

SM/00/234

Correction 1

CONTAINS CONFIDENTIAL  
INFORMATION

November 7, 2000

To: Members of the Executive Board

From: The Secretary

Subject: **France—Selected Issues**

The following corrections have been made in SM/00/234 (10/13/00):

**Page 3, para. 3, line 2:** for “several to” read “several years to”

**para. 4, line 10:** for “to by a” read “to be a”

**Page 9, para. 18, lines 8 and 9:** for “OECD, the *Direction*... Banque de France.”  
read “OECD and the Banque de France.”

**Page 12, line 2:** for “potential and the” read “potential output and the”

**Page 16, Box II.1, second bullet point, last line:** for “(F 7 billion);” read “(F 10.4 billion);”

**last bullet point, last line:** for “(F 11 million).” read “(F 11 billion).”

**Page 20, para. 32, line 4:** for “supply; and... the level” read “supply; the tax... the level”

**Page 25, para. 47, lines 13 and 14:** for “focused on... base, without”  
read “focused mainly on... end, without”

**Page 26, line 2:** for “the ISF contributes to” read “the combination of... contribute to”

**Page 27, para. 50, lines 4 and 5:** for “of savings, difficulties”  
read “of savings and reducing... difficulties”

**Page 33, Table III.2, Heading:** add “During 1996–99”

**Footnote 26, first line:** for “the communications sector”  
read “the accumulation of communications equipment”

**Page 36, para. 65, line 6:** for “growth can reduced” read “growth can be reduced”

**para. 66, line 4:** for “capital rose” read “capital deepening rose”

**Page 37, para. 68, last two lines:** revised

**Page 44, Box III.3:** revised

**Page 50, lines 6 and 7:** for “only 0.2 of 1 percentage point. (This figure... The small”  
read “only about 0.2 of 1 percentage point. The small”

**Page 51, References:** added: “Cette G.,...”

deleted: “Schreyer, Paul...”

Corrected pages are attached.

Att: (14)

Other Distribution:  
Department Heads

## INTRODUCTION

1. After an initially timid recovery from the slowdown of the early 1990s, activity accelerated in 1997. Since then, GDP growth has averaged 3 percent, employment growth has been strong, and unemployment has fallen sharply to 9.6 percent (as of August 2000). Although these developments have taken place in a setting of price stability and the unemployment rate is still above its previous cyclical low of 8.8 percent, there are signs of increasing tightness in labor and product markets; for example, vacancy and capacity utilization rates have risen. It is therefore natural to consider the possibility that the economy is approaching capacity.
2. The following chapters examine three aspects of this issue in detail. Chapter I reviews macroeconomic approaches to measuring the amount of slack in the economy, and in particular presents a multivariate model that allows for the joint estimation of the output gap and the Nairu while controlling for supply-side effects. The key conclusions are that the economy is nearing potential, that there has been a gradual decline in the Nairu in recent years (which has boosted potential output growth, at least temporarily), and that significant uncertainties remain regarding both potential output and the Nairu.
3. Chapter II considers the tax system. It first describes measures introduced in the last several years to alleviate the burden of taxation, particularly the tax wedge on low-skilled labor. It then examines the recently presented multiyear tax reduction plan and the main impediments to sustained growth imposed by the tax-benefit system. It concludes that a number of recent measures have helped to improve labor market performance—explaining perhaps the finding that the Nairu has tended to fall—but also that further reforms of the tax-benefit system would help expand available supply and thus increase the capacity of the economy. These should focus on reducing well-identified distortions that result in disincentives to work, on streamlining the income tax system, and on ensuring a competitive corporate tax regime.
4. Chapter III investigates the presence of new economy effects in France—that is, the contribution of the high-technology sector to increased productivity and potential output growth. Using previous research for the United States as a benchmark, labor productivity growth is decomposed into four components: capital deepening of computers and software, capital deepening of other types of equipment, changes in labor quality, and total factor productivity growth. It concludes that the recent lackluster growth in productivity can be attributed to a sharp deceleration in capital deepening outside computers and software in the last few years. By contrast, the accumulation of computer and software capital has boosted labor productivity growth, though by significantly less than in the United States. The conclusions suggest that, in the short term at least, the new economy is unlikely to be a major factor easing potential supply-side constraints.

## I. MEASURES OF SLACK IN THE FRENCH ECONOMY<sup>1</sup>

### A. Introduction

5. This Chapter presents an overview of the different methodologies that can be used to measure the amount of available slack in an economy. Three different approaches are discussed: statistical identification, economic identification, and survey-based measures of slack. A comparison of these alternatives reveals that the evolution of the Nairu is crucial for understanding recent cyclical developments in the French economy.

6. Following the cyclical trough in 1993, activity recovered timidly in 1994–96 but then accelerated. Since 1997, GDP growth has grown above potential, more than a million new jobs have been created, and unemployment has declined by almost 3 percentage points to 9½ percent, a level not seen since the peak of the previous upswing. This performance has been achieved in a setting of price stability—inflation has averaged less than one percent and wage growth has been contained—and accompanied by various structural reforms, notably an ongoing privatization program, the reduction in taxes and social security contributions at the low-end of the income distribution and, more recently, the implementation of the 35-hour workweek.

7. At this cyclical juncture, it becomes both more difficult and more important to gauge the amount of slack remaining in the economy. Labor market and tax reforms have arguably reduced the Nairu and raised potential, as evidenced by continued low wage and price inflation in the face of tightening labor markets. But it is difficult to estimate the extent of this reduction. At the same time, lags in the formulation and effect of macroeconomic policy imply a need to forecast future inflationary pressures, rather than react only after they have appeared. And policy can err on both sides, reacting too late and allowing pressures to build, or too early and cutting off the expansion prematurely.

8. The variable most commonly used for this analysis is the output gap, which measures the distance between current and potential GDP. A related measure is the unemployment gap, which measures the distance between the unemployment rate and the Nairu (the unemployment rate consistent with stable inflation). Both gaps can be described in terms of cycles that evolve around a long term trend (that is, potential output and the Nairu respectively). As neither the trend nor the cycle can be directly observed, the crucial aspect of identification is the allocation of movements in output to the trend and the cyclical component. There are two econometric procedures to identify these components, based on statistical and economic properties, respectively. As these methodologies rely on different assumptions for identification, they are bound to deliver divergent results and can be considered as “different windows through which economists can examine their models and data” (Canova (1998)).

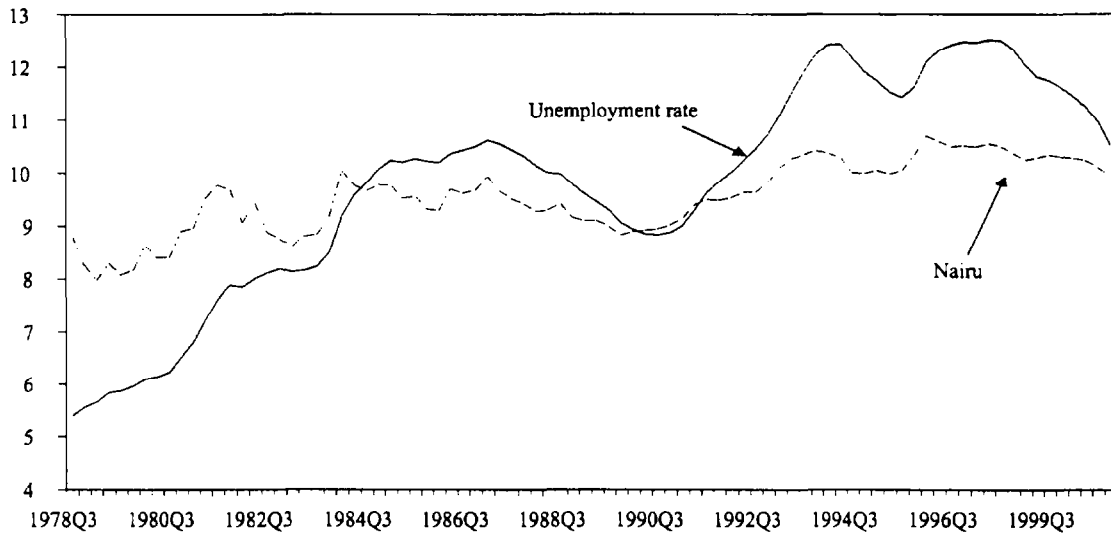
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<sup>1</sup> Prepared by Angel Ubide-Querol.

#### D. The Evolution of the Nairu

18. The Nairu represents the rate of unemployment that is compatible with stable inflation. Its origins are in the wage-price mechanisms advanced by Friedman (1968) and Phelps (1968), and it has recently been modeled as a time-varying concept that responds to macroeconomic and institutional shocks (see Gordon (1997), Staiger, Stock, Watson (1996), and Blanchard and Wolfers (2000)). The estimates that arise from equations (1) to (5) appear in Figure I.4. The Nairu rose significantly during the early-1990s recession, and reached a peak of close to 11 percent in 1995; it then declined to a value of about 9½ percent by end-1999. This compares to estimates of around 10 percent by the OECD and the Banque de France.

Figure I.4. France: Unemployment and Nairu



Source: INSEE and Fund staff estimates.

19. Although the unemployment rate continued to rise until 1997, the estimate of the Nairu starts to decline in 1994. This decline would have allowed for an increase in the rate of growth of potential output, which could explain why the measure of the output gap obtained with the multivariate model (Figure I.2) remains negative throughout the period. By contrast, the band-pass filters, based solely on the information contained in the GDP series, allocate the fluctuations of output during this period mainly to the cyclical component; hence the rapid reduction in the output gap. As regards the difference with respect to the survey-based measures, it could be argued that individual economic agents are not well-placed to gauge the extent of gradual structural changes. For example, entrepreneurs used to an environment with a high rate of unemployment, where finding additional employees was therefore easy, may find it difficult to hire additional resources in the new lower-unemployment environment if they fail to adapt their search process accordingly. Thus, survey-based measures may

overreact to these types of structural changes and, by adding up myopic individual opinions, report capacity constraints that are not present overall.

20. Therefore, in order to discriminate between these two interpretations of the recent cyclical recovery, it becomes important to assess the plausibility of this estimated decline in the Nairu since 1993. In order to do so, a discussion of the main factors that affect its evolution, namely labor market policies, institutional changes, and factors affecting the rate of growth of labor productivity seems necessary.

21. Since the early 1990s, several labor market policies have been implemented in France with the objective of reducing structural unemployment (see Box I.1). Some programs, such as the reduction in the cost of labor and the increase of the employability of the low-skilled aimed to reduce the unemployment level compatible with a given level of wages (see also Chapter 2 for details on recent tax reforms). Other strategies, such as the increase in labor market flexibility, have essentially aimed to raise labor productivity. The effects of the 35-hour workweek on the Nairu seem favorable: the annualization of work time may have lowered the Nairu through an induced increase in productivity; in addition, the increase in the scope of collective bargaining, with the introduction of more flexible work arrangements, and the pervasiveness of wage moderation in the context of rapidly declining unemployment seem to suggest a decrease in insiders' bargaining power and thus a reduction in the Nairu<sup>6</sup>.

22. Recent research also points to the importance of the interaction between macroeconomic shocks and labor market institutions for the evolution of the Nairu (Blanchard and Wolfers (2000), Fitoussi et al. (2000)). In particular, institutions would affect both the size and persistence of the effect on the Nairu of a given macroeconomic shock. Under this perspective, the recent rapid decline in the Nairu could be reflecting the coalescence of positive macroeconomic shocks with a string of labor market reforms, creating a sort of positive and self-reinforcing hysteresis effect. Indeed, a plausible hypothesis could be that the accumulated impact of certain labor market measures at the moment of strong economic growth and declining real interest rates has allowed for a significant reduction in long-term and low-skilled unemployment, the main two sources of structural unemployment.

23. In summary, the results of this paper imply that the output and labor market gaps have been narrowing rapidly in the past few years, notwithstanding a reduction in the Nairu. Indeed, the gaps can be expected to close in the course of next year. This conclusion, which flows from the Apel-Jansson methodology, is at odds with other, more traditional methods and indicators, although these suggest that markets are tighter still. Nevertheless, the

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<sup>6</sup> However, the overall effects of the 35-hour workweek initiative on potential output are ambiguous, since the associated reduction in labor supply would reduce potential output.

### **Box I.1. Labor Market Policies in the 1990s: Reducing Structural Unemployment**

Beginning in the early 1990s, the French authorities implemented policies to reduce structural unemployment through lowering the cost of low-skilled and inexperienced labor, increasing the employability of the long-term unemployed, enhancing labor market flexibility, and enhancing work incentives. The main building blocks of this strategy are listed below.

**Reduction of the cost of labor.** The 1993 Five year law on labor, employment, and training set the stage for a durable reduction of the cost of low-skilled labor, including exemptions of employer contributions to the family branch of the general social security regime targeted to employees earning between 1 and 1.2 times the minimum wage (SMIC). In 1995, these exemptions were expanded and consolidated in the so-called *ristourne dégressive*, a system of tapered rebates on other categories of employers' social security contributions (notably health and basic pensions) up to 1.3 times the SMIC. This *ristourne* was revised in 1998 and in 2000, in the context of the implementation of the 35-hour workweek; it is currently applied to workers earning up to 1.8 times the SMIC.

**Increase the employability of the unemployed.** Over the last decade, active labor market programs have proliferated, focused on enhancing the opportunities of the young, the long-term unemployed, and those with low earning potential. Broadly, these measures encompass three types of programs: (i) programs targeted to the market sector involving fiscal transfers (usually in the form of reductions in social charges plus monthly subsidies), such as the *Contrat-Initiative-Emploi*; (ii) programs involving minimum wage concessions and training, such as the *contrat d'apprentissage*; and (iii) subsidized programs targeted to the non-market sector, such as the *Nouveaux Services, Emploi-Jeunes*.

**Reform of working time.** With the intention of increasing the flexibility of work arrangements through the annualization of working hours, the 1993 Five year law on labor, employment, and training introduced an experimental program that allowed the number of hours worked to be varied at the enterprise level, up to a maximum of 48 hours per week, so long as the annual number of hours worked was reduced. This system was later formalized in the 1996 *Loi Robien*, which provided a subsidy for firms reducing working time by 10 to 15 percent and providing an equivalent increase in employment. Finally, in 1998, the 35-hour workweek initiative was launched, culminating in 2000 (2002 for small firms) of a reduction in the workweek to 35 hours and the widespread adoption of annualization.

**Increase labor market flexibility.** Although the legal framework had existed since the early 1980s, part-time work increased rapidly in the second half of the 1990s, following several initiatives that provided partial exemptions from employer's social security contributions and increased the number of hours that could be considered part time. Similar measures were implemented to promote temporary and fixed-term work, such as the increase in the duration and maximum number of renewals of fixed-term contracts. Temporary and fixed-term contracts account for about one-third of the new jobs created since 1997; similarly, one-fifth of the new jobs created over this period are on a part-time basis.

**Strengthen the incentives to return to work and avoid poverty traps.** Unemployment insurance was reformed in 1993, with the reduction in the duration of benefits, a tightening of the eligibility requirements, and the introduction of tapered benefits. The mechanism of *interressement* was later introduced for both unemployment benefits and the basic income support scheme (revenue minimum d'insertion (RMI). This allows claimants to maintain, for a certain period, part of their entitlement rights even as they earn income, thus reducing the disincentive to work. More recently, other measures (including changes to the *taxe d'habitation* and a proposed graduated rebate on the *contribution sociale généralisée*, CSG) can also be expected to reduce threshold effects and strengthen work incentives.

differences in the estimates of macroeconomic slack illustrate the broader uncertainties regarding estimation of potential output and the Nairu. These are particularly acute because various reforms—key ones of which are discussed in the next Chapter—can be expected to have lowered the Nairu by an amount that is difficult to determine with great precision. In addition, as discussed in Chapter III, the new economy may be boosting productivity growth and therefore potential output, as appears to have been the case in the United States.

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crucial to increasing potential growth, the impact of the tax-benefit system on the performance of the labor market is examined in Section D. The specificities and weaknesses of the personal income tax (PIT), which is at the center of recent reforms, is then reviewed in Section E. Finally, the impact of corporate taxes on investment is examined in Section F. Section G provides some conclusions.

## B. Overview of Recent Reforms

26. In the early to mid-1990s, tax policy in France was characterized by a mix of revenue-raising measures geared toward achieving the Maastricht deficit criterion (e.g., the 1995 and 1997 surcharges on corporate taxes, VAT rate increase) and reforms to reduce structural unemployment (e.g., targeted rebates on social security contributions). In recent years, the priority has shifted toward reducing the tax burden, first to sustain the economic recovery and then to correct the increase in the tax burden induced by the drive to EMU participation and a strong cyclical upswing. The budgets for 1999 and 2000 thus included a number of tax reductions amounting to 1.1 percent of GDP (Box II.1).

27. In addition, the government announced on August 31, 2000 a package of tax reductions and reforms, amounting to an overall F 120 billion (1¼ percent of GDP) to be implemented over 2001-2003. The main measures are:

- A reduction in all the rates of the personal income tax: the lowest marginal rate will thus be reduced from 9.5 percent in 2000 to 7 percent by 2003, while the highest marginal rate will be cut from 54 percent to 52.5 percent by 2003. The overall cost of these measures will be about F 45 billion. In addition, the discount (“*décote*”) that applies to taxable income below a certain threshold will be modified to reduce the high marginal rates induced by the threshold.
- The elimination over three years of the 1995 surcharge on the corporate income tax, lowering the normal statutory rate from 36.7 percent to 33.3 percent. In addition, the statutory rate is reduced in stages to 15 percent on the first F 250,000 of profits for small and medium-sized enterprises. These measures will be partly financed by changes in the rules for the taxation of dividends between subsidiaries, depreciation allowances and imputation, so that the overall cumulative cost will be F 20 billion.
- The introduction of a graduated rebate on the *contribution sociale généralisée* (CSG) and *contribution pour le remboursement de la dette sociale* (CRDS)<sup>8</sup> for wages up to 1.3 times the SMIC aimed at increasing in-work take-home pay for low-income workers already exempt from the income tax. This measure will cost about F 25 billion.

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<sup>8</sup> The CSG and CRDS are flat-rate taxes earmarked for the financing of Social Security.

- A reduction in excise taxes on domestic fuel oil to lessen the impact of increases in crude oil prices on household income. In addition, excises on gasoline will be adjusted to offset increases in VAT due to changes in oil prices, and the annual tax on private cars (*vignette automobile*) is to be eliminated.

#### Box II.1. Tax Reductions in 1999-2000

The most important tax-reduction measures introduced in 1999 and 2000 (amounting to 1.1 percent of GDP) were:

**1999 Budget:** F 41 billion (though F 25 billion was raised by a new ecotax and a surcharge on the corporate tax for large enterprises to finance the 35 hour work week), of which

- a reduction of VAT on electricity and gas network access, appliances for handicapped persons, sorted waste treatment, and renovation of social rental housing (F 4.5 billion);
- a reform of the *taxe professionnelle* (local business tax), by phasing out over 5 years the payroll component from the base (F 10.4 billion); and
- an extension of the rebate on employer social security contributions for low-wage workers to 1.8 times the SMIC for enterprises implementing the 35-hour workweek (F 25 billion).

**2000 Budget:** F 40 billion, of which:

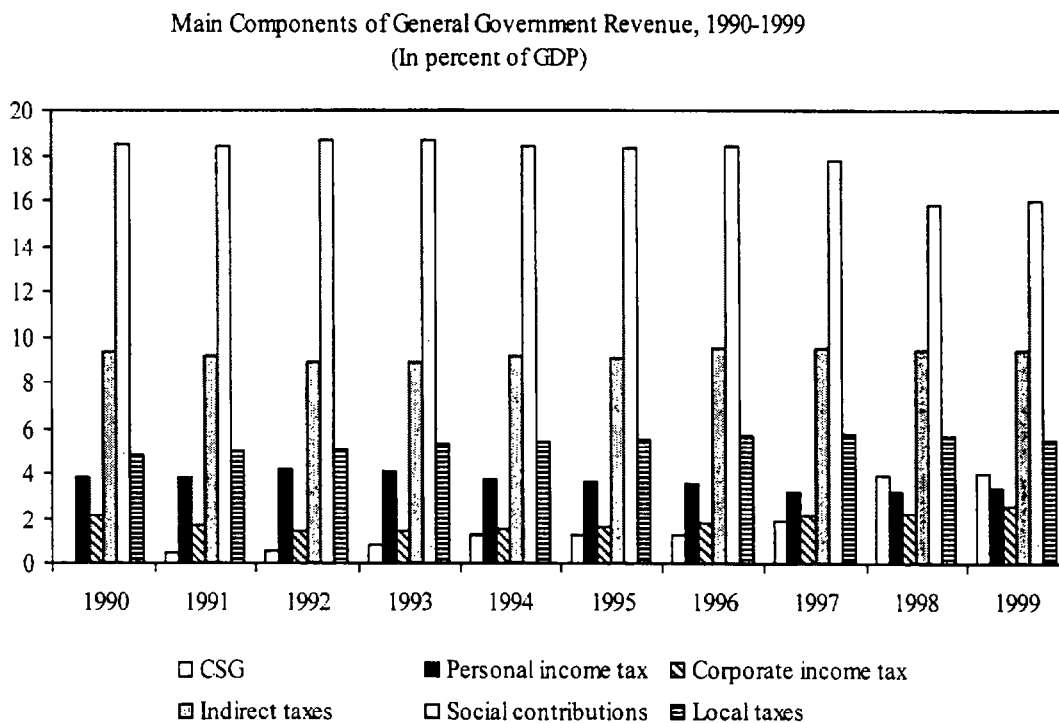
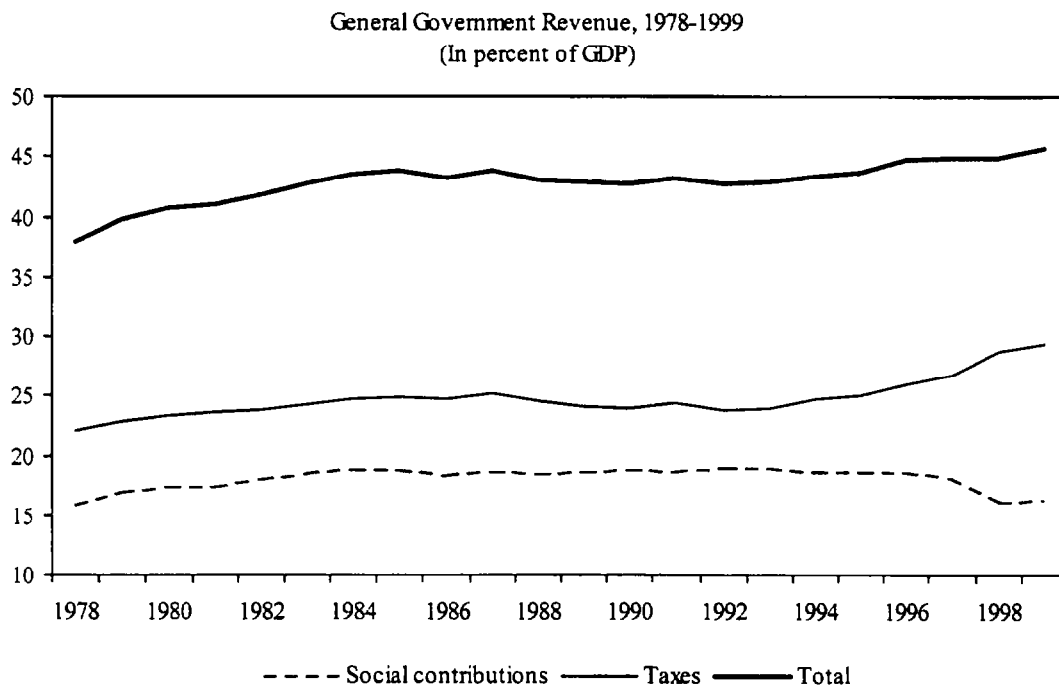
- a reduction of VAT on home improvement and personalized care services (*services de proximité*) (F 20 billion);
- a reduction of the real estate transaction tax (*droits de mutation*) (F 1 billion);
- a broadening of the partial exemption of wages from the local business tax (F 2 billion); and
- the elimination of the 1997 surcharge on corporate taxes (F 12 billion).

**2000 Supplementary Budget:** F 50 billion (F 40 billion of these cuts offset the carryover from 1999, higher projected growth in 2000, and larger-than-expected non-tax revenues), of which:

- a reduction of the VAT rate from 20.6 percent to 19.6 percent as of April 2000 (F 18 billion in 2000 and F 31 billion for a full year);
- a reduction of the *taxe d'habitation*, including the elimination of the regional tranche and new exemptions for low-income families (F 11 billion); and
- a reduction in the two lower rates of the personal income tax, which also reduces the tax base by about 650,000 families (F 11 billion).

base of the personal income tax. Another limitation of this analysis is that the Atkinson-Stiglitz "optimality" theorem assumes that all markets are perfectly competitive, whereas in France the existence of the minimum wage and the policy of maintaining its purchasing power have to be taken into account when evaluating the tax system and designing tax reforms.

Figure II.2. France Structure of General Government Revenue



Source: Rapport économique, social et financier.

#### D. The Impact of the Tax-Benefit System on Labor Market Performance

32. The tax-benefit system may affect the functioning of the labor market in a number of ways: social security contributions and taxes create a tax wedge between employers' labor costs and net after-tax wages available to employees, which affects labor demand and/or supply; the tax-benefit system influences the level of reservation wages and thus labor supply. In the 1990s, policies aimed at reducing structural unemployment focused on lowering labor costs for targeted categories of workers—mostly unskilled workers.<sup>11</sup> These measures were based on the idea that the demand for low-skilled labor was constrained by a relatively high minimum wage and high social charges, possibly combined with skill-biased technological progress. In these conditions, and with an elasticity of labor demand generally considered to be higher for low-skilled than for high-skilled labor, shifting the tax burden away from low-skilled labor would induce a reduction in unemployment over the medium term.<sup>12</sup>

33. The annual cost of these measures is estimated at about F 40 billion (0.4 percent of GDP). Most ex-ante estimates evaluate the impact in terms of job creation at about 200,000 to 250,000 jobs over a five-year period. When taking into account the financing of the measure (e.g., through an increase in VAT or higher contributions on high-skilled labor), the estimate of the number of jobs created or maintained is reduced to 40,000 to 200,000 jobs, depending on the assumptions retained (CSERC, 1996). Since these measures were introduced in the first half of the 1990s, they are likely to have reached their maximum effect in terms of job creation by now, although the unusually high pace of employment growth in the current recovery could indicate that the impact of these measures has been deeper than anticipated. Very optimistic scenarios, based on a high elasticity of the demand for low-skilled labor and favorable supply-side effects, could thus lead to stronger estimates of the number of jobs created, up to 450,000 (before financing) in some studies. In this case, an appreciable reduction in structural unemployment might be underway.

34. Ex-post estimates of the impact of the measure are still very tentative but point to two significant developments. First, the long-term decline in the share of low-skilled workers in total employment (wage earners) observed in the 1980s was brought to a halt in the mid-1990s. Second, the proportion of jobs paid less than 1.3 times the SMIC picked up markedly in the late 1990s, which can be interpreted as the result of a larger number of jobs created in this wage range, or a limited diffusion of the discretionary increases in the minimum wage over the period. This increase in the proportion of jobs paid below 1.3 times the SMIC could also indicate that the rebates induced the development of "low-wage traps", as the marginal

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<sup>11</sup> One of the key measures in this regard was the *ristourne dégressive*, consisting of tapered rebates to employers' social contributions for low wages (below 1.3 SMIC); see also Box I.1 in Chapter I.

<sup>12</sup> See Malinvaud (1998), on France, or Sørensen, (1997), for a discussion of the effects of these measures in a variety of theoretical models

- Finally, since 1997, part of the CSG can be deducted from the PIT. This was justified by reasoning that the 1997 increase in the CSG replaced social security contributions for health care, which were themselves deductible from the PIT.

47. The main flaws of the PIT are a narrow base and, consequently, a low yield, high progressivity at the both the lower and higher ends (which blunts work incentives), and complexity.<sup>17</sup> These three weaknesses are to some extent related. The accumulation of exemptions and rebates over the years may be seen as an attempt to offset the impact of high marginal rates. But they also have eroded the tax base while increasing the complexity of the system. Thus, a reduction in the tax rates would arguably be best combined with a streamlining of the web of exemptions and rebates. These include the exemption of some benefits, the 10 percent and 20 percent rebates on taxable income, which could be integrated in the tax schedule, and some tax credits. In addition, while the introduction of the CSG partly corrects for the small base and low yield of the income tax, the desirability of maintaining two complementary taxes on personal income remains questionable in the longer term. In addition, the tax deductibility of part of the CSG has no economic justification. Recent reforms of the PIT are somewhat disappointing in this regard, as they have focused mainly on reducing the tax rates, especially at the low end, without offsetting measures to reduce the number of exemptions and credits.<sup>18</sup>

48. The question of high marginal rates is more complex. At the lower end of the income distribution, the high marginal rate of taxation and associated inactivity traps stem from the benefit system rather than the PIT, given that low-income households are typically already exempt from the PIT (see section D for a discussion of these issues). For high incomes, the question is whether high marginal rates may lead high-skilled workers to emigrate, or might discourage the accumulation of human capital. However, the decision to emigrate should take into account relative average rates of taxation rather than marginal rates, and international comparisons show that these depend crucially on family situations. For example, when compared with the United Kingdom, the French PIT may be more costly for single high-wage people, but more advantageous for families with children. In addition, differences in the taxation of savings and wealth are also likely to play an important role in these decisions. Wealth is taxed in France when it is transmitted (*droits d'enregistrement*) and on an annual basis through a wealth tax (*impôt de solidarité sur la fortune, ISF*) and a property tax (*impôt foncier*). The ISF applies to wealth (buildings, individual enterprises, financial assets, cars, planes, etc.) that is higher than F 4.7 million (net value), with progressive rates ranging from 0.55 to 1.8 percent. For taxpayers paying income tax in France, a ceiling limits the overall

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<sup>17</sup> As noted above, the redistributive impact is limited by the narrow base and yield of the PIT.

<sup>18</sup> An exception is the announced change in the “*décote*” (a discount that applies to taxable income below a certain threshold).

amount of income and wealth tax due to 85 percent of the previous year's income.<sup>19</sup> Although its effect is difficult to assess, it is generally recognized that the combination of PIT and ISF may contribute to emigration of wealth and taxpayers, and in particular, that the upper limit imposed on the tax rebate described above may have to be reconsidered in this light.

## F. Corporate Income Tax

49. Corporate income tax (CIT) reforms have been relatively limited in France in recent years. The main measures have been the elimination of the two surcharges that had been imposed in 1995 and 1997, which will bring the standard corporate tax rate back to 33.3 percent by 2003, the ongoing phasing out of the wage bill from the base of the local business tax (*taxe professionnelle*), and recent targeted rate reductions for small- and medium-sized enterprises.<sup>20</sup> Over the last 20 years there has been a widespread trend toward lower corporate tax rates in all industrial countries—although it was accompanied by a broadening of tax bases, leaving CIT revenues as a share of GDP broadly constant (Bond, Chennels, Devereux, Gammie, and Troup, 2000). A simple comparison of headline and typical corporate tax rates shows that France is in the middle of the range of industrial countries, with higher rates than in the United Kingdom, Denmark or the Netherlands, but lower than in Germany and Japan (Table II.3). It should however be noted that the French local business tax (*taxe professionnelle*) is not taken into account in these comparisons (whereas German local taxes are). Although the specifics of this tax make it difficult to compare with standard CIT, it probably contributes to increasing the cost of capital and the effective average tax rates above the levels reported in Table II.3.

In order to measure the impact of CIT on investment, it is necessary to look more precisely at the impact of taxation on the cost of capital (which measures the effects of CIT on “marginal” investment decisions) and/or at the effective average tax rates (which reflect the relative impact of CIT on the overall profitability of various investment projects). Bond and Chennels (2000) estimate the effect of CIT on the cost of capital and the effective marginal tax rates<sup>21</sup> for seven countries (United States, Japan, Germany, France, United Kingdom, Denmark, and the Netherlands). This requires distinguishing between domestic and international investments (through a foreign subsidiary), and between various sources of financing (debt, equity, and retained earnings). Overall, their results show that France is

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<sup>19</sup> However, an upper limit has been imposed on this tax rebate for wealth above a given threshold.

<sup>20</sup> In the context of the law on the 35-hour workweek, a new surcharge (*contribution solidaire sur le bénéfices*, CSB) was also imposed on larger firms.

<sup>21</sup> These are forward-looking effective tax rates, calculated from the difference between the net present value of an investment project to shareholders with and without CIT.

generally in the middle to lower range in terms of both cost of capital and effective average tax rates, often close to U.S. levels, below Germany and Japan which exhibit relatively high costs and effective rates, and above the United Kingdom, Denmark and the Netherlands. In addition, debt financing appears relatively attractive in France compared to other countries.

Table II.3. Corporate Tax Rates

<b>Headline rates</b>							
	United States	Japan	Germany	France	United Kingdom	Denmark	Netherlands
1979	46.0	40.0	56.0	50.0	52.0		
1990	34.0	37.5	50.0	37.0	34.0	40.0	35.0
1999	35.0	30.0	40.0 <sup>1</sup>	33.3 <sup>2</sup>	30.0	32.0	35.0
<b>Typical tax rates</b>							
	US	Japan	Germany	France	UK	Denmark	Netherlands
1979	49.6	52.6 / 40.0	62.2 / 45.0	50.0	52.0		
1990	38.4	50.9	57.7 / 45.9	37.0 / 42.0	34.0	40.0	35.0
1999	39.3	40.9	51.6 / 42.8	40.0 <sup>3</sup>	30.0	32.0	35.0

Source: Bond and Chennels, 2000.

Notes: The headline rate is the main rate of the national CIT on retained earnings (excluding surcharges). The typical rate includes surcharges and typical local CIT. The first figure applies to retained earnings and the second to distributed profits.

<sup>1</sup>The German CIT reform will bring this rate from 40 to 25 percent in 2001.

<sup>2</sup>Excluding surcharges.

<sup>3</sup>Will be brought back to 33.3 percent by 2003 with the elimination of the surcharges.

50. At the same time, there remain important differences in the links between CIT and PIT across countries, although a movement away from full imputation (under which CIT paid can be deducted from PIT on dividends) seems to be under way in the European Union. Although this system presents the advantage of avoiding a double taxation of savings and reducing both average and marginal costs of equity-financed capital, difficulties in its implementation in an international setting appear to lie behind its discontinuation in the United Kingdom and Germany. France is thus one of the last countries in the European Union to retain full imputation (see the 2000 Article IV Selected Issues paper on tax reforms in Germany for a more detailed discussion of this issue (SM/00/229)).

## G. Conclusion

51. To summarize, the French tax system exhibits the following specificities, which can serve as a basis for an agenda of further reform :

- Targeted rebates on social security contributions have been successful in reducing constraints on labor demand resulting from high labor costs (SMIC and social charges) on low-skilled labor;

- However, these measures are costly for the budget (especially after the extension to 1.8 times the SMIC) and may induce new distortions (e.g., low-wage traps);
- The tax-benefit system still induces distortions and high marginal effective rates of taxation that are likely to limit labor supply, especially at the lower end of the revenue distribution.
- The personal income tax system (PIT and CSG) is atypical and complex, with a combination of high marginal rates and numerous exemptions that reduce its transparency and its efficiency both in terms of yield and redistribution.
- Corporate income taxes are, overall, not out of line with other OECD countries, but there is a need to remain attentive to developments on specific issues in an increasingly competitive international environment, such as the treatment of dividends, the impact of local taxes (*taxe professionnelle*), and interaction between CIT and the PIT.

52. Several recent reforms have addressed some of these problems, in particular by smoothing the peaks in marginal effective tax rates related to the withdrawal of some benefits. More needs to be done, however, on both the benefits and the tax side to significantly reduce financial disincentives to work and therefore boost labor supply. In addition, a comprehensive reform of the PIT should tackle the problem of the small base and complexity of the PIT, and in the longer term, possibly consider moving toward a single withholding income tax. Finally, the increasing mobility of capital and high-skilled labor should lead to a continuous reassessment of the impact of taxation on investment and location decisions, including the taxation of savings and wealth. Finally, the analysis suggests that merely reducing the tax burden is unlikely to address these issues, which require deeper changes in the structure and specifics of some taxes and benefits.

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12 percent of U.S. output, he is skeptical that the revival of growth and low inflation could be viewed as a new economy paradigm shift.

Table III.2. Acceleration in Labor Productivity During 1996–99  
(Percentage points per year)

	Nonfarm business (NFB)	NFB excluding computer hardware manufacturing	NFB excluding durable manufacturing
Labor productivity growth	2.82	2.42	2.05
Contributions:			
1) Cyclical effects	0.54	0.55	0.62
2) Trend	2.28	1.87	1.43
(Past trend, 1972:2-1995:4)	(1.47)	(1.25)	(1.19)
3) Trend acceleration	0.81	0.62	0.24
3.1) Price measurement and Labor quality	0.19	0.19	0.19
3.2) Structural acceleration	0.62	0.43	0.05

Source: Gordon, 2000.

60. A key difference between Oliner and Sichel and Gordon is cyclical adjustment, which according to Gordon accounts for about ½ of 1 percentage point of the productivity acceleration. Oliner and Sichel, by contrast, argue that there is no need for such an adjustment when examining specifically the contribution of computers and semiconductors to TFP growth, because the productivity of these sectors is largely uncorrelated with the business cycle. A potential source of bias in both studies is due to the fact that productivity growth in the services sector, which dominates nondurables production, is notoriously poorly measured. If productivity in this sector has accelerated, but this has not been captured in the data, then the estimates of both studies would be too low. In particular, Gordon's conclusion that productivity growth has been largely confined to the durable goods sector would have to be modified.

### C. Productivity Growth in France

61. This section examines the contribution of computers and software to labor productivity in France, along the lines laid out by Oliner and Sichel.<sup>26</sup> The focus is on the nonfarm business sector, although due to data constraints the financial sector is excluded. Several features distinguish France from the United States. Notably, the patterns of labor

<sup>26</sup> Owing to data limitations, the accumulation of communications equipment is not included in this analysis. This is probably an important omission, about which more is said below.

productivity growth and capital accumulation have differed for a large part of the 1990s, the computer hardware manufacturing industry is much larger in the United States than in France, and unemployment has fallen appreciably in France since 1997, while the U.S. rate has been more stable although much lower. These differences have important implications for the analysis of French productivity, especially when set against the backdrop of the U.S. experience.

62. The decomposition of labor productivity in the French nonfarm, nonfinancial business sector is laid out in Table III.3.<sup>27</sup> Productivity growth fell from 2¼ percent a year in the late 1980s to about 1½ percent a year in the 1990s and, unlike in the United States, did not accelerate in the second half of the 1990s.

Table III.3. Labor Productivity Growth in the French Nonfarm,  
Nonfinancial, Business Sector  
(Percentage points per year)

	1986-91	1992-96	1997-99
Labor productivity growth	2.3	1.6	1.4
Of which due to:			
Capital deepening	0.9	1.1	0.2
Adjusted for capacity utilization	0.9	0.9	0.5
IT capital (unadjusted)	0.1	0.1	0.2
Labor quality	0.1	0.1	0.1
TFP	1.3	0.4	1.2
Adjusted for capacity utilization	1.3	0.6	0.9

Source: IMF staff calculations based on original data from the INSEE and DARES.

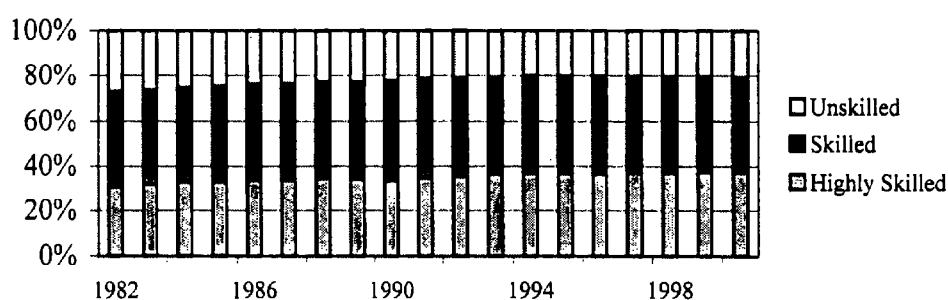
63. Before analyzing the contribution of technology and capital accumulation to this path, it is important to note that labor productivity growth in France has been affected by a steady decline in average hours worked. In addition to a break in 1982—when the statutory workweek was reduced to 39 hours—hours worked have exhibited a secular decline

<sup>27</sup> Labor productivity was calculated using the national statistical institute's (INSEE) data on sectoral GDP and estimates of total hours worked provided by the research office of the Labor Ministry (DARES). Output of the nonfarm, nonfinancial business sector was obtained by chain-weighting the sectoral data using prices of the previous year as a base. The figures in Table III.3 refer to different aggregate variables than the figures reported in Box 3 of the staff report for the French 2000 Article IV consultation.

throughout the 1980s and 1990s.<sup>28</sup> This decline reflected in part a rise in the share of part-time work, which accounted for about 16 percent of total employment by the end of the 1990s.<sup>29</sup> Such a structural change could be partially responsible for the deceleration in labor productivity in the 1990s if part-time work were concentrated in lower productivity jobs or in jobs that are less capital intensive.

64. The qualification of the labor force has increased substantially, with the share of workers with higher education rising from 10 percent in 1982 to close to 25 percent in 2000. This increase is due in part to public policies aimed at raising education levels since the mid-1980s, and to the difficulties faced by young workers in finding a first job. In addition, the continued increase in the share of high-skill jobs (Figure III.1) have also boosted labor quality measures.<sup>30</sup> As a result of both effects, as shown in Table III.3, changes in labor quality have had a positive impact on labor productivity growth. However, its contribution has remained unchanged and small. Thus, the cause of the deceleration in labor productivity in the 1990s lies elsewhere.

**Figure III.1. Distribution of Jobs by Skill Level**



Source: Audric et al. (1999)

<sup>28</sup> The statutory workweek in large firms was further reduced to 35 hours in January 2000. Small firms will follow suit in January 2002.

<sup>29</sup> The evolution of worked hours is only partly captured by official statistics. However, a number of researchers in both INSEE and DARES have constructed estimates of the effective work week (e.g., Accardo, Bouscharain, and Jlassi (1999), and Audric, Givord, and Prost (1999)).

<sup>30</sup> See Audric et al. (1999) and Bisault, Destival, and Goux (1994); the most recent ranking of jobs by skills is listed in the former.

65. The decline in labor productivity during the early 1990s can be interpreted as a cyclical phenomenon: all of the decline can be accounted for by a sharp reduction in TFP growth while capital deepening remained roughly constant. During the rest of the decade, when economic activity bounced back, TFP growth also increased but labor productivity growth was held down by a slowing in capital deepening. The apparent cyclicity in TFP growth can be reduced if appropriate measures of labor effort and capital utilization are used to translate the measured use of production factors into actual use. Table III.3 shows an alternative breakdown between capital deepening and TFP growth when the rate of capacity utilization is used as a proxy for capital utilization.<sup>31</sup> As may be seen, changes in the rate of capacity utilization dampen the cyclical behavior of TFP somewhat but the lack of measures of labor effort may still be contaminating TFP growth as well as labor productivity growth.

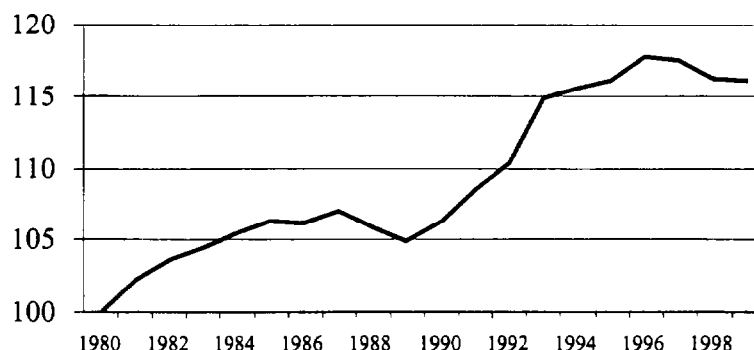
66. Leaving aside the cyclical behavior in TFP growth and focusing on structural changes, the drop in labor productivity growth at the end of the 1990s was driven by a decline in the contribution of capital deepening from 0.9 percent a year during the previous economic boom to 0.2 percent a year after 1997 (in contrast, the contribution of capital deepening rose from 0.6 percent to 1.1 percent in the United States in similar periods).<sup>32</sup> This difference appears to be related to a shift toward higher labor utilization on the heels of a moderation in labor costs, due both to wage moderation and targeted reductions in employers' social security charges. Such a shift contrasts with the trend to capital deepening observed for most of the 1980s, which has in part been attributed to the increase in labor costs observed in the 1970s and early 1980s. In fact, the rate of overall capital accumulation halved from 1990 to 1993 and then stabilized at this lower level (around 2 percent a year). Thus, after the surge in the capital to output ratio observed in the early 1990s—which reflected the combination of a rapid buildup of capital in the late 1980s and the decline in GDP growth in 1991–93—the growth rate of this ratio has since languished (Figure III.2). The counterpart of a deceleration in capital deepening has been the “employment rich” economic recovery observed since 1997.

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<sup>31</sup> There are two measures of capacity utilization for France, though both are restricted to industrial sectors. The INSEE measure used in this study is based on national surveys.

<sup>32</sup> The calculation of the contribution of capital deepening relies mainly on preliminary estimates for the nonfarm nonfinancial business sector provided by INSEE; these estimates may change with forthcoming revisions of the capital stock series.

**Figure III.2. Capital/GDP Ratio in the Nonfarm, Nonfinancial Business Sector (1980 = 100)**



Source: Staff calculations based on INSEE data.

67. The slowing in capital deepening did not, however, extend to computing equipment and software. On the contrary, as a result of strong computer and software investment, an increase in capital deepening in this category contributed positively to productivity growth in the second half of the 1990s. Investment in computers and related products decelerated dramatically in the early 1990s but then rebounded strongly in the late 1990s to the same rates posted in the late 1980s.<sup>33</sup> Software investment has grown strongly and continuously for several years, and has posted a 16½ percent average annual real growth since 1997 (possibly driven to some extent by precautionary investment due to Y2K concerns and the introduction of the euro). As a result, a much larger share of the economy's resources are devoted to the acquisition of computing equipment and software in the late 1990s than in the early 1980s: expenditure on computers and software was about 17 percent of all non-residential investment in 1999, compared with less than 5 percent in 1980 (Table III.4).

68. Nevertheless, the impact on productivity growth of computer and software investment has been only some 0.2 of 1 percentage point, as shown in Table III.3. The apparent puzzle between this finding and the investment figures can be reconciled by the still very low installed base of this type of capital. It is worth noting, however, that the data used here do not include accumulation in other types of ICT capital, particularly communication equipment. Adding an estimate of the contribution of communication equipment (using Cetté et al. (2000)) would raise the contribution of ICT capital deepening to productivity growth in 1997–99 from 0.17 of 1 percentage point to about 0.25 of 1 percentage point.

<sup>33</sup> For France, as the United States, data for computer investment take into account quality improvements. Until end-1998, expenditures on computers are deflated by the quality-adjusted price for computer investment calculated by the U.S. Bureau of Economic Analysis; after that, the INSEE uses its own adjustment.

Table III.4. Investment in High-Technology Equipment

Share (percentage) in Non-Residential Gross Fixed Capital Formation of:			
	Electric and electronic equipment		Software
	Total	Computers and related products	
1980	9.09	2.14	2.55
1985	15.35	4.05	5.22
1990	21.22	5.69	5.41
1995	19.30	4.74	5.99
1999	25.06	5.42	11.86
Percent change (annual rate) of real expenditures in:			
1980-90	13.90	28.94	8.39
1990-99	8.16	16.31	11.29
1997-99	17.03	28.94	16.63
Source: IMF staff calculations based on INSEE data.			

69. The information needed to decompose TFP developments along the lines of Oliner and Sichel is not readily available for France. However, their results depend on the size of the computer hardware and semiconductor industries vis-à-vis the whole economy. Although France has strengths in some segments of the ICT sector (Box III.1), the share of computer and semiconductor output in total output is significantly smaller in France than in the United States. For instance, as a ratio to GDP, computer and semiconductor production in France is about half that in the United States. This suggests that the impact of productivity gains in the high-tech sector have been more limited in France than in the United States.

#### D. Policy Issues for the New Economy in France

##### Labor Markets

70. The emergence of a new economy will, as the ICT sector expands, probably increase the demand for skilled labor. French authorities estimate that ICT industries already employ 700,000 workers (Table III.5), and that employment growth in ICT industries averaged 3.5 percent in 1998–99 (versus about 2 percent for the economy as a whole). Looking forward, the demand for network skills in France has been estimated to exceed 150,000 workers by 2002, although this is only about one-third of the estimate for Germany (Table III.6).

### **Box III.2. Europe and the Internet: The Lisbon Summit and the French and German Responses**

The Lisbon Summit pointed to a number of initiatives that would be needed to increase Internet access:

- A deadline was suggested for giving all workers the chance to become digitally literate through special training. To attain this objective, the Summit suggested a 50 percent increase in IT training places and courses by the end of 2002, and the establishment of a European certificate for basic IT skills.
- The Lisbon Summit also requested that all schools in the EU be granted access to the Internet and multimedia resources, and that research institutions and universities be linked to a high speed trans-European network for electronic scientific communications by the end of 2001 (only about one-third of EU schools are currently linked to the Internet or have PCs). Teachers should receive adequate IT training by the end of 2002.

The responsibility for achieving these goals falls mainly on member states, although European funds (structural and social funds) were expected to be directed to help these efforts. Within this framework, the 2000 French Employment Plan envisages that:

- The Agency for the Professional Training of Adults (AFPA) will include computer training modules in every program offered to job seekers, and is to hire 4,000 instructors for this purpose.
- Job seekers will have free access to the Internet in every branch of the national employment agency (ANPE), with 500 *emplois jeunes* being assigned to help these Internet users.
- Another €100 million will be made available in 2000 to help local authorities to connect schools to the Internet (€17 million were already transferred in 1999).
- Funds will be set aside to favor distance training, to establish the basic computer skills certificate, and to revamp the structure of professional accreditation. A bill regarding this was recently sent to Parliament.
- The age restriction in one of the three programs providing for apprenticeship-like training was relaxed. These programs, however, are likely to continue to aim mostly at non-ICT training.<sup>1</sup> More generally, European Structural Funds have been channeled to the ICT training of unskilled workers.

The German plan in some ways anticipated the Lisbon Summit, and includes:

- the goal of providing schools and universities with multi-media PCs and Internet connections by 2001;
- doubling the number of multi-media companies from 1,500 by 2001; and
- increasing places for IT training to 40,000 by 2002 to satisfy an additional demand, projected at 250,000 jobs by 2005; meanwhile, special visas would be issued for temporary IT workers from abroad.

The German government is also stimulating small and medium-sized firm use of the Internet and, in particular, adoption of e-commerce. Some 24 regional "centers of expertise" are also available to help start-ups. The overarching objective of the government is to achieve a leading international position in IT by 2005.

<sup>1</sup> Most of the about 200,000 enrollees in the largest apprenticeship program (*apprentissage*) work in traditional sectors (e.g., retail, hotels, hairdressers). Enrollees in other programs (*contrats de qualification et d'adaptation*) are involved in a broader range of activities, and typically have a higher educational level, but the vast majority of these contracts are also related to the trade sector.

### Box III.3. Taxation of Employee Stock Options Plans

Country	Event			Other Constraints:	
	Attribution	Exercise	Sale of stock	Holding Period	Ceilings
<b>France</b> Enterprise Stock Options Plans (ESOPS)  employees and directors	Difference between acquisition cost and value at exercise taxed as income tax rates + social contributions and CSG-CRDS	Holding period of option < 4 years: basic rate of 40 percent + 10 percent of social contribution, when option is sold (30 percent + 10 percent for first 1 million franc of gains) > 4 years: 30 percent + 10 percent (26 percent for first F 1 million)	Gains after conversion are taxed at 26 percent (as other capital gains from financial instruments), except sales that are less than F 50,000 a year	Four years between attribution and exercise two years after exercise	No ceiling
<b>France</b> BSPCE: employees and managers – new firms, including listed in high-growth markets	Exempt	Exempt	Worker's time at the firm > 3 years: 16 percent + 10 percent of social contributions < three years: as 30 percent + 10 percent of social. Contributions.	No minimum period for exercise or sale of stock	No ceiling
<b>United States</b> Incentive Stock Options (ISO)	Exempt except if employee owns more than 10 percent of the capital of the firm	Holding period > 1 year minimum: 20 percent Holding period < 1 year minimum: as normal income	Taxable as ordinary capital gains (20 percent)	Option: two years after attribution  Stock: one year after exercise	US\$ 100,000 plus credit from previous years
<b>United States</b> Stock Purchase Plans ESPP	Market value, taxed as ordinary income up to a maximum of 15 percent of underlying asset	Same as ISO	Same as ISO	Same as ISO	US\$ 25,000
<b>United Kingdom</b> Company share options plans (CSOPs)	Exempt at attribution, except if transfer is at price below of traded price of stock	Exempt if exercise occurs between 3 and 10 years of attribution and if there is a delay of 3 years between successive exercises	As ordinary capital gains: taxable amount deducted by cumulative 5 percent a year after 3 <sup>rd</sup> year of holding the option	No	£ 30,000
<b>United Kingdom</b> Plans for 10 key employees in SMEs	Exempt	Exempt if holding period prior to exercise > 3 years	Taxable amount deducted by cumulative 6 percent a year, and exempt after 7 <sup>th</sup> year the option is held.	No	£ 100,000

Source: French Ministry of the Economy and Finance



## Financial Markets

82. In stock markets, the capitalization of digital firms in the United States has risen dramatically in the last few years. In aggregate, such companies have a market value close to US\$5 trillion and account for about half of the market capitalization of the top 100 listed companies. In Europe, this share is still only about one-third, and none of the largest companies is in information technology proper—they are all telecommunication companies (Table III.11). Moreover, despite recent growth, the German and French high-growth stock markets are still dwarfed by the U.S. NASDAQ. Venture capital, which also remains small in comparison with the United States, has grown by more than six-fold in 1995–98. In terms of attracting venture capital, France ranks third in the EU, behind the United Kingdom and Germany.

Table III.11. Size of Selected Stock Markets at the Beginning of October 2000  
(In billions of euros)

	Capitalization	Number of listed firms		Capitalization	Number of listed firms
<b>United States</b>					
S&P 500	14,341	500	NASDAQ	6,369	4,424
<b>France</b>					
CAC-40	1,220	40	Nouveau Marché	33	145
<b>Germany</b>					
DAX	865	30	Neuer Markt	192	318
<b>Europe</b>					
Euro STOXX	2,790	50	EASDAQ	47	63

Source: Bloomberg.

83. The still small capitalization of stock markets and small scale of venture capital in France do not seem to be linked to problems specific to the structure or functioning of financial markets. The liberalization of these markets since the mid-1980s has been extensive and accompanied by the modernization of the financial infrastructure. French firms have been increasingly responsive to minority shareholders—including foreign institutional investors—and focused on increasing shareholder value and the transparency of disclosures and reports. In this respect, the government has also contributed by establishing an accounting committee (*Comité de la réglementation comptable*) and by heightening the profile of regulatory bodies and competition authorities. Recent changes in the regulation of takeovers were also intended to improve the functioning of the market for corporate control.

## E. Conclusions

84. The evidence of the emergence of a new economy in France is still mixed. Labor productivity growth has been lower in the last three years than it was during the upswing phase of the last cycle in the late 1980s. However, the effects of desirable structural changes

that have led to increased employment may be temporarily masking an underlying increase in productivity growth driven by the adoption of new technology. In addition, the large contribution of high-tech production to growth in the United States is bound to be more muted in France, since this sector is relatively small. Also, the contribution to productivity growth of the accumulation of IT equipment and software has increased recently but remains very modest, only about 0.2 of 1 percentage point. The small size of this contribution reflects the still small stock of high-tech capital in France, but if current rates of investment hold up the macroeconomic impact of the new economy can be expected to rise substantially over time.

85. There are indications that France is not at the forefront of the new economy. For example, the penetration of mobile phones, home computers, and the Internet lags behind that in several industrial countries; although the demand for network skills is expected to increase substantially it is, as of now, lower than in Germany; and the market capitalization of the high-growth stock market in France is only about one-eighth that of its German counterpart. Key to a further, rapid development of the high-tech sector are dynamism in labor and product markets, and a continued deregulation of the latter; flexible work and compensation practices; and additional development of vibrant financial markets.

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