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The Changing Face of Private Retirement Saving in the United States

James M. Poterba*
Steven F. Venti**
David A. Wise***

Over the past twenty years, private sector retirement saving in the United States has changed dramatically. There has been a transition from employer-provided defined benefit pensions to personal retirement accounts. These individually managed and controlled retirement accounts first became popular with the introduction of Individual Retirement Accounts (IRAs) in the early 1980s. Today, a number of other programs, known by the numbers of the Internal Revenue Code section that define them, have overtaken IRAs. These include 401(k) plans for private sector employees, 403(b) plans for employees of non-profit organizations, 457 plans for state and local government employees, the Thrift Savings Plan for federal employees, and Keogh plans for self-employed workers.

Contributions to these plans, and the assets held in these plans, have grown enormously in the last two decades, while employer-provided defined benefit (DB) pension plans have declined in importance. In 1980, 92 percent of private retirement saving contributions were to employer-based plans. Of these contributions, 64 percent were to DB plans, while the remaining contributions were to conventional employer-sponsored defined contribution (DC) plans. In 1999, including conventional DC plans, about 85 percent of private contributions were to accounts in which individuals controlled how much to contribute to the plan, how to invest plan assets, and how and when to withdraw money from the plans.

In this brief note, which draws heavily on our recent longer paper, PVW (2001), we describe the recent changes in the magnitude and the composition of saving for retirement. We focus primarily on aggregate data on retirement plan assets and contributions. Aggregate retirement saving plan assets have grown sharply over the past twenty-five years. We describe how these changes are related to the shift from employer-sponsored defined benefit plans to personal retirement saving. We conclude by discussing several broader issues, such as the relationship between retirement plan saving, which is close to eight percent of personal income, and the National Income and Product Account (NIPA) personal saving rate, which is now close to zero.

Retirement plan assets

Aggregate retirement plan assets include assets in employer DB pension funds and in conventional employer-sponsored individual DC plans, as well as assets in 401(k) plans, IRAs, Keogh plans, and other personal retirement accounts. Figure 1 shows the ratio of assets in all of these private retirement plans, as reported in the Federal Reserve Board's Flow of Funds Accounts, to private sector wage and salary earnings. This ratio increased from 0.39 to 2.02 between 1975 and 1998, the latest year for which we have data. The figure also shows the ratio of assets in all retirement plans, private plans as well as public sector plans, to total wages and salaries; this ratio tracks the private sector ratio

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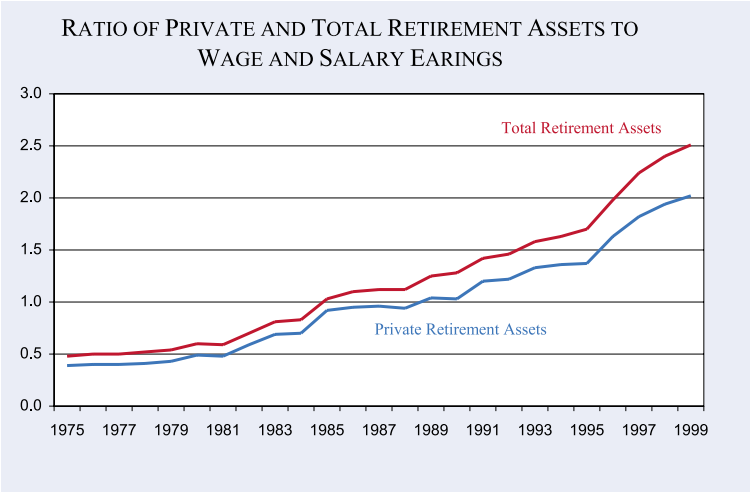
Figure 1



very closely. The figure shows modest growth in the ratio of retirement assets to earnings through 1981, more rapid growth between 1982 and 1994 following the introduction of IRAs and 401(k) plans and during a period of positive stock market returns, and rapidly accelerated growth beginning in 1995, corresponding to large increases in equity market returns.[1] The ratio has probably declined somewhat in the 1998-2001 period, as real stock market values have fallen.

Substantial rise in retirement assets relative to income

Figure 2 dis-aggregates private retirement assets into several components. It shows that assets in DB plans continued to grow after the introduction of 401(k) and IRA plans, but that most of the growth of retirement assets since the early 1980s has been in individual accounts. Moreover, there is no evidence of a decline in the assets in DB plans during the time period when assets in individual accounts were growing most rapidly.

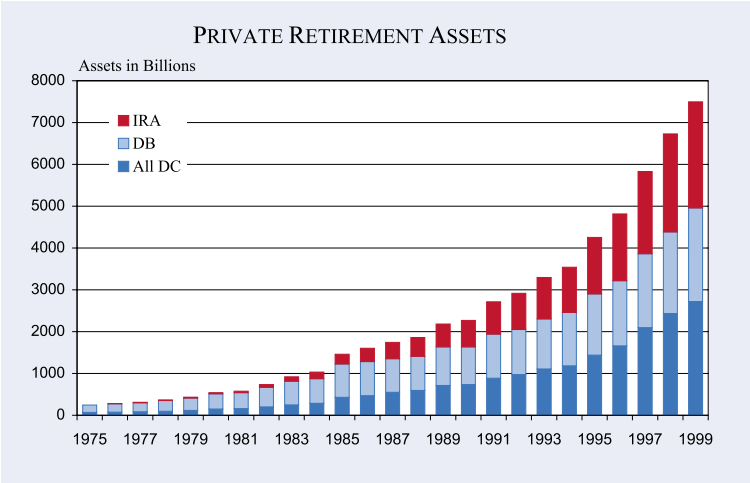
There is some debate about whether there is a linkage between the slowdown in the growth of DB assets and the rise of assets in individually managed accounts. The foregoing data alone cannot address the possibility of substitution of DC plans for DB plans since we do not have data on the time path that other retirement plan assets would have followed in the absence of the growth in DC assets. One suggestive calculation, however, considers what would have happened if *all* contributions to personal retirement accounts between 1985 and 1998 had come at the expense of DB contributions. In this case, if DC assets had not increased but the contributions had gone instead to DB plans, DB assets would have grown by a factor of 8.4 instead of 2.7.[2]

The private retirement assets in Figure 2 exclude assets in federal, state, and local retirement plans, and assets held by life insurance companies in retirement plans, that are also part of the retirement asset pool.[3] Figure 3 shows the assets in private plans as well as the assets in these other plans. In 1999, about 40 percent of all retirement assets were in federal, state and local, and insurance plan funds.

The increase in retirement plan assets relative to income shown in Figure 1 is not mirrored in rising values of other assets. The case of equity in owner-occupied housing is particularly

[1] The IRA and 401(k) programs were both greatly expanded in 1982. The IRA program was subsequently scaled back in 1986.

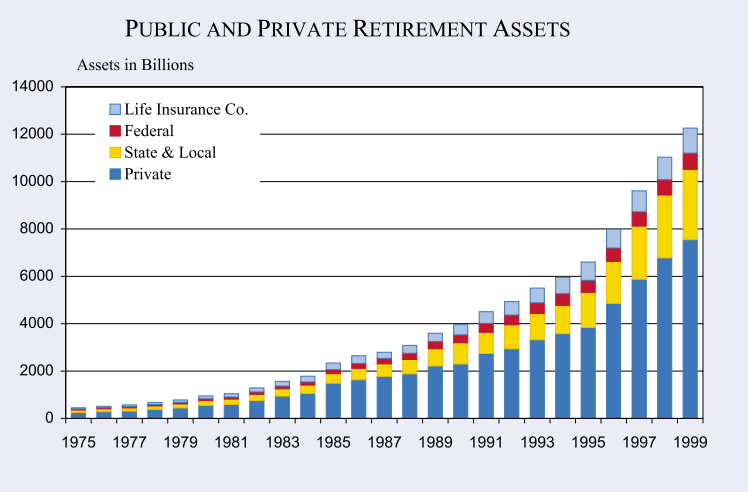
Figure 2



[2] A substantial literature, reviewed in PVW (2001), suggests that much of the decline in DB pensions has to do with the decline of industries that traditionally offered DB plans and the increasing regulatory burden on firms offering DB plans.

[3] The Flow of Funds accounts define the latter series as including "assets of private pension plans held at life insurance companies, such as guaranteed investment contracts and variable annuity plans, that are managed for the benefit of individuals who are not separately identified to the insurance companies."

Figure 3



interesting, since housing equity is the most important asset of a large fraction of Americans. Housing equity relative to income has not increased over the past two and one-half decades. Figure 4 shows housing equity as a fraction of disposable income from 1975 to 1998. The ratio increased about 25 percent between 1975 and 1989, but by 1999 it was essentially at the same level as in 1975. The figure also shows non-retirement-non-home-equity net worth as a share of disposable income. This ratio decreased and then increased between 1985 and 1999. The increase between 1975 and 1999, 27 percent, was not nearly as great as the increase in retirement assets over this period.

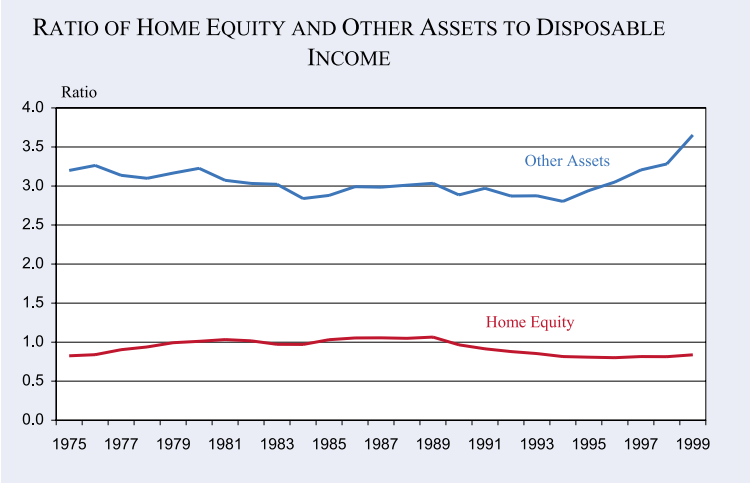
The growth of retirement assets relative to income may be "explained" by a number of factors. These include the advent of new retirement saving vehicles, as well as other factors such as demographic change. Changes in three features of the population – demographic composition, mortality rates, and labor force participation – have likely contributed to the rise in retirement assets relative to income. None of these factors seems capable, either alone or in tandem, of explaining the observed growth in retirement assets.

The increase in life expectancy at retirement age is the first substantial change that may have contributed to rising retirement assets. In 1975, life expectancy for a U.S. man at age 62 was 15.5 years, while that for a woman was 20.3 years. By 1997, male life expectancy at age 62 had increased to 17.6 years, while female life expectancy had risen to 21.4 years. For men, this implies a 13.5 percent increase in the number of years that need to be supported with retirement resources, beginning at age 62. For women, the change was 5.4 percent. These proportional changes provide a crude measure of the increase in retirement resources that would be needed to offset improved longevity. These changes might account for an increase in resources of roughly ten percent, much less than the actual growth of retirement assets relative to income.

Demographic factors account for only a small fraction of the large change in retirement assets

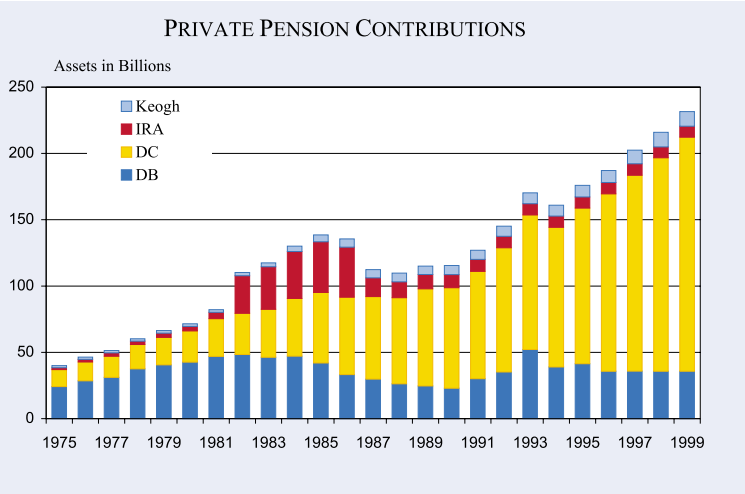
The second important demographic change that might have contributed to rising retirement assets is the aging of the labor force. Translating information on the age structure of the population into predictions about the wealth to income ratio requires detailed information on saving by age, yet there is no agreement on the relative importance of life-cycle, precautionary, and other factors in saving decisions. In 1975, the average age of those over the age of 20 in the U.S. population was 44.6 years. For men, the average age was 43.9 years. Between 1975 and 1985 the average age of those over 20 actually declined, to 44.3 years for the entire population and 43.5 years for the male population. This reflected

Figure 4



the entry of the "baby boom" cohorts into the 20-plus age group. By 1998, the working age population had grown older: the average age of all 20-plus persons was 45.5 years, and that of 20-plus men was 44.8 years. Thus between 1985 and 1998, the average age of the adult population rose by just over one year. Similarly, the average age of those in the labor force in 1985 was 38.5 years, while in 1998, it was 40.3 years. Thus, in the late 1990s, those who were in their earning years were older and had fewer remaining years of work to accumulate assets for retirement than those in the working population in the 1970s and early 1980s. But these changes were modest.

Figure 5a



Changes in retirement ages do not account for much of the change in retirement wealth

The final change that may have affected retirement assets is the shifting age of retirement in the U.S. population. During the 1980s and 1990s, these changes were modest by comparison to earlier decades. Burtless and Quinn (2000) present detailed information on age-specific labor force participation rates for U.S. men in 1970, 1984-5, and 1998-9. Their data show a sharp decline in labor force participation rates between 1970 and 1984-5, but relatively little decline subsequently. At ages above 65, the labor force participation rate in the late 1990s was greater than that in the mid-1980s. There is no systematic difference in labor force participation rates at younger ages. Labor force participation rates for women in their early 60s increased between the mid-1980s and the late 1990s, as cohorts of women with greater labor force participation rates when they were younger entered the retirement-age cohort.

Changes in retirement ages are therefore not likely to account for substantial changes in retirement wealth relative to income during the last two decades. Demographic factors – shifting age structure and lengthening life expectancy– seem likely to account for modest increases in retirement assets, but they are unlikely to account for more than a small fraction of the large changes we observe.

Retirement assets flows

The accumulation of retirement assets depends on the inflow of contributions, the payout of benefits, and the return on invested assets. Figure 5a shows private pension plan contributions, which increased almost six-fold between 1975 and 1999, while Figure 5b shows contributions to all retirement plans. Neither of the series include contributions to privately held pension plans administered by insurance companies, which hold about 9 percent of the assets in all pension plans. IRA "rollover" contributions, in which assets are moved from another defined contribution plan to an IRA, are excluded from the contribution flows.

Figure 5b

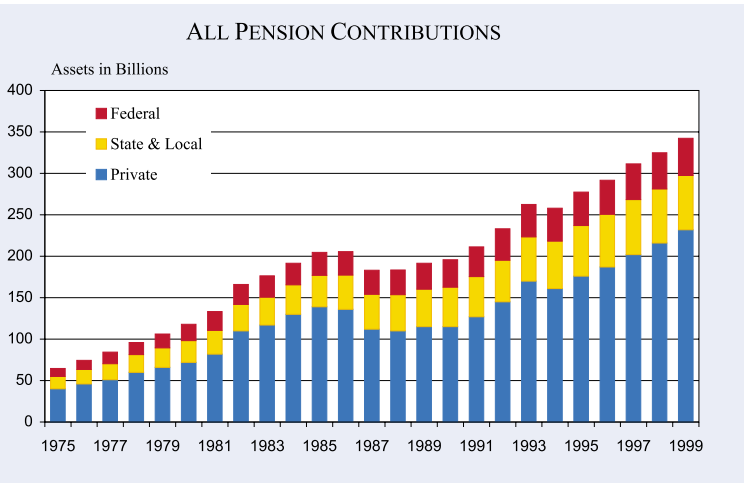


Figure 6a

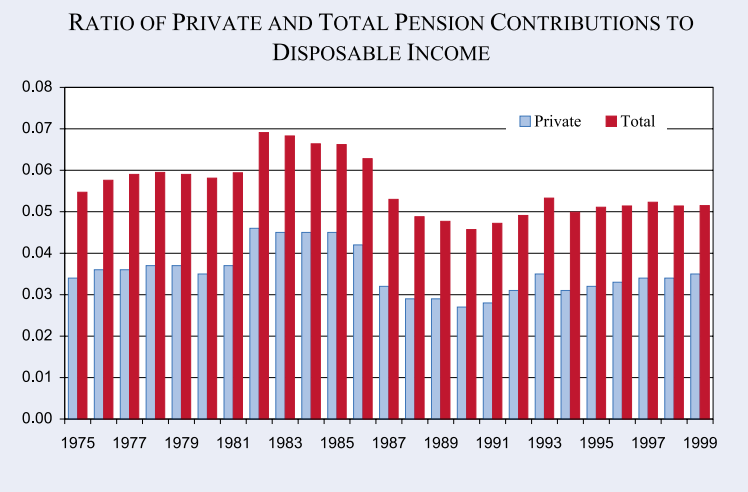
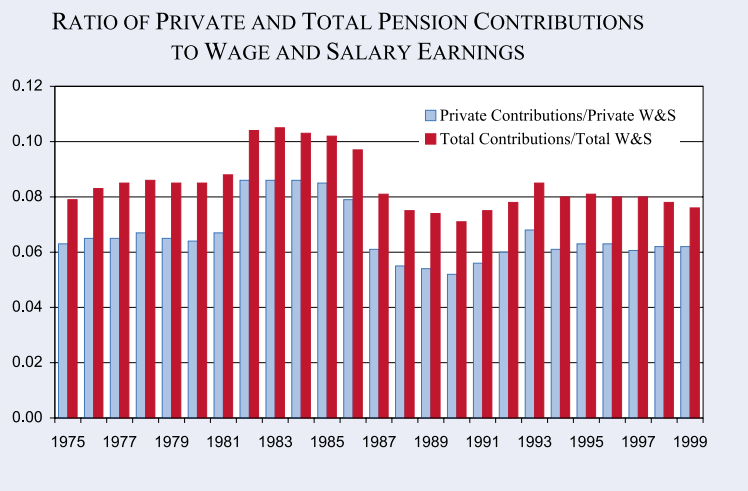


Figure 6b



The pronounced "hump" in retirement plan contributions between 1982 and 1986 corresponds to the beginning and subsequent retrenchment of the IRA program. The pattern strongly suggests that IRA contributions during this period were not offset by a reduction in other forms of retirement saving. This suggests that the total pool of assets in retirement plans would likely be much greater today if the IRA program had not been limited in 1986.

Figure 7

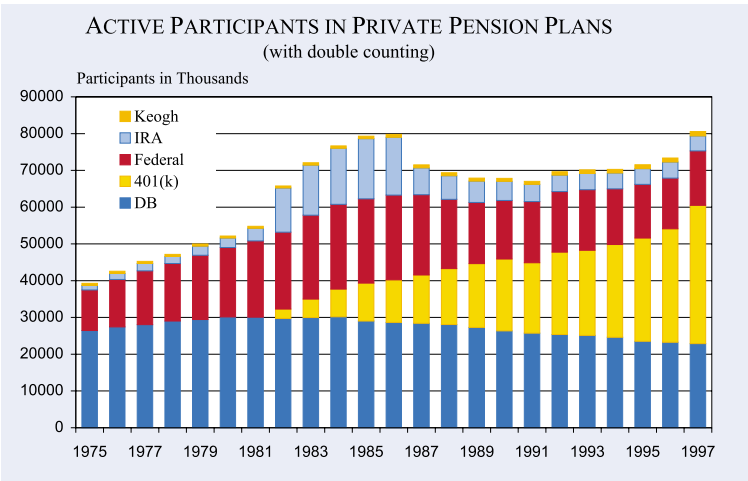


Figure 6a shows both private and total retirement plan contributions scaled by disposable income, while Figure 6b shows the same contributions scaled by private and total earnings. We define these ratios as "retirement plan contribution rates." They measure the proportion of current earnings that is saved in retirement accounts by current employees. Our analysis below compares retirement plan contribution rates to NIPA national saving rates.

Retirement plan contribution rates are remarkably stable

Figures 6a and 6b show that "retirement plan contribution rates" are remarkably stable over most of the last 25 years. Scaled by personal disposable income, the private plan contribution rate was about 3.5 percent in 1975 and in 1999, and the contribution rate for all plans varied between 5 and 6 percent for most of the period. When scaled by private and by all wage and salary earnings, the contribution rates are also stable, although they are greater than the rates scaled by personal disposable income. The retirement plan contribution rate for all plans, including those in the federal and state and local government sector, is near 8 percent for most of the period, or about two percentage points higher than the rate for the private sector alone.

The relative stability in the retirement plan contribution rates was broken only by a

large increase in the plan contribution rate when the IRA program was initiated, and a decrease when the program was curtailed in 1986. Relative to earnings, both the private and the all plan rates are about 2 percentage points higher during this period.

Figure 8a

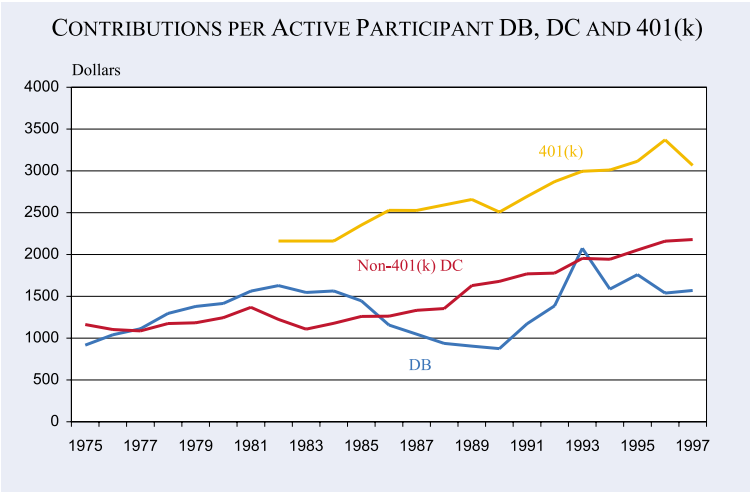
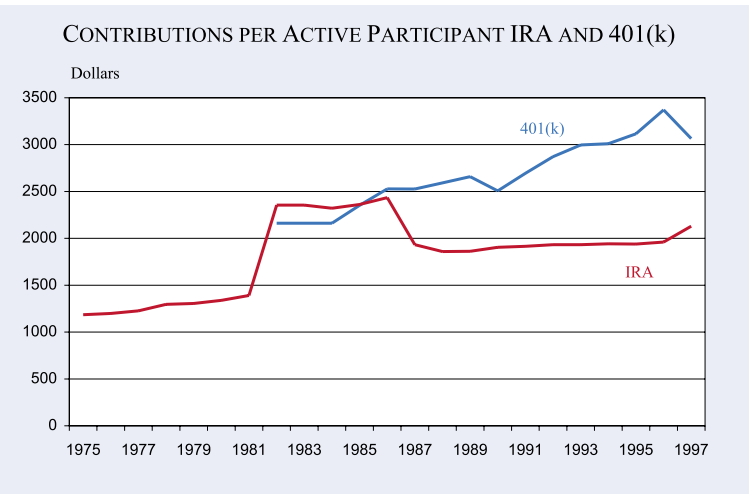


Figure 8b



Time Series Changes in the "Retirement Plan Contribution Rate"

Contributions to private DC plans rose sharply

The relative stability of the retirement plan contribution rate conceals fluctuations in some of the factors that affect this rate. Contributions to private DC plans increased sharply over the 1975-1999 period, while DB contributions varied widely. At the end of this period, DB plan contributions were only slightly higher than at the beginning.

Retirement plan contributions are the product of the number of participants and the average contribution per participant. Figure 7 shows the sum of the number of active participants in all defined benefit and defined contribution plans.[4] It illustrates in particular the rapid growth of 401(k) plans. These plans, which first became available in 1982, grew to almost 38 million participants by 1997. While 401(k) plan participation grew in the 1980s and 1990s, participation in DB plans declined from about 30 million in 1984 to about 23 million by 1997. Participation in non-401(k) DC plans increased until about 1986 and then declined, ending the period about 30 percent higher than at the beginning. In total, the number of plan participants increased from about 39 million in 1975 to over 80 million in 1997.

Figure 8a shows contributions per participant in DB, all DC, and 401(k) plans. The contributions to all DC plans include 401(k) contributions. Figure 8b shows IRA and 401(k) contributions. DB contributions per participant fluctuated substantially during the last two decades, and they were about 40 percent higher at the end of the period than at the beginning. Non-401(k) DC contributions per participant roughly doubled over the period, and on average were higher than DB contributions.

Over the past fifteen years, contributions per participant to 401(k) plans averaged twice the contributions per participant to DB plans. During the "unrestricted" IRA period, 1982-1986, IRA contributions on average were greater than 401(k) contributions. Recent legislative changes will raise the limits on IRA contributions between 2002 and 2006; this will probably raise IRA relative to 401(k) contributions.

[4] These data, from Form 5500 filings and IRS tabulations of tax returns, show the number of persons participating in each type of retirement saving plan. Many persons participate in more than one plan, so the total number of participants overstates the number of persons who participate in at least one plan. For 401(k) plans, participants include all persons eligible to contribute, regardless of actual contributions.

Figure 9

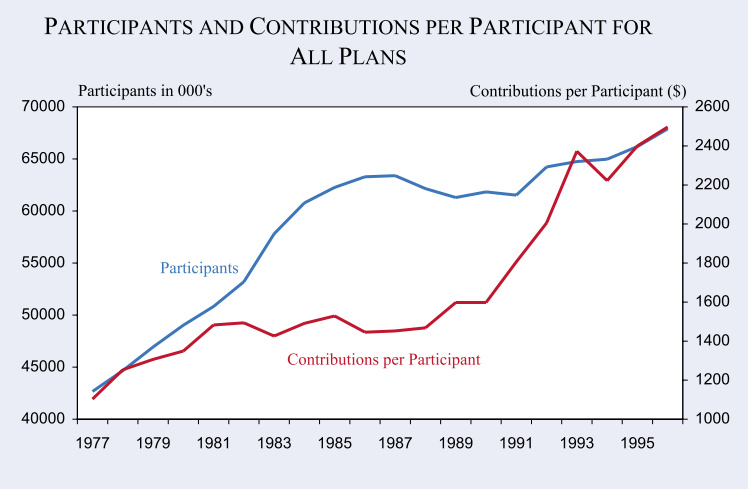


Figure 9 shows the trend in the number of participants in all plans combined and the trend in average contributions per participant. These two trends together yield an increase in total contributions. Since many individuals participate in more than one plan, and this results in double counting in the data on participants, the increase in average contributions per unique covered employee would be substantially higher than that shown in Figure 9.

DB Contributions and the Retirement Plan Contribution Rate

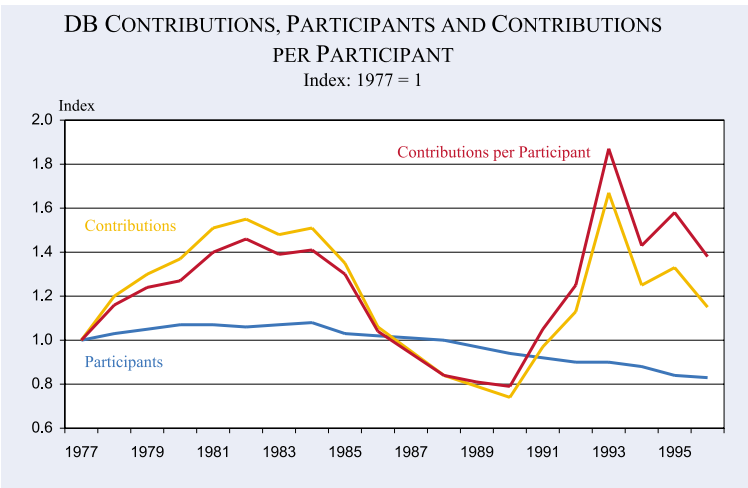
Figure 10 shows an index of defined benefit plan contributions per participant. It also shows an index for the number of participants, and the flow of contributions, to these plans. There are at least three reasons for the erratic variation in contributions to DB plans. The first is the slight rise and then steady decline in the number of active participants (current employees) in DB plans over the 1975–98 period.

A second is the link between returns on DB plan assets and current funding decisions. Benefits promised by DB plans are prescribed by a formula, which is typically based on years of service and final salary. Promised benefits are a liability of the firm, and the firm must insure that assets held in the plan are sufficient to cover this liability. Other things equal, a rise in investment returns increases DB asset balances relative to obligations, thereby reducing the need for additional contributions.

DB contributions fluctuate widely

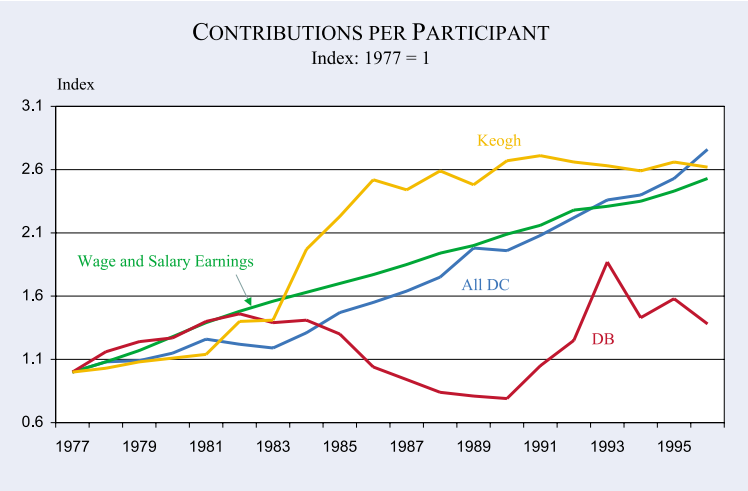
A third reason for the fluctuation in DB contributions is the series of legislative changes that limited the level of benefits that could be funded under DB plans and discouraged firms from over-funding their pension plans. Prior to 1986, firms could fund their DB plans to a level greater than their legal liability. A series of laws beginning with a 10 percent reversion tax, which was part of the Tax Reform Act of 1986, put stricter limits on funding. Ippolito [2001] estimates that in the absence of various funding restrictions, DB pension assets in 1995 would have been 28 percent higher. Schieber and Shoven [1997] report that when the limits on contributions to over-funded plans, that were part of the Omnibus Budget Reconciliation Act of 1987, took effect, 48 percent of a sample of large pension plans were precluded from making further contributions.

Figure 10



The substantial fluctuations in the DB plan contribution rate raises questions about how changes in DB plan contributions affect the retirement plan contribution rate. Total DB contributions are the product of the number of DB plan participants and the average contribution per participant. Fluctuations are due largely to movements in the contribution

Figure 11



per participant. Figure 11 provides information on DB, DC, and Keogh contributions per participant over the 1975-1997 period. It shows that the earnings of wage and salary workers increased roughly 150 percent over this period. DC plan contributions per participant increased about 150 percent as well, as one would expect if contributions were a proportion of wage earnings. On the other hand, DB contributions per participant fluctuated and on average fell relative to wages.

DC contributions per participant rose in line with wages

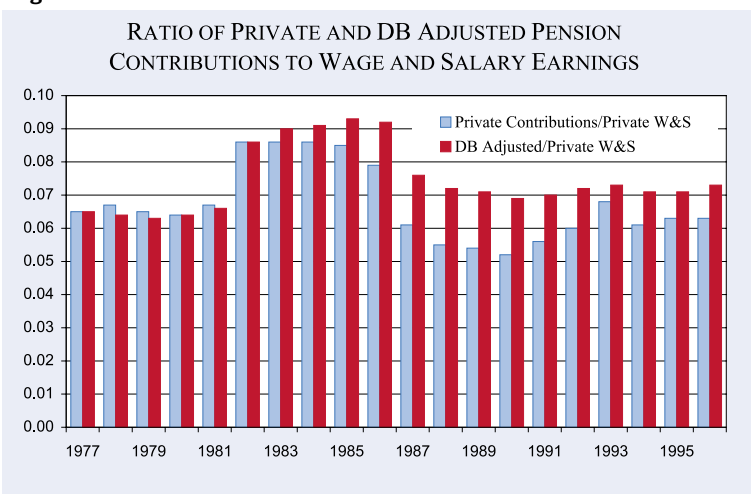
Suppose that there had been no legislation limiting contributions to DB plans, that market returns had not affected DB contributions, that life expectancy at retirement had been constant, and that there were no changes in the demographic structure of the workforce covered by DB plans. If the returns on DB plan assets were in line with expectations, one might have expected DB contributions per participant, relative to wages, to remain roughly constant. Given rising life expectancy and an aging workforce, one might have expected contributions per employee to increase relative to wages.

To explore the effects of downward pressures on DB plan contributions due to both legislative changes and better-than-expected asset returns, we construct a "what if" scenario. Considering *the private sector only*, suppose that DB contributions per employee had increased at the same rate as wages in every year after 1977. Figure 12 shows the private retirement plan contribution rate under this counterfactual, together with the actual rate. The saving rate under this counterfactual assumption is one percentage point higher than the actual rate at the end of the period. In the years when the DB contribution rate was at its lowest, the counterfactual saving rate was close to 2 percentage points higher than the actual rate. This counterfactual suggests that legislative changes and unexpectedly favorable returns on DB plan assets probably reduced the private retirement plan contribution rate by a substantial amount.

The aggregate data also suggest that the retirement plan contribution rate would have been substantially higher were it not for the curtailment of the IRA program. Between 1982 and 1985, IRA saving added approximately 2.3 percentage points to the retirement plan contribution rate. Today, it accounts for only 0.3 percentage points.

The foregoing discussion demonstrates that aggregate retirement assets increased dramatically over the past two decades. All else equal, this reduces the likelihood that the rise of assets in DC retirement plans was offset by a reduction of assets in DB plans. This conclusion is consistent with the findings in previous studies using household data, which show increases in individual

Figure 12



financial assets with the advent of 401(k) and IRA plans.

The decline in DB plans was probably due to many factors other than the growth of DC plans. Gustman and Steinmeier [1992], for example, find that at least half of the trend in DB plans from 1977 to 1985 "is due to a shift in employment mix towards firms with industry, size, and union status that have historically been associated with lower defined benefit rates." Ippolito [1995] concludes that "about half of the shift is attributable to a loss of employment in large unionized firms where DB plans are used intensively."

Further issues

The foregoing analysis suggests that there have been substantial changes during the last twenty-five years in the structure of retirement saving in the United States. These changes portend significant future changes in the way Americans finance their retirement consumption. PVW [2001], for example, project that average 401(k) balances for the cohort retiring in 2025 will be roughly ten times greater than the balances for those who retired in the mid-1990s.

The sharp increase in retirement assets relative to income stands in contrast to the apparently low level of personal saving in the United States that is shown in the National Income and Product Accounts (NIPA). This is in part an artifact of the way the NIPA treats pension contributions. NIPA saving equals disposable income less consumption, so any increase in *measured* income increases saving, and any increase in *measured* consumption decreases saving. Contributions to pension plans are treated as income in the NIPAs, so these contributions increase saving.[5] Interest and dividends received by pension plans are also imputed as a component of income, and pension plan management fees are charged as a consumption outlay. Neither capital gains on pension assets, nor distributions from pension plans, are included in NIPA income. If distributions from pension plans are partly consumed, however, the net effect of pension distributions will be to raise consumption and therefore, without any corresponding increase in income, to reduce NIPA saving. In recent years, distributions from DB plans and IRAs have far exceeded contributions to these plans. Lusardi, Skinner, and Venti [2001] estimate that in 1999, the NIPA accounting of DB pension transactions alone reduced NIPA personal saving by almost $55 billion.

The shift from defined benefit to defined contribution plans has other implications that we have not considered in this brief paper. One of the most important may be changes in the labor market participation incentives facing older workers. Most defined benefit plans create substantial incentives for workers to retire after they reach the plan's early retirement age, which typically occurs before age 60. Defined contribution pension plans do not distort the returns to labor market activity. As a result, the shift to defined contribution plans may result eventually in higher labor force participation rates for older workers. This in turn would affect the stock of retirement saving assets relative to labor income, as individuals who remain in the labor force for longer and contribute a given fraction of income to retirement saving programs each year are likely to accumulate a larger stock of retirement wealth.

Increase in retirement assets relative to income, but low level of NIPA saving

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[5] Since 2000, public and private pensions have been treated in the same way in the NIPA. Previously, employee contributions to the federal civilian retirement plan, state and local pension plans, and Social Security were not included in income, while benefits from these plans were counted as income. Employee contributions thus reduced saving. If benefits were fully spent, the resulting increase in consumption would precisely offset the increase in income associated with the benefits and saving would not be affected.

Pension Reforms for Sustainability and Fairness

Heikki Oksanen*

A lot of ink has already been spilt in the debate on the relative merits of alternative pension systems since economists (finally) discovered that choices made in this area are among the most important in public policy. Put simply: if a level of pensions, which is quite normal in European welfare states, were financed by a Fully Funded (FF) system, the assets would be ca. 300% of annual GDP or equivalent to the bulk of the physical capital stock. In the other extreme, given a pure Pay-As-You-Go (PAYG) system, such assets would not exist at all.

The debate on whether to adopt a PAYG or a FF system has therefore been a heated one, linked to all aspects of society and giving rise to ideological disputes with respect to the role of the state versus the private sector in economic and social life.

Differences in pension systems are now better understood

While differences in opinion certainly remain, a lot of progress has recently been made by experts in the field with regard to exposing the differences and similarities of alternative pension financing systems.[1] Basically, three propositions have emerged from their deliberations:

(1) To finance identical pension expenditures, the contribution rates in a PAYG system need to be higher than in a fully funded system, as in the FF system the revenue from contribution payments is topped up by proceeds from its assets. However, this difference as such tells nothing about the relative efficiency of either system as proven by experts with rigorous mathematics (see for example Sinn (2000)). Fortunately this can also be explained in an easily comprehensible way to anybody: in setting up a PAYG system past generations received pension rights without first contributing fully or not at all. Whether or not this was fair is debatable, but such was the reality. This created a burden, which is reflected in the PAYG contribution rates. Under certain assumptions, a PAYG system is a fair way to divide this inherited burden equally between the current generation and all future ones.[2]

(2) A public non-funded system can be designed as a defined contribution system with individual accounts to be remunerated with a set rate of return, based on, for example, the change in the wage bill. This scheme, known as a Notional Defined Contribution (NDC), plan displays many of the features inherent in a fully funded system desired by many FF advocates. One of these is the close link between contributions and benefits at individual level, so that contribution payments are perceived less as a general wage tax and more as saving for one's own pension. This link can also be tightened in Defined Benefit (DB) plans.

(3) A public PAYG system, no matter whether it is NDC or DB, can be pre-funded, provided that contribution payments are higher than expenditure over a considerable period of time in order to build reserves for future pension payments. These reserves can then be managed in many different ways. They can be kept within the public sector to offset public sector borrowing, or public-private partnerships can be arranged

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[1] See e.g. Orszag and Stiglitz (2001), Sinn (2000), Barr (2000), Holzmann (1999) and Oksanen (2001).

[2] In many countries establishment of the PAYG systems followed from the collapse of fully funded systems caused by WW II and the subsequent hyperinflation. PAYG was then considered a fair arrangement to spread the losses more broadly across society, helping those who had lost their pension fund capital in exceptional circumstances. – We should also note that in the EU Member States the generations working from 1945–74 generated public savings, first even more than 5% of GDP, and on average 3% in 1960–74, i.e. they saved collectively, although not specifically within the pension systems, and built an infrastructure for supporting future development. Thus, it could be considered that they earned their pensions. The same cannot, however, be said about later developments. Those who entered the labour force after 1970 did not save collectively, but rather, reduced the public sector net assets, and in addition, had far fewer children than their parents. Yet – if a pure PAYG is continued – they would pay much lower pension contributions than would future generations.

with fund management given to private institutions. A further step would be to privatise and fully fund part of the mandatory pension system. Taking the whole system together, this would also lead to a partial funding.

Having said that these propositions are now widely shared among cool-headed experts, we should, however, recognise that we as experts have not yet successfully informed the general public about even the basics of pension systems. Surveys reveal that people know very little about how current pensions are financed, not to mention understanding the problems that will face us in 30–40 years time. Although many people now worry about the solvency of pension systems and therefore about their own future pensions, very few have a conception of what needs to be done to put pensions on a sustainable footing.

Convincing top politicians of the need for pension reform is not enough. We have seen how difficult it is for politicians to convince their electorates of its necessity, and there is obviously little point in one government starting a pension reform programme, only to be replaced by another, more populist government which then reverses the reform process. Pension reform must cover at least 50 years, so to be viable, and it must have a lasting acceptance of the general public.

Emphasis on demographics

In order to achieve sustainable pension reform, it is imperative that all those seriously interested in the topic should understand the essence of what reform involves. The message that the root of the looming pension crisis lies in demographic development caused by low fertility and increased longevity must therefore be clearly delivered, for the following reasons:

(a) Expected demographic developments in the next 30-40 years will far outweigh the economic and social factors affecting pension systems;
(b) As people understand that fertility and longevity cannot be controlled by politicians, they accept more readily that reforms are indispensable to offset the negative consequences of demographic developments.

There was nothing fundamentally wrong with a pure PAYG system while working age populations increased or at least stayed constant, and while there were no drastic changes in life expectancy. However, these demographic assumptions ceased to hold in Western Europe by the 1970s and in the EU candidate countries in Central and Eastern Europe since the fall of the Berlin wall. The simple fact is that should the current fertility rate remain, the number of 30-year-olds will decrease by 20% every 30 years (assuming that women give birth at an average age of 30). This fall is so big that no reasonably forecast migration will be sufficient to counter its effects.

Without entering into detailed assessment of changes in longevity and its projections, it is a fact that life expectancy at the age of 60 has increased in recent decades by 30%, and still increases further. In the past, the effect of this on pension expenditures was aggravated by a decrease in the effective retirement age, while an increase would have been required to maintain the ratio between the two.

Demographic factors are at the root of the pension crisis

Together, these two demographic factors are responsible for the looming pension crisis while any other factors affecting the ratio of pension expenditure to the wage bill (or GDP), are less important.

Maintaining current pension benefit levels within a pure PAYG system will therefore lead to the current generation leaving a far greater burden to their descendants than that which they themselves must face. This burden can be illustrated by a required nearly twofold increase in contribution rates 40–50 years from now. Since this is based on the assumption that pension benefit levels as compared to wages will be maintained, future employees will be required to pay much more for achieving the pension rights enjoyed today. Most people would consider this unfair.

Leaving an excessive pensions burden to the next generation could quickly lead to a collapse of the system as people, having lost faith in receiving any return for themselves, would try to avoid paying contributions by opting out of the system, if possible, or by evading contribution payments. Thus, putting the system on a sustainable footing is not only in the interest of today's pensioners and those approaching retirement but also of today's youth, who will otherwise rightly consider that they are contributing for nothing.

Reforms for sustainability

To render pension systems sustainable and to achieve fairness for future generations, several measures must be considered, and any realistic policy line should probably include at least some of them. In considering these I must emphasise the need to distinguish between the short- and medium-term effects on the one hand, and the long-term effects on the other. As life expectancy currently approaches 80 years, the long-term needs to cover at least 60 years, but preferably 100, in order to best judge whether or not the system is stable.

The first measure to be considered would be *a reduction in the level of pensions*. This can be achieved in many different ways depending on the general set-up of the pension system. In a defined benefit system where a certain percentage of the wage (final salary before retirement or over a specified interval) is accrued annually during years spent in employment, a straightforward way to cut the future accumulation of pension rights would be to lower the accrual rate. This reduction could concern the future accumulation of pension rights only and leave untouched that already accrued.

Measures: Reduction of pensions and/or increase in retirement age

Reduction of pensions already accrued for the current workforce and pension payments for retirees could be reduced by changing the indexation rule or by reducing the possible flat rate component.

One example would be to change the indexation rule so that pension payments do not follow wages, but rather, prices, or an average of the two. This, of course, reduces the ratio of pensions to wages if real wages increase. The paradox with this measure is that it contains the average replacement rate only little if real wages increase slowly (and causes an increase if real wages fall) and vice versa, while the need for moderation would probably be greater the slower the growth of GDP and hence real wages.

A further way to reduce pension expenditure would be to link the replacement rate to expected time on pension, a straightforward option in a defined contribution system – a notional system included – as the capital accumulated before retirement would be transformed into an annuity payment, which would be naturally lowered the longer the expected time on pension.

The second measure would be *an increase in effective retirement age:* this would involve tightening controls on eligibility for disability pension and increasing the statutory age for entitlement to old age pensions. This has clear short-term and medium-term benefits.

Long-term effects could also be important in cases where conditions for eligibility for disability pension are tightened. But in cases where people have a choice, keeping them longer at work would require that they earn additional pension rights corresponding to the additional work effort. This would later increase pension expenditure and reduce the effect. Thus, it is important to put the short-term savings accruing from the increase in retirement age into a reserve, not giving them away immediately in the form of lower contribution payments (as would happen in a pure PAYG system), but rather, using them to reduce the contributions to be paid by future generations.

In addition to an increase in retirement age, *higher participation rates in general*, i.e. for all current employees, would ensure a greater inflow of funds, thus rendering the system more viable. The same holds for migrants entering the labour force. However, we must not forget that our projection period has to be long enough to cover the increased expenditure when these additional workers will eventually retire.

Partial funding for fairness between generations

These previous suggestions aim at sustainability by addressing the issue of expenditure. In addition, we must consider the sharing of the burden fairly between successive generations. This can be done by examining contribution payments and allowing them to differ from expenditure. By this I mean that there is *a need to build reserves* now so that the contribution rates required in the more distant future would not rise excessively. This stems from the view that reforms under the previous three items will probably not be sufficient to stabilise expenditure in relation to the wage bill.

The root of the looming pension crisis is that the currently active generation, bearing fewer children than their parents, also intends to benefit from longer retirement. It is therefore fair that they should contribute to the pension system an

amount which is greater than the current pension expenditure. They would thus create reserve funds, which would accumulate interest and help to offset the need for further increases in contribution rates.

This argument for *partial funding* obviously requires a little logical reasoning and greater arithmetic skills than when calculating the balancing contribution rate in a pure PAYG system. Rigour is needed to avoid being confused by the various complicated features of pension systems, which commonly combine intragenerational and intergenerational redistribution, and are financed partially from general tax revenues and partially from contributions based on wages. Furthermore, an assumption on the rate of interest should be added to the picture as funds are transferred from one period to another.

However, no matter how complicated the features in reality, it should be possible to present the argument for partial funding due to declined fertility in a simple manner and calculate the magnitude of the required funds.

I attempt to do this in the accompanying Box and Table. The example is made simple by assuming a pure occupational pension system financed by wage contributions, and indexing pensions to the wage rate. Due to this, though the results are simple, they are also very general since they apply whatever the rate of growth of real wages.

In the Box it is assumed that people work 40 years and enjoy retirement for 20 years, and fertility is initially at the level of full reproduction, 2.1 children per woman. The replacement rate is set at 60%, which means that in the initial pure PAYG system the contribution rate has to be 30%. The assumed level of benefits is not particularly high for most European countries as one should include in expenditure not only old age pensions but also disability and survivors' benefits.

The Table shows that a permanent 20% decline in fertility would, in a pure PAYG system, lead to a situation where the first generation with reduced fertility would leave an excessive burden to the future generations. In the first period they would still pay only 30% in contributions, and only slightly more in period 2, while all other generations would have to pay 37.4%. This is not fair, as fertility remains unchanged across these groups. To eliminate this unfairness, contribution rates would need to be increased simultaneously with any decrease in fertility. This would lead to a permanent fund, which would correspond to 121% of the annual wage bill, and to about 14% of the hypothetical full fund.

Partial funding to offset declined fertility

To reach a conclusion of how much funding is fair it is not necessary to assume that fertility stays at the current level forever. This assumption is made in the example to show the logical consequence of such a situation. In practise, applying the approach would lead to the need to adjust the contribution rate up or down according to changes in fertility as these are observed. Note that for this policy it is sufficient to react to observed fertility, thus, uncertainty about its future development is not an obstacle.

A similar type of calculation can be made for the case of increased time spent in retirement due to increased longevity. To achieve fairness, the first generation to live longer would need to contribute to a fund. In this case the decision is necessarily based on an expectation of longevity, but this can be continuously adjusted so that the error is minimised.

A case for partial funding due to declined fertility

Assumptions:

- Everybody lives 4 periods (20 years each), 1st as a child, 2nd–3rd as labour and 4th as pensioner.
- Until period 0, fertility preserves constant population, thus there are an equal number of people (100) in each age category.
- Pensions are indexed to wages at 60% of their level, thus, initially in a pure PAYG system the contribution rate is 30%.
- In period 1 fertility declines permanently to 1.7 births per woman at the age of 30 (it follows that the number of children declines at a rate of 14% over each 20 year period).
- The interest rate is assumed at 20% in excess of the rate of change in the unit wage over the period of 20 years, corresponding to 0.9% per annum, or 1.7% over the change in the wage bill p.a.

Consequences of declined fertility for contributing and funding

	Period					
	0	1	2	3	4	5
Children	100.0	86.2	74.3	64.0	55.2	47.5
Labour, young	100.0	100.0	86.2	74.3	64.0	55.2
Labour, old	100.0	100.0	100.0	86.2	74.3	64.0
Pensioners	100.0	100.0	100.0	100.0	86.2	74.3
Pension expenditure	60.0	60.0	60.0	60.0	51.7	44.6
Contr, rate in pure PAYG, %	30.0	30.0	32.2	37.4	37.4	37.4
Contr. rate, fair, %	30.0	32.5	35.0	35.0	35.0	35.0
Funds as % of wage bill	0.0	2.5	6.0	6.0	6.0	6.0
Funds as % of annul wage bill	0.0	50.3	120.8	120.8	120.8	120.8

Conclusions from the Table:

- In a pure PAYG system the contribution rate would increase to 37.4%. The generations working in periods 1 and 2 would not contribute this amount despite decreased fertility.
- For fairness, in the sense that generations with the same fertility should contribute the same percentage of their wages to pensions, the contribution rate would need to be increased to its long-term level already in period 2. This new level should be 35%. Period 1 is transitional: we assume that a uniform rate is set for all workers in this period too; it is the average of rates in periods 0 and 2, since older workers maintained the previous fertility level.
- With fair contributions, a fund accumulates which will stay at the level of 121% of the annual wage bill. In the new steady state the pension liabilities, and hence the amount of full fund would be 880% of the wage bill.
- In applying this approach to EU Member States we can omit period 1 because fertility declined to 1.6 already in the late 1970s (or since more than 20 years), and hence infer that the effect of the fertility factor alone would require that the contribution rate be five percentage points above the level corresponding to current pension expenditure.

References to other studies:

- For a more extensive illustration see Oksanen (2001), which uses data representing Central and Eastern European countries which inherited relatively generous pension systems. However, the orders of magnitude are the same for most EU Member States.
- We find a few suggestions for partial funding in literature which propose a temporary fund to smooth the contribution rate over a particular time period. The illustrations produced by Kifmann and Schindler (2001) put emphasis on reducing the replacement rates for achieving intergenerational fairness in a situation with declining labour force, and concentrate on cohort-specific contribution and replacement rates as a solution. My simple analysis above assumes a given replacement rate and a uniform contribution rate for all cohorts at each point in time. While perfect fairness between cohorts is obviously not achieved, the illustration shows that introducing partial funding greatly improves sustainability of the system and intergenerational fairness as compared to a pure PAYG system.

Declined fertility and increased longevity imply much higher contribution rates

Taken together, the two factors seem to indicate that in most European countries, based on current forecasts, pension contribution rates should be about 10 percentage points higher than with constant population and life expectancy. This would lead to funds corresponding to about 30% of those in a hypothetical full fund. This estimate should be checked against data for each individual country. Nevertheless, estimates for a fair level of contributions and funding are high figures. They give an indication of what should be done in the near future before the large age cohorts retire. According to the present approach, an increase in fertility, migration, and an increase in labour participation rates may eventually lead to a more favourable development, but decisions to reduce contribution rates and funding should be taken only if and when evidence of a change in these factors becomes available. Migration, for example, even according to highest estimates, could compensate for no more than one third of the effect of the declined fertility.

So far, using the simple example in the Box, we have taken the pension rights as given. However, the result is useful without taking a fixed view of acceptable pension rights or retirement age. The method to calculate the excess of the pension contribution rates above the pure

PAYG rates can be seen as an illustration of the true cost of future pensions. Those who would object to increased contribution rates would be made to understand that – if intergenerational fairness is respected – the alternative is to reduce the accumulation of pension rights and to increase the retirement age sufficiently to correspond to current contribution rates. Thus, the approach provides a means to move to a well-based view of the various components of a pension reform.

It is often said that funding (even partial) is a double burden in that current employees contribute both to the pensions of the current pensioners and at least partially to their own pensions by putting money aside. This is, however, misleading in a situation where low fertility and increased longevity lead to increased expenditure. It would be more correct to refer to appropriate partial funding as a means to achieve fairness, and to ascertain the magnitude of funding rather than to question the principle.

Management of the funds

So far I have indicated that *a pure publicly managed PAYG system* should be extended to allow for accumulation of reserves. The accumulated reserves would be managed by a public authority, which, in most cases, means a specially established pension institution. Partial funding can indeed be organised this way and there are many examples of it, though the details vary considerably from one example to another. Labour market partners are often heavily involved in the management of occupational pension schemes.

A straightforward consequence in the case of accumulation of reserves within a public sector pension system is that the public sector as a whole should aim at a financial surplus.

However, keeping the reserves within the public sector is not the only possibility. Starting to accumulate reserves can be coupled with a systemic reform, by creating *a mandatory fully-funded second pillar*. It is not necessary to take any strong position on whether this is advisable or not. Establishing a privately managed mandatory second pillar might be the best option in many countries according to circumstances, but one must be clear about the sequence of arguments: the argument for creating reserves comes first, management of the accumulated funds comes only second. Both issues are important, but one follows the other. Furthermore, the public authority must also be closely involved in the second pillar as a regulator and guarantor, as the privately managed pension funds should be seen as agents of the public sector to the extent that contribution payments to those funds are mandatory by law.

Conclusion

The role of a pension system is normally to transfer resources within a generation from the rich to the poor and the disabled, in addition to creating pension rights for the future. These tasks are demanding and compromises between competing tasks need to be made. Money helps to solve these conflicts, but in every alternative system, careful study of the effects of demographic developments on sustainability and fairness for future generations must be included, in order to ensure that the system can stand up to both expected and unexpected adverse conditions. Financial sustainability is a requirement which cannot be circumvented. If the system collapses due to unbearable costs, then all efforts of social solidarity are also wasted.

Intergenerational fairness requires the building of substantial reserves

Although the above argument for partial funding is necessarily based on very simplified assumptions, it nonetheless demonstrates that, under the current demographic trends, intergenerational fairness requires the building of considerable reserves.

These issues still require very critical examination, both in most European countries and elsewhere. The seriousness of the problems has not yet been adequately understood. We must strive to help citizens to understand the true cost of the pensions they can expect to receive when they reach retirement age. They must be made to accept that they themselves must carry a fair load of the financial burden without leaving an excessive load to future generations. They could then more rationally agree to cuts in pension rights and to an increase in retirement age, understanding that otherwise a moderation of the increase in contribution payments will not be possible.

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Future Prospects For Notional Defined Contribution Schemes

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Currently throughout the world most public old-age pension schemes are based on the Pay-As-You-Go Defined Benefit (PAYGO DB) model. Defined Contribution (DC) schemes have been in place for many decades, but until quite recently they were only found in private and occupational pension schemes. In 1981 Chile became the first nation to shift from a PAYGO DB scheme to a funded DC scheme. During the 1990s a number of other nations around the world, including seven more nations in Latin America, shifted from PAYGO DB schemes to fully funded DC schemes or to a mixed model that included a funded DC component or option in combination with a PAYGO DB scheme (Williamson, 2001).

In recent years, among international pension policy experts, there has been a groundswell of support for this new approach to old-age pension provision. Virtually all nations that have mature PAYGO DB schemes in place are facing current or projected problems financing these programs due to program maturation, changes in the world economy (competitive pressures linked to globalization), and population aging. The shift from the traditional PAYGO DB approach to a funded DC scheme or to a multi-pillar scheme that includes a funded component has come to be viewed by many experts as the best solution to the projected financing problems most schemes face. The trend away from PAYGO DB schemes toward funded DC schemes continues today.

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However, during the mid 1990s yet another model emerged based on the concept of "notional accounts." Pension schemes based on the Notional Defined Contribution (NDC) model have been or are in the process of being introduced in Sweden, Italy, Poland, Latvia, Mongolia, China, and the Kyrgyz Republic (Fox and Palmer, 2001). Most of these countries directly link their new schemes to the NDC model, but in Italy it is more common to refer to the new model as an actuarially based pension scheme (Franco, 2000). A major thesis of this article is that the emergence of NDC schemes in recent years is going to have an impact, possibly a major impact, on the current trend away from PAYGO DB schemes in favor of the funded DC model.

The structure of NDC schemes

The NDC model has some characteristics associated with PAYGO DB models and some associated with funded DC schemes. The NDC model (sometimes referred to as a PAYGO DC scheme) can be viewed as a variant of the PAYGO DB model with a number of provisions designed to assure a much closer link between contributions and benefits than found in most PAYGO DB schemes (Cichon, 1999). The NDC model is based on PAYGO financing. The funds collected in the form of payroll taxes are paid out as pension benefits to those who are currently retired. It differs from a PAYGO DB scheme in that with the NDC scheme an individual "notional" (or virtual) account is established for each worker. This account is credited for that portion of payroll taxes (including both the employee and the employer portion) that has been used to pay pension to the currently retired.

Notional Defined Contribution Schemes are spreading

The size of the payroll tax used to pay pensions and credited to these notional accounts varies from one country to another. What they all have in common is that these accounts are notional, not capitalized. If they were capitalized, appreciation from year to year would be based on trends in capital markets, but these notional accounts use a differ-

ent approach to indexing. The procedure used varies from one country to another, but in all cases it is in some way based in large part on the performance of the economy. In some countries such as Sweden the indexing is based on trends in average wage levels. In other countries such as Latvia it is based on trends in what is referred to as the "wage sum"; that is, change in the total wage base subject to the payroll tax (Fox and Palmer, 1999). This second alternative takes into consideration trends in both wage levels and the number of workers contributing.

Another distinctive component of NDC schemes is the way in which the starting pension benefit is calculated when the notional assets are annuitized. While there are differences from one country to another, with the exception of China they all incorporate some mechanism to adjust for changes in life expectancy that take place over time. In Sweden, for example, the formula incorporates the life expectancy at various ages as established when the worker's cohort is age 65 (Sundén, 2000).

The formula incorporates life expectancy and rate of economic growth

In addition to life expectancy, it is common for the formula to also build in an assumed rate of economic growth. In the case of Sweden the rate of 1.6 percent is assumed. If after retirement the rate of growth exceeds this level, the benefit is increased; if it falls below this level it is decreased. Thus in Sweden, as in all countries with NDC accounts, the indexing of pension benefits after retirement is based on the performance of the overall economy. Retirees share in the gain or they share in the pain depending on how well the economy does. The goal is to adjust the burden of paying for these pension benefits as a function of economic performance as a way to keep a balance between payroll tax revenues and pension benefits paid.

Another distinctive feature of NDC schemes is that they provide notional credit for certain categories of people who are out of the paid labor force or not subject to payroll taxes for certain reasons. The contingencies covered vary from one country to another, but most include credit to a parent (typically the mother) who takes time off from work to care for a young child. The amount of time allowed varies from one country to another as does the level of compensation provided. Other such contingencies include those who are enrolled in higher education, those in the military, as well as those who are eligible for disability or unemployment benefits (Palmer, 2000). Typically, contributions are made to the scheme on behalf of such persons out of general government revenues.

There are other components of the pension schemes in nations with NDC accounts that are not actually part of the NDC tier itself, but are very relevant to the impact of the overall scheme. For example, several of these countries have also introduced a funded DC tier. The result is a mixed model that offers some diversification of risk. Part of the worker's pension is subject to the risk of trends in wage levels and trends in the number of contributing workers, and part is subject to the risk of trends in financial markets.

Another component that all countries with NDC schemes have introduced is a minimum pension. This pension is designed to assure that very low-wage workers who have contributed to a specified number of years will be assured at least a basic minimum pension benefit. This minimum pension is not part of the NDC, but it is there in response to the lack of any effort at redistribution in connection with the NDC component. In some countries, such as Sweden, the minimum pension is quite generous and as a result there is considerable redistribution if you take into consideration the entire scheme. In other countries, such as Mongolia, this component is much more modest and the result is less income redistribution (Cichon, 1999).

While the NDC schemes are designed to keep a balance between contributions and pension benefits paid out, it cannot be assumed that there will be a balance under all conceivable demographic and economic scenarios. For this reason, some schemes such as those in Sweden and Poland build in provisions for a reserve buffer fund. Sweden is able to draw on pre-existing funded accounts that were in place for several decades prior to the introduction of the NDCs. In Poland part of the payroll tax is set aside in a special reserve fund for just such contingencies (Chlon et al., 1999).

Strengths of the NDC approach

One strength of the NDC model is that it will, at least in the long run, help keep pension benefits in balance with available payroll tax revenues. Policy

makers in Sweden, for example, believe that it will be possible to keep the payroll tax at the current 18.5 percent level (with 16 percent going to the NDC accounts and 2.5 percent going to the funded DC accounts). The NDC model goes a long way toward dealing with likely demographic pressures and likely economic fluctuations in the decades ahead. However, the Swedish scheme does not build in an automatic adjustment for possible declines in the size of the labor force, although schemes in some countries such as Latvia do. Sweden recognizes that its current model does not adjust for all contingencies and thus has a special "break" that would be implemented to reduce pension benefits in the event that revenues and pension benefits get too far out of balance (Sundén, 2000). While a case can be made that the NDC model, particularly as implemented in Latvia, deals with the long-term balance between payroll tax revenues and pension benefits, it does not offer a solution for those countries that face a serious imbalance today or in the very short term, as is the case for many Eastern European nations and many former Soviet Republics (Valdes-Prieto, 2000).

A second strength of the NDC model is that the scheme is more transparent than the PAYGO DB alternative. The worker can at any time check to see how much is in his or her account and knows that the amount in that account is a function of past payroll tax contributions that have been indexed based on a formula that will seem reasonable to most workers. It will not take long for workers to realize that if they retire early, pension benefits will be low and that for each year retirement is delayed benefits will increase substantially (Normann and Mitchell, 2000). This increased transparency may well increase the average age of retirement and increase the political support for the program as people can expect to get out in direct proportion to what they put in. The worker who opts to remain in the labor fore for another year can expect to benefit in three respects: (1) the notional assets already in the account will grow for an additional year, (2) there will be yet another year of notional assets added to the account, and (3) the pension formula will call for a higher pension based on fewer years of projected life expectancy at the time of retirement. If a substantial portion of workers elect to remain in the labor force longer than they would under the current PAYGO DB scheme, this would ease the burden of paying for those who are retired. However, if over an extended period of time the notional rate of return were to fall below the level realized in funded schemes, the NDC model would probably be less effective in delaying retirement than would the funded DC alternative.

A strength of the NDC model touched on earlier is that it does a better job than the PAYGO DB model of adjusting for demographic fluctuations, including increases in life expectancy and decreases in the size of the labor force. It also adjusts for fluctuations in the economy. No promise can be made that the current formulas fully compensate for all demographic and economic contingencies, but they are an improvement over the structure of PAYGO DB schemes in this respect.

Another purported strength of the NDC model is that such schemes are less vulnerable to political risk than are PAYGO DB schemes. The argument is that they are less vulnerable in part because of increased transparency and the lack of redistribution. Also contributing to the political viability of such schemes are the mechanisms for automatic cuts that have been built into the indexing procedures. This way any cuts needed due to an increase in life expectancy, a decrease in the number of contributors, or fluctuations in the economy can be made without the need for additional legislative action.

The NDC model can adjust for demographic and economic fluctuations

Critics, however, point out that even NDC schemes are vulnerable to political risks. Decisions about how to do the indexing and how to change the indexing are political. Decisions about who to credit for time out of the paid labor force and how much to credit them are political. Because the NDC scheme does not include any redistribution, some sort of guaranteed minimum pension must be included. The generosity of this pension, which could become the major source of pension income in many of the less affluent nations, is vulnerable to political risk. In short, while nations with NDC accounts may reduce political risk somewhat, substantial vulnerability to political risk and the politics of spending levels remains in all countries with NDC schemes. It is also possible that the transparency of NDC schemes will make it easier to compare the returns on the notional accounts with those on comparable private sector accounts. When the discrepancy favors the private sector accounts, this may undercut the political support for the NDC scheme (Disney, 1999b).

Many advocates of the NDC model argue that because it is indexed on the basis of trends in average wage levels (or aggregate wage growth) rather than trends in financial markets, NDC benefits are less volatile (Disney, 1999a). In most countries the stock market does fluctuate much more dramatically than does the aggregate wage bill. However, critics point out that in some of the transition economies there have been very dramatic gyrations in the aggregate wage bill, fluctuations that are comparable to major stock market shifts that mature capitalist economies periodically experience.

Limitations of the NDC approach

One of the major criticisms of the NDC approach relative to the funded DC alternative is that the assets in the NDC accounts are not capital assets. There is no reason to believe that such a scheme will contribute to the national savings rate. For this reason there is not likely to be any boost to the economy, and in many countries long-run economic growth is going to be very important when it comes time to pay for the retirement of the baby boom generation. A related argument, particularly for less developed countries, is that these NDC accounts would not be a source of the much needed capital to promote not only economic growth, but also the development of financial markets and institutions, such as the banking and insurance industries.

But no boost to saving, no redistribution

A downside of the lack of redistribution is that in the absence of a generous guaranteed minimum pension, a shift from a PAYGO DB scheme to a NDC scheme will generally result in greater income inequality among retirees. This characteristic is likely to make the NDC more popular among affluent workers, but less popular among less affluent workers and their advocates. Less redistribution means that it is likely that low-wage workers will end up worse off than under the existing PAYGO DB scheme. A NDC scheme will typically provide good income replacement (something in the range of 50 percent of pre-tax earnings) for workers who have contributed for 40 years or more (Fox and Palmer, 1999). However, for many women and irregular low-wage workers more generally the number of years of contributions will fall far short of 40 years and will need to depend upon the guaranteed minimum pension.

Women, particularly low-wage and single women, will generally be worse off under NDC schemes than under PAYGO DB schemes although they are likely to be better off than under funded DC schemes. One reason that women will tend to do poorly under an NDC scheme relative to women under a PAYGO DB scheme is that they tend to have low wages, they tend to have irregular work histories, and they tend to accumulate fewer years of full-time employment prior to retirement. As a consequence they can expect less by way of NDC based pension benefits than their male counterparts.

Also important are the various special provisions that have been built into most PAYGO DB schemes that help protect women. One is a benefit formula that is based on a specified number of best years, be it 15, 25, or 35 years. Any best years approach tends to benefit the many women who spend a number of years out of the labor force. NDC schemes have no such provisions. Many PAYGO DB schemes have special spouse benefits for women with little or no paid labor force experience; not so with NDC schemes.

Arguments can be made for and against the various protections for women that are built into many existing PAYGO DB schemes, but there is no doubt that they do help compensate for the impact of lower wages and irregular work histories that many women face due, at least in part, to child care responsibilities. While it may be true that less by way of such protection is called for today than fifty years ago, it is not clear that the reduction in such protection associated with most NDC schemes assures adequate protection for women today, particularly less affluent women.

While the NDC model will typically involve less economic risk to workers and retirees than the funded DC model, it does involve greater economic risk than does the PAYGO DB alternative. As with the funded DC model, the NDC model shifts some risks (in this case those linked to demographic change or fluctuations in the economy) from the government to individual contributors. Critics of the NDC approach argue that it is more appropriate for the government rather than the individual to bear these risks.

Is the NDC model likely to become widespread?

While it is not yet clear how many nations in the European Union will adopt the NDC model, it is

possible that eventually many will. One reason is that it offers a way to help deal with the problem of financing the retirement of the baby boom generation, an issue that most of these nations will soon be facing. It does so using what amounts to a combination of benefit cuts and tax increases. While it would be possible to achieve essentially the same result by making similar benefit cuts and tax increases in the existing PAYGO DB schemes, some analysts argue that it is actually easier to make such cuts in the context of a shift to a totally new scheme. However, any such policy shift will result in lower benefits to many people and if it becomes clear who will bear the brunt of the cuts, organized resistance may make any such transition difficult if not impossible.

Another reason that many of these countries may adopt the NDC model is that it would make it a lot easier to provide adequate pension coverage for workers who move from country to country as their jobs change or are relocated (Feldstein, 2001). This mobility of labor has started and is likely to increase substantially in the decades ahead. Pension coverage is going to become a major issue for mobile workers and the NDC approach is particularly well suited to such an environment.

Many of the transition economies of Central and Eastern Europe and of the various former Soviet Republics are faced with mature PAYGO DB schemes that, at least on paper, promise far more generous pension benefits than their economies can support. In some of these countries the number of workers contributing to the pension scheme has been contracting rather than growing in recent years and in some of these countries fertility rates have been decreasing; both of these trends may contribute to making the dependency burden worse in the years ahead. In all of these countries it has been necessary to make deep cuts in promised benefits. Many of these schemes are (or were) for all practical purposes in default. Failure to adequately adjust for inflation has become in many countries the de facto mechanism to cut benefits. In any nation that has undergone such an experience in recent years, the individual accounts associated with the NDC model may be attractive. It offers a way to introduce an individual accounts DC scheme without having to actually fund those individual accounts. It offers a way to spread the cost of any such transition across more age cohorts than is the case with a funded DC scheme.

The NDC model may also work well in the poor nations of the world more generally. The model is relatively high with respect to transparency which may be attractive in nations where corruption is endemic and where corruption has had adverse consequences for the receipt and level of pension benefits. It is also a model that unlike the funded DC approach does not require a well developed infrastructure of financial markets and related institutions. However, there are also reasons that the PAYGO DB model may be preferable in many poor nations. They tend to have very poor record keeping and the record keeping requirements of a NDC scheme are substantially more demanding than those associated with the typical PAYGO DB scheme. The need to keep up-to-date records on individual accounts for all workers, including many who may not have made contributions for years, may demand more administrative and information technology resources than many of these nations currently have available.

The NDC model may work well in transition and developing countries

Conclusions

The NDC model is likely to become increasingly common among the transition economies of Eastern Europe and in other formerly centrally planned economies around the world. It could well become much more widespread than it is today among nations in the European Union. It may eventually become common among poor nations, particularly those that currently have mature PAYGO DB schemes in place. While it is possible that the ascendance of the NDC model will in the years ahead greatly reduce the current enthusiasm for fully funded DC schemes, it is possible that eventually the most widespread model, particularly among nations with well developed financial markets, will be a mixed model based on three tiers: (1) a first tier minimum pension financed by general government revenues, (2) a mandatory NDC tier, and (3) a mandatory funded DC tier. While it would be possible to design a mixed model that responds to the financing problem pension systems will be facing in the decades ahead and that also adequately deals with the special needs of women and low-wage workers, more likely would be a scheme that deals with the government financing problem, but does not adequately meet the needs of vulnerable (and politically weak) segments of the work force.

As popular as the NDC model or a mixed model with a NDC component becomes, this model is not going to be attractive for all categories of nations. In particular it is unlikely to be attractive for nations such as Chile, Mexico, Hong Kong, or the UK that have already shifted to largely privatized schemes. These countries are already dominated by funded DC individual account schemes and there is no reason to assume they will find the NDC model an attractive alternative. The United States is unlikely to adopt the NDC model because its financing problems can be fixed with much less radical "parametric" reforms, such as increasing the normal retirement age or the number of years of work the benefit is based on. Another reason is that in the United States groups representing the interests of those who would be hurt by the shift to the NDC model are well organized and would make the political price of supporting such a major change too high for most members of Congress.

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Europe: Is There an Ageing Crisis or is it a Public Pension Problem?

Richard Disney*

Talk of an ageing 'crisis' or a 'demographic timebomb' in Europe is of course overblown; but such rhetoric sells books and attracts media attention.[1] If households have sufficient foresight, and can choose when to retire and how much to save, they should be able to offset greater longevity and falling birth rates in the aggregate. True, households may be myopic, but the heightened concern as to 'ageing' may bring home the necessity for making life cycle provision. It is also true that perverse incentives may encourage individuals to retire early or to save less, driving a wedge between private and social optima. In principle, tax and benefit policies can be adjusted to deal with this issue.

The ageing of European Union countries (see Chart 1) has, however, highlighted the underlying difficulties in financing major components of public spending – such as social security (pension) programmes and health care expenditure – while simultaneously achieving the targets of macroeconomic stabilization laid out initially at Maastricht and subsequently in the Amsterdam Treaty. The ageing 'problem' in Europe arises from the difficulty in reconciling the freedom of individual countries to develop their own social welfare policies with the requirements of economic cohesion arising from the Single European Market and economic and monetary union.

Public pension spending and EU macroeconomic stability

High social security spending, in particular, is seen as a threat to EU macroeconomic targets for several reasons:

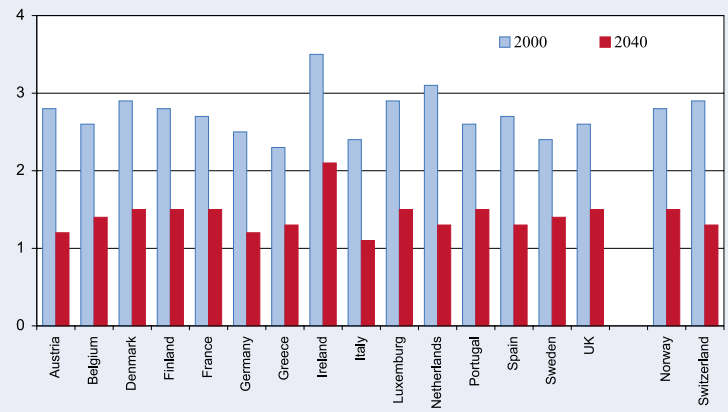
- If these expenditures are not covered by tax receipts, then EU countries will have difficulties in remaining within the ceiling for annual borrowing as a % of GDP, and the inflation target.
- Insofar as unfunded social insurance programmes give individuals 'rights' or entitlements that are a claim on future tax receipts, they represent future implicit debt analogous to

High social spending threatens macroeconomic stability

Chart 1

Support Ratios: EU, Norway and Switzerland in 2000, 2040

Population aged 20-59 / Population aged 60+



Note on Chart 1

Chart 1 shows the *support ratio* – the number of people of prime age for each person of pension age (defined as 60 and over). Note that the ratio more than halves in several countries between 2000–40, including Austria, Germany, Italy and the Netherlands. The ratio stabilises at between 1.1 and 1.5 by the middle of this century in every country bar Ireland. The *effective* support ratio should take account of how many people of prime age are working, and how many people over 60 are receiving a pension. Prolongation of the working life, or an increase in labour force participation of those of working age (such as married women) will raise the effective support ratio (as happened in the 1960s and 1970s). However an increase in labour force participation ultimately leads to an rapid increase in the proportion of older individuals with their own pension entitlements – and this trend is now being observed.

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[1] Disney (1996) tried to deflate this idea.

Measures of accrued public pension rights as % of GDP, OECD, 1990

	Accrued rights as % of GDP, 1990 (Source: van der Noord and Herd, 1994)				***Accrued rights as % of GDP, 1990*** (Kune, 1996, as from Holzmann, et al, 2000)	**Memo item: *General gross debt as % of GDP, 1994*** (IMF data)
Country	*Total* (3)+(4)–(5)	*Present retired*	*Present workforce*	*Existing assets*	*Total*	*Total*
Belgium	-	-	-	-	75	136
Canada	105	42	71	8	-	96
Denmark	-	-	-	-	87	69
France	216	77	139	-	83	48
Germany	157	55	102	-	138	50
Greece	-	-	-	-	185	114
Ireland	-	-	-	-	55	-
Italy	259	94	165	-	157	129
Japan	145	51	112	18	-	83
Luxembourg	-	-	-	-	156	-
Netherlands	-	-	-	-	103	79
Portugal	-	-	-	-	93	71
Spain	-	-	-	-	93	63
UK	139	58	81	-	68	46
US	89	42	70	23	-	69

Notes:

1) Accrued liabilities constitute the sum of obligations to current pensioners and accrued-to-present rights of workers, less pension scheme assets if any. Thus, in the US calculations, for example, the discounted social security rights of pensioners equal 42% of GDP, and the rights so far accrued of those still in the labour force, 70% of GDP. But the Social Security Trust Fund holds assets equal to 23% of GDP, leaving a net accrued liability of 89% of GDP. Total explicit and implicit debt is therefore 69 + 89 = 158% of GDP.
2) The OECD study discounts accrued rights at 4%, falling to 3% after 2050. It assumes benefits are accrued in line with earnings growth but are price indexed after retirement (in this simulation). Various additional financial obligations (for example, unfunded supplementary schemes for public sector workers) are ignored.
3) The study by Kune assumes 4% discount rates, ignores all complementary schemes (e.g. French supplementary schemes, Spanish and Portugese schemes for public workers) and takes no account of longevity improvements. The maturation of the State Earnings Related Scheme (SERPS) in the UK is ignored.
4) Each study relies of simulation models from published data, coupled with projections of economic assumptions, rather than actual administrative microdata, to calculate liabilities.

Accrued pension debt dwarfs the explicit gross debt of EU countries

overt borrowing by governments. Even if such debts are not recognized in the EU debt/GDP ceiling, they are increasingly so recognized by financial markets. Moreover, as governments move towards an accrual basis for their accounting in GFS, rather than a cash basis, accrued liabilities of this type should be incorporated into their balance sheets.

The Table, compiled in Disney (2001), provides some estimates for OECD countries of these cumulated accrued liabilities – that is the obligations of these social security programmes to existing pensioners and workers in the hypothetical event that such schemes were closed down tomorrow. These cumulated liabilities, or implicit pension debt, differ from the more commonly provided projected liabilities, which assume that the scheme remains in operation – but projected liabilities can be altered by changes in policy without any need to reform retrospectively. The debts, as a % of GDP, are substantial, and dwarf the explicit debt measure (in the final column) that is subject to a 60% ceiling in the Stability Pact. A major *caveat* is that such measures are very sensitive to the assumptions made as to earnings profiles, productivity growth etc.[2]

[2] For evidence, see Banks, Disney and Smith (2000). The issue of data requirements is discussed more fully in Boeri and Brugiavini (2001).

- If social security spending is financed from hypothecated taxes on payroll, as is typically the case, it is commonly argued that such taxes impose a constraint on employment.[3] This constraint runs counter to the EU's agreed strategy to boost employment. There is indeed a potential 'vicious' circle here: high taxes on labour reduce employment and thereby raise the dependency ratio, so reducing the scope for the very employment growth that could offset the burden of increasing numbers of aged non-participants.

The 'modernisation of social security' in the European Union

These pressures have led to a 'sea change' in the attitude of the European Union to social provision (Szyszczak, 2001). Whilst the form of social security provision of member states lies outside EU competence, the potential impacts on macroeconomic sustainability and on the EU's employment strategy of what may be perceived as 'unsustainable' levels of spending on social welfare benefits are now seen to lie directly within its remit. What is now termed the 'modernisation of social security' is firmly on the EU agenda.

Accordingly, new forms of 'soft law' are used to encourage, and even coerce, member states into line. As part of the Lisbon Process, member states are subject to benchmarking and peer review in a variety of fields concerned with employment and welfare provision. They are set targets for employment strategy, and required to provide data on, for example, projected pension expenditures on a common set of assumptions, rather than their own *ad hoc* estimates (Commission of the European Communities, 2001). The issue of whether the single internal market is compatible with regulation and limitations of competition in the field of provision of welfare benefits has been tested in the European Court of Justice.

Social security reform in individual European countries

Whether independently, or as a result of this concerted pressure, many EU countries have begun to reform their social security programmes (OECD, 1998). Some illustrations are contained in the Box. A common approach is a 'parametric' reform process (the terminology is from Chand and Jaeger, 1996; see also Disney, 2000) raising the retirement age and reducing the generosity of indexation of pensions in payment. In addition, several countries have attempted to develop or expand the funded component of their programmes. Two countries (Sweden, and Italy in the 1995 'Dini' reform) have attempted to link future individual pension benefits much more closely to individual contributions and to macroeconomic criteria of sustainability.[4] This last strategy, proponents argue, both addresses the problem of macroeconomic sustainability and also makes contributors willing to pay for pensions, since future pensions are more closely tied to individual contributions. It is designed explicitly to limit intergenerational redistribution arising from the 'pension promise', but thereby sacrifices any scope for intragenerational redistribution, such as transfers to non-contributors and to those with low lifetime earnings.[5]

Social security reform is on the EU agenda

The role of funded pensions

A central issue in the European debate is as to whether social security programmes should con-

[3] The issue is discussed extensively in OECD (1995) and Nickell and Layard (1999). See also Alesina and Perotti (1997) and Daveri and Tabellini (2000).

[4] These are termed 'notional defined contribution' schemes. They remain unfunded, but link the notional 'return' on individual contributions to a measure of real *per capita* growth. Theoretically, this procedure cannot guarantee 'pay-as-you-go' equilibrium, but it is argued that it imposes a constraint on the capacity of governments to make future pension promises that rely on inrealistic future projections of GDP growth.

[5] Again, proponents would argue that much redistribution in such countries pre-reform had little to do with vertical and horizontal equity, and a good deal to do with influential interest groups, such as public sector workers. See the chapter by Brugiavini and Fornero on Italy in Disney and Johnson (2001).

Some Recent Pension Reforms in Europe

France, Ireland
- Establishment of pre-funded component to social security programme

Germany
- Development of second tier of funded pensions

Italy
- 'Parametric' reform ('Amato') raising retirement age and cutting benefits
- Shift to 'actuarially fair' benefits based on contributions '(Dini'). Attempts to develop second tier of funded pensions from existing TMR funds

Sweden
- Shift to Notional Defined Contributions (unfunded individual pension credits) and development of small funded component

United Kingdom
- Cutbacks in second tier public provision; greater incentives for private provision; raising pensionable age for women.

tain a funded (possibly private) element. Economists have argued excessively as to whether funded and unfunded pension schemes involve different social obligations. Under certain assumptions, there are 'equivalence conditions' by which the total burden on society of running a funded pension programme is identical to that of an unfunded programme (see Bohn, 1997). Even if the steady state outcomes are different – for example, if the funded scheme generates a larger capital stock and, therefore, GDP *per capita* – the net effects on contribution rates in steady state may be rather small.

This issue is however peripheral to the current European-level debate, since it is the link between macroeconomic sustainability and *public* spending on social security programmes that is the issue here, particularly as there is some tentative evidence that individuals might prefer to save for retirement through a funded scheme, rather than to rely on the government's future taxable capacity (Boeri, Börsch-Supan and Tabellini, 2001). Where the social cost issue 'bites' is during the transition from a fully unfunded to a partially funded scheme. If existing, accrued, liabilities are not to be reduced (and governments have been very reluctant to cut pensions retrospectively)[6], then the introduction of a funded component requires higher contribution rates. With high payroll taxes already, this is unattractive. European governments are attempting to finesse this problem by finding other 'funds' that can be converted into embryonic funded pension programmes, such as the severance payment funds (TFRs) in Italy.

Moving to a (partially) funded scheme involves high costs

Moreover, private funded programmes can only survive with sizeable tax privileges relative to other forms of saving, which impose an indirect revenue burden on government. Getting the degree of effective subsidy to private programmes right is tricky – a lesson that countries with funded sectors have learnt to their cost, such as New Zealand and the United Kingdom.[7]

Incentives to retire

The concern as to 'ageing' arose in part from the possibility that household choices, particularly concerning the retirement decision, are distorted by tax policy. An influential cross-country study edited by Gruber and Wise (1999) shows that there is a positive correlation between the average implicit tax rate on retirement and the degree of early retirement, across countries. The focus here, correctly, is on the impact of *marginal* tax rates, rather than the average tax burden, on household behaviour.

Care must be taken in this type of analysis, however. First (and Gruber and Wise are careful in this respect), changes in economic behaviour in response to tax changes or other policies (for example, raising retirement age) must be modeled, not assumed. For example, raising state retirement age by five years will not lead everybody to work five years longer – many individuals find other avenues into retirement if there are incentives to do so. Nevertheless, there appears to be cross-country time-series evidence of participation rates responding to changes in retirement ages (Johnson, 2000).[8] Second, there must be *explicit* high marginal tax rates to induce changes in behaviour. If, for example, receipt of a public pension is not conditioned on a 'retirement test' or 'earnings test', and deferral of benefits is available at an actuarially fair rate, there is no reason why households cannot work indefinitely, whatever the 'implicit' marginal tax rate on continued work.[9] Only now are we seeing enough 'natural experiments' in terms of changes in these tests to permit us to evaluate the impact of explicit taxes on the work incentives of the elderly (Baker and Benjamin, 1999; Disney and Smith, 2002). These suggest positive and significant, but fairly small, impacts of taxes on retirement behaviour.

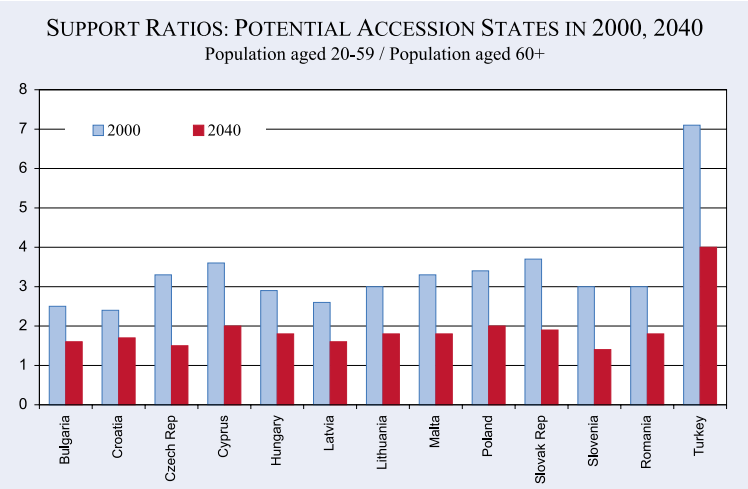
The Accession states

Enlargement of the European Union will bring with it a host of new opportunities and issues. In

[6] The exception being policies that reduce the generosity of indexation of pension benefits post-retirement.
[7] In New Zealand, the government decided on a policy of eliminating 'special' tax privileges to particular sectors, such as the private pension industry, leading to the almost complete collapse of the private sector. Conversely, in the United Kingdom, official audits have been highly critical of the overgenerous tax reliefs given to individuals to induce them to opt-out of the state second tier pension in order to buy a Personal Pension (an individual retirement account). See, respectively, the chapters by St. John, and by Emmerson and Johnson, in Disney and Johnson (2001).

[8] Again, for clear case studies of the impact of introducing early retirement (Germany) and raising the retirement age (New Zealand), readers are referred to the case studies in Disney and Johnson (2001).
[9] The clearest example is in private pension schemes, as in the Netherlands and the UK, which permit early drawing of the pension under certain circumstances. But these rarely preclude the individual from getting another job and not 'retiring' from the workforce if they so choose. Conversely, disability programmes (also prevalent in both those countries) generally impose a work test and therefore will have a substantive impact on participation.

Chart 2



case there was any doubt, however, Chart 2 illustrates how closely the demographic trends in countries in proximity to the EU mimic those of existing members. Many of these countries are having to accommodate existing welfare programmes that, in some cases, were designed on an enterprise level or a collectivist basis, unsuited to ageing workforces. There is a danger for such countries that, as underlying competitive wage disparities are eroded, high non-wage costs turn out to be a significant deterrent to inward investment and to employment creation. Nevertheless, the pension reform process, in countries such as Hungary and Poland, has often been striking and innovative. There may be lessons here for EU countries that have so far failed to embark on pension reform strategies.

Summary

Demographic ageing should not be an issue in theory, so long as the household can forecast expected longevity and can utilise the labour market and the capital market to smooth consumption. The problem that arises in a European context is explicitly a problem of public social welfare spending, where macroeconomic and employment targets limit the scope of individual countries to pursue their own, autonomous policies. EU governments are under increasing pressure to reform their public pension programmes so as to reduce current payroll tax rates and prospective pension liabilities.

Many EU governments have begun to implement 'parametric' reforms of their pension programmes, such as changes in retirement age, in the generosity of benefits, and in explicit taxes on work on elderly workers, in response to these spending constraints. Economists are just beginning to provide concrete evidence on the behavioural impacts of these policies. Another favoured strategy has been to institute a pre-funded component to pension programmes. Notwithstanding the extensive debate among economists as to the rationale for such a transition, the essential limitation on governments of EU member states lies in finding institutional arrangements that facilitate such a transition at minimal cost to existing taxpayers.

Impact of parametric reforms remains to be seen

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Shrinking Labour Forces and Early Retirement

Tryggvi Thor Herbertsson*

On the whole, labour force participation of older workers is declining in the industrialized countries, and in response to high unemployment, many countries expanded early retirement schemes in the 1980s. Despite the common trend toward earlier retirement, however, labour market participation rates differ significantly across countries. The structure of labour markets and employment opportunities is particularly important. Indeed, one of the more important current policy challenges is that early retirement has become commonplace in some countries, even though life expectancy has risen sharply. This combination of earlier retirement and longer life expectancy results in a much longer span of inactivity. Regardless of its causes, the withdrawal of older workers from the labour force leads to an increase in unused production capacity, a reduced tax base, and a heavier load on pension and fiscal systems. If the trend toward earlier retirement were to continue far into the future, it would pose even larger fiscal threats to pension systems, especially those that do not include a penalty for early retirement.

Another problem related to that of early retirement is disability. While mortality rates have been falling in the industrialized countries, morbidity, the inception rate of disability, has declined more slowly. Because morbidity increases with age, the net effect of slow improvements in morbidity and an aging population has been a rise in the disabled population, which is likely to increase yet further in the next thirty years. Disability benefits are often more generous than ordinary retirement benefits, further increasing the numbers of applicants as well as claimants of disability benefits.

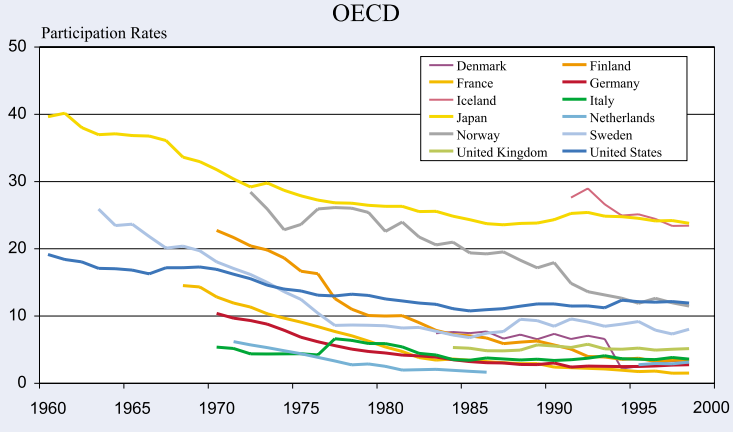
The steady withdrawal of workers from the workforce at an ever younger age suggests that retirement income is gradually increasing, and/or that older workers are increasingly being forced out of the labour market. Unlike his nineteenth-century predecessor, the average worker today has accumulated substantial wealth during his working life. Moreover, incentives built into national social insurance systems often encourage him to retire early. The modern worker can not only afford to retire early but is also willing to do so since recreational opportunities have increased and the relative prices of leisure activities have decreased.

The trend toward earlier retirement and the related issue of disability poses a substantial policy challenge. Despite the political unpopularity of reforming early retirement systems, several countries have already taken steps to tighten eligibility rules and strengthen incentives to retire later. However, even these additional incentives are often weak or clash with supplementary pension

Earlier retirement combined with increased longevity causes economic problems

Figure 1

Labour Force Participation Rates for Men Over 65 in the OECD



Source: OECD, 1999.

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provision. Furthermore, in most countries, few incentives exist to retire late, as reflected in low labour force participation after the formal retirement age.

In seventeen OECD countries, for which data is available, the proportion of the 55-64 age cohort of employed males fell by an average of more than 10 percentage points between 1980 and 1996, cf. Disney and Whitehouse (1999). Similarly, as illustrated in Figure 1, labour force participation rates for those 65 and above have fallen significantly across all the economies in question.[1]

Although some of the decline in labour market participation is a common trend across the OECD countries, there remain substantial differences across the countries with regard to the level of labour market participation and its rate of decline. For example Continental and Eastern Europe have lower participation rates than the rest of the OECD, but Iceland and Japan have particularly high rates.

Labour market participation differs widely across countries

These differences are important for policy makers to the extent that their causes are rooted in economic policy and structure rather than in cultural and environmental factors. However, deriving causal relationships is difficult because early retirement schemes were expanded in the 1980s in many countries, as a way of reducing high youth unemployment. It is therefore difficult to discern whether the increase in early retirement resulted from the early retirement schemes that were in place or were simply an indirect consequence of macroeconomic factors generating the high levels of unemployment. Furthermore, many induatrialized countries have in recent decades attempted to boost job creation by reducing firing costs as Gilles Saint-Paul of DELTA in Paris has pointed out. To buy political support among incumbent workers, unemployment benefits have been raised and early-retirement programs implemented.

[1] The decline in labour force participation has reversed a bit in the past few years. However, as points out, this is not unprecedented and is not necessarily part of a long-run trend.

Costs of early retirement

The withdrawal of older workers from the labour force creates a variety of economic challenges, including an increase in unused production capacity. Herbertsson and Orszag (2001a) develop a simple framework to assess the cost of early retirement of 55–64 year-olds in the OECD. Table 1 shows the fraction of output lost in the countries in the period 1979–98.

The calculations correct for business cycled effects by using relative labour participation as a benchmark. The total output gap due to a lack of full labour force utilisation is considerably higher, as indeed was noted in . The analysis suggests a cost estimate of early retirement of 5–7 percent of potential annually in the OECD, with higher figures in the EU. The exercise is not very sensitive to reasonable variations in assumptions. This cost rose rapidly after the 1970s in the OECD, peaked

Table 1

Costs of early retirement in OECD countries as a share of potential GDP

in %

	1980	1990	1998		1980	1990	1998
Hungary	–	–	15.9	Ireland	–	6.9	7.4
Belgium	–	15.2	13.5	Australia	7.5	7.5	6.9
Luxembourg	–	12.5	13.0	Canada	5.5	6.7	5.7
Austria	–	–	12.3	Sweden	5.9	4.7	4.8
Germany	7.7	9.5	10.9	USA	5.8	5.4	4.7
Greece	–	10.4	10.5	New Zealand	–	7.9	4.7
Czech Republic	–	–	10.5	Turkey	–	5.0	4.2
France	6.2	11.2	10.5	Japan	2.9	4.3	4.2
Netherlands	8.1	10.5	10.1	Norway	5.0	4.9	3.9
Poland	–	–	10.1	Switzerland	–	–	2.9
Finland	8.2	9.6	9.,7	Korea	–	2.2	2.7
Spain	4.8	9.7	9.2	Mexico	–	–	2.6
Portugal	6.0	9.1	7.7	Iceland	–	–	0.5
Denmark	–	6.9	7.7				
UK	–	7.5	7.6	**OECD Average**	**5.8**	**6.7**	**6.3**

Source: Herbertsson and Orzag (2001a).

in the mid-1980s, and have declined since, although it is still not at the 1970s level. In light of the costs associated with early retirement, it is useful to summarize alternative theories on why people retire early.

Why do people retire early?

The body of research on early retirement has focused on the **supply side** of the labour market and incentives thereof, (see Herbertsson, 2001a and 2001b). Incentives such as wealth, accrual rates, earnings tests, taxes, etc., play a crucial role in determining labour supply of older workers. Boskin (1977) was one of the first to pay close attention to the effects of incentives on early retirement. Other subsequent work includes Quinn et al. (1990). Indeed, incentives are the focus of a huge body of US literature that includes papers by Stock and Wise (1990) and Fields and Mitchell (1984). Empirical work in Europe has also examined early retirement from an incentive-based approach; examples include Börsch-Supan (1992) for Germany and Meghir and Whitehouse (1992) for the UK.

There are also a number of comprehensive studies on incentives and early retirement. These include work by the OECD (1995a; 1995b), which focuses on incentives created on both the supply and the demand side of the labour market, an EU project published in the *European Economy*, and a NBER book edited by Gruber and Wise (1999). The methodology in each of these cases was slightly different. The EU study focuses on replacement rates for different routes out of the labour market, whereas the Gruber/Wise project highlights the concept of pension wealth or accumulated pension assets. The Gruber/Wise approach is notable because it includes comparisons across a large number of countries using the same methodology, and its findings have spurred much policy and academic interest. However, the Gruber/Wise study offers only limited insight into the pension systems of the countries in question because it did not incorporate the general impact of private benefits. It is important to examine private benefits, particularly individual accounts with tax advantages, when considering incentives for early retirement, especially since individual accounts are sometimes used to fund early retirement (see Herbertsson, Orszag, and Orszag, 2000).

- *Replacement rates*. While the studies mentioned above accurately characterize the incentive issues and the structure of early retirement benefits, causal explanation is lacking. It is generally difficult to find evidence that can link a microeconomic labour supply response to the incentives in question, and it may well be that weak incentives to continued work are a policy response to labour demand shocks. For example, Blöndahl and Scarpetta (1998) find no clear relationship between high replacement rates and early retirement. Johnson (2000), however, has had greater success in his search. He reports that historical data from thirteen industrialised countries show a rapid fall in labour force participation of male workers aged 60–64 after pensions were extended to them. Johnson estimates the participation elasticity to be – 0.06 with respect to replacement rates – the average pension benefits of couples/average wages of male ratio – and 0.19 to the net-of-tax wage. Furthermore, he estimates that the growth of old-age insurance explains about 11 percent of the reduction in labour force participation of males aged 60–64 since 1920, and he concludes by stating that greater private wealth probably explains most of the remainder.
- *Wealth effects*. Costa (1998) reports that higher private wealth, such as increased home ownership, is the major explanation for the long downward trend in labour force participation of older-age male workers. Increased female labour force participation might contribute to more widespread early retirement of males, as higher female participation adds to household wealth. Costa surveys a number of studies on early retirement in the US and reports an elasticity of labour force non-participation with respect to income (wealth) from disability, old age and survivors pensions and assets. His conclusion is that the effect from a dollar in private pension on retirement is very different from a dollar in social security wealth, which in turn is very different from a dollar in asset holdings. Furthermore, Costa reports that the responsiveness of retirement to income has been falling in the last century.
- *Disability and unemployment benefits*. The importance of disability in explaining changes in labour market participation is controversial.[2] In the US literature, many researchers have argued

Causes of early retirement are difficult to establish

[2] Aarts and DeJong (1999) examine broad issues of disability within a multipillar framework.

that while disability benefits have led to decreased labour market participation, the primary explanation lies elsewhere. Bound and Waidmann (1992) use data on self-reported disability to conclude that only about a third of the drop in labour force participation in US is due to enhanced disability benefits. Bound (1989) also casts doubts on how strong disincentive effects disability insurance creates by looking at the labour market behaviour of rejected applicants. The literature on Europe, on the other hand, often finds stronger disincentive effects from disability insurance. This difference may not be surprising, given that disability systems are often more generous in Europe than in the United States. It is a well known fact the morbidity increases with longevity; consequently, the average labour supply of older-age participants might decrease, as a greater proportion of each generation will reach a higher age. This could result in increased pressure on disability and early retirement programs. Wealth effects and, consequently, increased early retirement can be created by disability pensions and special unemployment benefits for the old, especially low-income households. Disability benefits are often substitutes for early retirement pensions as a youth-unemployment reduction mechanism. If this were the case, one would potentially be able to find a relationship between non-employment benefits, such as disability and unemployment benefits, and unemployment. However, Blöndahl and Scarpetta (1998) report that, when comparing disability and unemployment benefits and unemployment, no apparent relationship is to be seen between the levels of non-employment benefits and unemployment, neither in total nor elderly male unemployment.

Disability insurance has greater disincentive effects in Europe

- *Recessions*. Economic downturns affect early retirement since the probability of becoming unemployed rises during recession. Consequently, people near retirement age are more willing to leave the labour force and go into early retirement. Lower real-wages during recessions can also contribute to early retirement since the opportunity cost of retiring (measured in forgone wages) is lower during recessions. A fall in asset prices during recessions works in the opposite direction, as people might postpone their retirement when private wealth decreases.
- *Design of pension schemes*. Workers in public defined benefit plans may have an incentive to retire earlier than workers in defined contribution plans if the early retirement penalties are too light, as they typically are. The exact effects depend on the type of salary scheme that forms the basis for the contributions and age-earning profiles. The theory predicts that in systems with high replacement ratios, workers would be tempted to retire early. But, as is mentioned above, not all empirical studies have been successful in confirming this relationship. This can be explained in part by the fact that, in some countries, workers who retire early are penalised by actuarial adjustments. On the other hand, accrual rates at older ages seem to have a significant impact on the retirement decision, cf. Herbertsson and Orszag (2001b).
- *Increased recreation opportunities*. It is a well-established fact that labour supply decisions depend on the preference for leisure, which usually becomes stronger with higher income and advanced age. Consequently, as private wealth increases, the preferences for leisure become an important motivation for leaving the labour force. Not only can a greater number of older workers afford to retire early, it has become more socially acceptable to do so. Costa (1998) reports that elasticity for recreation has declined in the US since the turn of the century, speculating that this decline was in part driven by an increased demand for leisure fuelled by rising incomes and by the increase in the variety of low-cost leisure-time activities.
- *Changing age structures*. Because of the broad dissemination of medical knowledge and declining fertility, the populations in industrialised countries are constantly growing older. Increased longevity contributes to a fall in the relative supply of healthy workers. As life expectancy increases, more disabled people will survive to adulthood, and a larger fraction of the population will be disabled. For this reason inactivity will rise with changing age structures.

I have now spelled out various explanations for early retirement that can be traced to the supply side of the labour market. Most of the explanations evolve around planned-voluntary retirement decisions. But early retirement can also be traced to the **demand side** of the market and involuntary retirement. A worker who enters the labour market at a young age initially has a high probability of entering the unemployment pool, but the probability falls as the worker gets older, takes on family

responsibilities, and loses parental support. This effect is more pronounced as the number of children increases and the income of the spouse decreases. However, with the passage of time, this effect is reversed as the children leave home and accumulated savings and pension rights create a soft cushion in case of dismissal or voluntary quitting. This development eventually leads to retirement from the labour market. So a typical worker begins and ends his labour-market participation by depending on non-wage income in different forms.

- *Age-structure.* Job security rises with increased tenure and hence, *ceteris paribus*, with age. Herbertsson, Phelps, and Zoega (2001) report that the unemployment rate of the young, 15–24 year-olds, was higher than that of the older generations in all of the OECD economies in 1998, except in Germany, where unemployment of the age group 55+ is higher than in the youngest age groups. As Lazear (1979) points out, if firms offer wages commensurate with seniority rather than marginal product, they might encourage older workers to retire early or even lay them off before younger workers. Since it is more difficult to dismiss an old worker, the sensitivity of employment to shocks could be a decreasing function of the size of the older cohorts in an economy. The age structure and the institutional framework may interact in such way that the protection against dismissal increases with age. However, firms may opt for early retirement instead of dismissals; thus corporate restructuring would show up in lower labour-force participation instead of unemployment. Furthermore, a transitory shock is more likely to lead to the dismissal of an older worker because of his shorter expected post-depression tenure. Thus the level of labour hoarding may be smaller for the older workers due to their shorter remaining work life. This would make the sensitivity to shocks greater. Older workers may find it more difficult to find another job, as their remaining tenure is shorter. They may also be more resistant to real wage moderation because their accumulated wealth reduces their dependence on employment. This raises the possibility that real-wage cuts are less likely, as the proportion of older workers is higher. They are therefore more likely to become unemployed for the long term. As a result, the higher the proportion of older workers in the labour force, the more likely a transitory shock is to have a persistent effect on employment and push people into early retirement.
- *Transitional effects.* Older workers who started their career in a growing industry might find themselves in a declining industry as they near the age of retirement. If older workers were laid off, they would also find themselves competing with better-educated and younger workers for jobs in new and growing industries. As the average unemployment spell rises for all workers, this might encourage older workers to go into early retirement rather than continue their search for new jobs – the discouraged worker effect. Many countries have reacted to this problem by designing programs that transfer older workers from long-term unemployment into retirement.

Shrinking labour forces and unemployment

Demand-side causes: age structure and transition effects

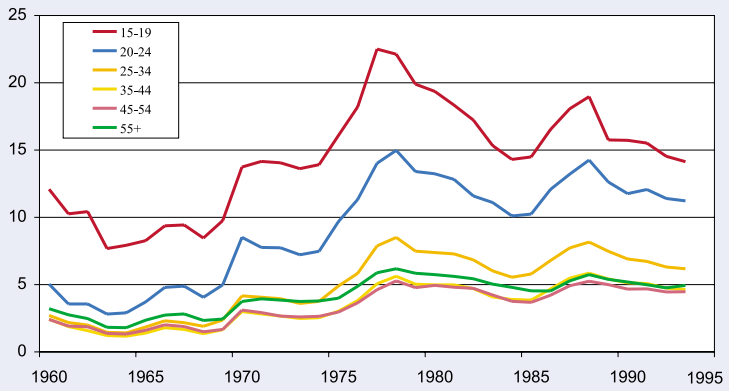
The political environment in the 1980s was very much influenced by the *early-retirement-as-youth-unemployment-reduction-mechanism* doctrine and the *lump-of-labour-fallacy*. It was widely believed that in order to reduce youth unemployment older workers had to leave the labour market to make room for the young. Furthermore, early retirement is closely connected to the age distribution. As more people reach the age of early retirement, defined here as the ages between 55 and 64, a greater proportion of the populations is willing to retire early. This is not only because of higher rates of disability, wealth effects, and unemployment, but also because in most leisure activities, one needs a companion. The greater the pool of potential companions, the higher the probability of early retirement – you do not want to be the only one retiring early.[3] Also, the larger the fraction of people at an early retirement age relative to the total population, the greater the political pressure on implementation of early retirement schemes paid for by the public – as the potential early retirees become a stronger force in the political process. It is postulated here that the development of many of the early retirement schemes in Europe (and consequently a decrease in the labour force participation of older workers) can be traced to these facts.

Figure 2 shows the average age-specific unemployment rate in the OECD in the last three decades. As can be seen from the figure, the unemployment

[3] See Hurd (1988) and Johnson and Favreault (2001) for a discussion of the joint retirement decisions of husbands and wives.

Figure 2

COHORT UNEMPLOYMENT IN THE OECD, 1965 - 98



Source: OECD, 1999.

rate is age dependent. As the workers enter the labour force at young ages, there is a higher probability of being unemployed than at older ages. Since it is more difficult to dismiss older workers, the sensitivity of employment to shocks could be a decreasing function of the size of older cohorts. The age structure and the institutional framework may interact in such a way that employment-protection legislation may be more effective as the average age of workers increases.

Youth unemployment is highest and closely related to early retirement

Note that unemployment is highest for the 15–19 and 20–24 age groups. Surprisingly it is also higher for the 25–34 group than it is for the older groups. The group over 55 has a slightly higher rate than the 35–55 group but the difference is only moderate.

Table 2 shows the effects of unemployment and age structure on the labour force participation of workers at early retirement ages. Panel regressions were conducted, using available data from all OECD countries.

The first regression tests the "early-retirement as a youth-unemployment reduction mechanism" hypothesis, the second and the third the "discouraged worker effect" hypothesis, the fourth the "older worker as a pressure group" hypothesis, and the fifth a mixture of the latter two.

It is apparent from the table that there is a strong relationship between youth unemployment and labour force participation of older workers. The negative sign in the first regression indicates that as more young males are unemployed a greater number of older workers leave the labour force. According to the point estimate, a 5-percentage point rise in youth unemployment would reduce the labour force participation of older workers by 1.5 percentage points. Similarly, the discouraged worker effect seems to be strong. Regressions (2) and (3) indicate that a 5 percentage point increase in elderly unemployment results in a 2.5 percentage point reduction in the participation rate, *ceteris paribus*, and a 3 percentage point reduction when total unemployment is used as a regressor. Regression (4) supports the hypothesis that older workers organize when they are relatively many. A rise in the dependency ratio of 5 percentage points, which would of course take many years, would, according to our point estimate, reduce the participation rate by 3.5 percentage points.

Table 2

Participation and unemployment

	Dependent variable, participation rate, males 55–64				
	(1)	(2)	(3)	(4)	(5)
Unemployment, males 16–24	– 0.30 (6.37)				
Unemployment, males 55–64		– 0.51 (5.65)			
Total male unemployment			0.60 (6.56)		0.55 (5.98)
Dependency ratio 65+/25–64				– 0.71 (4.13)	– 0.58 (3.54)
R^2	0.93	0.92	0.92	0.92	0.92
Note: Unbalanced panel of OECD countries, 1979–1998. Estimation method fixed effects.					

Source: Herbertsson (2001b).

Conclusions

The withdrawal of older workers from the labour force creates a variety of economic challenges, including an increase in unused production capacity. Costs due to early retirement measured in terms of forgone output averaged 6.3 percent of potential gross domestic prod-

uct in the OECD in 1998. These costs, which vary greatly from country to country, are highest in Hungary (15.9 percent of potential output) and lowest in Iceland (0.5 percent). These differences are important for policy makers to the extent that their causes are rooted in economic policy and structure rather than in cultural and environmental factors. In light of these costs, this paper attempts to summarize and discuss alternative theories on why people retire early and how early retirement programs came about, in order to understand better the roots of the problem.

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Early retirement in Europe: A call for action

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In most developed countries, major demographic changes are challenging some of the fundamental pillars of today's social protection systems, such as the public retirement income systems. This observation is particularly true for the countries of continental Europe as they are facing a much more severe and rapid aging process than for example the US or Canada. This demographic aging process is the combined result of two mutually reinforcing trends, namely a strong decrease of fertility rates coupled with a secular decline in mortality rates at any given age.[1] However, the strong exposure of continental European countries to the risk of demographic change is also due to the way the social protection systems are organized. The retirement income systems of most European countries rely heavily on a pay-as-you-go (PAYG) philosophy, which means that the benefits paid out to the current old are essentially financed through (earmarked) contributions or general taxes on the young.[2] This type of system has to be contrasted with a fully funded system, where any single generation pays for its own retirement benefits. Contributions are capitalized and the principal and return then serve as the source of financing for their own retirement benefits in the future. This state of looming financial crisis seems to be well known, all across the different layers of society. On the other hand, the strong tendency towards earlier retirement, be it compulsory or voluntary, is often erroneously considered as a totally separate issue. As I will illustrate below, it is partly the structure of the European retirement systems and their close ties with other social insurance programs that gives rise to strong financial incentives for early retirement.

European retirement systems and close ties to other social schemes provide incentives for early retirement

Aging and PAYG

The largest part of European PAYG systems dates back to the period immediately after the second world war. During the start-up phase of the systems, the first generations enjoyed a "free lunch", as they received benefits from a system they only contributed to in a very modest way. It is important to acknowledge that today we are no longer in this start-up phase, and that the systems have reached a stage of relative maturity.

Hence, keeping the age of retirement constant, it should be obvious to the reader that with the number of entrants into the young generation decreasing as a result of the lower fertility rates, and the size of the generation of the old swelling as a consequence of higher life expectancy, the only response possible in a mature balanced-budget PAYG system is to decrease the relative level of benefits with respect to contributions. This is the key observation that is at the heart of the pension reform literature focusing on the financial viability of the existing social insurance systems. The key recommendations of this literature can easily be summarized in the form of two policy options. Either benefit levels have to be cut in an explicit or implicit way. The latter can for example be achieved by increasing the number of years needed for qualifying for a full-career retirement benefit. Or revenues to the systems need to be raised, be it through increased contributions, higher labor force participation among the young, stronger productivity growth or higher transfers from general tax revenue.

Age of retirement

Against the backdrop of these demographic trends and their budgetary implications, some have sug-

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[1] For the present purpose, we do not have to distinguish between increases in physical life expectancy and additional years spent in good health. This is different for topics such as long-term care insurance.
[2] The only exception is the Netherlands where a large fraction of retirement benefits come from a funded private component.

gested that an increase in the age of retirement would be a very efficient tool contributing to a solution of the financial problems of the retirement income systems. Indeed, increasing the retirement age both increases the pool of the working and contributing population while shrinking the pool of the elderly people receiving benefits from the system. This observation, though strikingly simple, does however not seem to go well with political decision makers and the social partners in most developed countries. Indeed, when casually looking at data from Belgium, it becomes obvious that trends in this key variable have been in the opposite direction, namely a steady decrease of the average age of retirement, hence aggravating the problems caused by the increase in life expectancy rather than contributing to its solution. Similar tendencies can be observed for most other OECD countries, though Belgium is the country with the lowest average retirement age of all countries considered (Table 1).

These average retirement ages are in the case of some countries noticeably lower than the earliest entrance age into the official retirement programs (ER), such as for example in Belgium where the earliest age of retirement under the regular systems is 60. This finding is due to the fact that Table 1 is based on an economic definition of retirement and not a narrow administrative one, and hence defines retirement as the departure from the working population into inactivity. Doing so, it explicitly recognizes that stopping to work and first claiming benefits from the official retirement systems are two distinct steps, that can also take place at very different ages. The period between the departure from paid employment and the entrance into the normal retirement system is bridged in a country-specific way by a multitude of public, private or mixed early-retirement benefit arrangements, such as for example unemployment insurance, disability insurance, or some form of severance pay, just to name a few.[3] For example, a person leaving the labor force through some employer-sponsored early-retirement scheme at age 55 and claiming benefits in the official system at age 65 is counted as retiring at age 55, even though administratively speaking he only enters the official retirement system at 65. Hence, the economic approach to retirement and early-retirement implies that a study of the public retirement systems in too narrow a sense does not suffice. Hence, when thinking about the problem of a dropping average age of retirement, we have to take into account the multitude of routes that individuals can use as an exit into retirement.

Table 1
Life expectancy and age of retirement in Belgium

	Male	Female
• Increasing life expactancy		
1950	63.2	68.4
1998	74.6	81.1
2050	82.1	88.1
• Decline in average age of retirememt		
1950	64.8	62.9
1995	57.6	54.1
2050	?	?

Source: Lannoy F. and B. Lipszyc (2000), Blöndal and Scarpetta (1998).

Why then do we observe this strong decrease in the average retirement age at a time of financial trouble caused by demographic aging? The answer to this question is essentially twofold. First, many European governments have been using compulsory early retirement policies in their quest for a lower rate of unemployment. Doing so, they have tried to resolve an unemployment problem by reducing the number of workers competing for any given job, essentially by getting older more expensive people off the labor market. These policies have also facilitated the structural change in the economy as older workers may simply lack the skills for some new careers. However, they also imply tremendous costs for government budgets through increased benefit payments and missed contributions. But even leaving these budgetary implications aside, many economists think that these programs have failed in opening up jobs for young people and in reducing the rate of unemployment. Second, financial incentives built into the social insurance programs – but also private early retirement options – induce many people to leave the labor force early on a purely voluntary basis.

Compulsory policies and financial incentives have raised early retirement

The trend towards earlier retirement and lower activity rates for older workers is reflected in some key data from the 1990's that are summarized in Table 2 for males belonging to different age brackets. Youth unemployment does not seem to have

[3] In the present article, a program is considered to be an early retirement program if it effectively allows workers to quit the labor force at an earlier age than the earliest retirement age defined in the official old-age retirement system.

Table 2
Unemployment rate (UR) and Activity rate (AR) for different age groups, Percentages for Males

		1990	1996	1997	1998	1999
Belgium	UR 15–24	10.1	17.3	17.6	18.3	22.7
	AR 25–54	92.2	92.4	92.1	91.7	91.8
	AR 55–64	35.4	33.8	33.9	33.9	36.8
Canada	UR 15–24	13.6	16.9	17.1	16.6	15.3
	AR 25–54	93.1	90.8	90.9	91	91.1
	AR 55–64	64.3	58.4	59.6	58.8	60.7
France	UR 15–24	15.3	22.1	24.6	21.9	24.2
	AR 25–54	94.5	95.2	94.8	94.5	94.1
	AR 55–64	45.8	42.3	42	41.3	42.6
Germany	UR 15–24	5.3	9.6	10.7	9.7	9.1
	AR 25–54	91.2	93.1	93.4	93.6	93.9
	AR 55–64	57.7	55	55.7	55.2	55.1
Italy	UR 15–24	23.4	30	28.7	30.2	28.6
	AR 25–54	94	89.7	89.9	90.5	90.5
	AR 55–64	51.7	44	43.5	43.5	42.8
Netherlands	UR 15–24	10.3	11.3	9.2	8.3	6.6
	AR 25–54	93.4	92.7	93.5	93.5	93.4
	AR 55–64	45.8	42.2	44.4	47	49.8
United Kingdom	UR 15–24	11.1	17.8	15.6	13.8	14.1
	AR 25–54	94.8	91.9	91.6	91.4	91.6
	AR 55–64	68.1	62.9	63.6	62.6	63.5
USA	UR 15–24	11.6	12.6	11.8	11.1	10.3
	AR 25–54	93.4	91.8	91.8	91.8	91.7
	AR 55–64	67.8	67	67.6	68.1	67.9
European Union	UR 15–24	13.6	19.6	18.8	17.6	16.1
	AR 25–54	93.7	92.6	92.5	92.6	92.6
	AR 55–64	56.6	52.4	52.6	52.4	52.7

Source: OECD (2000).

Activity rates of people 55–64 have tended to fall

been reduced on a large scale by compulsory early retirement schemes. However, the time trend of economic activity rates for people in the age bracket 55 to 64 is tending to a lower level than before, a finding that becomes even more striking when looking further back into the past.

Financial incentives

The role of financial incentives towards early retirement has long been understudied, particularly in the face of the perception that the early retirement process is essentially a compulsory one. However, besides the pure generosity of early-retirement and retirement benefits, there is an issue of how they vary according to the age of first claiming them. Recent studies have shown that financial incentives towards earlier retirement are sometimes extraordinarily powerful and hence make continued work a prohibitively expensive option. A measure often used is Net Pension Wealth (NPW), which corresponds to the present discounted value of net benefit flows from the various retirement or early-retirement benefits a person can expect to receive over the rest of his life. Using this concept of NPW, it is possible to define the implicit tax (IT) on earnings that a person has to face when working an additional year purely on the basis of him being part of the official retirement system. The IT on continued work can sometimes approach or even exceed 100 percent, which obviously creates powerful individual incentives for a utility optimizer to leave the labor force, such as for example illustrated in Table 3. This is particularly true for countries with easily accessible and generous early retirement schemes. Indeed, the latter often lack a sufficient degree of actuarial benefit adjustment, i.e. an adjustment of monthly benefits to offset the longer period of benefit receipt. Further, the accessibility of such early retirement paths varies widely as a function of age across dif-

Table 3
Implicit tax rates in various countries (IT)

	Earliest entrance age into the official retirement programs (ER)	Implicit Tax at official early retirement age (IT in percent)
Belgium	60	82
Canada	60	8
France	60	80
Germany	60	35
Italy	55	81
Netherlands	60	141
United Kingdom	60	75
USA	62	– 1

Source: Gruber and Wise (1999).

ferent countries and different sectors. While in some countries, early retirement routes do de facto exist as early as the age of 50, in others this is not so till a much later age. For example, elderly employees of the former Belgian flag carrier Sabena that went into bankruptcy a short time ago can expect an exit route through early retirement arrangements at an age as low as 50.

The need for a reform

In my eyes, there is a clear need for a reform of the approach to early retirement. Indeed, it is difficult to imagine pursuing a deliberate early retirement policy combined with heavy subsidization of early exit from the labor force, whilst at the same time wanting to safeguard the existing retirement income system in the face of the tremendous demographic challenges. This is particularly true in the face of the rather modest effects of early retirement plans on unemployment in general, and youth unemployment in particular.

However, a reform should not be confined to the official retirement income systems, but also needs to include changes to the myriad of early retirement pathways. For example, in this line of thought, it seems obvious to me that an increase of the official normal retirement age, which is currently close to 65 in most countries, does not look like a promising route, as many people do no longer directly exit to the official retirement systems but rather pass through some early retirement program (see Table 4 for Belgium). Indeed, a tightening of the rules governing accessibility to the different early retirement systems is much more likely to be an effective policy tool. This tightening of the rules should, however, not be such that it completely prevents any access to social insurance programs, say before the age of 60, as there is a considerable degree of heterogeneity in the population making a wide window of potential retirement ages a socially desirable feature.

A reform is also more likely to be optimal if it introduces smaller financial disincentives towards continued work, mainly through a better actuarial adjustment of benefits as a function of the age they are first claimed at. By decreasing the IT on continued work, people face lower penalties or even positive incentives on continued work, and hence will tend to leave the labor force later.

Table 4
Pathways to retirement for wage-earners in Belgium
(in percent)

	Male	Female
Directly to public retirement	34.85	54.85
First early retirement	46.97	20.02
First disability	8.21	5.25
First unemployment	9.97	19.99
Total	100	100

Source: Dellis, Jousten and Perelman (2001).

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Should the Internet be Regulated?

Pro: Why the Internet Should be Regulated

Robert Shaw*

Should the Internet be regulated? The question is now thankfully moot. The politically correct era when cyber-libertarians believed that no government bodies, whether national or international, should play a role in regulating cyberspace are forever gone. We've also now passed the high water mark of the officious (and somewhat bizarre) belief that government was unsuitable for governing the Net.

The ongoing abandonment of anti-governmentalism is not due to meddlesome bureaucrats anxious to regulate the net. It's because the Internet has simply become far too mainstream to be treated any different from the rest of society and the economy. Over the coming years, large sums of money will continue to be generated by the Internet, directly in the purchase of hardware, software and services and, more importantly, indirectly as the Internet becomes an important platform for electronic commerce. If policy-makers still believe in principles related to non-discrimination, universal access, fair and open competition, intellectual property rights and personal data protection, then they should ensure that they are applied to the Internet in the same way that they would be applied to other sectors.

One mistake is that western cyber-libertarians have been deeply naive of the vast differences in the world as to how nations and cultures perceive government. They made the all too common mistake of automatically mapping their culture's disillusionment with government onto others. The idea that the modern state and its role in protecting the public interest would disappear or that the private sector could step into this role was amazingly western and naive.

David Post correctly points out the Internet regulatory conundrum. Can national approaches to regulation work in a medium that seems so global? Who will regulate this new space? The answer is not clear but one thing is evident: the Internet is losing its US-centricity whether infrastructurally, culturally or politically as more of the world goes online. In doing so, the Net will slowly begin to better reflect the great differences in the modes of thought and feeling of different races of people. As Elihu Root, the 1912 Nobel Peace Prize Laureate, said "Thousands of years of differing usages under different conditions forming different customs and special traditions have given to each separate race its own body of preconceived ideas, it own ways of looking at life and human conduct, its own views of what is natural and proper and desirable". The Internet, the ultimate public network, will need to adapt to this tapestry of values. And that's a good thing.

* International Telecommunication Union.

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Contra: Why the Internet Should not be Regulated

David Post*

First, a clarification: Though I am deeply skeptical about efforts to regulate people's conduct on the Internet, I will not really argue that "the Internet should never, in any circumstances and for any reason, be regulated, by anyone." Regulation is not an evil. Governments, and the "regulation" of human conduct that they undertake, have a perfectly legitimate purpose; they are, in the words of the United States' Declaration of Independence, "instituted among Men" (and, we would of course now add, Women) to "secure" certain rights (to "Life, Liberty, and the pursuit of Happiness") that all people possess.

Their "just powers," however, derive from a very specific place: from "the consent of the governed."

The interesting and important question about Internet regulation, then, is not "should the Internet be regulated," because the answer to that question is too simple: of course it should be, if – but only if – the people there think it should be, and consent to that regulation. The interesting and important question about Internet regulation is: "Who is doing the regulating?" And, more to the point: "Do they have a right to do so, derived from the consent of those they are regulating?"

The answer to that question, with respect to attempts made thus far to "regulate the Internet," is "No, they do not." Attempts by the government of France to "regulate the Internet" do not meet this standard because the government of France does not have a legitimate claim to represent the wishes of people on the Internet, most of whom are not French and most of whom have never consented to the application of French law and French regulation to their conduct. The same can be said, of course, about the government of the United States, or Brazil, or Singapore, or ....

Who, then, has the right to regulate in this new space? What institution or institutions can show that their exercise of regulatory power is a just one, derived from the wishes of the people on whom they are exercising that power, and that their regulations are falling on those who have consented in some way to them? If you can persuade me that there are such institutions, I have no principled objections to the regulation exercised by that institution. The problem is that I don't see any such institution out there. It's not ICANN, it's not the International Court of Justice, it's not the European Commission, it's not the International Telecommunications Union, it's not the United Nations Security Council.

So my position is simple, almost simple-minded: until I am shown such an institution, I will continue to view efforts to "regulate the Internet" with a deep skepticism and distrust.

* Temple University Law School.

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Flight from the Old Euro-Area Currencies

Hans-Werner Sinn*

More than a year ago, the Ifo Institute attributed the weakness of the euro to the flight from the old euro area currencies in terms of D-marks returning from eastern Europe and other parts of the world and black monies from within the euro area countries.[1] While the empirical evidence of this effect was anecdotal initially, it has improved significantly over the last year. The most striking evidence is the truly dramatic decline in the stock of euro area currencies in circulation which took place in recent months. This decline reflects the increasing pressure which has been exerted on the euro. This note reports on this evidence.

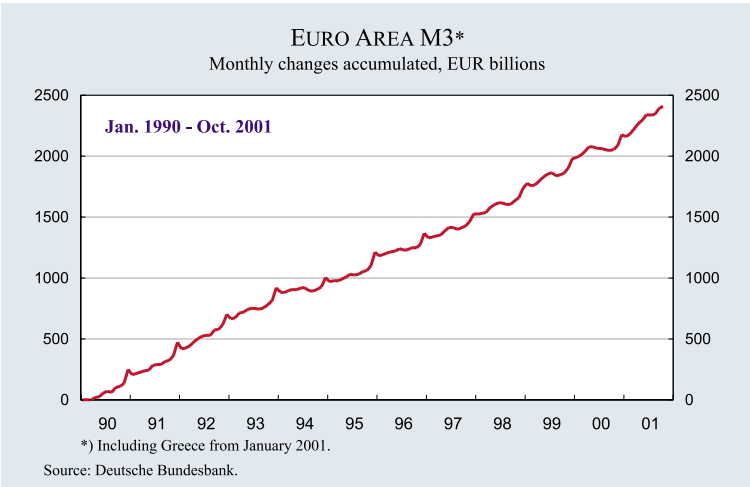
The theoretical explanation and some empirical basis of the negative effect on the euro resulting from the reduced currency demand were presented in a formal working paper from early 2001 and an article in this journal (Sinn and Westermann 2001a, 2001b). According to the theoretical explanation, the reduction in demand for the old euro currencies reduced the value of the euro and induced the ECB, which pursued an interest target policy, to buy back the outstanding currencies against short-term securities which were mostly part of the broader money aggregate M3. By changing the composition of M3, given its size, the ECB prevented the interest rate from falling further than it did, but it was unable to fully avoid a fall in the external value of the euro. After all, as M3 was not affected, the ECB was unable to counter the exchange rate effect which necessarily resulted from a desired private portfolio shift from short-term European to short-term foreign assets. A reduction in M3 could have been brought about by sterilised interventions in favour of the euro. Such interventions occurred, but they were too small to be visible in the data. If anything, the time path of M3 became steeper in the relevant period (Fig. 1).

From a theoretical perspective, the exchange rate effect resulting from the flight from euro currencies was itself similar to that resulting from a sterilised intervention in the exchange market. Empirical findings by Evans and Lyons (1999, 2001) on the exchange-rate effects of sterilised interventions suggest that a one billion portfolio shift from euro currency to dollar currency can explain a long-term depreciation of the euro against the dollar of about 0.4–0.5 cents in the short term and 0.3–0.4 cents permanently.

Assessing the magnitude of the relevant exchange-rate effects requires estimating the magnitude of the reduction in the stock of currency in circulation. This is a difficult task, since statistics on the currency circulating abroad and, of course, on the stocks of black money are not available. This is the kind of indirect evidence which has been available thus far:

(1) Explaining German money demand from 1966 through 2000 with the usual ingredients (interest rate, GDP, time), Sinn and Westermann (2001a) calculated a trend for money demand and showed that, by the end of the year 2000, the actual currency in circulation had fallen below this trend by more than two standard deviations or EUR 27 billion. Assuming that the observable decline in the share of D-marks in the total stock of euro currencies resulted from currency returning from abroad and that the remainder stemmed from a flight out

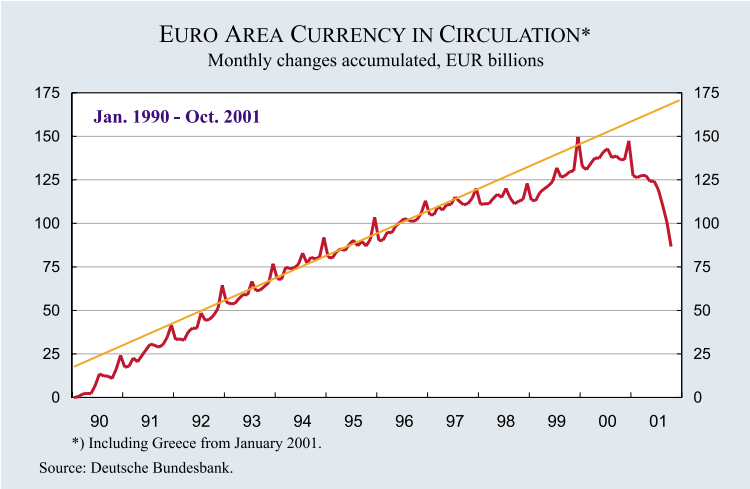
Figure 1



* President of the Ifo Institute for Economic Research.

of black D-mark currency, which would similarly occur in other countries, the authors calculated a total reduction of euro area currency in circulation against the trend of EUR 48 billion in the period from 1997 to 2000.

Figure 2



(2) According to a broad survey by the Austrian National Bank in five east European countries (Stix 2001), the absolute decline of D-mark currency from the second half of 1998 until the first six months of 2001 can be fully explained by the decline in D-mark currency held abroad.

(3) According to the same study, in May 2001 most holders of D-mark currency in eastern Europe were still undecided whether or not to convert this currency to euros. Of those who had decided, 41% said they did not want to convert their D-mark currency to euros but to other currencies. Sinn and Westermann (2001b) inferred that the survey would imply that a sum of EUR 14 billion would be returned in the remaining months of the year 2001.

(4) The ECB declared in its November Bulletin (p. 12) that 0.75 percentage points of the annual increase in M3 had consisted of additional short-term securities which were being accumulated outside the euro area countries. In absolute terms this is a sum of about EUR 40 billion. The ECB therefore decided to redefine its broad money aggregate M3 so as to exclude from this aggregate short-term securities with a maturity of up to 2 years which are held by non-residents. Recalculating the difference between the old and new definitions of M3, the Ifo Institute estimates that, from January 1999 to September 2001, non-residents of euro countries had accumulated short-term securities of the described category in the order of EUR 100 billion. It seems likely that a substantial part of this sum is the counterpart of the currency which returned from abroad and was exchanged for short-term securities by the ECB so as to prevent an interest decline.

The evidence helps solve the puzzle of how large the reduction in the demand for euros has been in recent years, but even more striking evidence results from the data contained in the following figures. The deviations from the growth trend of currency in circulation is so large that not sophisticated econometric techniques are needed to see what is going on.

Figure 2 shows the time path of overall currency in circulation of the euro area countries calculated on the basis of the official final exchange rates. It is obvious that a deviation from the general trend begins in 1997 and becomes truly dramatic in 2001, showing an accelerated flight from the old currencies. No end of this development was in sight in October, the last month for which data were available. “Eyeball econometrics” shows that the overall downward deviation from the trend may easily have been in the order of EUR 90 billion. Using the results of Evans and Lyons as cited above, this explains up to US$ 0.36 cents of the actual decline of the euro (or D-mark, respectively) since 1997.

The effects shown in Figure 1 result from passive interventions of the ECB, changing the composition of M3, given its size, in order to defend the declared interest targets. If the ECB had not intervened passively, there would have been a sharp interest rate decline, and the decline in the euro would have been stronger, but it would have been impossible to see the decline in the demand for euro currencies in the money data. The stock of currency in circulation would have remained unaffected. The decline in the actual stock of currency in circulation is not the cause of the decline in the exchange value of the euro, but an implication of the decline in the demand for this currency resulting from a policy reaction by which the short-term

interest rate was stabilised and the fall in the euro was mitigated. However, it is a clear sign of the magnitude of the original demand decline and the forces that must have put pressure on the euro.

The decline in the currency in circulation was a rather general phenomenon, applying to nearly all euro area countries. Figures 3–8 (p. 47) show the evidence for Germany, France, Italy, Austria, Spain and the Netherlands. Everywhere we see a sharp decline of the currency in circulation during the year 2001.

In Germany, however, the decline was much stronger than in other countries and it began earlier. Obviously, this country alone explains a decline of the currency in circulation from the trend of about 60 billion euros which amounts to two thirds of the overall decline in the currency in circulation of all euro area countries, although Germany has only 34% of the total GDP. This aspect can certainly be attributed to the fact that the large stocks of D-marks that used to circulate abroad – one third of the total German stock according to Bundesbank estimates – have been returning from there. Among the euro currencies, only the D-mark classified as a significant international transactions currency.

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Currency in Circulation (euro equivalents)

Figure 3

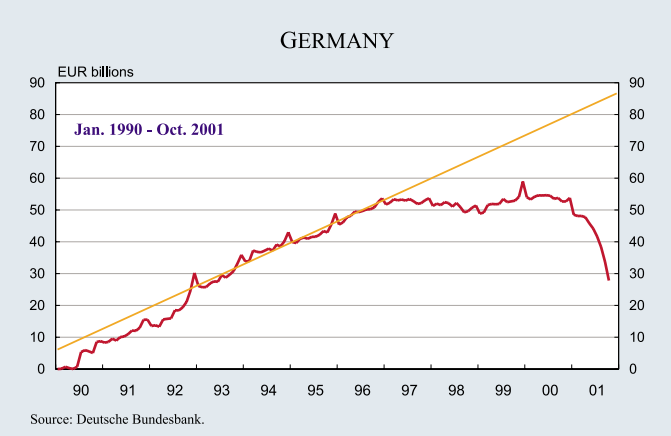


Figure 4

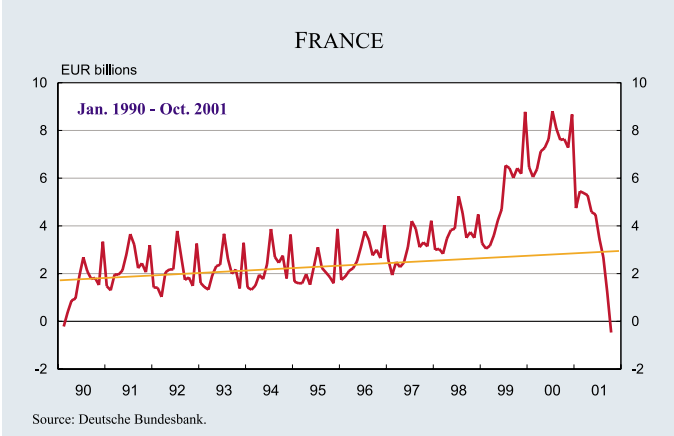


Figure 5

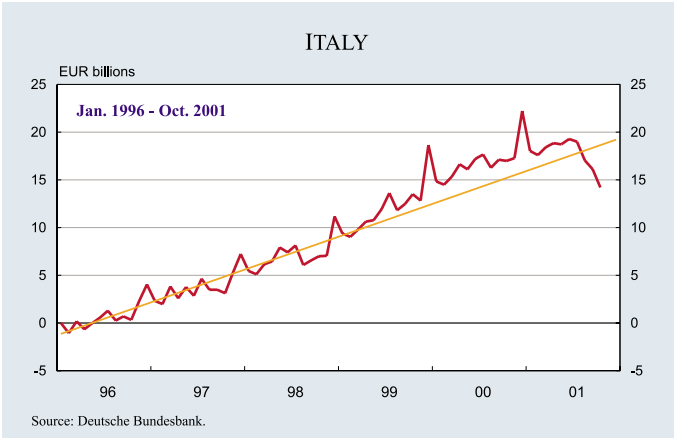


Figure 6

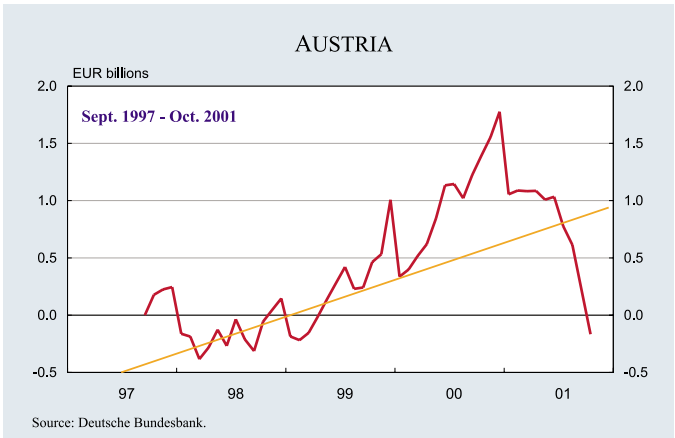


Figure 7

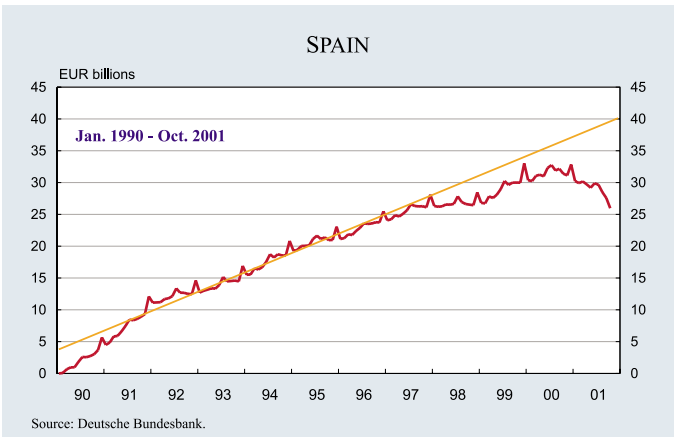
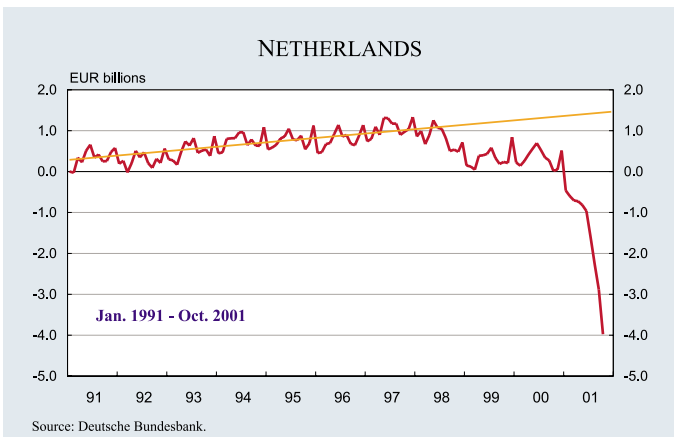


Figure 8



Legend: Currency in circulation, monthly changes, accumulated (initial value zero), million EUR.

Source: Deutsche Bundesbank (2001), Databank, on demand.

Is there a Laffer Curve between Private Output and Public Sector Employment?

Erkki Koskela*

How does government spending affect total output or output growth? At the theoretical level the relationship is a priori ambiguous. On the one hand, one can argue for a positive relationship due to the direct and/or indirect productivity effects of government investments in infrastructure. On the other hand, the relationship may be negative due to distortionary taxation which is used to finance government expenditure or due to the crowding out of investment and/or output in the private sector. It is reasonable to argue that the relationship between output and government expenditures may be non-linear; when government size is "small enough", the positive productivity effects will quite likely dominate, while the distortionary and crowding out effects start to dominate when government size becomes "large enough".

Relationship between public sector employment and private output

In Koskela-Viren (2000) a simple theoretical and numerical analysis is carried out, where a non-linear relationship between public sector employment and total output is demonstrated. The model is "classical" with some additional features. Private output is produced by private labour. Public employment affects private output both directly and via the private labour demand by increasing the marginal product of labour. We assume that there is some inter-sectoral rigidity in real wages. Private labour demand and output supply depend negatively on the real wage and positively on public employment, while labour supply is a non-negative function of the net real wage. The tax rate is determined by the public sector resource costs. A rise in public employment increases public production and raises private supply of goods via increasing the marginal productivity of private labour. But also labour demand and the tax rate will increase and labour supply goes down. For both of these reasons the real wage tends to rise so that private demand for labour and private production will be crowded out via the real wage effect.

One can conjecture as follows: When the share of public employment in total employment is "small", the positive marginal productivity effects dominate the negative distortionary and crowding out effects due to the response of taxes and real wages to changes in public employment, and the other way round when the share is "large".[1]

Some empirical evidence

We use data on two observable variables, public sector employment L_g and private sector output D. The data cover the period 1960–1996 from 22 OECD countries with some minor exceptions.[2] We started the empirical analysis by estimating a simple linear VAR-type model

$$\Delta \log D_t = \alpha + \beta \Delta \log L_{g,t-1} + \gamma \Delta \log D_{t-1} + u_t,$$

where u refers to the error term. There seemed to be no clear pattern in the sign of the coefficient of public employment and it was never significant in the linear model.

An obvious way to try to account for the potential non-linearity between public sector employment and private sector output is to use the so-called threshold model, where the coefficients of the independent variables are allowed to vary depending on the value of the threshold variable. The simplest way to account for this kind of switching phenomenon is to fit the following type of non-linear specification to the data

$$\Delta \log D_t = \alpha + \beta_1 \Delta \log L_{g,t-1} + \gamma \Delta \log D_{t-1} + e_t, \quad \text{if } G/Y \leq (\hat{G}/\hat{Y}) \qquad (1a)$$

$$\Delta \log D_t = \alpha + \beta_2 \Delta \log L_{g,t-1} + \gamma \Delta \log D_{t-1} + e_t, \quad \text{if } G/Y > (\hat{G}/\hat{Y}) \qquad (1b)$$

where e refers to the error term and $(\hat{G}/\hat{Y})$ denotes the threshold value of the size of the public sector.

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[1] Barro (1990) has developed a similar type of argument in a constant-returns model of economic growth where is a trade-off between the productivity effect of public services as an input to private production and the negative distortionary effect of taxes which are used to finance those public services.

[2] Private sector output is measured either by "GDP-public consumption" or by "GDP-public sector production" and public sector employment by the number of employees in the "producers of government services" sector.

It is assumed in (1a–1b) that the coefficient of the lagged dependent term does not depend on the size of the public sector. A set of estimation results from the threshold specification (1a–1b) with the exception of the coefficient of the lagged dependent term are presented in Table 1, where G/Y has been used as the threshold variable.

Table 1

Threshold model estimation results. G/Y as the threshold variable

Country	$\hat{\beta}_1$	$\hat{\beta}_2$	SEE/DW	FHO	FHT	LM
Australia	.365	.049	.025	18.9	9.7	2.14
	(1.74)	(0.51)	(2.069)	(.051)	(.016)	(.154)
Austria	.580	–.568	.019	20.4	11.52	0.39
	(1.71)	(1.69)	(1.759)	(.046)	(.003)	(.538)
Belgium	.690	–.119	.023	36.7	7.5	0.120
	(2.34)	(0.48)	(2.159)	(.000)	(.119)	(.283)
Canada	.370	–.751	.027	4.9	4.3	2.86
	(1.57)	(1.26)	(1.714)	(.865)	(.663)	(.104)
Denmark	.113	–.700	.024	19.2	7.2	1.63
	(0.80)	(2.86)	(1.833)	(.046)	(.167)	(.212)
Finland	.458	–1.144	.032	10.6	3.6	1.25
	(1.68)	(2.25)	(1.648)	(.308)	(.876)	(.274)
France	1.417	.121	.017	12.9	8.7	.002
	(3.23)	(0.25)	(1.961)	(.270)	(.028)	(.966)
Germany	–.063	–1.537	.023	14.6	6.3	0.98
	(0.80)	(3.64)	(1.767)	(.138)	(.283)	(.331)
Greece	.933	–.354	.031	26.6	11.6	0.16
	(1.98)	(1.39)	(1.734)	(.007)	(.003)	(.696)
Iceland	.138	–1.021	.040	5.25	3.8	0.95
	(0.61)	(1.61)	(1.813)	(.862)	(.830)	(.338)
Ireland	–.109	–.941	.029	7.1	7.2	0.04
	(0.44)	(1.89)	(1.947)	(.697)	(.177)	(.845)
Italy	1.278	.293	.022	12.7	5.9	0.89
	(3.28)	(0.99)	(1.785)	(.221)	(.415)	(.354)
Japan	1.325	–.880	.024	24.3	6.8	2.74
	(2.16)	(2.55)	(2.366)	(.024)	(.237)	(.108)
Netherlands	.156	–1.617	.013	24.6	6.3	0.27
	(0.67)	(4.37)	(1.868)	(.040)	(.210)	(.605)
New Zealand	.418	–.697	.037	15.8	6.1	.04
	(1.06)	(1.69)	(2.047)	(.129)	(.360)	(.853)
Norway	.448	.159	.019	7.6	7.3	5.05
	(1.54)	(1.01)	(1.642)	(.663)	(.131)	(.033)
Portugal	.169	–.153	.032	7.7	3.5	0.28
	(1.37)	(1.23)	(2.076)	(.521)	(.935)	(.603)
Spain	.186	–.172	.020	17.6	5.8	0.31
	(1.14)	(1.57)	(2.272)	(.096)	(.359)	(.584)
Sweden	.330	–.123	.022	12.8	7.7	3.99
	(1.90)	(0.88)	(1.673)	(.222)	(.117)	(.055)
Switzerland	.325	–.904	.022	15.2	5.4	7.51
	(1.06)	(2.05)	(1.407)	(.106)	(.449)	(.010)
UK	.628	–.131	.024	7.9	4.6	12.41
	(1.74)	(1.04)	(1.488)	(.636)	(.681)	(.002)
USA	.551	–.008	.024	8.8	3.9	10.72
	(1.62)	(0.03)	(1.594)	(.491)	(.876)	(.003)

Numbers inside parentheses below the coefficient estimates are t-ratios. SEE is the standard error of estimate and DW the Durbin-Watson test statistic. FHO denotes the LM (F) test for no threshold and FHT the corresponding test for threshold allowing for heteroskedastic errors. Numbers inside parentheses below the F statistics are bootstrap probability values. Finally, LM denotes a LM test for first-order autocorrelation of residuals with corresponding marginal significance levels inside parentheses.

The following features of results merit attention. The threshold model fits the data much better than the linear model in terms of diagnostics, and the coefficient estimates of the public employment are now considerably more precise. Finally, the coefficient of β_1 is usually positive and in all cases larger than the coefficient β_2; i.e. as the public sector gets larger, the effect of public sector employment on private output gets smaller and even negative. All in all, estimation results from the linear and threshold specifications give at least weak support to the hypothesis according to which the relationship between public sector employment and private output is non-linear; positive for "small" public sector and negative for "large" public sector. See also the figure below, which describes the threshold estimation results.

In order to alleviate the problem of small sample size with single country models and increase the efficiency of estimation (by using the SUR estimator) we also estimated the model using pooled panel data from the same set of countries by using a multiplicative specification of the following form

$$\Delta \log D_t = \alpha + \beta \Delta \log L_{g,t-1} + \gamma \Delta \log D_{t-1} + \phi\, H_t \cdot \Delta L_{g,t-1} + e_t \qquad (2)$$

where H denotes the threshold variable (either G/Y, G/C or L_g/L). According to (2), the public employment effect depends on the interaction term $H_t \cdot \Delta L_{gt-1}$ and thus on the size of the government sector so that we might expect ϕ to be negative. Using this specification we can compute the critical value of this variable at which public sector employment growth has zero effect on private sector output growth. The estimation results in Table 2 lie in conformity with the results from individual country regressions reported in Table 1. When the size of the public sector increases, the employment effect diminishes and, after some critical value, becomes negative. The implied critical values are, in fact, quite close to the average threshold values obtained in the context of threshold model estimations.

EFFECT OF PUBLIC SECTOR EMPLOYMENT ON PRIVATE SECTOR OUTPUT

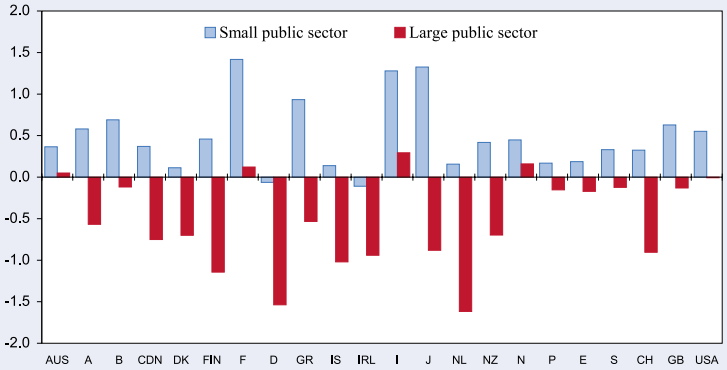

Table 2 **Estimation results with panel data**

	β/β_1	β_2	γ	ϕ	SEE/R^2	$\hat{H}$
Linear	–.020		.294		.028	–
	(0.12)		(8.59)		0.171	
G/Y	.131	–.058	.325		.027	0.157
Threshold	(2.64)	(1.35)	(9.35)		0.185	
G/C	.044	–.037	.293		.028	0.211
Threshold	(1.65)	(1.71)	(8.57)		0.175	
L_g/L	.072	–.060	.294		.028	0.152
Threshold	(2.86)	(2.82)	(8.68)		0.178	
Eq (2) with	.404		.281	–2.460	.028	0.164
H = G/Y	(5.55)		(8.35)	(5.85)	0.186	
Eq (2) with	.299		.292	–1.400	.028	0.213
H = G/C	(3.98)		(8.62)	(4.23)	0.178	
Eq (2) with	.197		.291	–1.324	.028	0.149
$H = L_g/L$	(4.13)		(8.65)	(4.55)	0.178	

Estimates are SUR estimates consisting of 736 data points. Equations include country intercepts, which are not reported. The threshold models (columns 2–4) are estimated using the average values of the threshold variable from the single country models. With the multiplicative model (the last three sets of estimates) the "threshold values" are derived from the estimates of β and ϕ.

Conclusion

Empirical evidence using data from 22 OECD countries over the period 1960(1996 concerning the relationship between public sector employment and private sector output seems to lie in conformity with the nonlinearity hypothesis. While the linear model cannot explain anything, the threshold model gives results according to which the public sector employment effect on private output depends on the size of the public sector and decreases or even turns negative when the public sector grows.

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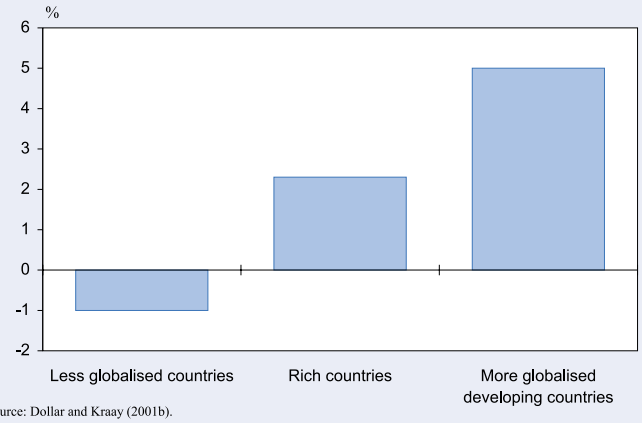
Globalisation is Good for You

Globalisation – the growing integration of economies and societies around the world – has many faces. Opponents of globalisation claim that poor countries are the losers from global integration. Are they?

World Bank research on *Globalisation, Growth and Poverty* yields the opposite conclusion. If you divide poor countries into those that are more globalised and those that are less globalised – where globalisation is measured simply as a rise in the ratio of trade to national income – you find that more globalised poor countries have grown faster than rich countries, while less globalised countries have seen income per person fall.

Divergent Paths of Developing Countries in the 1990s

GDP per capita growth rate



Source: Dollar and Kraay (2001b).

Poor countries with around 3 billion people have broken into the global market for manufactures and services. This contrasts sharply with 20 years ago, when most exports from developing countries were of primary commodities. Since 1980, manufactured goods rose from 25% of poor countries' exports to more than 80% in 1998. These countries have doubled their ratio of trade to national income. This successful integration has helped to reduce poverty as in some provinces of China, some states of India, the countries of Bangladesh and Vietnam, Mexico and another two dozen countries. In the 1990s their income per capita rose by an annual average of 5%. The number of their people who were poor declined by 120 million. Life expectancy and schooling levels increased.

On the other hand, around 2 billion people live in the less globalised countries. Incomes in these countries – which include much of Africa, but also countries like Afghanistan – have been falling, poverty has been rising, and they participate less in trade today than they did 20 years ago. In other words, the poor countries that are in the biggest trouble are those that have globalised the least. The challenge is for the world economy to become more inclusive. The rich countries can do much both through aid and trade policies, to help the currently marginalised countries onto the path of integration that has proved so effective for the new globalisers.

H.C.S.

Education as a Common Good: Noteworthy Success of Thirty Years of Education Policy

More than thirty years have passed since an education crisis was identified in most industrial countries. One of the main criticisms of the education system at the time was that it was largely only the privileged classes that were able to send their children to schools of higher learning. Another deficit was that girls often did not receive as good an education as boys. A consensus was formed that in the interest of equal starting opportunities for all, access to institutions of higher learning should be made available to all young people of sufficient ability.

The demands for a better education for broad segments of the population coincided with the interests of industry, whose need for highly skilled workers had increased. Moreover, the great importance of human capital for economic growth had become increasingly evident. Correspondingly, the expansion of the education system met with broad public support.

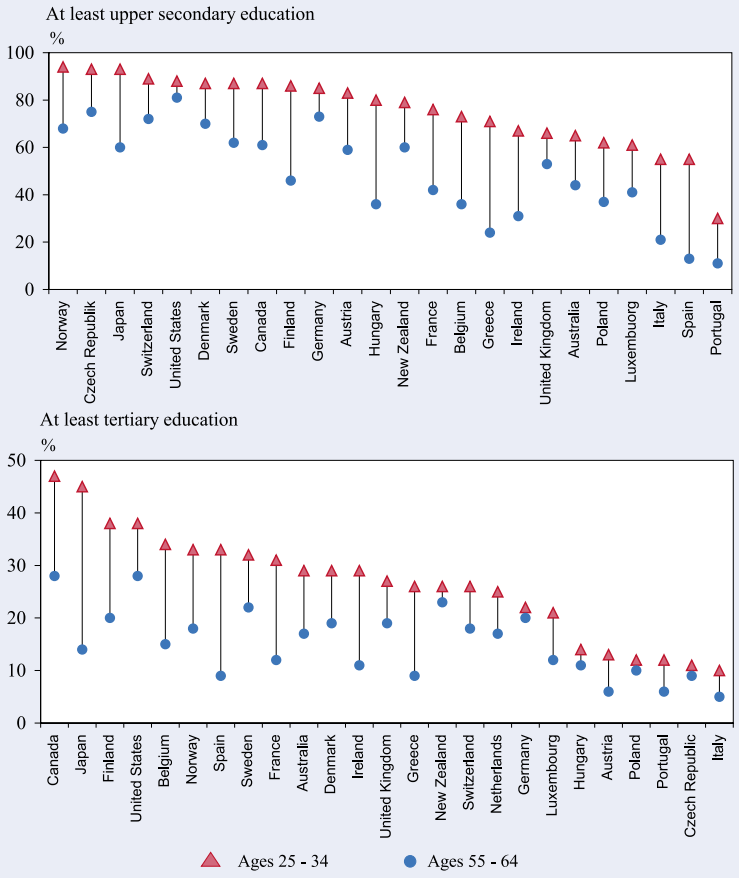
The success of this "educational revolution" can be adequately measured, thanks to the efforts of the OECD and EUROSTAT. With the International Standard Classification of Education (ISCED-97), a system has been developed with which the various levels of education in the OECD countries can be compared and equivalencies can be determined. Surveys are also available that indicate the percentage of the population with various educational attainment. These surveys are broken down by age group. By comparing the educational attainment of the 25–34 age group with that of the 55–64 age group, we can draw conclusions on changes in the educational level over the past thirty years.

The most recent survey, for 1999, shows that the educational attainment of the adult population has clearly risen in all OECD countries over the past thirty years. Three fourths of the 25–34 age group have at least an upper secondary education. In the 55–64 age group, it is less than half. Countries with a low level of education in an international comparison have caught up with countries with a traditionally higher level. In Greece, Hungary and Spain, in particular, the percentage of the 25-34 age group with secondary education has risen considerably. Of those countries with a traditionally higher level of education, Finland succeeded in increasing its educational attainment considerably (see Figure 1).

A clear increase in completed tertiary education was also registered. On average of the observed

Figure 1

Educational Attainment of the Population by Age Group, 1999

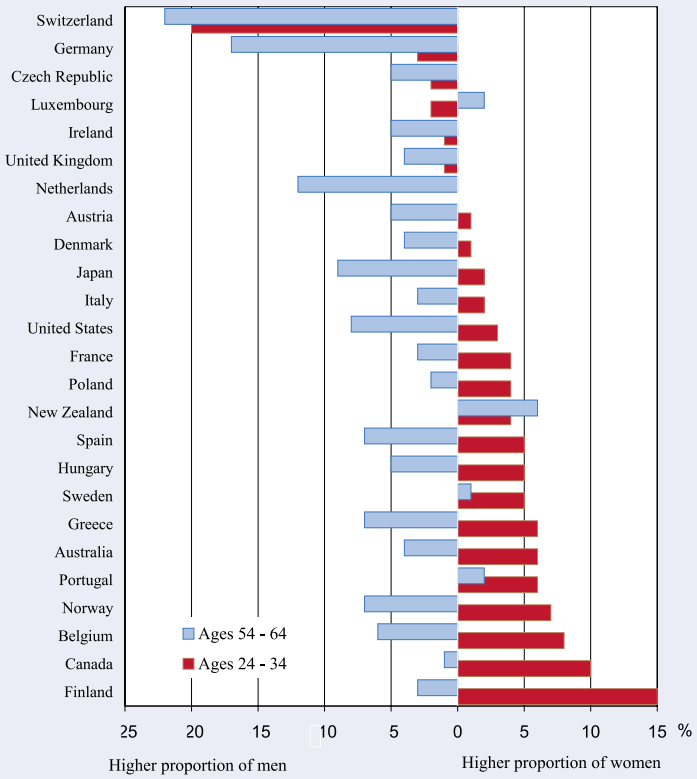


Countries are ranked in descending order of the percentage of the population 25 to 34 years of age who have completed at least upper secondary or tertiary education.

Source: OECD, Education at a Glance 2001, Paris, pp. 45 and 46.

Figure 2

GENDER DIFFERENCES IN TERTIARY EDUCATION BY AGE GROUP, 1999



Countries are ranked in ascending order of the difference between women and men as a percentage of the population 25 to 34 years of age that has attained at least tertiary education.

Source: OECD, Education at a Glance 2001, Paris p. 47.

OECD countries, in 1999 about 27% of the 25–34 age group and 15% of the 55–64 age group had attained a tertiary education. Countries that expanded participation in institutions of higher education were Japan, Spain, Belgium, France, Canada, Finland, Ireland and Greece. With the exception of Ireland and Greece, in these countries more than 30% of the 25–34 age group had a tertiary educational attainment. Other countries in this category were the United States, Norway and Sweden. In Germany, 22% of the 25–34 age group have completed studies at an institution of higher learning. Compared to the 55–65 age group in Germany, this was only an increase of two percentage points. In contrast to most other OECD countries, the contribution of institutions of tertiary education in Germany has stagnated (see Figure 1).

Women in particular have benefited from the expansion of tertiary education. Whereas in the 55–64 age group far fewer women than men have a college education in the OECD average, the picture has reversed for the 25-34 age group. In Finland, Canada, Belgium, Norway, Australia, Greece and Portugal more women than men now complete a tertiary education. Looking at developments over the past 30 years, institutions of higher learning have most noticeably opened up to women in Finland, Belgium, Germany, Norway and Greece. In Switzerland, tertiary education remains a male domain, with the younger age group of women having made little advances over the older age group (see Figure 2).

W.O.

Scandinavia is Cleanest

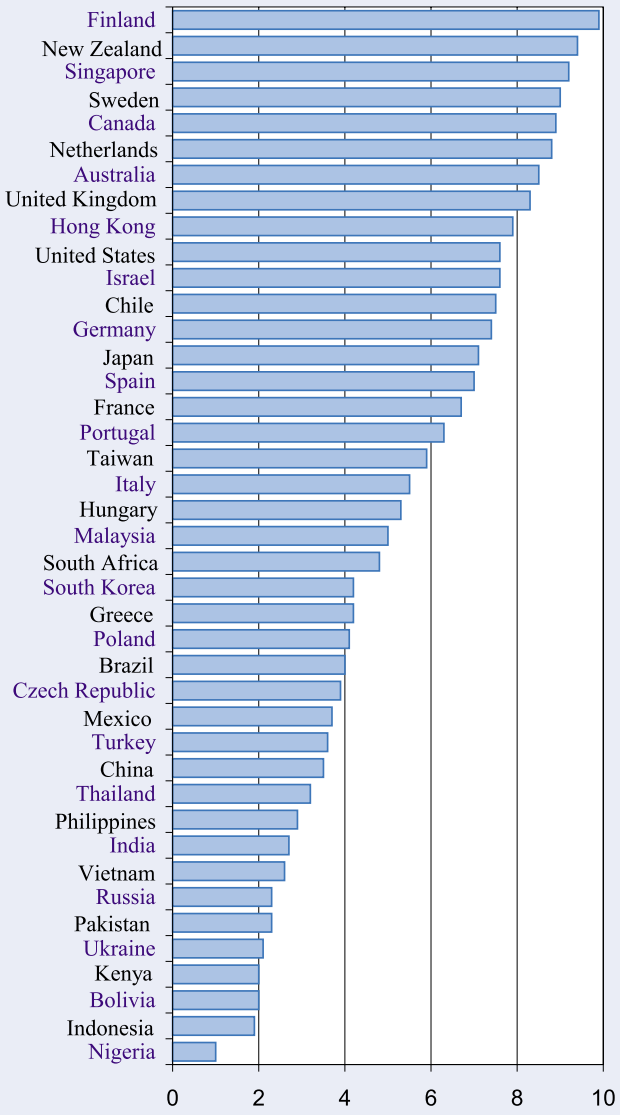
Corruption levels are perceived to be as high as ever in both the developed and the developing countries. This is the finding of the Corruption Perception Index 2001 which mirrors a world-wide corruption crisis. The index reflects the degree to which corruption is perceived to exist among public officials and politicians. Scores of less than 5 out of a clean score of 10 are registered by countries on every continent.

This year's index, published by Transparency International, the Berlin-based non-governmental organisation devoted to fighting corruption, ranks 91 countries. Some of the richest countries in the world – Finland, Denmark, New Zealand, Iceland, Singapore and Sweden – scored 9 or higher, indicating very low levels of perceived corruption. But 55 countries – many of which are among the world's poorest – scored less than 5, suggesting high levels of corruption in government and public administration. The countries with a score of less than 2 include Azerbaijan, Bolivia, Cameroon, Kenya, Indonesia, Uganda, Nigeria and Bangladesh. The Index also registers very high levels of corruption in the countries in transition, in particular the former Soviet Union. Scores of 3 or less were recorded in Romania, Kazakhstan, Uzbekistan, Russia, Ukraine and Azerbaijan.

The Corruption Perception Index, which was first launched in 1995, is a poll of polls, drawing on 14 surveys from seven independent institutions. The surveys reflect the perceptions of business people, academics and country analysts.

Corruption Perception Index 2001

where 10=least corrupt



Source: Transparency International.

While the index scores of most leading industrialised countries are quite high, the index focuses on corruption involving public officials. It does not reflect secret payments to finance political campaigns, the complicity of banks in money laundering or bribery by multinational companies. In 2002 Transparency International aims to publish a new Bribe Payers Index focusing on the propensity of western firms to use bribes in emerging market economies.

H.C.S.

DICE Reports*

Services are Different: Job Characteristics, Working Conditions and Pay Levels in OECD Countries

The share of employment in services continued to rise in virtually all OECD countries during the 1990s. This coincided with significant changes in the types of jobs being created. The rise in the number of "atypical" jobs, such as part-time and temporary jobs has led to a debate about the quality of jobs, especially in the service sector. Do job characteristics, working conditions and pay levels in the service sector differ form those in the goods producing sector?

Job characteristics

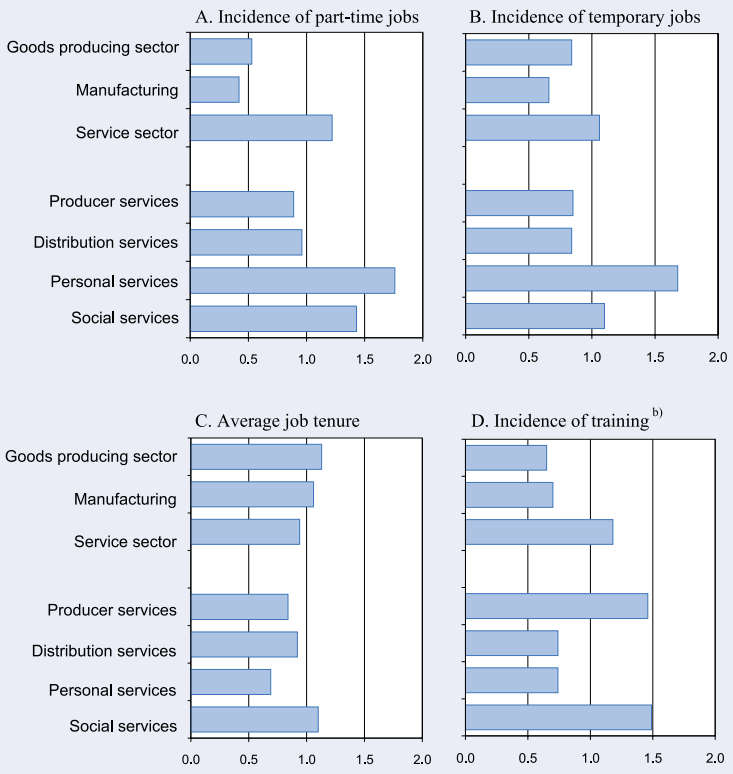
On average of the OECD countries, part-time work is much more common in the service sector than in the goods producing sector. The incidence of part-time work is highest in personal services (domestic services, recreation and cultural services, hotels and restaurants etc.) and social services (see Chart 1).

Temporary jobs are more evenly spread across both the goods-producing and the service sector. Within the service sector, the incidence of temporary work in personal services is well above the respective national average. It is also above the national average in social services (education, health etc) and in retail trade but lower in the other distributive service sectors. Temporary employment covers fixed-term contracts, seasonal and casual work, and working on contract for a temporary work agency. These different work arrangements do not imply the same degree of precariousness (see Chart 1).

Another aspect of job quality is the average job tenure which is measured by the length of time

Chart 1

JOB CHARACTERISTICS OF THE SERVICE SECTOR
OECD AVERAGE[a], 1999



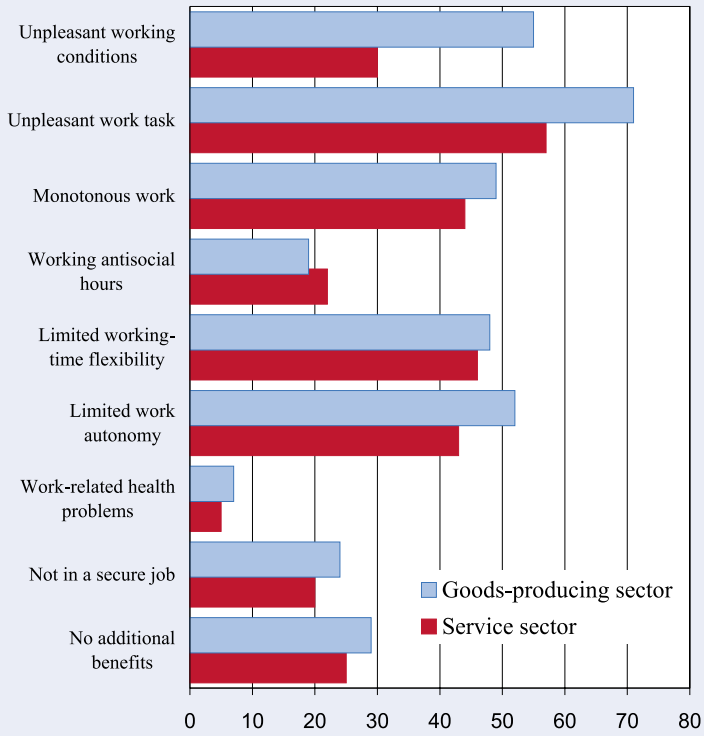
a) For each sector, each job characteristic is shown as a ratio to the average value across all sectors. OECD average = unweighted average of 24 countries (A,B) 19 countries (C) and 18 Countries (D).
b) 1997.

Source: OECD Employment Outlook, pp. 117-120.

* DICE = Database of Institutional Comparison in Europe (www.cesifo.de).

Chart 2

WORKING CONDITIONS IN THE EUROPEAN UNION BY BROAD SECTOR, 1995[a)]



a) A higher value indicates less favourable working conditions.

Source: Second European Survey on Working Conditions, OECD Employment Outlook 2001, p. 100.

workers have been in their current job or with their current employer. There may be a relationship between a low turnover on the one hand and higher earnings as well as job security on the other. But not all long-tenure jobs are good jobs. Average tenure is lower in the service sector than in the goods-producing sector and is particularly low in personal services (see Chart 1).

The incidence of continuing vocational training, an indicator of opportunities for career development, on the other hand, is higher in the service sector, especially in producer services and social services. One reason for the higher incidence of training in the service sector may be the higher level of educational attainment of workers in this sector. Another reason may be the greater retraining requirements imposed by IT technology which is intensively used by producer service firms and government agencies (see Chart 1).

Working conditions

The various job characteristics described so far provide only indirect measures of job quality. More direct measures are provided by the European Survey on Working Conditions. Generally, working conditions are less favourable in the goods-producing sector than in the service sector. Working conditions and work tasks are more unpleasant, work autonomy is more limited and jobs are perceived as less secure. Apart from, "antisocial" hours of work, the other aspects of working conditions appear less favourable, too (see Chart 2).

Within the service sector, the hotel, restaurant, transport and communications industries stand out as generally having less favourable working conditions than other service industries. At the other end of the scale, workers in financial services and in public administration appear to have some of the most favourable working conditions.

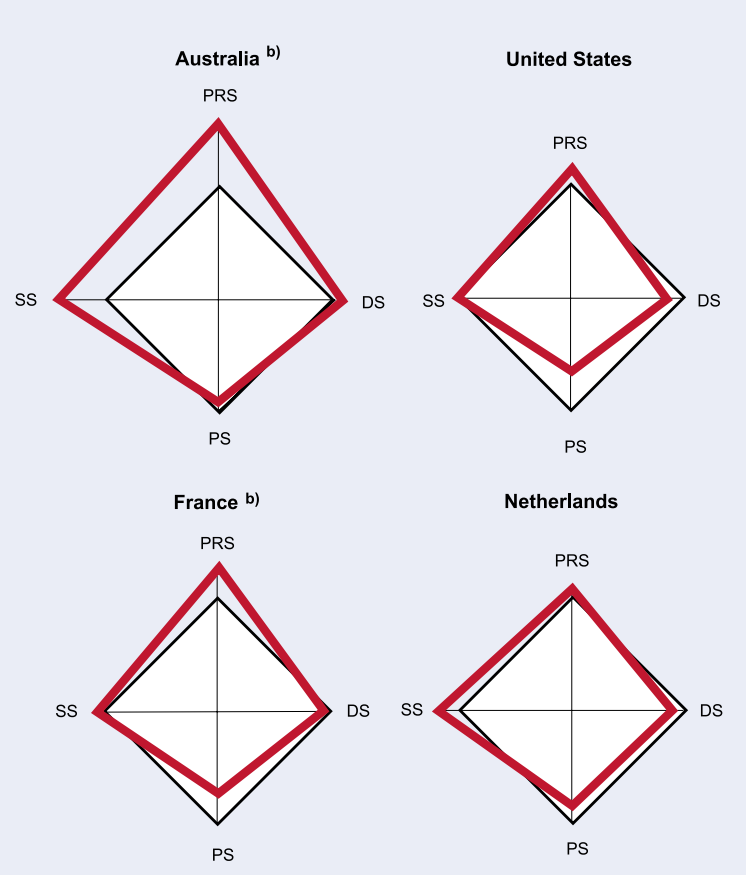
Pay levels

Another important job characteristic that is linked to job quality is the rate of pay that is associated with a job. Rates of pay are highly correlated with the level of skill required in the job. Higher-paid employees tend to have better working conditions than lower-paid employees in the sense of working in less physically demanding or noisy jobs and/or with greater autonomy regarding their work schedules.

Chart 3 provides earnings differentials of service sectors relative to manufacturing in four OECD countries. Average earnings in the service sector are higher than in manufacturing in Australia, around the same in France and the Netherlands and lower in the United States. Within the service sector, jobs in producer services record the highest average earnings in Australia and France,

Chart 3

EARNING DIFFERENTIALS BY SERVICE SECTOR[a], 1999



PRS: Producer services
PS: Personal services
DS: Distributive services
SS: Social services

a) Ratio of average earnings in each sector to average earnings in manufacturing.
b) 1998.
Source: OECD Employment Outlook 2001, p. 106.

whereas social services pay best in Australia and the Netherlands. Average earnings are lower in distributive services and lower still in personal services.

Conclusion

Comparisons of job quality, based on measures of job characteristics, working conditions and pay, reveal no simple dichotomy between the goods-producing and the service sector. Good jobs are not primarily located in the former and bad jobs in the latter. Part-time work and temporary work are more common in the service sector, average job tenure is shorter, the incidence of continuing vocational training is higher than in the goods-producing sector. Working conditions are more favourable in the service sector. Average earnings are about the same as in manufacturing (with the exceptions of Australia and the United States). Within the service sector, producer services and social services have a higher job quality than distributive and personal services. Further disaggregation reveals even more pronounced differences in job quality.

Wolfgang Ochel

Institutional Incentives for Early Retirement in the EU Member States

The average age at which male workers have decided to retire from the labor force has declined by more than 4 years since 1960 in the EU Member States. For females this age has decreased by more than 6 years. At the same time, the life expectancy of males at the age of 55 has increased by 2.2 years. For women life expectancy increased even further. This contribution gives an overview of the institutional arrangements of early retirement schemes and some reform efforts in the EU Member States and shows the development of early retirement decisions since 1960.

In the Member States of the European Union the standard age of entitlement to public pensions has developed differently since the early 1960s. In some countries (Finland, Germany, Spain, the Netherlands, Luxembourg and Portugal) the standard age for males as well as for females has been 65, with temporarily lower ages for females in the latter two nations. Some other Member States (Austria, Belgium and the United Kingdom) have fixed the standard age for males at 65 while the statutory age for females has been 60 years over the last four decades. While Austria and the United Kingdom are maintaining this age limit for women, Belgium has initiated a process which will bring females' standard entitlement age in line with the males' age of 65. Denmark, Ireland and Sweden had laid down higher age restrictions of 70 and 67 years for men and women in the 1960s and 1970s. Since then, all three countries have decreased the standard age to 65. In France, the former standard age of 65 for both gender groups has been decreased to 60. And Greece has returned to the limiting age of 65 for men and women after having regulated lower ages in 1975 and 1995.

Some of these countries plan to adjust females' standard age to the age limit for males. Austria intends to increase gradually the age limit for women to 65 in the period between 2024 and 2033. Belgium will raise females' standard age to 65 by 2009. In Germany, the standard age for females will rise gradually to 65 by 2004. The United Kingdom will increase the standard age for women to 65 between 2010 and 2020.

Most Member States of the EU have early retirement schemes. Besides the general possibility of early retirement in some countries, other countries put conditions on the entitlement to old-age pensions before the standard age. Those conditions for early retirement can be grouped into categories: gender, years of insurance or employment, heavy work and health reasons, and unemployment or jobs in difficult economic situations.[1]

Table 1

Standard age of entitlement to public old-age pension

	Males				Females			
	1961	1975	1995	2001	1961	1975	1995	2001
Austria	65	65	65	65	60	60	60	60
Belgium	65	65	65	65	60	60	60	62
Denmark	67	67	67	65	67	67	67	65
Finland	65	65	65	65	65	65	65	65
France	65	65	60	60	65	65	60	60
Germany	65	65	65	65	65	65	65	65
Greece	65	62	62	65	60	57	57	65
Ireland	70	68	66	65	70	68	66	65
Italy	60	60	62	65	55	55	57	60
Luxembourg	65	65	65	65	65	60	65	65
Netherland	65	65	65	65	65	65	65	65
Portugal	65	65	65	65	65	62	62,5	65
Spain	65	65	65	65	65	65	65	65
Sweden	67	67	65	65	67	67	65	65
United Kingdom	65	65	65	65	60	60	60	60

Source: OECD, The retirement decision in OECD countries, Economics Department Working Papers No.202, ECO/WKP(98)15, 1998; Economic Policy Committee, Progress report to the Ecofin Council on the impact of ageing populations on public pension systems, EPC/ECFIN/581/00-EN-REV.1, 2000.

[1] See the European Commission, Missoc 2001.

General early retirement schemes can be found in Austria, Finland, and Spain and Sweden. Until 2000, male citizens in *Austria* could retire early at the age of 60 and females at the age of 55. By 2002 both age limits will be raised by 18 month. For women the early retirement age will be aligned to the age of men between 2019 and 2028. In *Finland*, persons at the age of 60 are entitled to receive actuarially reduced old-age pensions. The reductions amount to 0.4 percent for each month during which the pension is received before the standard age. In *Spain*, persons with claims against the old-age pension system which was abolished in 1967 are able to retire early at the age of 60. Early retirees have to accept a pension reduction of 8 percent for each year. In *Sweden*, the basic pension can be claimed early at the age of 60. The amount of the benefit is reduced by 0.5 percent for each month of early withdrawal.

Females have the possibility to retire early in Germany and Greece. In *Germany*, early retirement of females is possible at the age of 60 after 180 months of insurance and more than 10 years of contributions after the age of 40. The age limit will be increased gradually to 65 in 2004. Even after the increase of the age limit the pensions can be claimed after the age of 60 with the acceptance of pensions reductions. The reduction amounts to 0.3% of the pension for each month for which the pension is claimed earlier. In *Greece*, mothers of minor or disabled children are entitled to receive the full pension at the age of 55 after 6.000 working days or 20 years of insurance.

Conditional on years of insurance or employment early retirement is possible in Belgium, Germany, Greece, Italy, Luxembourg, and Portugal. In *Belgium*, males and females at the age of 60 are entitled to old-age pensions if they have been employed for 28 years. Until 2005 the required period of employment will be increased to 35 years. After 35 years of insurance, men and women in *Germany* are able to retire early at the age of 63 with the acceptance of reduced pensions. The reduction amounts to 0.3 percent of the pension for each month for which the pension is claimed earlier. In *Greece*, persons insured before 31.12.1992 are entitled to receive the full old-age pension after 10.000 days of employment: men at the age of 62 and women at the age of 57. A reduced pension is obtainable after 4.500 days of employment or 10.000 days of insurance for men at the age 60 and for women at the age of 55. Persons insured after 1.1.1993 are entitled to reduced benefits after 5 years of employment or 4.500 days of insurance. In *Italy*, insured persons at the age of 55 and with a period of insurance of 35 years or, without age limit, of 37 years have a legitimate claim to old-age pensions. From 2002 limits will be increased to the age of 57 with 35 years of insurance or to 40 years of insurance without age requirement. In *Luxembourg*, early retirement is possible at the age of 57 with 480 effective years of insurance. And in *Portugal* insured persons have a claim to reduced pensions at the early retirement age of 55 after 30 years of insurance. The reduction amounts to 4.5 percent for each year of early withdrawal.

In the South European countries early retirement is possible **conditional on heavy work or health reasons**. In *Greece*, persons who have been insured before 31.12.1992 and are employed in arduous and unhealthy work can receive the old-age pension after 4.500 days of employment: men at the age of 60 and women at the age of 55. Persons who have been insured since 1.1.1993 are entitled to receive the full pension at the age of 60 after 4.500 days of work or 15 years of insurance. In *Spain*, workers in heavy manual or unhealthy labor may retire early before the completion of 65 years. In *Italy*, early retirement is possible for employees who entered the working force early and paid contributions for more than 52 weeks at the age of 14 to 19 years. Entitled are also workers in heavy manual work or on jobs with continuously changing workplaces. And in *Portugal*, early retirement is possible at the age of 55 for persons exposed to heavy manual work or unhealthy activities.

In Germany, Italy and Portugal early retirement is also allowed **conditional on unemployment or difficult economic situations.** In *Germany*, insured persons are entitled to receive a reduced pension at the age of 60 after 180 months of insurance if they are unemployed at the beginning of their retirement and have been unemployed during 52 weeks after the age of 58,5 or have been working for 24 months in old-age part-time work. In addition, they have to have paid contributions for 8 of the last 10 years. The pension reduction amounts to 0,3 percent for each month during which the pension is claimed earlier. In *Italy*, persons who work in enterprises which are in economic difficulties can be retired 5 years before the

normal retirement age. And in *Portugal*, unemployed persons are able to retire at 60. If the unemployment occured from the age of 50 and if 20 years of insurance are fulfilled, early retirement is possible at 55. In this case pensions are reduced.

In *France, Ireland, the Netherlands,* and *the United Kingdom* there are no early retirement schemes.

In addition to these early retirement schemes for old-age pensions in the EU Member States, there are different possibilities to leave the labor force before the normal age of entitlement to pensions and to receive financial support, e.g. unemployment benefits for elderly unemployed persons who do not have to stay available for jobs in the labor market. Furthermore, most Member States provide disability pensions for incapacitated persons who are younger than the standard retirement age.

Table 2

Cumulated pension wealth accruals for singles on average wages*, 1967 and 1995

	Postponing retirement from 55 to 64		Postponing retirement from 55 to 69	
	1967	1995	1967	1995
Austria	– 3,1	– 3,4	– 6,5	– 7
Belgium	0,2	– 2,3	– 2,3	– 5
Denmark	0	0	– 0,6	– 0,8
Finland	0	– 2,2	– 1,3	– 4,9
France	– 0,2	– 1,4	– 1,2	– 3,7
Germany	– 0,4	– 1,4	– 2,9	– 3,4
Greece[a)]				
Ireland	– 0,5	– 1,4	– 0,6	– 2,6
Italy	– 3	– 1,7	– 4,5	– 11,8
Luxembourg[a)]				
Netherland	– 0,9	– 1,3	– 2,3	– 2,9
Portugal	– 0,5	– 0,4	– 3,8	– 3,7
Spain		– 1,4		– 5,9
Sweden	0,9	– 1,8	0	– 3,3
United Kingdom	– 0,6	– 0,5	– 1,4	– 1,5

*Note: The figure shows changes in the pension wealth measured as a multiple of annual earnings. For example, postponing retirement from 55 to 64 in Germany in 1967 implied that the pension wealth decreased by an equivalent of 0,4 times average annual earnings. As annual earnings are assumed to be constant and normalised at unity, this is equivalent to an average implicit tax rate of 4%.

[a)] Data are not available.

Source: Björndal, S and S. Scarpetta (1998), "The retirement decision in OECD countries", OECD Economics Department Working Papers No.202, ECO/WKP(98)15.

Early retirement decisions are affected by the change of pension wealth due to the continuation of work. Pension wealth is defined as the present value of the difference between future pension benefits and future contribution payments. Continuing work after the minimum age limit for the entitlement to pensions means the abandonment of pension benefits during the longer working period and the payment of contributions to the system. Furthermore, working for additional years increases the pension replacement rate in most pension systems. If the higher future pensions do not compensate for the loss of pensions and the ongoing contribution payments during the extended working period, the pension wealth decreases. This distorts the decision of continued work like an implicit tax on the expected wage income. Negative pension wealth accruals give an incentive to retire early.

Table 2 shows the cumulated wealth accruals of postponing retirement at the age of 55 for 10 or 15 years. In 1995, in all EU Member States, postponing retirement reduced the pension wealth. Thus, the wage income from working for additional years is implicitly taxed by the pension system in these countries. This implies strong incentives for early retirement in all EU States. In 1967 some countries had neutral or encouraging pension systems that maintained or even increased pension wealth with continued work. In 1995 compared to 1967, the pension systems of all countries induced a loss of pension wealth when retirement was postponed. In most countries this loss increased and set stronger incentives to retire early. In Belgium, Finland, Italy, and Sweden the implicit tax on continued work increased substantially.

Due to different opportunities in the EU Member States to receive early retirement pensions and due to increased implicit taxes on continued work after the minimum retirement age, the average age of transition to retirement has decreased over the last decades (see Table 3). In 1960 males retired on average after the age of 65 and females after the age of 62 in almost all countries. Until 1995 the average age had decreased continuously in all EU Member States. In 1995 males retired by more than 4 years earlier and females by 5 years. In Finland, the Netherlands, and Spain the average retirement age of males fell by more than 6 years. In Sweden and the United Kingdom this decrease was modest,

Table 3

Average retirement age among older workers

	Males					Females				
	1960	1970	1980	1990	1995	1960	1970	1980	1990	1995
Austria	63,9	62,7	60,1	58,7	58,6	61,9	60,6	59,3	56,7	56,5
Belgium	63,3	62,6	61,1	58,3	57,6	60,8	59,1	57,5	54,7	54,1
Denmark	66,7	66,3	64,5	63,3	62,7	64,6	62,0	61,0	59,9	59,4
Finland	65,1	62,7	60,1	59,6	59	63,2	60,6	59,6	59,4	58,9
France	64,5	63,5	61,3	59,6	59,2	65,8	64,0	60,9	59,0	58,3
Germany	65,2	65,3	62,2	60,3	60,5	62,3	62,2	60,7	58,2	58,4
Greece	66,5	65,6	64,9	62,3	62,3	64,4	64,3	62,5	60,6	60,3
Ireland	68,1	67,5	66,2	64	63,4	70,8	69,8	66,0	61,8	60,1
Italy	64,5	62,6	61,6	60,9	60,6	62,0	60,7	59,5	57,5	57,2
Luxembourg	63,7	62,5	59	57,6	58,4	63,8	62,3	60,8	56,0	55,4
Netherland	66,1	63,8	61,4	59,3	58,8	63,7	62,9	58,4	55,8	55,3
Portugal	67,5	67,2	64,7	63,9	63,6	68,1	65,3	62,9	61,0	60,8
Spain	67,9	65,2	63,4	61,6	61,4	68,0	64,7	63,6	59,7	58,9
Sweden	66,0	65,3	64,6	63,9	63,3	63,4	62,5	62,0	62,4	62,1
United Kingdom	66,2	65,4	64,6	63,2	62,7	62,7	62,4	62,0	60,5	59,7

Note: The figures are estimates. For the calculation methods see the OECD publication.

Source: Björndal, S and S. Scarpetta (1998), "The retirement decision in OECD countries", OECD Economics Department Working Papers No. 202, ECO/WKP(98)15.

at 2.7 and 3.5 years, respectively. The fall of females' retirement age was very high in Ireland, at 10.6 years. In the 1980s, Irish women decided to retire 4.2 years earlier. Ireland was followed by Luxembourg, the Netherlands and Spain with a decrease of more than 8 years. The lowest decline can be observed in Sweden and the United Kingdom.

In comparison to the standard age of entitlement, in 1995 males retired more than 6 years earlier in Austria, Belgium, Luxembourg and the Netherlands. On average across all countries, males retired 3.6 years below the standard age. In Luxembourg and the Netherlands females' early retirement remained more than 9 years below the standard age. On average, females retired 4.3 years earlier in the EU in 1995. Only in Greece did males and females stay in the labor force after the standard retirement age.

Robert Fenge

Collective Bargaining Coverage in the OECD from the 1960s to the 1990s[1]

Concept and measures

Collective bargaining systems play an important role in determining labour market performance. They are characterised by trade union density, by centralisation and co-ordination and by collective bargaining coverage.

The coverage rate is defined as the number of employees covered by a collective agreement divided by the total number of wage and salary earners. Any calculation of national coverage rates needs to take account of the fact that, in a number of countries, certain groups of employees (in the public sector) are legally excluded from the right to conclude collective agreements. Hence, one has to distinguish between two concepts of the coverage rate. The unadjusted coverage rate is defined as employees covered by a collective agreement as a proportion of all employees. The adjusted coverage rate is defined as the ratio of employees under a collective agreement to the total number of employees equipped with bargaining rights. In this paper, the adjusted rate is used. It better measures the diffusion of collective bargaining within its potential domain and it shows the relative importance of collective bargaining compared with individual contracts as an alternative mode of employment governance.

In most countries, the percentage of workers who are covered by collective agreements is higher than the percentage belonging to trade unions. There are two reasons for the higher collective bargaining coverage rate. Employers may extend collective agreements to non-union workers or collective bargaining agreements may be extended by legal mechanisms to third parties.

There are two main legal mechanisms:

- The first makes a collective agreement generally binding within its domain (i.e. a particular economic sector and/or region) and covers both employers and employees who are not affiliated with the bargaining parties. Generally, this can be done by the responsible authority (normally the Ministry of Labour) at the request of the bargaining parties.
- The second may be termed an enlargement. This makes collective agreements binding on employers and employees in certain geographical or sectoral areas outside the agreement's domain if they are economically similar to those covered by the collective agreement and if there are no parties capable of conducting collective bargaining.

Database

The main database for collective bargaining coverage is the OECD, Employment Outlook 1994 and 1997. The OECD data cover the years 1980, 1990 and 1994. They are based on surveys, calculations from statistics and estimates of experts. Apart from the OECD, there are some relevant country studies (see references).

In order to obtain information on collective bargaining coverage for the period 1960 to 1980, a questionnaire was sent to experts in 20 OECD countries. It covers not only the period 1960 to 1980 but includes the period 1980 to 1999. The questionnaire refers to the adjusted collective bargaining coverage rates and follows the methodology of the OECD. Experts were asked to make precise estimates if possible. Otherwise they were to classify the bargaining coverage of their respective country by code

[1] This survey is part of a larger research project by Stephen Nickell, Luca Nunciata, Glenda Quentini and the author on "The Beverage Curve, Unemployment and Wages in the OECD from the 1960s to the 1990s". See the discussion paper at *http://cep.lse.ac.uk/papers/abstractquery.asp?type=502 and the article "Why do Jobless Rates Differ?" in CentrePiece*, Vol.6 (3), autumn 2001, pp.7–17. The data in this article are collected from specific country experts. We are grateful for their assistance.

1 = under 25%,
2 = 25% to 70%, and
3 = over 70%.

Results

As a general rule, collective bargaining coverage is high in Continental Europe and Australia and low in English-speaking countries (with the exception of Australia) and Japan. Over the whole period, collective bargaining coverage did not change much, exceptions being the United Kingdom, the United States, Japan, and New Zealand (see Table and Comments).

Within the group of countries with a high coverage rate (over 70%) collective bargaining coverage did not change in Austria, Finland, Germany, Ireland, Portugal, Sweden and Australia. It rose in Belgium, France, Netherlands and Spain and fell in Italy. A medium coverage rate (25% to 70%) is characteristic for Denmark, Norway, Switzerland, the United Kingdom, Canada and New Zealand. The coverage rate rose in Norway and declined in the United Kingdom and New Zealand. The lowest coverage rates (below 25%) are found in the United States and Japan.

Major reductions in collective bargaining coverage have taken place in the United Kingdom (since 1980), the U.S. (since 1960), Japan (since 1970) and in New Zealand (since 1991). The contraction of coverage in the United Kingdom was associated with a decline of sectoral agreements, a structural decline of unionised industries, the privatisation of the public sector, and legal constraints placed upon trade unions. In the United States and Japan, the

Collective Bargaining Coverage (in %)

Country	1960	1965	1970	1975	1980	1985	1990	1995*	1997	1999
Austria[a)]	> 70	> 70	> 70	> 70	> 70	> 70	99	99		
Belgium[b)]	80	80	80	85	90	90	90	90		
Denmark[c)]	67	68	68	70	72	74	69	69		
Finland[d)]	95	95	95	95	95	95	95	95		
France[e)]	> 70	> 70	> 70	> 70	85	> 70	92	95	97	
Germany[f)]	90	90	90	90	91	90	90	92		
Ireland[g)]	> 70	> 70	> 70	> 70	> 70	> 70	> 70	> 70		
Italy[h)]	91	90	88	85	85	85	83	82		
Netherlands[i)]	100	< 70	< 70	> 70	76	80	> 70	85		
Norway[j)]	65	65	65	65	70	70	70	70		
Portugal[k)]	n.a.	n.a.	n.a.	n.a.	70	> 70	79	71		
Spain[l)]	n.a.	n.a.	n.a.	n.a.	68	70	76	78		
Sweden[m)]	> 70	> 70	> 70	> 70	> 70	> 70	86	89		
Switzerland[n)]	< 70	< 70	< 70	< 70	< 70	< 70	53	53		
United Kingdom[o)]	67	~67	68	~72	70	64	54	40	36	
Canada[p)]	35	33	36	39	40	39	38	36		
United States[q)]	29	27	27	24	21	21	18	17		15
Japan[r)]	< 70	< 70	< 70	< 70	28	< 70	23	21		
Australia[s)]	85	85	85	85	85	85	80	80		
New Zealand[t)]	< 70	< 70	< 70	< 70	< 70	< 70	67	31		

*: 1995 = 1994; < 70 means: 25% to 70%.
[a)] Estimates by F. Traxler; Traxler, F., S. Blaschke and B. Kittel (2001): National Labour Relations in International Markets, Oxford for 1990 and 1995.
[b)] Estimates by J. Rombouts; OECD 1997 for 1990 and 1995.
[c)] Estimates by St. Scheuer; 1985 figures are survey based; OECD 1997 for 1990 and 1995.
[d)] Estimates by J. Kiander; OECD 1997 for 1990 and 1995.
[e)] Estimates by J.-L. Dayan; OECD 1997 for 1980, 1990 and 1995; estimates by J.-L. Dayan for 1997.
[f)] Estimates by L. Clasen; OECD 1997 for 1980, 1990 and 1995.
[g)] Estimates by W. Roche.
[h)] Estimates by T. Boeri, P. Garibaldi, M. Macis; OECD 1997 for 1980, 1990 and 1995.
[i)] Estimates by J. Visser; survey by van den Toren for 1985; OECD 1997 for 1980 and 1995.
[j)] Estimates by K. Nergaard.
[k)] Estimates by R. Naumann; OECD 1997 for 1980, 1990 and 1995.
[l)] Estimates by J. F. Jimeno for 1980 and 1985; OECD 1997 for 1990 and 1995.
[m)] Estimates by C. Nilsson; OECD 1997 for 1990 and 1995.
[n)] Estimates by R. Fluder; OECD 1997 for 1990 and 1995.
[o)] Estimates by W. Brown based on Milner, Millward et al., and Cully/Woodland.
[p)] Estimates by M. Thompson; OECD 1997 for 1990 and 1995.
[q)] Estimates by W. Ochel for 1960 to 1980; Current Population Survey for 1985, 1990, 1995 and 1999.
[r)] Estimates by W. Ochel with the assistance of the Japan Institute of Labour; OECD 1997 for 1980, 1990 and 1995.
[s)] Estimates by R. D. Lansbury; OECD 1997 for 1990 and 1995.
[t)] Estimates by R. Harbridge; OECD 1997 for 1990 and 1995.

Source: Compilation by Ifo Institute.

Comments by Country Experts

Country	Comment
Austria	High coverage is mainly due to obligatory membership in the principal employer organization. High stability is the result of a supportive legal framework and strong unions and employer organizations.
Belgium	Extension of collective agreements explains high coverage. Governments and other public authorities have a duty to 'bargain in good faith', before a decision is made. Collective Agreements Act (1968); since 1970 larger coverage due to this new legislation. Labour Relations (Public Sector) Act (1974); since 1980 more collective bargaining in the public sector.
Denmark	Figures are based on backward extrapolation (1960–1980), using subcategories' coverage rates from 1985; a simple algorithm is employed; 1985 figures are survey based. Increase 1960 to 1985 due to increased size of public sector. Decrease from 1990 due to increased size of private sector salaried employees, but other factors are at play.
Finland	In the 1960s and even 1970s, the wage formation and price setting was heavily regulated by social partners and government. In later years, the high coverage rate is a result of high union density rate and extensions. The union density rate has been increasing all the time from 30% in 1960 to about 90% in 1995. The collective agreements are by law extended to cover almost all employees.
France	– – –
Germany	– – –
Ireland	No quantitative data exists on the subject of the coverage of collective bargaining in Ireland. Virtually all public sector employees (approximately 28% of all employees in employment) are covered by collective agreements at company or grade/category levels and are subject to centralized national pay agreements. In the private sector, a growing non-union workforce has been emerging since the 1980s in computer hardware and software and areas of pharmaceuticals, health care and financial services. In sizeable numbers of companies in these sectors, no collective bargaining occurs. However, to the extent that many such companies are members of the main employers' confederation, IBEC, they may technically be within the ambit of national tripartite collective agreements negotiated in Ireland since 1987. The extent to which 'non-union' employers feel bound by the terms of these agreements is an open question. A code of 3 grossly inflates the extent to which the workforce is subjected de facto to collective pay fixing at firm level.
Italy	Based on Bruno Contini, 'Labour Market Segmentation and the Development of the Parallel Economy – The Italian Experience', Oxford Economic Papers, Vol. 33, No. 3, November 1981, pp. 401–12. Same methodology as in OECD, Employment Outlook 1997, Annex 3.A – Italy.
Netherlands	From 1945 to 1962, the 1945 Extraordinary Decree on Labour Relations applied, meaning that all wages were subject to government controls. From 1962, free collective bargaining in the market sector resumed. Coverage in the market sector was 55% (1965), 60% (1970), 65% (1975). Unions did not have the right to negotiate agreements in the public sector; government decided. Coverage was 100%. Since the mid-1980s, unions have regained the right to negotiate agreements in the public sector.
Norway	There are no historic figures on collective bargaining coverage in Norway. There are some surveys for the 1990s which estimate a coverage rate of 75%. K. Nergaard thinks that this is too high. The estimates for the pre-1990-period are based on the assumption that there are no major shifts in agreement coverage at sectoral level. Shifts in coverage rate are attributed to changes in employment between industry, private services and public sector. The growth of public sector employees (with a coverage rate of 100%) has lead to a moderate increase in the long-term coverage rate.
Portugal	Until the end of the 1970s, no proper system of collective bargaining was in place. Salazar's regime was characterized by authoritarian regulation of labour relations through corporatist institutions. The government directly controlled all activities of the national trade unions and employers' guild. It took until 1985 for the state to largely withdraw from an active role in collective bargaining. Public sector employees (22% of total wage and salary earners) are not covered by collective agreements. Their earnings are fixed by government. According to Reinhard Naumann, 90% of the labour force in the private sector is covered by collective bargaining. (It seems to be that the OECD calculated the unadjusted coverage rate.)
Spain	The main law regulating collective bargaining was passed in 1980. Before that year, no proper system of collective bargaining was in place. (Under the Franco regime, wages were determined with pervasive government intervention.)
Sweden	– – –
Switzerland	Collective bargaining coverage has not changed much since the 1960s. In the 1980s and 1990s, there was a minor reduction of collective bargaining coverage due to the growth of services.Switzerland Collective bargaining coverage has not changed much since the 1960s. In the 1980s and 1990s, there was a minor reduction of collective bargaining coverage due to the growth of services.
United Kingdom	References: Milner, S. (1995) for 1960 to 1985; Millward et al. (1992) for 1990; Cully, M. and S. Woodland (1998) for interpolation for 1995 (their coverage rate for 1997 is 36%). Contraction of coverage since 1980 is associated with: a) decline of sectoral agreements, b) structural decline of unionised industries, c) privatisation of public sector, d) legal constraints placed upon trade union organisation by various laws.

continued:

Comments by Country Experts

Country	Comment
Canada	Percentage of paid non-agricultural labour force used as basis. Public sector wages fixed by collective bargaining. Growth in public sector unionism has increased coverage since 1970. The proportion of persons covered by collective agreements without being union members rose because of special features of public sector legislation.
United States of America	1960–1980: Own estimates based on: BLS, Directory of National Unions and Employee Associations; assumptions on workers who are not members of a labour union or an employee association but whose jobs are covered by a union or employee association contract are derived from information of CPS for the 1980s and 1990s. 1985–1995: Current Population Survey: Union affilation of employed wage and salary workers.
Japan	The estimates are based on: union density rate, percentage of union members covered by collective bargaining and a supplementary factor for non union employees covered by collective bargaining (taken from the USA). The Japanese indicators are taken from the Yearbook of Labour Statistics of Japan. A reduction of the bargaining coverage rate took place from roughly 35% in 1970 to 21% in 1995. This reduction is mainly due to a decrease of union density rate.
Australia	Bargaining coverage was largely a product of industrial awards which covered 85% (on average) until the decline from the late 1980s. Since the early 1990s, bargaining has been more on an enterprise basis. Union density has also fallen substantially.
New Zealand	No formal data collection available prior to 1990. Band 2 (25–70%) is wide and conceals a significant change in New Zealand levels of collective bargaining since 1992, where bargaining coverage has more than halved but remains above 25%.

Source: Compilation by Ifo Institute.

decline of the coverage rate was due to a decrease of union density. In New Zealand changes in the bargaining system resulted from the Employment Contracts Acts of 1991.

Collective bargaining coverage is to a large extent determined by union density and by extension mechanisms. In 1990, extension practices were pervasive in Austria, Belgium, France, Portugal and Australia. Extension had a more limited but still considerable impact in Finland, Germany, Netherlands, Spain and Switzerland (see OECD, Employment Outlook 1994, pp. 178 ff.).

Wolfgang Ochel

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IFO ECONOMIC SURVEY INTERNATIONAL

ECONOMIC CLIMATE DROPS TO ALL-TIME LOW

According to the latest Ifo world survey (74th Economic Survey International of October 2001 questioning 833 economists of multinational corporations in 79 countries), the World Economic Climate indicator fell sharply (70.7 in October 2001 vs. 84.1 in July 2001 an 117.2 at the peak of this cycle in April 2000; 1995 = 100). The overall indicator marked the lowest level since the introduction of this survey in spring 1981. Inflation expectations receded almost everywhere whereas lack of demand gained further in importance and is regarded as the currently most important problem. Despite the gloomy overall picture there are some positive spots like expectations pointing to some economic recovery in the course of the next six months particularly in the USA, Norway, Germany as well as most Eastern European and CIS countries. More ESI experts than in the previous survey expect short- term interest rates to decline further in the next six months.

World economy: sharp slowdown

The World Economic Indicator continued its decline for the sixth time in a row and has lost about forty percent since its peak of reached in April, last year (see Figure 1).

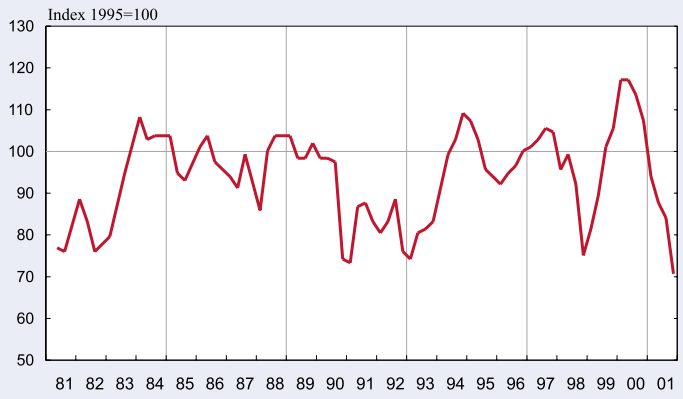
The sharp decline from July to October was caused by the simultaneous fall of both components of the climate indicator: the assessment of the current economic situation and the expected trend for the next six months. Taken by itself, the current business situation is still not so bad as at the height of the last world-wide recession in the early 1990s, not to mention the situation in January 1983 after the second oil-price shock. Worrying are the sharply more pessimistic expectations, reversing the slight upward trend seen in the spring and summer survey of this year. At this stage it cannot be ruled out that part of the deterioration in expectations is only of a temporary nature, triggered by the tragic events of September 11 in New York and Washington, and may be reversed at least partly in the coming survey rounds when the growth stimulating effects of lower energy prices in the non-oil producing world and the drastically lower interest rates become more evident.

Asia: economic climate deteriorates strongly

According to the new survey, expectations for the development in the next six months deteriorated significantly whereas the assessment of the current economic situation remained unsatisfactory but did not worsen further. Although China is also caught up in the declining trend of expectations, the current business situation was assessed somewhat more favourably than in previous surveys. The performance of the economic indicators for India is relatively positive, with the current economic situation showing some signs of improvement and expectations deteriorating but not having entered negative

Figure 1

IFO WORLD ECONOMIC CLIMATE



Source: Ifo Economic Survey International (ESI).

territory, as is the case in most other countries in the region. Similarly low levels of the current economic situation as during the past Asian crisis can be seen in Taiwan, the Philippines, Singapore and also Japan. In other Asian countries like the Republic of Korea, Malaysia, Thailand, Indonesia and Hong Kong, the current economic climate is still not as bad as during the 1997/98 crisis.

Hopes delayed for a bottoming out in Western Europe

The assessment of the current situation in most Western European economies deteriorated further and is now – with the exception of Finland, the Netherlands, Ireland, Spain Greece, Switzerland – below the »satisfactory« threshold. Expectations for the next six months deteriorated almost everywhere after having shown some signs of improvement in the previous two surveys (see Figure 2).

The lowest relative grades for the current situation were again given by ESI correspondents in Germany and Portugal. On the other hand, economic assessments remained better than the European average particularly in Norway and Greece. The slowdown in economic growth is more pronounced in capital expenditures than in private consumption. However, the six-month outlook for private consumption is as bleak as that for capital expenditures.

Eastern Europe remains relatively robust

The assessments of the current economic situation deteriorated somewhat but remained very close to the »satisfactory« level. The expectations for the next six months even showed – in contrast to all other regions – some improvement. The current economic situation continues to be more positive than average particularly in Estonia, Hungary, Latvia and Slovenia. On the other hand, in Poland, Romania, Croatia and particularly in Yugoslavia the current situation remained below the »satisfactory« level, though the expectations still point to some recovery.

In Russia both the current economic situation and the economic outlook for the next six months showed some improvement and both are clearly in positive territory. It remains to be seen to what extent the lower oil price will disturb this positive picture in the near future. Also in Kazakhstan the assessment of the current economic situation and the outlook for the next few months remained quite positive. In contrast, the economic situation is still unsatisfactory in the Ukraine.

Sharp slowdown but still positive expectations in the United States

The current economic situation in the U.S. cooled off sharply, reaching now only 2.2 on a nine-point scale, which is significantly lower than in Western Europe (4.3) and the world average (3.5). However, expectations for the next six months remain positive despite some deterioration (5.8 compared to 6.7). This constellation of data still supports our view that the U.S. economy will be the first to pull out from the cyclical trough. A positive signal is the somewhat improved outlook for capital expenditures, which have been hit particularly hard in the recent downswing. On the other hand, growth of private consumption is expected to slow down further in the course of the next six months.

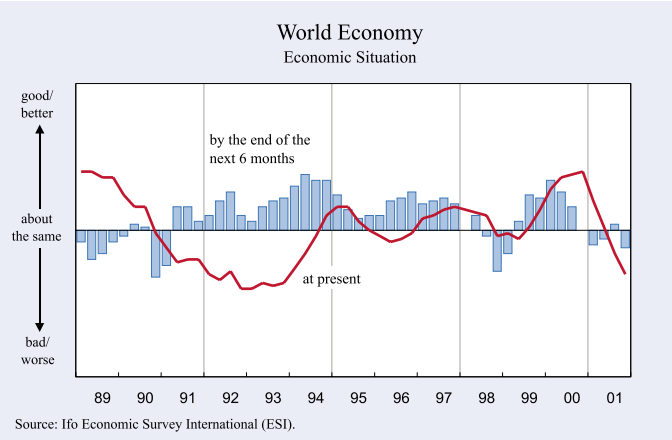
World-wide slowdown increasingly affects Latin America ...

The synchronised slowdown in the G7 area is showing increasing spillover effects on emerging markets, mostly in Asia but more noticeably also in Latin America. By far the most negative assessments concerning the current economic situation came from Argentina and Bolivia. In the next six months only a stabilisation at the currently low activity levels is expected. The relatively best economic developments were reported again for Chile.

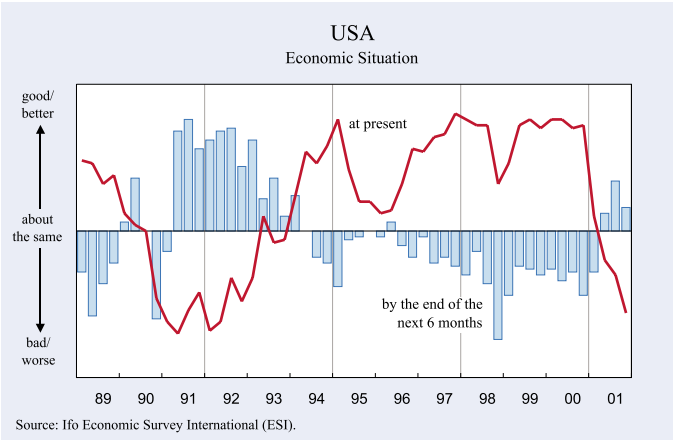
... and also Oceania (Australia and New Zealand)

The current economic situation remained satisfactory in New Zealand but declined in Australia in line with the world-wide trend. Expectations for the next six months point to an increasing weakness of economic performance. The assessments of the most important problems facing the economy at present differ between these two countries. Whereas *lack of demand* and *unemployment* are seen as the two most important problems in Australia, *lack of skilled labour* and *lack of confi-*

Figure 2



Source: Ifo Economic Survey International (ESI).



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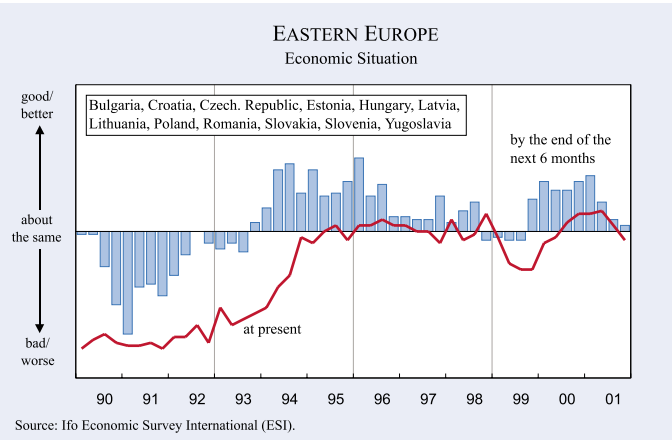

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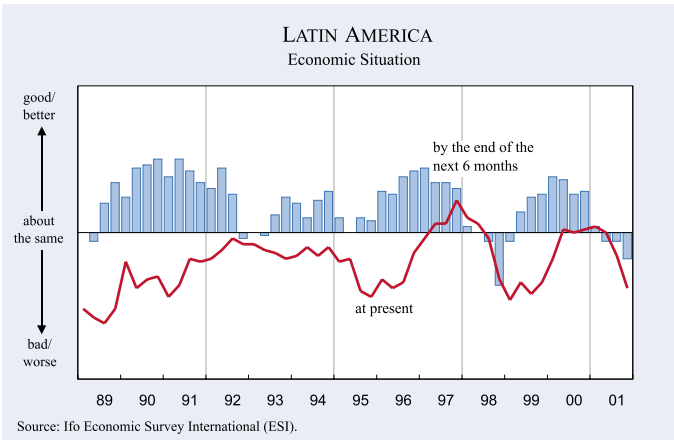

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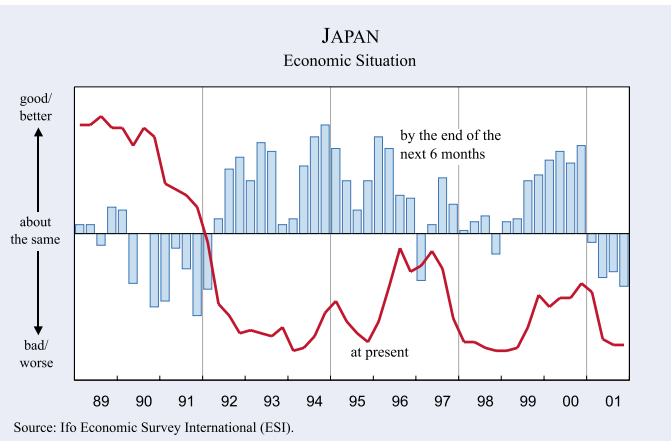

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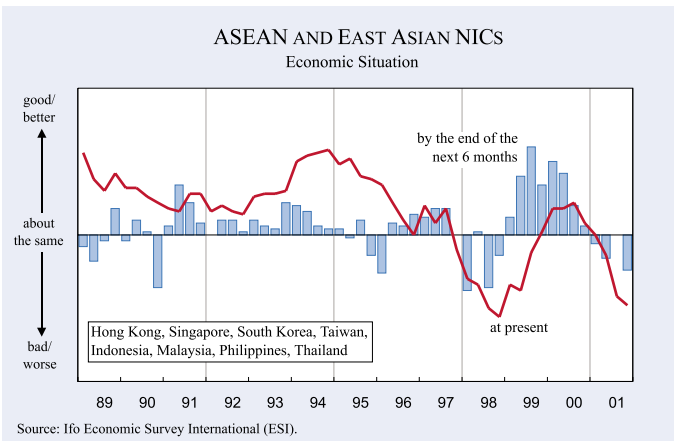


Source: Ifo Economic Survey International (ESI).

dence in government's economic policy top the list in New Zealand.

No further economic deterioration of the unsatisfactory situation in Africa

In most African countries the economic situation improved moderately but still remained in negative territory. Expectations for the next six months point to a stabilisation at the low level already reached. In South Africa the current economic situation is better than the African average and has almost reached the »satisfactory« level, where it is expected to remain for the next six months. A relatively positive picture can also be drawn again for the economies of Tunisia and Morocco, where the satisfactory economic situation is expected to continue in the next six months. In most other African countries in the ESI sample (Kenya, Nigeria and Zimbabwe), the economic situation is far below a satisfactory level, and no improvement is expected in the next six months.

Downward trend of economic activity continues in the Near East

The economic situation was assessed slightly better than in the previous survey but remains unsatisfactory. An optimistic view of the current situation prevails again only in the United Arab Emirates and in Saudi Arabia but here, too, a deterioration is expected in the course of the next six months. In Turkey and Lebanon the current economic situation is considered bleak; however, in the case of Turkey some improvement is expected in the course of the next six months. In Iran the economic situation remained unsatisfactory; for the next six months a stabilisation at the current low level is expected.

Both short-term and long-term interest rates expected to decline

More ESI experts than in the previous survey expect the downward trend of short-term interest rates to continue in the coming months. Also at the long end more scope for a decline is seen than in the last survey. Thus, ESI participants – unlike many bank economists – don't think that the downward trend of long-term interest rates is already coming to an end. Further cuts of short-term rates are expected in the euro area, in the United Kingdom and Australia. Also in the U.S., where short-term rates after 10 cuts have already reached a rather low level, a further decline below the 2% mark appears likely. On the other hand, in Latin America short-term interest rates are expected to increase, particularly in Brazil and Venezuela.

Inflation expected to slow down in coming months

On a world-wide scale consumer price inflation in 2001 is now expected to be 3.6% compared with 3.8% according to the previous survey. Thus, ESI experts expect a strong slowdown in inflation which is only partly reflected in the annual figure for 2001 but will influence inflation behaviour next year. In the euro area the inflation rate in 2001 is now expected to reach 2.8%, the same rate as in the US. Asia will show the highest degree of price stability (1.6%), influenced heavily by deflationary trends in Japan and Hong Kong (in both cases consumer prices will decline by 0.7% in 2001) and a low inflation rate of 1.6% in China.

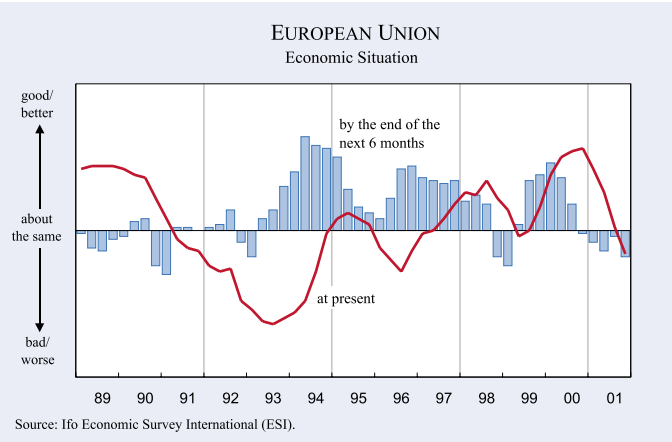
Euro is still regarded as clearly undervalued

The euro was still seen as clearly undervalued against practically all currencies, though somewhat less so than in the previous survey. Conversely, the U.S. dollar is seen to be overvalued, though somewhat less than in the previous survey. The British pound appears to be increasingly overvalued in the majority of countries included in the survey. The Japanese yen is still regarded as somewhat overvalued though significantly less than the US dollar and the British pound. Particularly in the euro area, a decline of the value of the dollar appears likely. In Asia the dollar is expected to keep its value in relation to national currencies or to increase even slightly. Albeit with a declining tendency, in most Eastern European, but particularly in CIS countries as well as in Latin America and Africa, the dollar, according to ESI experts, will strengthen further in the course of the next six months.

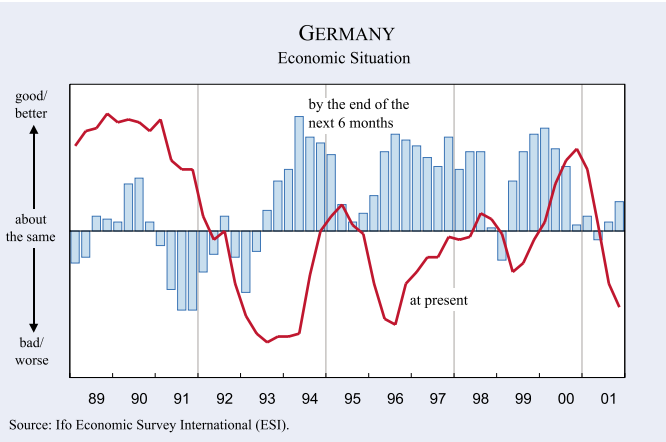
Insufficient demand has gained top position amongst economic problems

The most striking change compared with the previous survey is the even more predominant role of

Figure 3



Source: Ifo Economic Survey International (ESI).



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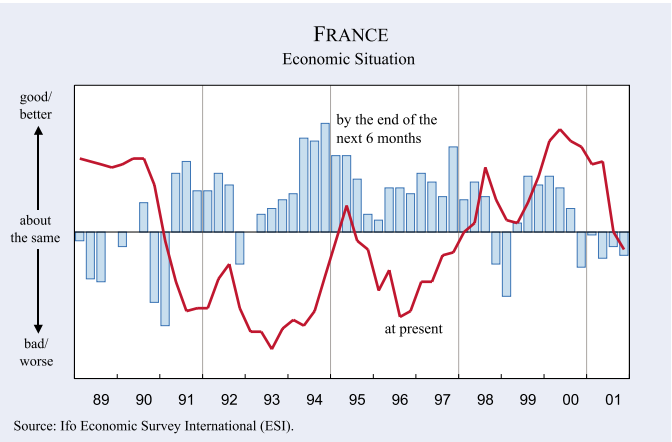

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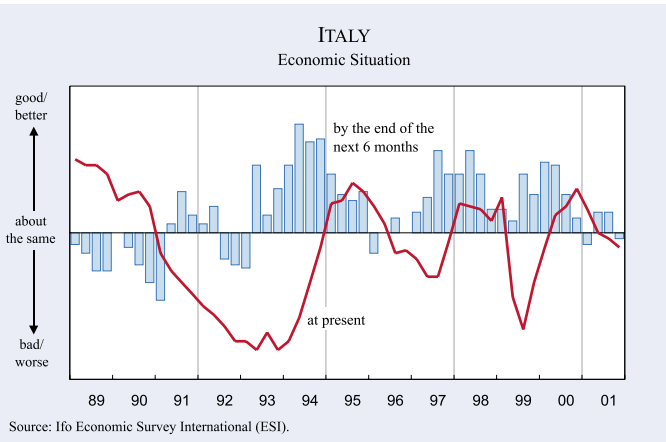

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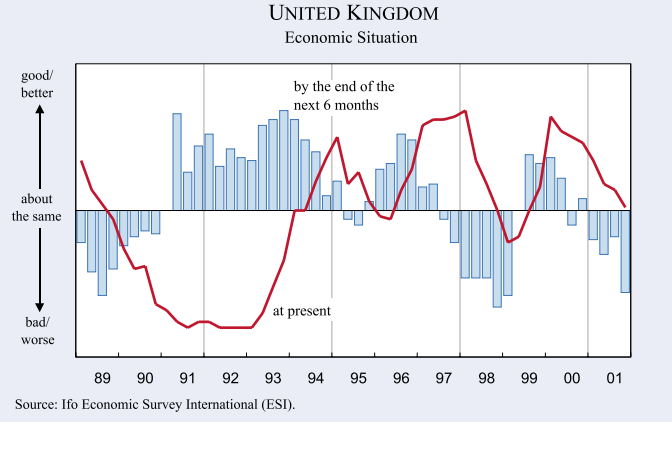

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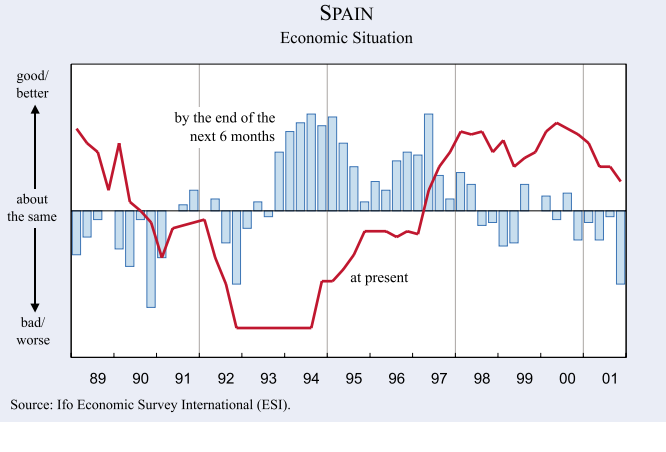


Source: Ifo Economic Survey International (ESI).

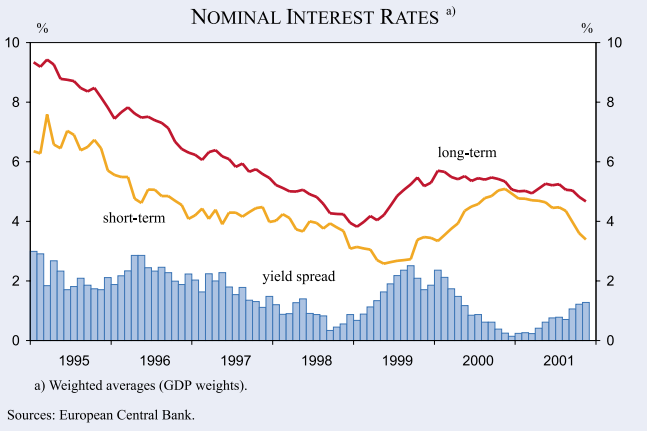
insufficient demand as the single most important problem followed by *unemployment*. In contrast, Inflation lost further in importance as one of the most urgent problems and now ranks 8 out of 10. Also *lack of skilled labour* which headed the world-wide list of problems one year ago is further losing its urgency and is now, together with *public deficits*, at rank 5; only in Western Europe, Africa and the Near East does *lack of qualified staff* appear to still be a major problem. *Lack of confidence in government's economic policy* continues to be of particular importance in the Near East and in Asia. First position on the list of problems is taken by *capital shortage* followed by *lack of international competitiveness* in the CIS. *Public deficits* and *capital shortage* rank high on the list of problems in Eastern Europe.

World economic growth will average about 2.5% in the next 3 to 5 years

Compared with October of last year the outlook for medium-term economic growth has deteriorated dramatically. Compared with expected annual growth of 3.7% a rate of only 2.5% now appears to be most likely. This downgrading process of growth expectations can be observed almost everywhere with the exception of CIS countries where an upward revision can be observed (4.5% after 4.1%) and Eastern Europe where it remained almost unchanged (3.8% after 3.9%). In the United States and Western Europe only a moderate average growth rate of 2.2% is now expected in the next 3 to 5 years. Above the international average will be China (6.6% after 7.6%), Vietnam (5.5% after 6.5%), and India (4.9% after 6.1%). In general, Eastern European and CIS countries remain on the list of the fastest growing economies in a medium-term perspective – Hungary: 4.2% after 5.2%, Poland: 3.6% after 4.0%, Russia: 4.7% after 4.3%, Kazakhstan: 4% unchanged.

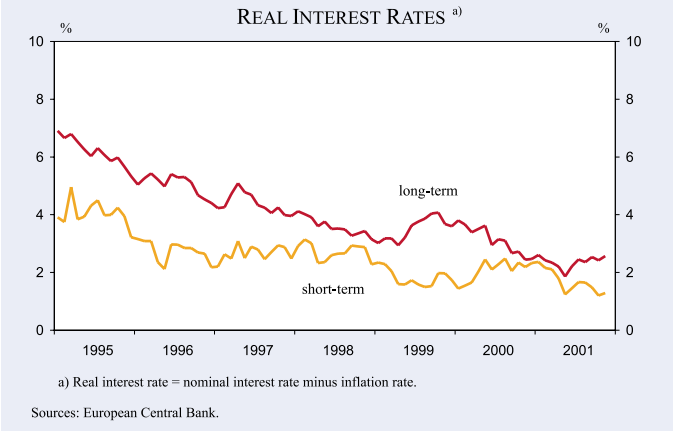
Economic performance will lag behind the world average particularly in Japan (0.2% after 1.9%), Switzerland (1.6% after 2.1%), United Kingdom (1.9% after 2.9%), Italy (1.6% after 2.9%), Sweden (1.9% after 4.0%) and some Asian countries which in the past belonged to the group of »tigers« like Singapore (1.7% after 5.5%), Taiwan (1.4% after 4.5%) and Thailand (1.6% after 3.9%). Zimbabwe is still at the bottom of the list (– 3.5% after – 2.9%).

Monetary Conditions in the Euro-Area



a) Weighted averages (GDP weights).

Sources: European Central Bank.

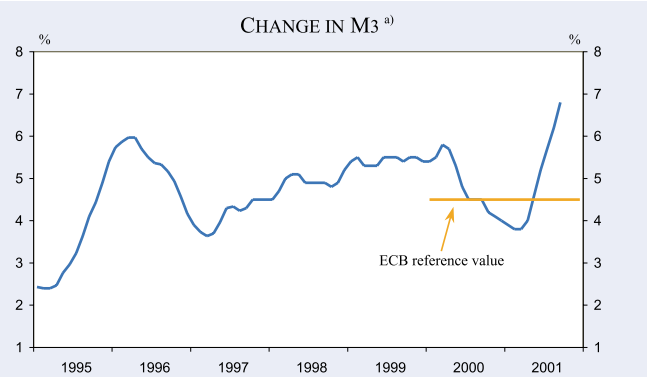


a) Real interest rate = nominal interest rate minus inflation rate.

Sources: European Central Bank.

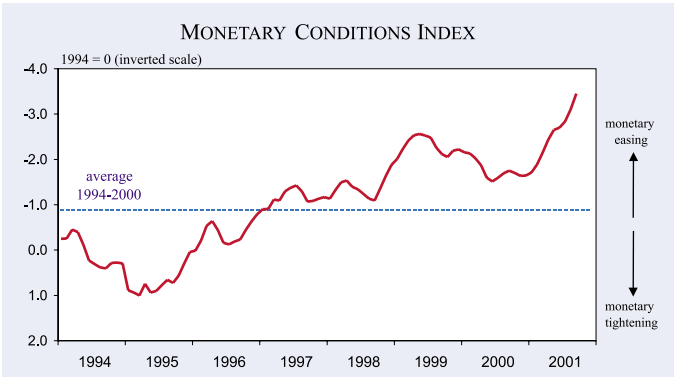
Short-term interest rates (3-month Euribor) continued their decline which had started in December 2000 when they dropped below the 5% mark again. The decline accelerated in the second half of the year, when the ECB started to cut key interest rates from 4.5% in August to 3.25% in November. The yield spread increased as long-term rates declined more slowly. 10-year bond rates which last peaked in July at 5.25%, declined to 4.82% in October and 4.55% in early November.

With the rate of inflation declining since May, long-term real interest rates have been rising. Short-term real interest rates first rose but then declined again until they reversed in October. Both long and short-term rates are still lower today than their respective average levels since 1994.



a) **R** Annual percentage change (3-month moving average).

Sources: European Central Bank.



Note: MCI index is calculated as a (smoothed) weighted average of real short-term interest rates (nominal rate minus core inflation rate HCPI) and the real effective exchange rate of the euro.

Sources: European Central Bank, calculations by the Ifo Institute.

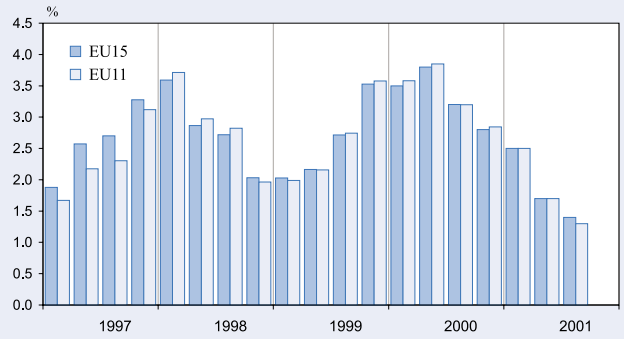
The annual rate of growth of M3 (which from now on is corrected for holdings by non-residents of the euro area of money market paper and debt securities with a maturity up to two years) was 7.4% in October, up from 6.9% in September. The three-months average for the period August-October 2001 increased to 6.8% from 6.2% during the period July-September.

The monetary conditions index has risen steeply since the beginning of the year, signalling a strong easing of monetary policy. This is the result of a sharp decline in short-term real interest rates in the early part of the year and - after a brief reversal – a further decline since mid-year. The depreciation of the effective real exchange rate of the euro which ended in the middle of the year, had reinforced the interest rate effect. Its appreciation since July was swamped by the greater weight of the real interest rate decline.

EU Survey Results

GROSS DOMESTIC PRODUCT IN CONSTANT 1995 PRICES

Percentage change over previous year

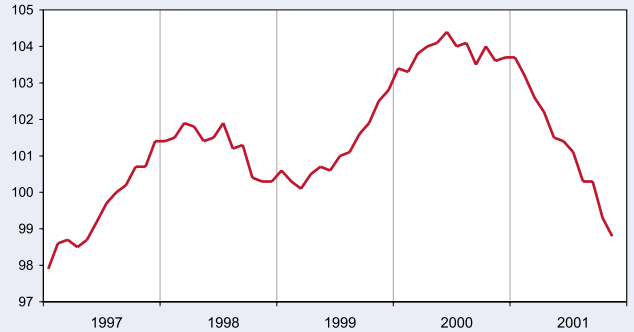


Source: Eurostat.

According to the first estimates of Eurostat, euro-zone GDP was 1.3% higher and EU15 GDP was 1.4% higher respectively in the third quarter 2001 compared to the third quarter 2000. In the second quarter the year-on-year increase had been 1.7% in both areas. Growth of consumer spending, though slowing, sustained GDP growth. Investment spending and exports (as well as imports) declined in the third quarter.

EU ECONOMIC SENTIMENT INDICATOR

Index 1995 = 100, seasonally adjusted

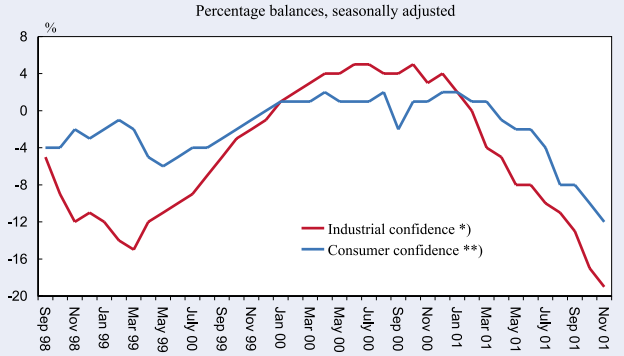


Source: European Commission.

The economic sentiment indicator declined by 0.5 points in November, marking a slower descent than in the previous month (1 point). Germany, Spain and France with – 0.8, – 0.6 and – 0.4 points respectively registered the biggest decreases. The economic sentiment indicator improved in seven member countries: Denmark, Austria, Sweden, Greece, Italy, the Netherlands and the United Kingdom.

EU INDUSTRIAL AND CONSUMER CONFIDENCE INDICATORS

Percentage balances, seasonally adjusted

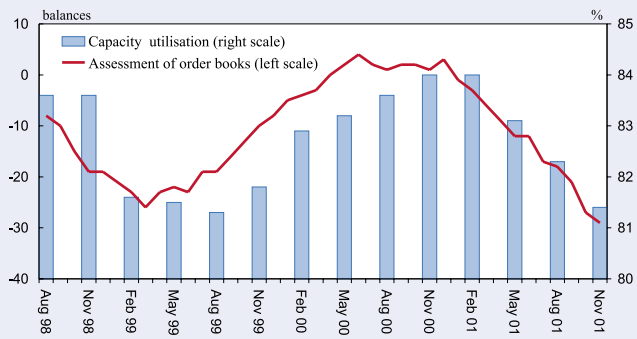


Source: European Commission.

* The industrial confidence indicator is an average of responses (balances) to the questions on production expectations, order-books and stocks (the latter with inverted sign).
** New consumer confidence indicators, calculated as an arithmetic average of the following questions: financial and general economic situation (over the next 12 months), unemployment expectations (over the next 12 months) and savings (over the next 12 months). Seasonally adjusted data.

The **industrial confidence** indicator declined by 2 points, mainly due to a deterioration of order books and a higher level of stocks. The decline was steepest in Ireland, France, Luxembourg and Germany. On the other hand, there was a recovery in some countries, notably in Sweden and Belgium.
Consumer confidence continued the downward path started in January, with a 2 point decrease in November. It thus just fell below its long-time average by 1 point. While remaining confident about their financial condition, consumers seem to have become more concerned about unemployment over the next twelve months.

EU CAPACITY UTILISATION AND ORDER BOOKS IN THE MANUFACTURING INDUSTRY



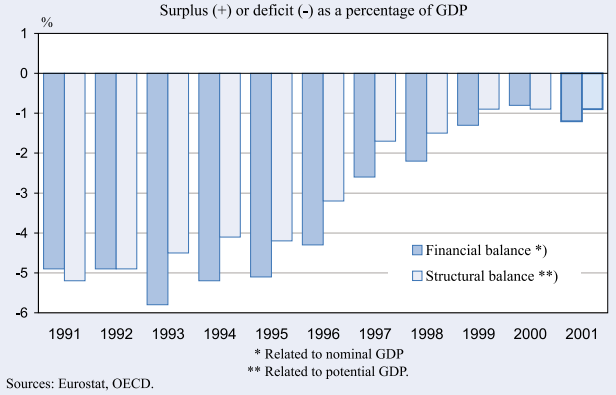
Source: European Commission.

The manufacturing industry's order books continued to decline in November, albeit much less steeply than in the previous month as production expectations remained unchanged. Capacity utilisation declined further, to 81.4%, approaching the low reached in August 1999.

EURO AREA INDICATORS

GENERAL GOVERNMENT FISCAL BALANCES

Surplus (+) or deficit (-) as a percentage of GDP

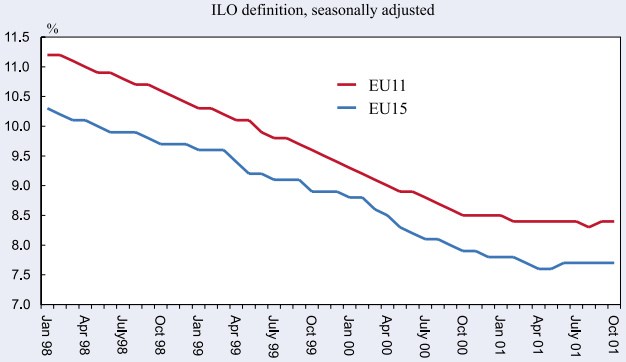


Sources: Eurostat, OECD.

The figures for aggregate euro area fiscal balances have been revised: The structural deficit remained unchanged in 2000, at 0.9% of GDP; the financial deficit actually declined from 1.3% in 1999 to 0.8% in 2000. Projections by the OECD for 2001 see the financial deficit increase to 1.2% of GDP as the result of the economic slowdown; the structural deficit is forecast to stay at 0.9% of GDP.

UNEMPLOYMENT RATE

ILO definition, seasonally adjusted

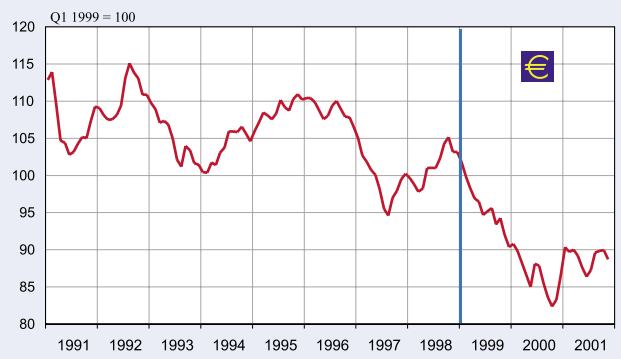


Source : Eurostat.

In October, the seasonally adjusted unemployment rate remained unchanged compared to the previous month at 8.4% for the euro zone and at 7.7% for EU15. For both areas this is a decline from a year ago when it stood at 8.5% and 7.9% respectively.

The lowest unemployment rates were achieved by the Netherlands (2.2% in September), Luxembourg (2.5%), Ireland (3.9%), Austria (4%), Portugal (4.3%) and Denmark (4.4%). At 12.9%, Spain continued to have the highest unem-

REAL EFFECTIVE EXCHANGE RATE OF THE EURO [a)]



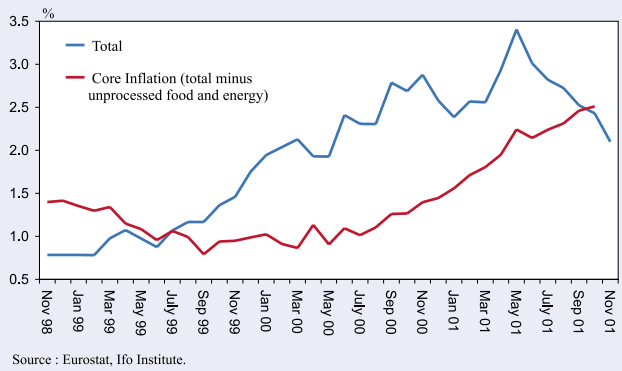
Source: European Central Bank.

a) BIS calculations; to December 1998, based on weighted averages of the euro area countries' effective exchange rates; from January 1999, based on weighted averages of bilateral euro exchange rates. Weights are based on 1990 manufactured goods trade with the trading partners United States, Japan, Switzerland, United Kingdom, Sweden, Denmark, Greece, Norway, Canada, Australia, Hong Kong, South Korea and Singapore and capture third market effects. Real rates are calculated using national CPIs. Where CPI data are not yet available, estimates are used.

The real effective exchange rate of the euro (1999Q1 = 100), based on the broad group and CPI, declined from 89.2 in January to 85.5 in June and then appreciated to 89.3 in September. In October it weakened again to 89.2. It seems to have truly recovered from the low levels of 2000, when it had reached 82.2.

INFLATION RATE (HICP)

Percentage change over previous year



Source : Eurostat, Ifo Institute.

The annual rate of inflation for the euro zone is forecast at 2.1% in November. This would be a continuation of the decline which started from the peak of 3.4% reached last May. Core inflation, which is not yet available for November had levelled off in October.

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