structural Budget Balances," *OECD Economic Studies*, 24, pp. 167–209.

Hall, R.E. and C.I. Jones, 1999, "Why do Some Countries Produce So Much More Output Per Worker than Others?," *The Quarterly Journal of Economics*, 114:83-116.

Mc Morrow, K. and W. Roeger, 2001, "Potential Output: Measurement Methods, 'New' Economy Influences and Scenarios for 2001–10—A Comparison of the EU15 and the U.S.," European Commission Economic Papers No. 150.

OECD, 2002, *OECD Economic Surveys, 2001–02, Italy*.

Scarpetta, S., P. Hemmings, T. Tressel, and J. Woo, 2002, "The Role of Policy and Institutions for Productivity and Firm Dynamics: Evidence from Micro and Industry data," OECD Economics Department Working Papers No. 329.

Willman, A., 2002, "Euro Area Production Function and Potential Output: A Supply Side System Approach," ECB Working Paper Series No. 153.

III. Regional Wage Differentiation and Wage Bargaining Systems: The Case of Italy[28]

A. Introduction

40. The theoretical literature on the impact of the wage bargaining system on wage differentiation is extensive, but only few empirical studies exist, especially for the effects on regional wage differentiation. The consensus is that a centralized wage bargaining system, although it may help a low inflation policy, will be dominated either by the leading region or the medium region (in terms of productivity), causing low regional wage differentiation and high regional unemployment differentials (see literature review below). However, though the theoretical predictions are clear, empirical evidence is scant, with analysis hampered by data limitations at the regional level.

41. This issue is of particular importance for Italy. Italy has the highest regional unemployment differentiation in the EU but one of the lowest regional wage differentials. Unemployment in the South is almost four times higher than in the North, and while productivity in the South is estimated to be only 80 percent of that in the North, wages are about 90 percent.[29] Taking into account that the cost of living seems to be lower in the South, real wages in the South may actually be higher than in the North. It has been argued that Italy's very centralized wage bargaining system is one of the reasons for its low wage differentiation across regions, which in part explains its high regional unemployment imbalances.

42. This chapter argues that, indeed, centralized wage bargaining systems and low regional wage differentiation are often linked. Empirical evidence for the euro area suggests that countries with less centralized wage bargaining systems have higher regional wage differentials after controlling for regional productivity differentials and other wage determinants. Although the wage bargaining system explains only partly regional wage differences, the empirical evidence suggests that a more flexible wage bargaining system in Italy could increase regional wage differentiation.

43. The chapter uses the OECD (1997) index of coordination in wage bargaining to determine the centralization of the wage bargaining system in euro-area countries. A wage bargaining system is characterized as centralized if wages are determined primarily at the national level and decentralized if wages are determined primarily at the firm level. National level bargaining does not necessarily result in one uniform wage, since it often includes negotiations for wages by sector, or by region. A wage bargaining system is characterized as

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[28] Prepared by Athanasios Vamvakidis.

[29] In this chapter, South refers to the southern regions of Italy, including Sicilia and Sardegna, except if indicated otherwise, while North refers to all other regions (for a list of regions, see Table 5).

coordinated if wage negotiations between unions, employers, and the government are coordinated, either through national bargaining, or through other formal or informal mechanisms when wage negotiations are taking place at the sectoral, regional, or firm level. Even if a wage bargaining system is not characterized as centralized by the OECD indices, high coordination between unions, employers' organizations, and the government during decentralized negotiations produces the same outcome as in a system of wage bargaining at the national level. To take into account such cases, the degree of coordination is chosen as an indicator of the centralization of the wage bargaining system.

44. The chapter proceeds as follows: Section B discusses the Italian labor market, its characteristics and institutions, its regional disparities, and the wage determination process in Italy; Section C discusses the literature on the links between the wage bargaining system and regional wage differentiation and presents empirical evidence that, in the euro area, countries with less centralized wage bargaining systems have higher regional wage differentials after controlling for productivity differentials and other wage determinants; and Section D concludes, summarizing the main results and implications.

B. The Case of Italy

The Italian labor market

45. Italy's labor market performance lags behind other euro-area countries. Italy has the third highest unemployment rate in the euro area, the highest share of long-term unemployment, and the lowest participation rate (Tables 1 and 2). The employment protection legislation (EPL) in Italy is measured to be more strict than the euro-area average, despite reforms in the second half of the 1990s, and considerably more strict than in the United Kingdom and the United States, in particular for dismissals.

46. However, Italy's labor market performance differs sharply across regions (Table 3). The South has two-thirds of the unemployed and a 50 percent youth unemployment rate. The unemployment rate is about 20 percent in the South, while it is less than 5 percent in some regions of the North. The coefficient of variation of regional unemployment rates in Italy is the highest in the EU (Table 4). Moreover, regional unemployment disparities in Italy increased during the last two decades (Figures 1 and 2). According to a variance decomposition exercise for regional unemployment in OECD (2000), more than 70 percent of the explained regional variance of unemployment in Italy is due to region-specific factors, other than regional differences in education, gender, and age.[30] Although the regional mix of

[30] Pench, Sestito, and Frontini (1999) found that in Germany, Belgium, and Italy unemployment was significantly a regional problem based on a similar exercise.

Table 1. Labor Market Characteristics in Italy and Other Selected Economies, 1998 1/

	Italy	Euro Area 2/	Italy's Rank in the Euro Area 2/ 3/	United Kingdom	United States
Labor market conditions (2001)					
Natural rate of unemployment	8.7	8.3	5	5.5	4.8
Unemployment rate	10.0	8.5	3	5.1	4.8
Labor force participation rate	60.8	68.8	11	76.0	79.8
Employment growth (1991–2001)	2.1	6.1	8	6.1	14.7
Employment protection legislation					
Overall	3.3	2.7	3	0.5	0.2
Collective dismissals	4.1	3.1	1	2.9	2.9
Regular employment	2.8	2.6	3	0.8	0.2
Temporary employment	3.8	2.8	2	0.3	0.3
Dismissals protection					
Overall strictness of protection against dismissals	2.8	2.6	3	0.8	0.2
Regular procedural inconveniences	1.5	2.9	10	1.0	0.0
Notice and severance pay for no-fault individual dismissals	2.9	1.8	2	1.1	0.0
Difficulty of dismissal	4.0	3.3	2	0.3	0.5
Regulation of temporary contracts					
Overall strictness of regulation	3.8	2.8	2	0.3	0.3
Fixed-term contracts	4.3	2.7	1	0.0	0.0
Temporary work agencies	3.3	3.0	5	0.5	0.5
Collective dismissal protection					
Overall strictness relative to individual dismissals	4.1	3.1	1	2.9	2.9
Definition of collective dismissal	4.0	3.2	2	2.0	1.0
Additional notification requirements	1.5	0.9	2	1.5	2.0
Additional delays involved (in days)	44.0	30.0	2	57.0	59.0
Other special costs to employers	1.0	1.0	3	0.0	0.0
Replacement rate					
Couple with two children	54.0	70.8	10	64.0	61.0
Single	36.0	60.6	10	50.0	60.0
Tax wedge 4/					
In percent of wage	54.5	55.4	5	46.6	36.8
Duration of unemployment (more than 1 year, in percent) 4/					
Overall duration	60.8	48.8	1	28.0	6.0
Young	57.9	27.2	1	14.4	3.8
Women	60.9	50.0	2	19.0	5.3
Older than 55	62.1	65.4	6	42.1	16.6
Unions					
Union members/employees	39.2	26.4	4	33.4	...
Union density	38.8	26.2	4	33.4	...
Coverage of wage bargaining	82.0	89.4	8	47.0	18.0
Active labor market policies spending (in percent of GDP) 5/					
Overall	1.3	3.1	10	0.9	0.4
Active measures	0.6	1.2	8	0.4	0.2
Passive measures	0.6	1.7	10	0.6	0.3
Labor market training	0.1	0.3	9	0.1	0.0
Training for unemployed adults and those at risk	0.1	0.3	10	0.0	0.0
Training for employed adults	0.0	0.1	10	0.0	...
Youth measures	0.3	0.2	7	0.2	0.0
Measures for unemployed and disadvantaged youth	0.0	0.1	3	0.0	0.0
Support of apprenticeship and related forms of general youth training	0.2	0.1	11	0.1	...
Subsidized employment	0.3	0.4	3	0.0	0.0
Subsidies to regular employment in the private sector	0.2	0.1	8	0.0	...
Support of unemployed persons starting enterprises	0.0	0.0	5	...	...
Direct job creation (public or nonprofit)	0.1	0.2	10	...	0.0
Unemployment compensation	0.6	1.6	10	0.6	0.3
Early retirement for labor market reasons	0.1	0.1	9	...	...
Regional labor markets					
Unemployment rate (coefficient of variation)	75.3	45.9	1	53.0	...
Compensation per employee (coeficient of variation)	10.2	16.8	10	...	...

Sources: OECD, Labour Market Statistics (2001); Eurostat (2002); and IMF, *WEO* (2002) .

1/ Data are for 1998, except where indicated otherwise.

2/ Excluding Luxembourg.

3/ The rank decreases as the value of each variable increases. For example, Italy has the lowest labor force participation rate in the Euro area and is ranked as eleventh, while it has the highest coefficient of variation of regional unemployment rates and is ranked as first.

4/ 2000.

5/ 1999.

Table 2. Unemployment and Participation Rates in Selected OECD Countries: 1980–2001

	1980	1990	1995	2001	1980	1990	1995	2001
	Unemployment Rate				Participation Rate			
Euro area	5.6	8.4	11.1	8.5	65.1	64.9	66.0	68.8
Italy	5.6	9.1	11.7	10.0	60.9	59.6	57.4	60.8
Australia	6.0	6.8	8.2	6.9	70.6	74.4	75.2	75.8
Austria	1.4	4.1	5.3	4.8	80.1	78.0	76.5	77.6
Belgium	6.7	6.7	9.9	6.9	62.1	60.9	62.3	64.1
Canada	7.5	8.1	9.4	7.3	73.0	77.7	75.8	77.6
Germany	3.2	6.2	7.9	7.5	68.3	69.2	72.8	74.9
Denmark	6.0	7.7	7.3	4.7	77.8	82.9	79.6	80.5
Finland	4.7	3.1	15.5	9.2	75.2	76.8	72.5	74.9
France	6.2	8.9	11.4	8.9	68.4	66.6	67.0	69.2
Greece	2.8	7.0	10.0	11.2	58.1	61.5	62.5	64.0
Ireland	7.3	12.8	12.2	4.3	62.3	62.0	63.1	70.0
Netherlands	4.0	6.0	7.1	2.5	57.7	58.2	61.7	67.0
Norway	1.7	5.2	4.9	3.5	75.3	78.0	77.7	80.7
Portugal	8.4	4.9	7.2	4.2	67.9	71.0	71.1	75.3
Spain	10.9	15.7	22.7	13.3	61.8	62.2	62.4	66.1
Sweden	2.0	1.7	7.7	4.1	81.1	82.9	76.9	76.9
Switzerland	0.2	0.5	4.2	1.8	75.6	82.5	81.9	81.1
United Kingdom	6.1	5.9	8.5	5.1	74.5	76.5	75.3	76.0
United States	7.2	5.6	5.6	4.8	73.2	76.7	78.2	79.8 /1

Source: OECD, Labor Market Statistics, 2001.

1/ Data for the labor participation rate in the United States are for 1999.

Table 3. Regional Unemployment Rates, 1983–2000

	1983	1990	1995	2000
	Unemployment rate			
Italy	8.5	9.0	11.9	10.8
North West	6.9	5.8	9.1	6.8
North East	7.0	3.6	5.7	3.8
Center	7.7	6.4	8.1	6.0
South (excluding the islands)	11.5	15.7	18.8	20.0
Sicilia	11.7	19.3	22.0	24.2
Sardegna	15.9	16.8	21.1	20.5
	Youth unemployment rate (younger than 25)			
Italy	28.0	26.9	33.3	31.5
North West	25.7	20.6	28.5	21.1
North East	18.8	8.8	14.1	9.2
Center	25.8	19.4	24.0	16.7
South (excluding the islands)	35.3	44.3	50.1	49.6
Sicilia	38.1	52.7	56.5	58.5
Sardegna	49.5	45.5	51.6	49.5
	Unemployment rate excluding young (25 and older)			
Italy	4.2	5.5	8.4	8.3
North West	3.2	3.1	6.1	5.2
North East	3.8	2.4	4.1	3.1
Center	4.1	4.2	5.8	4.8
South (excluding the islands)	6.3	9.9	13.4	15.4
Sicilia	6.1	12.4	15.9	18.8
Sardegna	7.3	9.9	15.3	16.3

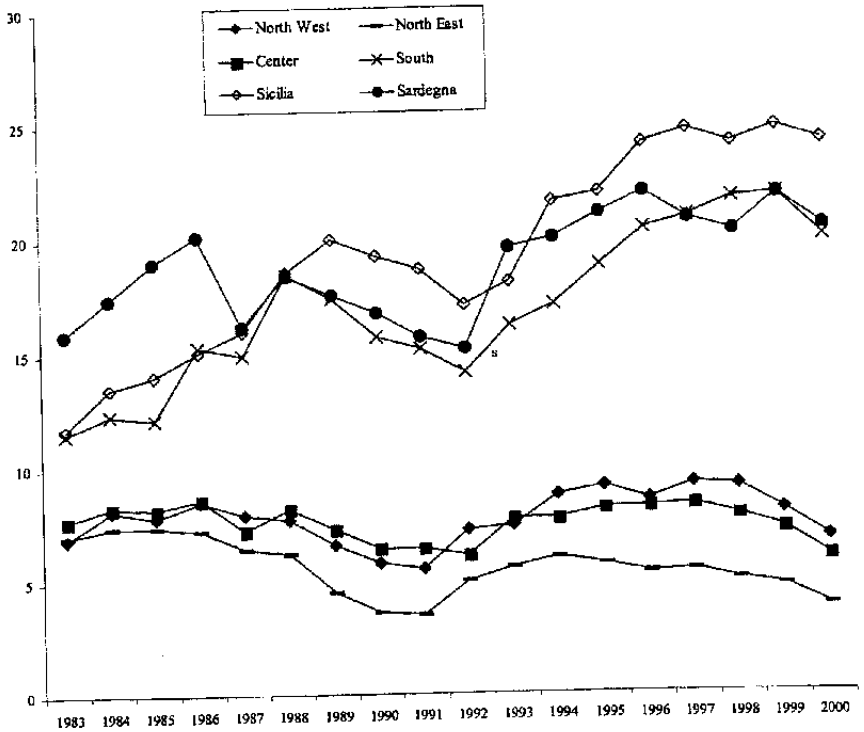
Source: Eurostat.

Table 4. EU, Unemployment Rate (Regional Coefficient of Variation)

	1990	1995	2000
EU	65.5	60.1	65.9
Italy	70.8	63.9	75.3
Belgium	43.8	41.1	57.8
Denmark	22.2	28.2	22.5
Germany	43.7	33.1	47.7
Greece	27.4	24.3	17.3
Spain	36.0	28.4	44.0
France	24.8	22.3	29.4
Ireland	12.9	11.8	23.2
Netherlands	26.9	19.3	33.2
Austria	...	36.0	33.8
Portugal	50.6	30.3	32.5
Finland	51.7	16.0	34.7
Sweden	41.1	17.8	31.8
United Kingdom	47.1	35.8	53.0

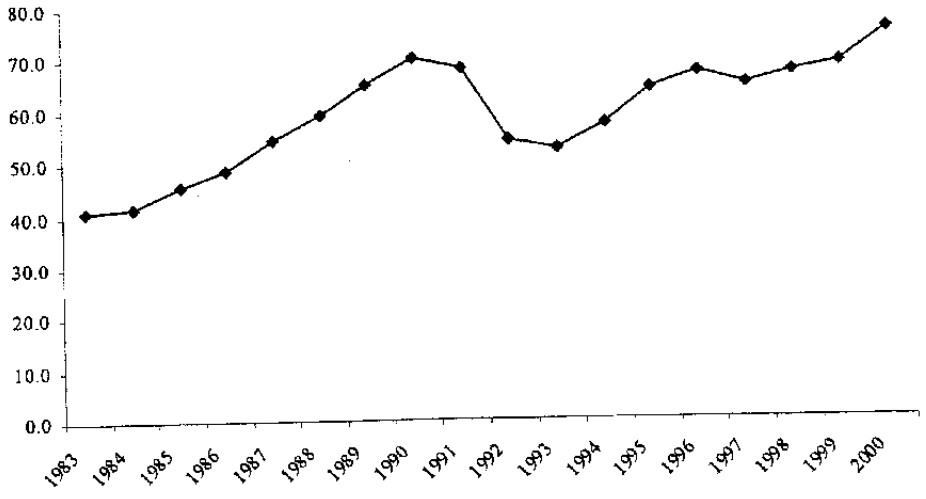
Source: Eurostat.

Figure 1: Regional Unemployment Rates, 1983–2000[1]



Source: Regional Statistics, Eurostat.
1/ The South excludes the islands.

Figure 2. Regional Coefficient of Variation for Unemployment Rates, 1983--2000



Source: Regional Statistics, Eurostat.

industries may contribute to this result, the study finds a very low correlation between regional unemployment rates and the proportions of employment in agriculture, manufacturing, and services in OECD countries.

47. The large differences in regional unemployment rates in Italy could be the result of regional shocks, or/and regional employment and unemployment responding asymmetrically to common aggregate shocks. For example, the South experienced a reduction in government employment and, following findings of abuse of public funds, a drop in construction activity in the 1990s.[31] Bayoumi and Prasad (1997) found industry-specific shocks to be more important than aggregate shocks for explaining disaggregated output growth fluctuations in Italy. Brunello, Lupi, and Ordine (2001), following Blanchard and Katz (1992) and Jimeno and Bentolila (1998), found similar evidence regressing the employment growth of each Italian region on the employment growth of the rest of the country for the period 1965–94. The authors took a low R^2 in the southern regions as evidence that idiosyncratic shocks were relatively more important than aggregate country shocks in the South. Replication of their methodology for the period 1983–2000 confirms that the R^2 in the South is lower than in North, although this is not the case for some of the large regions, including Sicilia and Sardegna (Table 5). Still, the estimates show a very large variation of regional responsiveness to aggregate shocks across regions.

48. Regional wages in Italy do not seem to reflect regional labor market conditions. Italy has one of the lowest coefficients of variation for regional wages in the euro area, indicating an inability of wages in the high unemployment regions to decline in relative terms (Table 6). The regional coefficient of variation of wages declined during the 1990s up until 1997, while wages in the South as a percent of wages in the North remained broadly constant at more than 90 percent (Figures 3 and 4; and Table 7). This implies that although the relative wages of the North and South did not change during this period, wage variation within the North and South declined. The inability of wages in the high unemployment regions in Italy to decline in relative terms is one of the factors limiting migration to the low unemployment regions—Italy has the lowest internal migration share in the OECD (according to the most recently available data), notwithstanding an increase in migration flows in recent years. Moreover, the lack, or at least inadequacy of a wage adjustment mechanism at the regional level in Italy implies that temporary regional shocks may have permanent effects on regional unemployment.

[31] See Decressin (2000).

Table 5. Responsiveness of Regional Employment to Aggregated Shocks: Regressing Regional Employment Growth on Employment Growth in the Rest of Italy

Regions	R^2	Estimate	T-statistic
North			
Piemonte	0.36	0.68	4.17
Lombardia	0.67	0.96	6.82
Trentino	0.22	0.42	2.68
Liguria	0.17	0.93	1.49
Veneto	0.30	0.58	3.14
Friuli	0.26	0.57	2.23
Emilia	0.44	0.71	3.72
Toscana	0.32	0.49	2.78
Umbria	0.13	0.64	1.1
Marche	0.38	0.74	3.44
Lazio	0.70	1.09	6.73
Abruzzo	0.28	0.98	3.08
South			
Molise	0.33	1.56	2.15
Campania	0.41	1.47	5.61
Puglia	0.29	0.89	2.44
Basilicata	0.09	0.8	2.16
Calabria	0.15	0.79	2.12
Sicilia	0.57	1.79	5.64
Sardegna	0.52	1.08	5.76

Table 6. Compensation Per Employee and Gross Internal Migration in Selected OECD Countries

	Compensation per Employee, 1998	Gross Internal Migration Flows, Share of Population, 1995
Coefficient of Variation		
Euro area, average	16.8	...
Italy	10.2	0.50
Austria	20.9	...
Belgium	11.3	1.27
Finland	38.2	0.92
France	9.9	1.49
Germany	21.8	1.24 (1993)
Netherlands	15.8	1.61
Portugal	21.5	0.54 (1990)
Spain	16.3	0.60
Sweden	15.9	1.61
United Kingdom	19.3 (1995)	2.3 (1998)
United States	16.7 (1995)	2.22

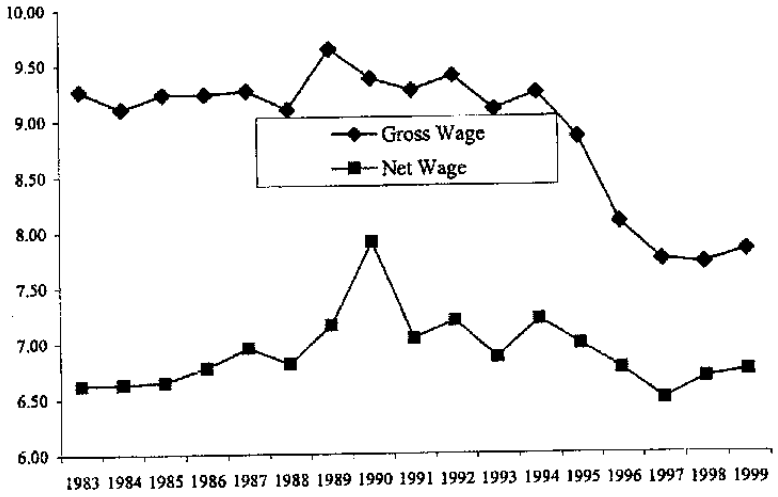
Sources: Eurostat and OECD.

Table 7: Gross Nominal Wages in the South Over Total Labor Force, Italy = 100

	1995	1996	1997	1998
Agriculture/forestry/fishing	133.1	132.6	130.8	127.9
Industry	89.0	89.6	88.9	88.2
Manufacturing	85.0	86.3	85.9	85.2
Construction	99.2	99.0	101.1	101.4
Business and financial services	85.5	85.1	87.3	86.7
Other traded services	82.5	83.5	85.8	85.5
Non-traded services	104.0	104.7	104.2	104.1
Total	91.9	92.5	93.0	92.5

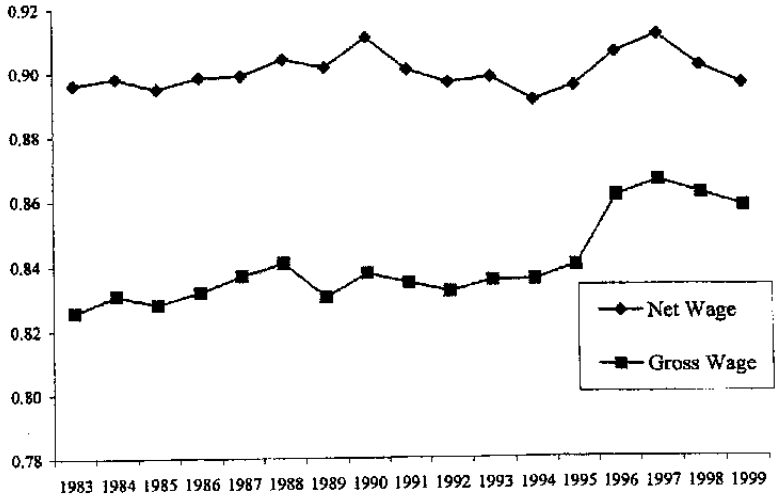
Sources: ISTAT and Davies and Hallet (2001).

Figure 3. Regional Wage Coefficient of Variation
(20 regions), 1983–99



Source: ISTAT.

Figure 4: Wages in the South as a Percent of Wages in the North,
1983–99



Source: ISTAT.

49. Micro evidence also show low wage differentiation in Italy. Mauro, Prasad, and Spilimbergo (1999) used the 1995 Bank of Italy's household survey. After controlling for differences in workers' level of education, experience, and other characteristics, they found that differentials in hourly wages between the North and the South in Italy was only 12 percent. Using a more recent household survey, Brandolini, Cipollone, and Sestito (2002) found that although the mean real monthly earnings in the South were 15 percent lower than in the North at the end of 1970s, this gap was eliminated by the end of the 1980s. However, they also found that the gap increased during the 1990s, with average wages in the South at 13 percent of average wages in the North, a gap more consistent with what is found in Mauro, Prasad, and Spilimbergo (1999).

50. Regional wage differentials in Italy seem smaller than what a competitive labor market would have produced according to some indicators. Labor productivity in the South is estimated to be about 80 percent of labor productivity in the North (Table 8). It is likely that the differential would have been even higher if the South had a lower unemployment rate, assuming that the ones currently employed in the South are the most productive workers. Although there are no data for regional price level comparisons in Italy, the accumulated difference in prices between North and South in the period 1947–98 is estimated to be 14 percent—a period over which wage differentials narrowed.[32] Although this difference declines to 5 percent if an outlier is excluded—Potenza, a relatively small city in the South—a relatively high price gap between South and North must have been already present in the immediate postwar period given the income gap. This implies that real wage differentials between South and North are even smaller than nominal differentials. Based on a labor supply model described in Decressin (2000), higher unemployment by 1 percentage point in Italy should lead to lower wages by 1 percentage point. This implies that the current unemployment gap between North and South in Italy should had led to a wage gap of about 15 percentage points. It has been argued that wages above the equilibrium level in the South have contributed to the growth of the informal economy—one third of total employment in the South is in the informal economy, compared with 20 percent in Italy as a whole.[33]

51. Regional wages converged in Italy during the 1970s. Wages in the South increased from about half the level of wages in the North in 1960, to 90 percent by the early 1980s and remain at about this level since then.[34] The regional coefficient of variation of wages declined from 19 percent in 1974 to 12 percent by the mid-1980s (Figure 5). Erickson and Ichino (1994) found that the coefficient of variation of wages across industries declined during this period and argued that this was caused by the egalitarian wage-setting institutions in Italy and inflation indexation (see below).

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[32] This is an updated estimate of the one in Alesina, Danninger, and Rostagno (1999), which stops in 1995. However, no significant change took place in the period 1995–98.

[33] See Davies and Hallet (2001).

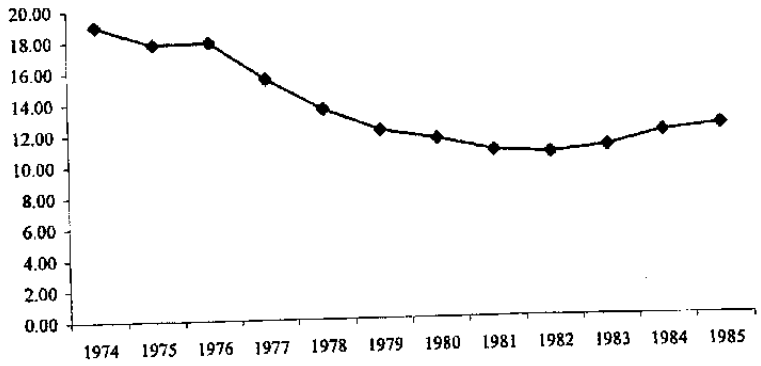
[34] See Davies and Hallet (2001).

Table 8. Labor Productivity by Region, 1995–99

	1995	1996	1997	1998	1999	1995–99
			(Thousands of euros per employee)			
Labor productivity						
Italy	42.1	48.5	51.4	52.5	53.7	n.a.
North West	43.5	49.4	53.4	55.0	55.9	n.a.
North East	43.6	49.5	52.0	53.4	54.6	n.a.
Center	40.1	46.5	49.6	51.2	52.5	n.a.
South (excluding the islands)	33.5	39.7	42.5	42.6	44.3	n.a.
Sicilia	36.5	43.5	46.1	46.3	47.6	n.a.
Sardegna	36.8	42.8	44.6	45.5	47.0	n.a.
Productivity growth rate						
Italy	n.a.	15.3	6.0	2.1	2.3	27.7
North West	n.a.	13.5	8.0	3.1	1.5	28.4
North East	n.a.	13.6	5.0	2.8	2.3	25.4
Center	n.a.	16.0	6.7	3.4	2.5	31.1
South (excluding the islands)	n.a.	18.8	6.8	0.3	4.0	32.4
Sicilia	n.a.	19.0	6.0	0.5	2.8	30.3
Sardegna	n.a.	16.2	4.3	2.0	3.3	27.8

Source: Eurostat.

Figure 5: Coefficient of Variation, Hourly Wages of Blue Collar Workers, 1975–85



Source: Erickson and Ichino (1995).

52. The compression of regional wage differentials in Italy went hand-in-hand with an increase of regional unemployment differentials. While the unemployment rates in the North and South were almost equal in the mid-1960s, 5.6 percent and 6 percent, respectively, unemployment in the South increased to almost four times higher than that in the North by 2000.[35] Although this does not show causality—that less wage differentiation led to high unemployment disparities—it is consistent with empirical evidence below suggesting that this was indeed the case.

53. Empirical evidence suggests that wages in the South are determined by the labor market conditions of the North. Brunello, Lupi, and Ordine (2001) estimated a wage equation for a panel of regions in Italy for the period 1970–94 and found that the unemployment rate in the North was driving the wage determination process in the whole country. When they estimated a wage equation only for the regions of the South, they found that the unemployment rate in the South did not have a statistically significant impact on wages, while the unemployment rate in the North did. Similar evidence in Brunello, Lupi, and Ordine (2000) show that increases in the southern unemployment rate do not affect aggregate wages.

54. This evidence is confirmed using also more recent Italian data, concerning the period 1983–99. We estimate the following wage equation for five regions in the South (the only southern regions with available data included: Puglia, Basilicata, Calabria, Sicilia, Sardegna):

$$\Delta \ln w_{it} = c + c_1 T + c_2 \Delta \ln u_{it} + c_3 \ln w_{it-1} + c_4 \ln u_{it-1} + c_5 \ln u_{Nt-1} + \varepsilon_{it} \quad (1)$$

[35] See Brunello, Lupi and Ordine (2000).

where w_{it} is the wage in region i, T is a linear trend, u_{it} is the unemployment rate in region i, and u_{Nt} is the unemployment rate in the North Italy. The estimated equation is the following:

$$\Delta \ln w_{it} = \underset{(2.91)}{0.35} + \underset{(-1.10)}{0.00T} + \underset{(0.99)}{0.01\Delta \ln u_{it}} - \underset{(-1.73)}{0.06 \ln w_{it-1}} + \underset{(1.44)}{0.02 \ln u_{it-1}} - \underset{(-2.57)}{0.06 \ln u_{Nt-1}} + \varepsilon_{it} \quad (2)$$

Adj. R^2: 0.58
Observations: 85
Heteroskedasticity-consistent t-statistics in parenthesis.

55. The evidence suggests that the wage in the South is significantly affected by the unemployment rate in the North. A high unemployment rate in the North seems to result in a decline of the wage in the South with one period lag. By contrast, the unemployment rate in the South does not have a statistically significant coefficient.[36] This evidence suggests that wage determination in Italy is driven by the labor market conditions in the low unemployment regions, that is, the North.[37]

The wage determination system in Italy

56. The institutional features of the Italian labor market have been pointed out as a cause of low regional wage differentiation.[38] The wage indexation system was modified in 1975 to provide similar cost of living adjustments for all workers. This was followed by a sharp decline of wage differentiation. Although indexation was abolished in 1992, Italy's centralized wage bargaining system kept regional wage differentials low. Despite some steps in 1993 to make the wage determination system more flexible, the centrally negotiated wage floor accounts for a substantial portion of most wages in Italy (see below).[39]

57. Italy has a centralized and coordinated wage determination system, with high union density and coverage, compared with other industrial countries (Table 9). The collective bargaining structure in selected OECD economies is assessed based on indices for the level of wage bargaining and the level of coordination among employers and trade unions from

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[36] The results are robust to adding regional dummies in the regression, or to 2 SLS estimation (with the lagged change in the regional unemployment rate, the change in the national unemployment rate, and the first lag of a cyclical indicator, obtained as the residual from fitting regional GDP on a quadratic trend, as instruments); see Brunello, Lupi and Ordine (2001).

[37] Estimating this equation for the period after the reforms of 1992 results in positive but statistically insignificant estimates for the unemployment rates of the South and the North. Although this is consistent with the often heard argument that wage determination was driven by the government's income policy during this period, it may be the result of small sample size.

[38] See, for example, Prasad and Utili (1998), and Mauro, Prasad, and Spilimbergo (1999).

[39] See Mauro, Prasad, and Spilimbergo (1999).

Table 9. Collective Bargaining Characteristics of Selected OECD Countries

	1980	1990	1994	1980	1990	1994	Late 1990s	1980	1990	1994	1980	1990	1994
	Bargaining Coverage			Trade Union Density				Centralization			Coordination		
Australia	88	80	80	49.6	45.9	38.0	34.7	2.25	2.25	1.50	2.25	2.25	1.50
Austria	98	98	98	49.4	44.7	41.1	37.4	2.25	2.25	2.25	3.00	3.00	3.00
Belgium	90	90	90	53.4	50.1	53.2	53.6	2.25	2.25	2.25	2.00	2.00	2.00
Canada	37	38	36	36.4	36.2	36.1	36.1	1.00	1.00	1.00	1.00	1.00	1.00
Denmark	69	69	69	76.0	73.0	76.8	75.1	2.25	2.00	2.00	2.50	2.25	2.25
Finland	95	95	95	69.2	72.2	78.0	76.1	2.50	2.25	2.25	2.25	2.25	2.25
France	85	92	95	18.5	10.3	10.2	9.9	2.00	2.00	2.00	1.75	2.00	2.00
Germany	91	90	92	36.0	33.0	30.3	26.1	2.00	2.00	2.00	3.00	3.00	3.00
Italy	85	83	82	49.3	38.8	38.8	38.8	1.75	1.75	2.00	1.50	1.50	2.50
Japan	28	23	21	31.1	25.4	24.3	21.5	1.00	1.00	1.00	3.00	3.00	3.00
Netherlands	76	71	81	31.1	25.3	26.4	24.8	2.00	2.00	2.00	2.00	2.00	2.00
New Zealand	67	67	31	59.8	51.3	29.3	22.2	2.00	1.50	1.00	1.50	1.00	1.00
Norway	75	75	74	56.9	56.0	57.8	56.3	2.00	2.25	2.25	2.50	2.50	2.50
Portugal	70	79	71	60.7	30.4	26.1	24.2	2.75	2.25	2.00	1.75	2.00	2.00
Spain	76	76	78	9.0	12.1	19.6	17.4	2.25	2.00	2.00	2.00	2.00	2.00
Sweden	86	86	89	80.0	84.0	91.1	87.7	3.00	2.25	2.00	2.50	2.25	2.00
Switzerland	53	53	50	26.5	23.6	24.1	21.7	2.00	2.00	2.00	2.25	2.25	2.25
United Kingdom	70	47	47	55.3	42.6	37.5	33.4	2.00	1.75	1.50	1.50	1.25	1.00
United States	26	18	18	22.1	16.0	16.0	16.0	1.00	1.00	1.00	1.00	1.00	1.00

Source: OECD (1997 and 2001).

OECD (1997). The indices take values from 1 to 3, with 1 for the lowest level of centralization or coordination.[40] Italy has a relatively centralized collective bargaining system and a high degree of coordination. Many other European countries have centralized and highly coordinated collective bargaining systems, including Austria, Germany, and Norway.[41] Furthermore, unions play a key role in the wage determination process in Italy—although only 39 percent of Italian workers are union members, wage bargaining decisions are very coordinated and result in national contracts that cover 82 percent of Italian workers.

58. The bargaining structure in Italy changed in mid-1993 following an agreement between the government and the social partners. Prior to that date, the following features characterized the wage determination process: backward-looking wage indexation linked to the national cost of living (*scala mobile*), from 1946 to 1992, which from the mid 1970s to the mid-1980s took the form of a flat-amount indexation system irrespective of the actual wage level leading to occupational and regional wage compression; a system from 1961 to 1969 allowing for sectoral wage differentials but limited to a maximum of 20 percent; and the system of national agreements, introduced in 1969, which set national wage floors by sector.[42] Some large firms introduced pay incentives schemes in the mid-1980s but without any legislative framework. The 1993 agreement established new rules for collective and firm-level bargaining, after the abolition of the backward wage indexation system in 1992.[43] The bargaining system after 1993 still has two levels, but precise definitions determine the issues that can be negotiated at each level and the rules that regulate negotiations on wages. The two levels are now defined as: national bargaining at the sectoral level, which defines normative (in four-year agreements) and economic aspects (in two year agreements); and company bargaining (four-year agreements), which allows for performance-related pay, in addition to what was agreed at the sector-level bargaining.[44]

59. Sector-level bargaining at the national level is still the most relevant system for the majority of employees in Italy. Income policy and welfare benefits are decided at the national level and apply to all sectors; wage increases are decided at the national/sectoral level; and the wage drift is negotiated at the local level, but primarily in large firms in the North.

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[40] The OECD indices stop in 1994, but very few countries have reformed their collective bargaining systems since then.

[41] However, Decressin and Decressin (2002) argue that Germany's wage bargaining system is neither fully centralized nor fully decentralized.

[42] See Demekas (1995), Erickson and Ichino (1995), Mauro, Prasad, and Spilimbergo (1999), and Davies and Hallet (2001).

[43] See Demekas (1995) and Casadio (2001) for details.

[44] The recent Accord for Employment (has not been voted to a law yet) introduces measures that are expected to increase labor market flexibility in Italy but does not address the problem of low wage differentiation. The accord eases some dismissal restrictions, facilitates job matching, strengthens public employment agencies, and promotes job-oriented education, in addition to measures to further liberalize part-time contracts and to increase unemployment benefits.

However, firm-level bargaining, often in the form of wage increments on the basis of corporate performance, covered only an estimated 4 percent of employees in 1994–97.[45] Centralized bargaining results in legally binding wage floors by sector and by occupation, which are then applied uniformly across regions.

C. Wage Bargaining System and Regional Wage Differentiation

60. This section focuses on the links between the wage bargaining system and regional wage differentiation. Empirical evidence for the euro area suggests that after controlling for productivity differentials and other wage determinants, countries with less centralized wage bargaining systems (with relatively more firm level wage bargaining taking place) have higher regional wage differentiation. However, the evidence shows that a considerable part of regional wage differentiation in the euro area remains unexplained.

61. The results suggest employment in the South could be increased by adopting a more flexible wage bargaining system. Although the wage bargaining system explains only partly regional wage differences, the evidence suggests that decentralizing wage bargaining (allowing more firm-level bargaining) matters.

Literature review

62. It has been argued that centralization of the wage bargaining process tends to reduce wage dispersion. In a centralized wage bargaining system, in which wages are negotiated at the national level, unions may tend to favor the median voter. Uncertainty about wages after the negotiating process could result in the compression of wage differentials by unions. Pench, Sestito, and Frontini (1999) present a model with some empirical evidence for EU countries suggesting that in countries with centralized labor markets and large interregional productivity differentials, decisions are tailored for the median region, resulting in a wage floor consistent with high unemployment in the less productive regions. Furthermore, unions may prefer a solidaristic wage policy, in which average productivity determines wages.[46]

63. If a country, in addition to a centralized wage bargaining system, has regional economic asymmetries, then it is in the interest of the union members in the more developed regions to have wages above equilibrium in the less developed regions. Saint-Paul (1997) argued that wages in Italy and Germany are determined in the leading regions, North in Italy and West in Germany, and that the union members in the leading regions have an incentive to keep wage differentiation low to slow down migration flows.[47]

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[45] G. Cainelli, R. Fabbri, P. Pini, "Il premio di risultato in Emilia Romagna: modalità contrattuali e determinanti," Quaderni del Dipartimento di Economia, Istituzioni e Territorio dell'Università di Ferrara (1999).

[46] See Demekas (1995).

[47] Although Decressin and Decressin (2002) found no compelling evidence for wage floors that constrain the adjustment of wages of the less well paid in Germany.

64. The parties with decision power in a centralized wage bargaining system may prefer a low regional wage differentiation. Workers and employers in the leading regions do not want higher competition from lower wages in the lagging regions, while the employed in the lagging regions prefer high wages. The groups who would benefit from higher regional wage differentiation include the group of unemployed in the lagging regions, who do not have much of a bargaining power, and the employers in the lagging regions, who although may participate in the decision process they may be less powerful than the employers in the leading regions.

65. In a country with a centralized wage bargaining system and with wages determined by the leading region, low wage dispersion could coexist with high unemployment variation. A negative economic shock will increase unemployment in the lagging region without affecting wages, while the same shock in the leading region will reduce wages. As a result, the impact of a negative shock on employment will be smaller in the leading region and will not last as long as in the lagging region. If local wages were determined by local economic conditions, then temporary asymmetric economic shocks would not cause permanent regional unemployment disparities.[48] Some empirical evidence are in support of this argument, showing that in a centralized wage bargaining system, negative shocks have a larger impact on poor regions (see Pench, Sestito, and Frontini, 1999).[49]

66. The literature on the costs and benefits of various wage bargaining systems has primarily focused on the impact of each system on total unemployment and inflation. Bruno and Sachs (1985) found that centralized wage bargaining systems result in lower unemployment. Calmfors and Driffil (1988), Flanagan, Moene and Wallerstein (1993), and Cukierman and Lippi (1999) found that either centralized or very decentralized (firm level) bargaining systems result in lower unemployment and lower wages—while intermediate systems, with negotiation at the industry level, result in higher unemployment and higher wages. According to this evidence, extremes work better—a centralized bargaining system results in lower wage demands to internalize unemployment externalities, while a decentralized bargaining system results in a similar outcome because of high competition at the firm level. Both factors are absent when negotiations are at the industry level, since industry unions do not internalize the externality of their wage demands to the rest of the economy, and competition is low across different industries. However, this evidence is not robust as OECD (1997) has shown, and the debate is still open.

Wage bargaining centralization and regional wage differentiation in the euro area: empirical results

67. This section provides estimates on the link between the degree of centralization in the wage bargaining system and regional wage differentials in the euro area. As the previous

[48] See Brunello, Lupi and Ordine (2001).

[49] For similar evidence at the industry level, see Thomas (2002).

section concluded, theory suggests that a centralized wage bargaining system implies small regional wage differentials. The OECD provides indices for both the level of centralization and coordination of wage bargaining. A wage bargaining system is characterized as centralized or decentralized, depending on the extent that wages are decided at the national level, or at the firm level respectively. National level bargaining does not necessarily result in one uniform wage, since it often includes negotiations for wages by sector, or region. A wage bargaining system is characterized as coordinated if wage negotiations between unions, employers, and the government are coordinated, either through national bargaining, or through other formal or informal mechanisms when wage negotiations are taking place at the sector, regional, or firm level. In the analysis reported below, the degree of coordination is chosen as an indicator of the centralization of the wage bargaining system since even if wages are determined at the firm or sector level, high coordination between unions, employers' organizations, and the government produces the same outcome as in a system of wage bargaining at the national level (OECD, 1997).

68. The sample includes all euro-area countries (except Greece, Luxembourg, and Ireland) and Sweden. The choice of the countries in the sample is based on data availability in the Regional Statistics of Eurostat, which is the source for all data but the index of coordination of the wage bargaining system, which comes from OECD (1997). The sample is a panel of 10 countries and 126 regions for 1998 (the only year with available regional wage data). The dependent variable is the difference between the wage in a region and the wage in the whole country of this region, measured as the absolute value of 1 minus the ratio of the wage in a region with the national wage (absolute values are taken because the estimation attempts to find the determinants of regional wage differentials regardless if they are positive or negative). The independent variables include: the regional labor productivity differential compared with the labor productivity in the respective country, the regional unemployment differential compared with the unemployment rate in the respective country, the OECD index of coordination of the wage bargaining system in each country (this is the same for each region within the same country), and country size, to control for a possibility that small countries may have small regional differentials.

69. The results suggest that the more coordinated the wage bargaining system in a country the smaller its regional wage dispersion, after controlling for other determinants of regional wage differentiation (Table 10). The first regression includes only the productivity differential and the coordination index. The second and third add the country size and the unemployment differential. The last regression includes country fixed effects instead of the coordination index. The estimates of the coordination index in the first three regressions are negative and statistically significant (although only at the 10 percent level when the unemployment differential is included in the third regression). The country size and the

Table 10. Italy: Regional Wage Differentiation and Coordination in Wage Bargaining: Euro Area, 1998

Constant	0.150	0.134	0.14	
	(4.03)	(1.60)	(1.67)	
Productivity differential	0.569	0.571	0.566	0.602
	(7.10)	(6.92)	(6.98)	(6.79)
Coordination in wage bargaining	-0.035	-0.035	-0.038	
	(-2.14)	(-2.13)	(-1.91)	
Country size		0.001	0.001	
		(0.21)	(0.17)	
Unemployment differential			0.017	
			(0.4)	
Italy				0.005
				(0.19)
Austria				0.084
				(3.12)
Belgium				0.078
				(3.87)
Finland				0.171
				(1.66)
France				0.100
				(6.83)
Germany				0.041
				(1.97)
Netherlands				0.058
				(2.25)
Portugal				0.076
				(2.76)
Spain				0.070
				(4.05)
Sweden				0.079
				(3.10)
Adj. R-squared	0.31	0.31	0.32	0.36
Observations	126	126	126	126
S.E. of Regression	0.09	0.09	0.09	0.09
Sum squared residuals	1.03	1.03	1.03	0.89
Mean dependent variable	0.145	0.145	0.145	0.145
S.D. dependent variable	0.11	0.11	0.11	0.11

Note: White Heteroskedasticity-Consistent t-statistics in parenthesis.

unemployment differential have the expected signs but are not statistically significant. The correlation of the country fixed effects in the last regression with the coordination index is -0.3 (this regression excludes the country size and the unemployment differential since they were not found to be statistically significant), suggesting, with some caution given the small sample, that the more coordinated the wage bargaining system in a country the smaller the regional wage dispersion. However, the relatively low explanatory power of the estimated equation (with an adjusted R^2 equal to between 31 and 36 percent) implies that a large part of regional wage differences in the euro area remains unexplained. It is somewhat surprising that the estimate for the productivity differential is smaller than 1. These results should be treated as only suggestive, since the sample of countries is small, with a relatively small variation in their wage bargaining characteristics (most countries in Europe have relatively centralized and coordinated wage bargaining systems). Moreover, the work on wage bargaining indices is still in progress, implying that existing indices may suffer from measurement errors.

70. The results imply that regional wage differentials are likely to increase in Italy if a more decentralized wage bargaining system were adopted. If Italy's coordination index declines from its current value of 2.5 to the minimum value of the index of 1, regional wage differences will increase by about 5½ percentage points, keeping productivity differences constant. This would bring Italy's regional wage differentials to a level slightly smaller than the euro-area average, with the remaining difference explained by other wage determinants.

D. Conclusions

71. Even though Italy has very high regional unemployment disparities, it has very low regional wage differentiation. This chapter investigated the empirical relationship between Italy's very centralized and coordinated wage bargaining system and its low regional wage differentiation.

72. The empirical results suggest that countries with relatively centralized or coordinated wage bargaining systems tend to have smaller regional wage differentials. Although the wage bargaining system explains only part of the regional wage differences, the empirical evidence suggests that a more decentralized wage bargaining system in Italy could increase regional wage differentiation. Strengthening company-level bargaining within the existing two-tier bargaining system could lead to similar results. To further investigate the robustness of these results, it would be useful for future work to increase the country sample, to improve the indices of wage bargaining, and to investigate the role of other determinants of regional wage differentials in addition to the ones pointed out in this chapter.

REFERENCES

Alesina, Alberto, Stephan Danninger, and Massimo Rostagno, 1999, "Redistribution Through Public Employment: the Case of Italy," IMF Working Paper 99/177 (Washington: International Monetary Fund).

Bayoumi, Tamim and Eswar Prasad, 1997, "Currency unions, economic fluctuations, and adjustment: some new empirical evidence", *IMF Staff Papers* 44, 36-58.

Blanchard, Olivier J. and Lawrence F. Katz, 1992, "Regional evolutions", *Brooking Papers of Economic Activity* 0, 1-61.

Brandolini, Andrea, Cipollone Piero, and Paolo Sestito, 2002, "Earnings Dispersion, Low Pay, and Household Poverty in Italy, 1977–98", in *The New Economics of Rising Inequalities*, ed. by Cohen, Piketty and Saint-Paul, forthcoming, (Oxford University Press).

Brunello, Giorgio, Claudio Lupi, and Patrizia Ordine, 2000, "Regional Disparities and the Italian NAIRU", Oxford Economic Papers 52, 146–177.

———, 2001, "Widening Differences in Italian Regional Unemployment", *Labour Economics* 8, 103–129.

Bruno, Michael, and Jeffrey D. Sachs, 1985, "*Economics of Worldwide Stagflation*", (Harvard University Press, Cambridge, Massachusetts).

Calmfors, Lars. and Driffill John, J., 1988, "Wage Structure, Corporatism and Macroeconomic Performance", *Economic Policy*, 14–61.

Casadio, Piero, 2001, "Wage Formation in the Italian Private Sector after the 1992–93 Income Policy Agreements," Bank of Italy, Research Department.

Cukierman, Alex and Francesco Lippi, 1999, "Central Bank Independence, Centralization of Wage Bargaining, Inflation and Unemployment: Theory and Some Evidence," European Economic Review 43, 1395–1434.

Davies, Sara and Martin Hallet, 2001, "Policy Responses to Regional Unemployment: Lessons from Germany, Spain and Italy," Economic Papers 161.

Decressin, Anja and Jorg Decressin, 2002, "On Sand and the Role of Grease in Labor Markets," IMF Working Paper, forthcoming.

Decressin, Jorg, 2000, *Italy—Selected Issues*, Chapter I, IMF Staff Country Report No. 00/82 (Washington: International Monetary Fund).

Demekas, Dimitri G, 1995, "Labour Market Institutions and Flexibility in Italy", *Labour* 9, 3–43.

Erickson, Christopher L., and Andrea C. Ichino, 1995, "Wage Differentials in Italy: Market Forces , Institutions, and Inflation," in *Differences and Changes in Wage Structures*, National Bureau of Economic Research Comparative Labor Markets Series, 265–305, (Chicago and London: University of Chicago Press).

Flanagan, R. J, K. O. Moene, and M. Wallerstein, 1993, "Trade Union Behaviour, Pay-Bargaining, and Economic Performance," FIEF Studies in Labour Markets and Economic Policy, Oxford University Press, Clarendon Press.

Jimeno, Juan F. and Samuel Bentolila, 1998, "Regional Unemployment Persistence (Spain, 1976–1994)," *Labour Economics* 5, 25–51.

Mauro, Paolo, Eswar Prasad, and Antonio Spilimbergo, 1999, "Perspectives on Regional Unemployment in Europe," IMF Occasional Paper 1777 (Washington: International Monetary Fund).

OECD, 2000, "Disparities in Regional Labour Markets," *Employment Outlook*, Chapter 2.

OECD, 1997, "Economic Performance and the Structure of Collective Bargaining," *Employment Outlook*, Chapter 3.

Pench, Lucio R., Paolo Sestito and Elisabetta Frontini, (1999), "Some Unpleasant Arithmetics of Regional Unemployment in the EU: Are There Any Lessons for EMU?," Economic Papers 134.

Prasad, Eswar and Francesca Utili, 1998, "The Italian Labor Market: Stylized Facts, Institutions, and Directions for Reforms," IMF Working Paper 98/42 (Washington: International Monetary Fund).

Saint-Paul, Gilles, 1997, "Economic Integration, Factor Mobility and Wage Convergence," (Centre for Economic Policy), Research Discussion Paper No. 1597.

Thomas, Alun, 2002, "The Costs and Benefits of Various Wage Bargaining Structures: An Empirical Exploration," IMF Working Paper 02/71 (Washington: International Monetary Fund.

IV. Tax Reform in Italy[50]

A. Introduction

73. Soon after coming to office in 2001, the new Italian government embarked on a program of fundamental tax reform. This envisages both a substantial reduction in the overall tax burden and far-reaching changes in the structure of the tax system. These reforms come soon after—and largely reverse—extensive reforms introduced by the previous government between 1996 and 1998.

74. Both the precise timing and many of the details of the reform remain to be specified,[51] the government having made it clear that the former is contingent on the development of the wider fiscal position. Nevertheless, the broad outlines of what the government aims to achieve in its current term of office are clear, with profound changes are planned in all of the major taxes except the VAT. Table 1 shows the broad revenue implications of the key reforms included in the program.

Table 1. Revenue Effects of the Main Components of Reform

	Revenue Gain	
	In billions of euro	In percent of GDP
Reform of company taxation from 2003	+2.285	0.2
Exclusion of 20 percent of labor costs from IRAP 1/	2.28	0.2
Reform of capital income taxes	-1.55	0.1
Reform of PIT (full effect)	-18.00	1.5

Source: Compiled from the Ministry of Finance's technical report on the *legge delega*.
1/ This is the first step in the planned elimination of the IRAP, which currently raises about €30 billion (around 2.5 percent of GDP).

75. This chapter provides an account and evaluation of the main elements of this reform program.[52] The bulk of the chapter deals in turn with the major tax categories affected: on

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[50] Prepared by Michael Keen.

[51] The guiding principles of the reform, and some specific objectives, are set out in a *legge delega* (still not yet finally approved by parliament) giving the government power to reform the tax system along the lines it describes. A subsequent Ministry of Finance's technical report on the *legge delega* provides somewhat more detail, especially on the expected revenue implications. The medium-term financial program published in July 2002 outlines the tax changes intended for 2003.

[52] The focus is on those aspects of the package that are most fundamental to the overall tax system, so that several significant but relatively minor items—such as the introduction of a tonnage tax and a unified service tax— are not considered here. Some are discussed in Deidda and Grabbe (2002). Nor does this chapter discuss recent tax amnesty schemes, though the associated erosion of the credibility of tax policy may damage the credibility of the wider reform program.

labor income (Section B), the corporate income tax (Section C), capital income taxation (Section D), and the regional tax on value-added (Section E). Section F considers the case for a reorientation of the reform program to produce a system closer to the "Nordic" model, to which it bears some similarity. Section G concludes.

B. Taxation of Employment Income

76. At the heart of the reform program is a substantial reduction in the level and progressivity of the personal income tax (*Imposta sul reddito delle persone fisiche*, the IRPEF), which is essentially a tax on labor income (separate rules and schedules apply to dividends and other forms of capital income, as discussed in Sections C and D below).

The reforms

Before reform

77. Employment income is currently taxed at the state (i.e., national) level at the five marginal rates shown in Table 2. There are also regional surcharges piggy-backed on to the state tax. These are set at 0.9 percentage points, but the regions are also able to—and, as a relatively recent development, now do—increase this by up to a further 0.5 points (and to set rates that vary with the level of income).[53]

Table 2. Current Rate Schedule of the IRPEF

Taxable Income (In thousands of euros)	Marginal Rate
0–10	18
10–15	24
15–31	32
31–70	34
70+	45

78. The IRPEF is levied on an individual basis. While tax is in principle payable from the first euro of earnings, a large number of (nonrefundable) credits—up to 80, on some counts—are available to reduce or eliminate liability. A basic credit for "dependent workers" (that is, employees) is available against all earned income, in an amount that falls as earnings increase. This implies that, for a single person, no tax is payable below an annual income of around €6,000. Different income-related credits apply to professional income, and further credits are available for a dependent spouse and to pensioners (all these being income-

[53] See Petretto (undated), who indicates that Veneto and Marche actually set rates in excess of the maximum 1.4 points allowed.

related), for children, and (in amounts corresponding to a tax rate of 19 percent, and subject to maxima) for spending on health, education, mortgage interest, and life insurance.

79. For the self-employed, that part of business income corresponding to a normal return on capital was taxed at the reduced rate of 19 percent, in line with the dual income tax applied to companies (described in Section C below). The rest was subject to tax at ordinary rates (with the return on capital included in calculation of the appropriate average rate).

The reform

80. It is proposed that by the end of the government's current term there be only two marginal rates of IRPEF, 23 and 33 percent. The point at which tax would become payable has not yet been specified, but it has been announced that the higher rate will apply only to taxable income in excess of €100,000. This is high: it has been estimated that the higher rate would apply to less than 1 percent of taxpayers.

81. The system of credits is to be replaced by one based on allowances—that is, amounts to be deducted from the tax base—that decline with the level of earnings. But the number, level and withdrawal rates of these allowances (including the basic tax-free amount) remain to be specified.

82. The process of reforming the IRPEF is to begin in 2003, with cuts amounting to €5.5 billion (0.5 percent of GDP).

Assessment

83. The impact of the IRPEF reform on incentives to work—a central concern in evaluating any reform of personal income taxation—is complex. Article 3 of the *legge delega* commits the government to ensuring that no individual loses from the reform, which (all else equal) means that the average rate of IRPEF—tax paid relative to earned income—will in all cases fall, or at least not rise. The "income effect" of the reform is thus unambiguously to reduce work effort: with higher after-tax income at their initial level of earnings, people can afford to work less. For the labor supplied by those employed to increase, this will have to be offset by the "substitution effect" arising from a reduction in the marginal effective tax rate on labor income: such a reduction makes "leisure"—to be interpreted broadly as time not spent earning taxed income—more expensive in terms of the after-tax income foregone, and so should lead workers to take less of it.

84. The best way to gauge the likely balance between these effects is by simulating the effects of the reform using a micro-data based model of labor supply. This is difficult to do, however, while important details of the reform remain to be specified. In particular, what matters for labor supply is not the statutory marginal rate structure (which has been specified) but rather the marginal *effective* rate of tax on labor income (METL). The latter will reflect, in particular, the pattern of income-related allowances (as yet unknown), the point being that the removal of an allowance as income rises is an implicit tax on that income. Up to the point

at which all income-related allowances are removed, METLs will be higher, and perhaps significantly so, than statutory rates. Moreover, given the government's declared intention of focusing allowances more closely on lower incomes than is the present system of credits, the addition to the METL from this source is likely to be more concentrated in the lower reaches of the earnings distribution than at present.

85. While any assessment of the IRPEF reform at this stage is thus inevitably impressionistic, two points stand out in terms of the effect on those in employment:

- At low levels of earnings, the METL is unlikely to fall significantly, and may quite plausibly increase slightly. Income and substitution effects then act in the same direction, and labor supply will fall.

- At middle and high income levels, the METL is likely to fall. For higher income levels—at which income-related allowances and credits are likely to be exhausted—the fall seems certain to be substantial, in the order of 10 percentage points. This creates the possibility of increased work effort from such groups, though of course the income effect is also large at the top of the earnings distribution. Though views on the issue continue to differ, the empirical evidence on labor supply responses does not suggest that the impact on labor supply—or indeed on taxable income more generally—will be very marked.[54]

86. The nature and strength of these effects depend on the rapidity with which allowances are withdrawn as income rises. One set of estimates,[55] based on the assumption that allowances will be exhausted at an income level of about €28,000, has METLs rising by about 2 percentage points in the lower half of the income range—a modest effect—and falling, generally by a much larger amount, in the upper half.

87. There are other dimensions of labor supply decision, however, that may be more powerfully affected than the effort of the employed. In particular, lower average tax rates decrease the attractions of working in the informal rather then the formal sector. They also tend to reduce unemployment by reducing replacement rates—the ratio, that is, of net income out of work to that in work—and boost the demand for labor by reducing the cost to employers of paying any given after-tax wage. These effects on the decision of whether or not to participate in the formal sector could plausibly be more powerful than those on the effort supplied by those already in the formal sector.

88. The reduced progressivity of the IRPEF could also affect the level of unemployment through its effect on the bargaining between unions and firms in such a way as to worsen unemployment. For in trading off their objectives of high employment and high net wages for

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[54] See, for example, Goolsbee (1999).

[55] Kindly provided by Paulo Bosi.

their employed members, unions may recognize that a high marginal tax rate increases the employment costs of achieving any increase in net wages (because it increases the gross cost to employers of financing that increase). However, although there is increasing empirical evidence that progressivity has indeed proved good for employment in a number of countries,[56] the only empirical investigation of this issue for Italy fails to identify such a link.[57]

89. The impact of the reform on the distribution of real income will also depend on details that have yet to be determined, not least the choice of threshold below which no tax will be payable. Nevertheless, the broad thrust is clear-cut. For the full reform as sketched in the *legge delega*, the proportionate gain to the better off will be far greater than that to the least well-off. At very high income levels, the average and marginal rates are essentially the same, so that the reduction in the average rate of tax is in the order of one-quarter. Baldini and others (2002) estimate the full IRPEF reform will increase the Gini measure of after-tax inequality by about 3.7 percent.[58] For the immediate future, however, the government has announced that the first step on the IRPEF reform, in 2003, will concentrate on reducing the burden on the least well-off. It remains to be seen how this will be done (the task not being easy, since many kinds of tax reduction that benefit the least well-off—such as an increase in tax-free amounts—tend also to benefit the better off).

90. One of the main outstanding details, as already noted, is the pattern of income-related allowances that will replace the present system of credits. In itself, this change achieves very little, since the effects of the prereform income-related credits can be exactly replicated by an appropriately chosen pattern of income-related allowances under the new one.[59] For example, for the vast majority of taxpayers, who will face a marginal rate of 23 percent under the new system, a tax credit equal to 19 percent of the relevant expenditure (such as on health spending) is equivalent to a deduction of 19/23 (approximately 83 percent) of that expenditure against the PIT. The key question in respect of this aspect of the reform is thus whether it will prove an opportunity to obtain a significant reduction in the number of special provisions, whose effect is to increase METLs and—especially—to make the system more opaque. Given the commitment to ensure that there are no losers from reform, achieving this simplification will not be easy.

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[56] See, for instance, Lockwood and Manning (1993) on the United Kingdom; and Holmlund and Kolm (1995) on Sweden.

[57] Brunello, Parisi, and Sonedda (2002).

[58] The abolition of the inheritance and gift tax by the new government will tend to reinforce this increase in inequality.

[59] Denoting pretax income by Y and expenditure attracting credit by E, net income under the prereform system is $T(Y) - C(Y,E)$, where C denotes the credit received. With a postreform tax schedule of τ and allowances of A, net income is $\tau(Y - A(Y,E))$. Setting $A(y,E) = \tau^{-1}[T(y)-C(y,E)]$, net income is the same in both cases.

C. The Corporate Tax (IRPEG)

The reforms

91. The reform affects almost all the key features of the corporate tax (*Imposta sul reddito delle personne giuridiche*, the IRPEG).

The "dual income tax"[60]

Before reform[61]

92. At the heart of the corporate tax system was the dual income tax (DIT), introduced in 1998.[62] The central purpose of this system was to partially redress the bias toward the use of debt finance implicit in the normal practice of allowing interest payments on debt, but not any of the return to shareholder, as a deduction against corporation tax. To this end, the DIT taxed at a reduced rate an amount corresponding to a normal return on equity capital[63]—that is, retained profits and new subscriptions—put into the enterprise after September 30, 1996. This was an unusual system, though not quite unique.[64]

93. The notional return on equity was taxed at 19 percent, and other profits at 36 percent.[65] In the final year of its operation—and as part of an intended transition to a situation in which the allowance was given on all equity, not just that injected since 1998—firms were allowed an uplift of 40 percent on the equity deduction, creating the "super-DIT."[66]

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[60] Confusingly, the term "dual income tax" is used in two quite different senses: here it refers to there being two rates of corporate taxation; more usually (as in Section F) it refers to distinct tax treatment of capital and labor income along the lines of the Nordic model. The system described here would be better described as a "partial Allowance for Corporate Equity (ACE)", an ACE being a system that entirely excludes the normal return on equity from tax.

[61] By this is meant, here and elsewhere, the system as it existed at the election of the current government.

[62] The system applied to banks and financial institutions only from 2000.

[63] The notional return on equity was fixed annually by the Ministry of Economy on the basis of state and private bond returns plus a risk allowance of 3 percent. Latterly, it was 7 percent.

[64] Brazil and Austria have similar schemes (with differences in the precise definition of the equity base on which an imputed return is allowed); between 1994 and 2000, Croatia took this approach to its logical conclusion and adopted a full-blown ACE.

[65] Until 2001, there was a minimum average tax rate of 27 percent.

[66] The uplift was 20 percent in 2000.

The reform

94. The incoming government quickly froze the DIT: the reduced rate is now available only for equity increases up to 30 June 2001.[67] Moreover, the benefit of the reduced rate is now removed when earnings are distributed to shareholders, since distributions from such earnings are no longer deemed to have paid tax at the ordinary rate. This remaining allowance is, in any event, to be abolished.

95. The rate is to be reduced from 36 to 34 percent in 2003, in line with the planned top marginal rate of the IRPEF.

Depreciation and investment incentives

Before reform

96. For investments in tangible assets, depreciation in each of the first three years may be taken at twice the ordinary rate laid down in the tax law. From 1999, the "Visco incentive"—named after the then Minister of Finance—enabled companies to charge at the reduced rate of 15 percent an amount equal to the lesser of the increase in equity that year and the amount of net investment in business assets. This was in addition to the normal provisions of the DIT.

After reform

97. No change is proposed in the basic system of depreciation allowances. The Visco incentive, however, has been removed and replaced instead by "Tremonti bis" (named after the new Minister of Finance). Under the terms of this scheme—which closely parallels a similarly-named incentive offered in 1994–96—firms are entitled to immediate expensing of 50 percent of the amount by which qualifying investments exceed the lowest of the averages of such expenditures over any four of the preceding five years. The range of qualifying assets is wide, encompassing most investments in new business assets, including intangibles and training. Tremonti bis is to expire at the end of 2002.

The treatment of dividends

Before reform

98. Dividends were taxed by a full imputation system. That is, shareholders—personal or corporate—were entitled to a credit against their own tax liability on the dividend equal to the

[67] The grandfathering provisions are asymmetric: while the equity allowance is not increased by subsequent increases in equity it is reduced by subsequent reductions (associated, for example, with the repurchase of shares).

corporate tax underlying that dividend.[68] The imputation credit was fully refundable, so that tax-exempt investors, for example, were entitled to a refund (so long as the underlying corporate income had indeed borne tax). To ensure that the benefit of the DIT provision was not undone at the stage of taxing distributions, this rate applied irrespective of the rate applied to the underlying profits.

99. These arrangements ensured, in principle, that dividends passed between companies (whether linked in a group or not) without any additional payment of tax. At personal level, the imputation method was mandatory for dividends received from substantial participations, and optional for dividends from registered shares or quotas. The alternative was final withholding at 12.5 percent, which would be the preferred option—at a corporate tax rate of 36 percent—for all those whose marginal rate of personal rate of income tax was less than 44 percent.[69]

The reform

100. Imputation has been abolished. Instead, some as yet unspecified fraction of dividends received will be taxed as ordinary income in the hands of the final shareholder. This is similar to the approach adopted by Germany in its 2000 reform, with half of the dividend now taxed at the personal level.

101. Within groups of companies, the payment of dividends will cease to be a taxable event. For dividends received from companies resident in the EU but outside the group, 5 percent of the amount received will be taxable (with no credit for any underlying tax paid).

Treatment of company asset revaluations and groups

Before reform

102. Taxation of gains realized by companies on their assets, including shares in other companies, are in principle fully taxable (and losses fully deductible), but there are important exceptions. Gains on disposal of interests in companies are subject to a substitute tax at the reduced rate of 19 percent. Revaluations of depreciable assets are taxed at 19 percent, and of nondepreciable assets at 15 percent. The step up of basis allowed in the former case may make this an attractive option for assets, such as intangibles, for which depreciation is relatively rapid: the initial tax charge is then more than offset by an increase in subsequent depreciation allowances.

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[68] With a corporate tax of 36 percent, for instance, the credit was 56.25 percent (=0.36/(1-0.36)) of the dividends received.

[69] The comparison is between 12.5 percent withholding and, on the other hand, additional personal tax at the rate T_p on the underlying gross dividend (1/(1 - 0.36) less the imputation credit of 0.36/(1 - 0.36), an amount of (T_p - 0.36)/(1 - 0.36).

103. While there was no provision for group taxation under the IRPEG, devices were available by which tax losses could be transferred to companies able to make immediate use of them. In particular:

- As noted above, companies were able to deduct against IRPEG reductions in the book values of their holding in other companies (irrespective of the extent of that holding).

- The imputation system enabled losses to be absorbed by paying dividends into a loss-making company (perhaps artificially created), since there would be no immediate liability to offset the credit received. This was often attractive, in particular, in relation to holding companies, which typically have expenses but little income. Tax would be due when the loss making company returned to profitability, but this could be some way in the future.

The reform

104. Groups of companies are to be given the option (irrevocable for 3 years) of filing a single consolidated return. It remains to be determined exactly how a group is to be defined for this purpose, but the expectation is that a direct or indirect holding of 51 percent will be required.

105. A general participation exemption is also to be introduced, under which gains on disposals of shares in other companies are to be tax-exempt. While similar provisions have been introduced in a number of EU countries in recent years (most prominently by Germany but also, for example, by the United Kingdom), the Italian scheme is relatively extensive in that it applies irrespective of the extent of the shareholding.[70]

International aspects

Before reform

106. The imputation credit was not available in respect of dividends received from nonresident companies, which were generally taxable at ordinary rates for both companies and persons. For substantial participations, however, the system for companies was close to outright exemption: for holdings of over 25 percent of firms resident in other EU countries, only 5 percent of the dividend was taxable;[71] for substantial participations outside the EU, only 60 percent was taxable (with the proportion planned to increase to 95 percent) for countries on a "white list" of countries offering broadly similar levels of taxation to the Italian and with which Italy has concluded an information sharing agreement. To a first

[70] The benefit is denied, however, in respect of shares held for less than a year. Some such provision is standard, as a means of ensuring that those dealing in shares by way of trade do not escape tax on their capital gains.

[71] With no credit for foreign taxes paid on the underlying income source.

approximation, Italy thus offered source-based taxation in respect of the worldwide earnings of companies resident in Italy.

107. The imputation credit was payable to nonresident shareholders of companies resident in Italy only under treaty (as was the case with the France and the United Kingdom). Dividends paid to nonresident individuals were instead subject to withholding at 27 percent or lower treaty rate.

The reform

108. Subsidiaries of Italian companies resident abroad may be included in the groups described above, with credit given for taxes paid abroad. For companies outside the group, the 95 percent exemption is extended to all dividend receipts other than those from designated tax havens.

Assessment

109. The corporate tax system has potentially powerful effects on incentives to invest. These depend not only on the statutory rate of corporation tax but also on provisions regarding depreciation and the treatment of financial costs. Such effects, which are complex, are conveniently assessed in terms of two summary statistics:

- The first is the marginal effective rate of corporate taxation (MECT). This is the proportionate amount by which the before-tax rate of return that an investment must earn in order to pay the underlying investor the after-tax return they require exceeds that required after-tax return. If the tax system were nondistorting—that is, were effectively a charge only on profits in excess of a normal return—the MECT would be zero. If the MECT is positive, on the other hand, then some investments that would be privately profitable in the absence of tax are not profitable in its presence, and so will not be undertaken.

- The second is the average rate of effective corporation tax (AECT), which is the proportionate amount by which the after-tax profits on some particular project exceed the before-tax profits. For a nondistorting tax that bore only on super-normal profits, the AECT would be the same as the statutory rate.[72] The AECT is especially relevant in assessing the attractiveness of a particular location for internationally footloose investments: all else equal, after-tax profits are highest when an investment is located in the country offering the lowest AECT.

[72] Precise definitions (and hence properties) of the AECT vary: see the Appendix to Thakur and others (2002).

Table 3 reports MECTs and AECTs for Italy, both before and after-reform,[73] and for the other EU countries.

Table 3. Statutory and Effective Rates of Corporation Tax in the EU

	Statutory Rate of Corporation Tax 1/	MECT 2/	AECT 3/
Austria	34.0	20.9	38.4
Belgium	40.2	22.4	44.5
Denmark	32.0	21.9	36.8
Finland	28.0	19.9	32.4
France	40.0	33.2	47.5
Germany 4/	52.35	31.0	57.7
Greece	40.0	18.2	43.3
Ireland	10.0	11.7	13.0
Italy			
Before reform	**41.25** 5/	**-4.1**	**40.7**
After reform	**33**	**17.9**	**34.3**
Luxembourg	37.45	20.7	41.5
Netherlands	35.0	22.6	39.8
Portugal	37.4	22.5	42.0
Spain	35.0	22.8	39.8
Sweden	28.0	14.3	31.0
United Kingdom	30.0	24.7	35.7

1/ Including surcharges and average local taxes.

2/ From Tables 7 and 8 of European Commission (2001), except postreform figure for Italy, kindly provided by Silvia Giannini.

3/Assuming a pretax return of 20 percent, and calculated as AECT = τ + (MECT)×(1-τ)C /0.2, where τ is the statutory rate of tax and C the user cost of capital. This methodology is described in the Appendix to Thakur and others (2002).

4/ Prior to the 2000 reform, which is generally believed to have increased the MECT but lowered the AECT (see, for instance, Keen, 2002).

5/ Comprising the standard rate of 37 percent and IRAP of 4.25 percent.

110. There is no doubt that the reform has substantially increased the MECT (averaged over the different ways in which an investment can be financed)—and this is so even assuming full elimination of the IRAP. Prior to reform, the MECT was significantly negative, reflecting in particular the deduction under the super-DIT not merely of equity investments but of those investments uplifted by 40 percent. Indeed Italy had the lowest MECT—and to

[73] These calculations do not take account of the Visco and Tremonti incentives.

that extent, the strongest tax incentives for investment—of any EU country. With the removal of the DIT, and of imputation (which reduces the cost of investments financed by new equity, as explained below), the MECT is now firmly positive—although still moderately low by EU standards. The discouragement to investment through this route is plain.

111. The AECT, on the other hand, does seem to be noticeably reduced by the reform. This effect is probably over-stated by the inclusion of the IRAP in the prereform calculation[74] (with an implicit assumption that whatever replaces it will not affect effective tax rates), but also reflects the substantial fall in the statutory rate of tax, which is a more central determinant of the AECT—especially for very profitable projects—than it is of the MECT. The reform thus seems to do little harm to the attractions of Italy as a site for foreign direct investment, and may do some good.

112. The fall in the statutory rate of corporation tax—which has long been higher in Italy than in most EU countries, and indeed has been increased there while it fell elsewhere—may have beneficial effects even apart from any impact on investment. This is because it reduces the incentives to use transfer pricing and financial arrangements to artificially shift profits to jurisdictions offering lower tax rates. But while this should strengthen Italian corporate tax revenues, it is unclear how strong the effect will be: there remain many jurisdictions offering still lower statutory rates (not least Ireland) through which paper profits can be routed.

113. Another area in which the reform is also likely to have a significant impact is on the way in which firms finance themselves. The elimination of the deduction for the implicit cost of equity finance makes retention finance more expensive, and the replacement of imputation by partial taxation of dividends at personal level is likely to raise the cost if finance by new share issues. The net impact is thus to increase the attraction to firms of financing themselves by debt rather than equity.[75]

114. In abolishing imputation and instead simply taxing dividends at the personal level (at a reduced rate), Italy is following the recent lead of the United Kingdom, Germany and Ireland. And for the same reasons. The merit of imputation is that it mitigates the disincentive to new share issues that the taxation of dividends otherwise implies.[76] In an economy open to capital movements, however, this becomes a less significant concern, since the marginal

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[74] This is dictated by the use here of the calculations in European Commission (2001), which have the merit of being comparable across countries. Conceptually, inclusion of the IRAP in these calculation is not attractive: if it is to be included, so should national VATs.

[75] Giannini estimates, for instance, that the MECT for equity financed investments will be 31.5 percent after the reform, but –30.7 percent for debt finance.

[76] The tax treatment of dividends does not affect the incentive to retain earnings (so long as that treatment does not change over time): by retaining, a company avoids the dividend tax today, but must pay it in the future when it pays the dividends without which the firm would have no intrinsic value to shareholders. (On this (no longer very) "new" view of dividend taxes, see Auerbach, 2001).

shareholder—who determines how much the firm must earn on its investments—may be resident abroad, in which case the imputation credit is generally not available. While it would be possible to overcome this limitation by extending the credit to nonresidents—and Italy does this under some of its double tax treaties—the revenue cost of doing so may well exceed the efficiency gains. Moreover, imputation itself offers opportunities for tax reduction strategies: indeed it is in principle possible under a scheme like the former Italian one to avoid all tax on corporate earnings.[77] Also, given that there have been signs in recent years that imputation systems which do not extend credits to all EU residents may be in violation of Union rules on nondiscrimination, a strong case can be made for moving away from imputation.

115. The adoption of participation exemption is also in line with developments elsewhere in the EU, most prominently by Germany in its landmark 2000 reform. It has a strong tax policy rationale, the exemption of intercorporate capital gains being akin to the normal exemption of intercorporate dividends.[78] Not adopting participation exemption might also run the risk of firms (and tax base) relocating to countries that do.

116. The prospective consolidation provisions should provide a useful rationalization in an important aspect of corporate taxation. Under the prereform system, firms could already enjoy many of the benefits of consolidation—but the means of doing so were needlessly complex, and the opportunities may even have been overgenerous. Apart from establishing some coherence, clear rules enabling consolidation may serve to overcome some of the inefficiencies widely felt to be associated with the small firm size in Italy.

117. It is in the area of international taxation, however, that the proposed consolidation rules may have their most marked effect, since they imply a fundamental change in the tax treatment of Italian subsidiaries abroad. Under the prereform regime, the earnings of such companies located elsewhere in the EU were essentially exempt from Italian tax. For profitable subsidiaries, exemption is more favorable than the proposed treatment, which would imply that tax is ultimately paid at the Italian rate (even on undistributed earnings). In respect of loss-making subsidiaries elsewhere in the EU, on the other hand, the ability to use those losses to reduce Italian tax is a source of gain from the reform. For subsidiaries located outside the EU, but subject there to a sufficiently high rate of tax to enjoy the exemption of 60 percent of dividends, the change implies heavier taxation of profits wherever the foreign tax rate exceeds about 23 percent.[79] The implications are thus complex, and will prompt

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[77] Keen and Schiantarelli (1991).

[78] See Keen (2002) for further discussion of the case for participation exemption.

[79] Assuming all profits net of foreign tax to be distributed, tax paid under present arrangements (leaving aside any withholding tax) is $T_f + T_I(0.4)(1-T_f)$, where T_f and T_I denote respectively the foreign and Italian tax rates; under consolidation, it simply T_I. The calculation assumes $T_I = 0.33$.

extensive tax-replanning. In some important respects, however, the effect seems likely to be to discourage Italian direct investment abroad.

D. Taxation of Interest and Capital Gains

The reforms

Before reform

118. Italy has a long tradition of taxing interest income by final withholding levied at flat rates.[80] An advantage of this approach—which differs from that of the conventional "global" income tax, which applies a progressive rate structure to the sum of all kinds of income—is that it does not rely on taxpayers identifying their interest income to the authorities. These "substitute" taxes applied only to forms of interest income specifically listed in the statute, and were for many years levied at rates that varied quite substantially across assets. By 2001, however, only two distinct rates applied: 27 percent on bank and post office accounts, and on long-term bonds; and 12.5 percent on other debt instruments.

119. In 1998, Italy adopted an innovative approach to the taxation of capital gains. The conventional approach is to tax gains as they are realized—that is, when the underlying asset is sold. This though leads to a "lock-in" problem: investors holding an accrued gain have an incentive to defer selling the asset since they can thereby postpone their tax liability (and, conversely, investors holding an accrued loss have an incentive to realize it quickly). The 1998 reforms in Italy represented the most thorough attempt that any country has yet made to mitigate this distortion of holding period decision. It involved two different methods applied to different classes of asset.[81] For managed funds, capital gains were "marked to market," meaning that tax is charged on all gains that have accrued within the tax year, whether or not they had actually been realized. In this case there is, in principle, no lock-in. For other gains, tax is charged at realization but with an adjustment to broadly offset the advantage likely to have been enjoyed by deferring realization of the gain. The intellectual origins of this latter approach—the "equalizer"—date back to Vickrey (1939); but this was the first significant practical application. Capital gains, so calculated, were subject to the same two rates of substitute tax as interest income, depending on the nature of the asset (with the 27 percent rate applying for holdings that represent a significant share in the companies' total equity).

After reform

120. All financial income is to be taxed at 12.5 percent, eliminating the higher rate.

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[80] For companies, interest is taxable at ordinary rates and the withholding tax is creditable.

[81] Alworth and others (2002) provide a detailed description and assessment of these schemes.

121. The equalizer was abolished in September 2001. Marking to market for managed funds remains for reasons discussed below, but the government has announced its intention to remove this too. All gains are thus to be taxed on realization.

Assessment

122. Unifying the rates of substitute tax removes a clear source of distortion, for which there was no clear rationale, completing a process of convergence that has been underway for some years. The main issue that it poses relates to the gap between this common rate and the rate of corporation tax, and is discussed in Section F below.

123. The case for undoing the innovative capital gains tax regime is less clear-cut. Though far from being theoretically ideal—both the equalizer and the mark-to-market schemes treated gains and losses asymmetrically, for example—this was an attempt to address what is widely seen as one of the main weaknesses of the usual approach to taxing capital gains.

124. The equalizer suffered from being intrinsically complex—or at least unfamiliar. For many taxpayers, the adjustment made to offset the benefits of deferral was far from simple, even for tax practitioners; moreover, the precise nature of that adjustment varied over different assets. Clearly unpopular—no doubt in part because of its complexity, but also because it removed a tax advantage—the equalizer also faced legal challenges, the argument being that it violated notions of ability to pay enshrined in the constitution. Nevertheless, substantial costs (of, for example, developing appropriate information systems) were incurred in implementing the system, perhaps in the order of €200 million.[82] With time and some educational effort, taxpayers might have become more comfortable with the system.

125. Marking to market is, if anything, theoretically preferable to the equalizer scheme. Its introduction happened to come, however, at an unfortunate time, being followed by a prolonged depression of share prices. This has exposed an unforeseen technical problem with the scheme that will be of interest to other countries considering more widespread use of marking to market; and which, paradoxically, now makes it more difficult to remove.

126. The problems arises from the substantial accumulation of losses by managed funds since the introduction of the scheme. Contrary to the textbook prescription, these do not give rise to an immediate payment by the government, but instead to tax losses that are carried forward without interest. While this in itself reduces the present value of the credits below that required for symmetric treatment of gains and losses, the effect is exacerbated by the practice of paying the value of the credit in full to those who withdraw their monies from the fund. In this way, withdrawals reduce the value of the fund's assets by the difference between the nominal value of the tax credit and its present value in the hands of the firm. Given the extensive amount of the credits now outstanding—some industry sources put this at

[82] Alworth and others (2002).

€5 billion—and restrictions on the ability to use tax losses on one fund against gains on another, this difference can be substantial.

127. The problem is not intrinsic to marking-to-market. It would be avoided if the credit received by those withdrawing funds were paid by the government (and so extinguished) rather than being paid from the fund and carried thereafter on its books, or if losses in the fund were given a immediate tax credit symmetrically with the tax paid on gains. The more general feature of accruals taxation to which it points is the potential pro-cyclicality of revenues, reinforcing automatic stabilizers but raising the question of the extent to which governments are willing and able to deal with the associated risks.

128. While the underlying design problem can in principle be fixed—and arguably should be in respect of future withdrawals—the overhang that has been built up is so large that the government would be reluctant to cash out all outstanding credits. Indeed there is no obvious case for giving such priority to these over other unrelieved losses. But there may be a case for increasing the value of these credits, perhaps by increasing the extent to which they can be used against gains other than on the fund concerned, or by carrying them forward at interest.

E. The IRAP

The reform

Before reform

129. Another innovation of the late 1990s was the introduction of the IRAP (*Imposta regionala sulle activita produttive*), payable by business on, broadly speaking, the amount by which their sales exceed the sum of their material purchases and depreciation. The base is thus essentially the firm's value-added, so that—although not popularly recognized as such—the IRAP is a particular kind of VAT. It is, to be precise, an origin-based income-type VAT administered by the subtraction method.[83] Note too that, although not calculated as such, the identity between the firm's sources and uses of funds means that the base of the IRAP is, in essence, the sum of wages and profits.

130. The IRAP is a regional tax (albeit collected by the state),[84] and replaced a local income tax,—from which partnerships, professionals and farmers were generally exempt—a tax on net assets, and other charges. The central rate is 4.25 percent, but regions can vary this,

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[83] It is origin-based in the sense that exports are not relieved of the IRAP nor imports brought into it, and income-type in the sense that sense that an effective deduction is not given for the immediate full cost of an investment but only for depreciation. On this terminology, and alternative types of VAT, see Ebrill and others (2001).

[84] For companies active in several regions, revenues are allocated with reference to the proportion of total labor costs incurred in each.

in either direction, by 1 percentage point, and may differentiate the rate by sector. Significant use is now made of this power, typically with lower rates applied to agriculture and higher rates to financial activities.

131. Revenue from the IRAP is substantial, in the order of €30 billion (about 2.5 percent of GDP), and financing about one-quarter of all regional spending.

132. No other country applies a tax of this kind at regional level.[85]

The reform

133. The new government has made a strong commitment to eliminate the IRAP. The first step is to be taken in 2003, with 20 percent of labor costs excluded from the base. It still remains to be decided how the revenue raised by the IRAP will be replaced.

Assessment

134. The IRAP has, in principle, some attractive features. It is simpler than the mix of taxes it replaced. The record-keeping requirements—the essential requirement being the difference between receipts and purchases—are fairly minimal, and indeed already likely to be required for the IRPEG or IRPEF. And the potential base is broad, enabling a relatively low rate. Viewed as a regional tax, moreover, it could be argued to have merit as a benefit tax—in so far as local public spending is reflected in increased private profits and/or wage earnings—and as bearing on factors, especially labor, that will be relatively immobile in response to likely interregional differences in the tax rate. The IRAP even received favorable treatment under double tax arrangements, with that part of the tax corresponding to a tax on profits being regarded as creditable, for instance, against corporation tax due in the United States (which is not true of the corresponding component of the base of the national VAT). Not least, the IRAP succeeded in raising considerable amounts of revenue.

135. One weakness of using the subtraction method for a regional VAT is that interregional differences in the rate of tax will lead to the tax bearing in part on intermediate purchases by firms. A firm in a region requiring it to charge IRAP at 4 percent is also in effect obtaining a credit of 4 percent on its purchases, so that if it buys from a firm in a region charging 5 percent some of the input tax will "stick." This means that the IRAP would act to some degree as a turnover tax, so distorting production decisions: the firm might find it preferable to buy from a firm that is less efficient but is in a region charging a lower tax rate. With interregional rate differentials in the order of 2 percent, however, the effect was unlikely to be severe.

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[85] Japan implements a subtraction-based VAT at national level. In the United States, Michigan and New Hampshire have state-level VATs, but levied on an addition basis (that is, on the sum of wages and profits). While some countries (notably Germany) share the revenue from national VAT across the regions, no gives the regions discretion over rates or base of the kind enjoyed under the IRAP..

136. Despite these apparent attractions, the IRAP seems to have proved unpopular. It is not entirely clear why. Part of the reason may be that it brought into tax groups that had previously enjoyed significant exemptions from regional taxation. It also came to be seen as largely another tax on labor, as indeed it is—but so too, in essentially the same way, is the national VAT, which is not often criticized on these grounds.

137. The key unanswered question, however, is that of how the IRAP will be replaced. Either other forms of regional taxation will need to be developed or grants from the center will have to be increased—neither of them easy options. Further uncertainty is added by a recent legal decision implying that the regional governments have substantially more discretion in the taxes they deploy than had previously been supposed.[86]

F. Toward a Nordic Dual Income Tax?

138. A striking and problematic aspect of the Italian tax system is the wide gap between the rate of corporation tax and the rate of tax on financial income. Though already present in the prereform system, this feature is highlighted by the unification of the rate of tax on financial income at 12.5 percent, some 20 percentage points below the corporate tax rate. Such a gap is problematic because it creates opportunities for riskless tax arbitrage, with the private sector effectively able to extract payments from government. By lending €100 to an Italian corporation at an interest rate of 10 percent, for instance, an individual will become liable to tax of €1.25 on interest received; but in deducting the interest payment of €10 against corporation tax at a rate of 33 percent the company reduces its tax liability by €3.3. The net effect of the transaction is thus to improve the cash position of the private sector by €2.05 , all at the expense of government.

139. The scope for such arbitrage within closely-held companies is clear, and indeed rules are envisaged to restrict transactions of this kind between related parties. But exactly the same effect can be achieved by anonymous transactions through financial intermediaries. The loan described in the previous paragraph, for instance, could be run through a bank, with the de facto government subsidy of €20.5 shared between the bank, lender and borrower. With such a clear opportunity for essentially riskless profits, one must expect the market to find some way to realize them. Nor need the exploitation of such arbitrage even be consciously recognized by market participants: it is simply a matter of decisions responding to patterns of demand and supply for funds reflecting these tax arrangements.

140. The natural way to eliminate this difficulty is by unifying the rates of tax applied to corporate and financial income. This would bring the further advantages, moreover, associated with a reduction in the IRPEF rate in itself, such as a further reduction in the effective rates of corporation tax and an easing of transfer pricing problems. Very rough

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[86] See Box 2 in the Staff Report.

calculations suggest that the two rates could be unified, whilst raising the same revenue as the anticipated postreform system, at a common rate of about 25 percent.

141. Such an alignment of rates would take the Italian system very close to a "dual income tax" of the form adopted by most Nordic countries since the early 1990s. The essence of the Nordic approach—rationalized by the increasing difficulty of taxing internationally mobile capital income—is to apply a progressive tax to labor income and a flat, low rate to all forms of capital income. This is a sharp break from the tradition of most OECD economies of treating capital and labor income alike, applying a "global" progressive tax schedule to the sum of the two. In Italy, however, there has been no such tradition, so that a Nordic dual income tax would fit well with the established practice of subjecting personal capital income to final withholding at low, flat rates.

Table 4. Rates of Taxation Under Nordic Dual Income Tax Systems, 2000

	Corporate Income Tax	Interest	Dividends	Labor Income 1/
Finland	29	29	0	50.13
Norway	28	28	0	49.3
Sweden	28	30	30	57

Source: Lindhe, Södersten and Öberg (2002).
1/ Highest marginal rate, including both national and regional taxes.

142. Experience with the Nordic dual income tax has been broadly positive.[87] Perhaps the thorniest problem that has been encountered is in the treatment of the self-employed—a particularly important group in Italy—the difficulty being to distinguish between that part of their income which is properly regarded as a return on capital and so to be taxed at the flat rate and that part which is properly taxed as labor income. Essentially the same issue arose in Italy under the DIT, since individuals' business income was also taxed at a reduced rate in so far as it reflected a notional return on equity injected since 1996.[88] To minimize the compliance burden that this calculation might imply, small businesses could opt instead to be taxed at a flat rate of 15 percent. The same approach could of course be adopted again; and provision is any case made for the use of presumptive methods in assessing small enterprises. More fundamentally, however, the extent of this problem would be considerably less given a unified rate of the magnitude that the calculations above suggested, since the rate on capital income would then be very close to the 23 percent rate on labor income that the vast majority of individual taxpayers will face.

[87] See, for example, Sorensen (1994) and Cnossen (2000).

[88] Income subjected to this reduced rate was however taken into account in determining the tax payable on the labor component of income.

G. Conclusion

143. The program of tax reform now underway in Italy will involve a sizable cut in the tax burden that is likely to support employment growth. But, in addition, the reform represents a fundamentally different approach to tax policy compared to that followed by the previous government. The latter, with the introduction of the DIT, the equalizer and use of marking-to-market, and the IRAP, had focused on reducing a number of tax distortions (the bias in favor of debt finance, the lock-in problems of the capital gains tax, and the dependence of regional governments on a variety of taxes with relatively narrow bases). The new approach, while reintroducing a number of distortions, focuses more on establishing a system that is both simpler and closer to those found elsewhere in the EU.

144. The move towards a simpler system has clear merits. The personal income tax, for instance, is in clear need of restructuring and simplification, and the introduction of consolidation provisions promises a useful rationalization of the taxation of businesses. However, it is not clear that the reforms of the late 1990s, which had the merit of reducing tax distortions, involved any insurmountable technical problem, or that taxpayers were unable to come to terms with the various novelties with which they were faced. Careful management of the transition to the new system will be especially important given that this reform comes so soon after those of the late 1990s.

REFERENCES

Alworth, Julian, Giampaolo Arachi, Roni Mamui and Roberto Viola, 2002, "The Taxation of Income from Capital: 1990–2001," Mimeo, Università Luigi Bocconi.

Auerbach, Alan, 2001, "Taxation and Corporate Financial Policy," NBER Working Paper No. 8203.

Bordignon, Massimo, Silvia Giannini and Paolo Panteghini, 2001, "Reforming Business Taxation: Lessons from Italy?" *International Tax and Public Finance*, Vol.8, 191210.

Baldini, Massimo, Paolo Bosi and Massimo Matteuzzi, 2002, "Effetti Distributuvi della Proposta di Reforma dell'Irpef: Prime Valutazioni "in corse d'opera,"' Mimeo, CAPP, Università di Modena e Bologna.

Brunello, Giorgio, Maria Laura Parisi and Daniela Sonedda, 2002, "Labor Taxes and Wages: Evidence from Italy," Mimeo, University of Padova.

Cnossen, Sijbren, 2000, "Taxing Capital Income in Nordic Countries," in *Taxing Capital Income in the European Union: Issues and Options for Reform,* ed. by Sijbren Cnossen, pp. 180–213 (Oxford University Press).

Deidda, Antonio and Christian Grabbe, 2002, "The Reform of the Italian Tax System," *International Tax Review*, Vol. 30, pp.307–14.

Ebrill, Liam, Michael Keen, Jean-Paul Bodin and Victoria Summers, *The Modern VAT*, (International Monetary Fund: Washington D.C.).

European Commission, 2001, *Company Taxation in the Internal Market* (European Commission: Brussels).

Goolsbee, Austan, 1999, "Evidence on the High-Income Laffer Curve from Six Decades of Tax Reform," *Brookings Papers on Economic Activity*, Vol. 2, pp.1–47.

Holmlund, B. and A.-S. Kolm, 1995, "Progressive Taxation, Wage Setting and Unemployment—Theory and Swedish Evidence," *Swedish Economic Policy Review*, Vol. 2, pp. 423–460.

Keen, Michael, 2002, "Tax Reform in Germany," *International Tax and Public Finance*, forthcoming.

Keen, Michael and Fabio Schiantarelli, 1991, "Corporation Tax Asymmetries and Optimal Financial Policy," *Oxford Economic Papers*, Vol. 43, pp.280–291.

Lindhe,Tobias. Jan Södersten and Ann Öberg, 2002, "Economic Effects of Taxing Closed Corporations under a Dual Income Tax," Mimeo, Uppsala University.

Lockwood, Ben and Alan Manning, 1993, "Wage Setting and the Tax System: Theory and Evidence from the United Kingdom," *Journal of Public Economics*, Vol. 52, pp.1–29.

Petretto, Alessandro, undated, "La Delega sulla Riforma Fiscale e la Finanza degli enti Decentrati," Mimeo, Università di Firenze.

Sørensen, Peter Birch, 1994, "From the Global Income Tax to the Dual Income tax: Recent Tax reforms in Nordic Countries," *International Tax and Public Finance*, Vol.1, pp.57–79.

Thakur, Subhash, Michael Keen, Balazc Horvath, and Valerie Cerra, 2002, *The Swedish Welfare State: Can the Bumblebee Keep Flying?*(International Monetary Fund: Washington D.C.), forthcoming.

Vickrey, William, 1939, "Averaging Income for Income Tax Purposes," *Journal of Political Economy*, Vol. 39, pp. 379–97.