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# Sweden: Selected Issues

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SWEDEN

**Selected Issues**

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Approved by the European Department

July 20, 2004

Contents

I. Fiscal Policy in a Decentralized Economy ....3
A. Introduction ....3
B. Sweden's Local Government in International Comparison ....4
C. Local Tax Rate Structure and Trends ....10
D. Longer-Term Challenges for the Local Public Finances ....17
E. An International Perspective on Vertical Fiscal Policy Coordination ....19
F. Conclusion ....23
References ....26

II. Sickness Absence: Sweden in an International Perspective ....27
A. Introduction and Overview ....27
B. Sickness Absence in Sweden ....30
C. Determinants of Sickness Absence ....36
D. An Econometric Analysis of Sickness Absence ....39
E. Conclusions and Policy Implications ....42
References ....44

Tables
I.1. Local Tax Rates and Tax Base by Municipalities (2002) ....12
I.2. Determinants of the Local Tax Rate Structure ....12
I.3. Determinants of Local Tax Rate Changes Between 2002 and 1995 ....16
II.1. Sickness Absence in the Public and Private Sectors ....32
II.2. Public Sickness Benefits ....34
II.3. Ration Between Sickness Absence of Permanent and Temporary Workers ....38
II.4. Cyclicality of Sickness Absence, 1995–2003 ....38
II.5. Summary of Estimation Results ....40

Figures

I.1. Sweden Subnational Spending as a Share of General Government Spending .....6
II.1. Labor Force Participation Rate and Average Hours Annually Worked Per Employee....27
II.2. Sickness Absence, Average 1995–2003 .....28
II.3. Sickness Absence and Hours Worked per Employee.....29
II.4. Sickness Absence, 1970–2003 .....30
II.5. Duration of Sickness Absence.....31
II.6. Sick Leave and Insurance Provisions .....33
II.7. Sickness Absence and Its Determinants .....37

Boxes

I.1. Cooperative Fiscal Coordination in Germany and Austria.....21
II.1. Sweden: Main Changes in Sick Leave Regulation.....35

Appendix.....47

Appendix Tables

A.1. List of Countries and Data Availability .....47
A.2. List of Variables, Definitions, and Sources .....48
A.3. Determinants of Sickness Absence—Static Panel Data Model .....49
A.4. Determinants of Sickness Absence—Dynamic Panel Data Model.....50

# I. Fiscal Policy in a Decentralized Economy[1]

## A. Introduction

1. **Sweden's government sector is exceptionally large and highly decentralized.** Among the EU-15 member countries Sweden's general government expenditure ranks the highest in terms of GDP. At the same time the delivery systems for public services are highly decentralized. More than 40 percent of general government spending is carried out by local governments—20 county councils and 290 municipal governments—pertaining primarily to health care, long-term and disability care, education, child-care, and other services. Own revenue sources at the subnational level cover about 80 percent of expenditures.

2. **The broad distribution of responsibilities across government levels poses a formidable challenge for macro-fiscal management.** As local governments have autonomy over a wide range of issues including tax policy, fiscal policy needs to be well coordinated to ensure economic stability and fiscal sustainability. This requires an effective policy coordination mechanism that brings budgets of local governments in line with aggregate policy objectives. The two most common coordination mechanisms among European countries are a cooperation approach where all participants are involved in policy formulation and execution, or the use of fiscal rules that prescribe policy targets for the different levels of governments. Sweden has opted for the latter approach.

3. **Sweden's current fiscal policy framework addresses the need for vertical coordination through a three part fiscal framework.** For the general government, Sweden targets a structural surplus of two percent of GDP. The surplus target defines the overall policy direction and anchors a rolling medium-term budget. The second component is an expenditure rule for the central government. Aggregate expenditure is constrained by nominal expenditure ceilings set for three years. The ceilings include budget margins to allow for cyclical variations in spending and to give some flexibility in the budget planning process. The third element is a balanced budget requirement for local government. Any deviations from this target need to be offset within two years.

4. **The fiscal framework has so far been very effective.** With a general government surplus of 0.5 percent of GDP in 2003 Sweden's fiscal position remains favorable in a comparative EU context. The government also managed to reduce the overall tax burden by 1.9 percentage points of GDP since the inception of the new fiscal framework. That said, fiscal policy has benefited from relatively advantageous economic conditions in the late 1990s, which provided the fiscal room to react aggressively to the economic woes from restructuring of the telecommunications sector and the bursting of the technology bubble. While the economy weathered the recent global downturn relatively well, efforts have visible

[1] Prepared by Stephan Danninger.

slackened to return to the general government surplus target of 2 percent by 2006, as initially envisaged.

5. **One sign of the strains in the fiscal framework are persistent increases in local tax rates.** Over the last ten years local income tax rates have steadily increased.[2] Since local tax revenue is cyclically sensitive and transfers from the central government do not automatically adjust to the business cycle, local governments have struggled to meet the balance budget requirement. As a result, tax rates have begun to creep up, in particular since the end of the 1990s. Moreover, local spending appears to have followed a procyclical pattern, which has put a disproportionate burden for countercyclical fiscal policy on the central government

6. **The objective of this paper is to analyze tax policy trends at the local level and to assess the effectiveness of the vertical fiscal policy coordination system.** The study reviews Sweden's local public finances from an international perspective and empirically explores various explanations for the gradual increase in local tax rates. It further discusses long-term challenges for local public finances and aggregate fiscal policy coordination. It describes the design of vertical fiscal policy coordination in other countries and underscores country experiences relevant to Sweden.

7. **The paper is structured as follows**. The second section presents an overview of the institutional government structure in Sweden. The discussion highlights characteristics of Swedish local public finances in an international perspective, and points out the main differences to European comparator countries. The third section focuses on the recent trend increase in local tax rates. It examines various possible explanations and provides econometric evidence on likely determinants. It concludes by discussing longer-term expenditure challenges for local governments. The next section gives an overview of alternative vertical fiscal coordination mechanisms and singles out individual country experiences relevant for Sweden. The final section concludes.

## B. Sweden's Local Government in International Comparison

8. **Sweden has a long-standing tradition of local and regional self-government.** The principle of self-government is enshrined in the Swedish constitution and the state has assigned broad responsibilities to local authorities for the provision of public services. Rights and obligations for local governments are laid out in the Local Government Act (LGA), which was enacted in 1992.

[2] Defined as municipal plus country council tax rates.

The main subnational government bodies are:

- a total of 290 municipalities, which are mainly responsible for the provision of primary and secondary school education, childcare, long-term care of the elderly, disability care, and other social and local services. The average population size of municipalities in 2003 was around 31.000 with the median size at around 15.000 inhabitants. The majority of smaller municipalities are in the Northern part and tend to have a below average per capita tax base.

- 20 county councils in charge of health and medical services.

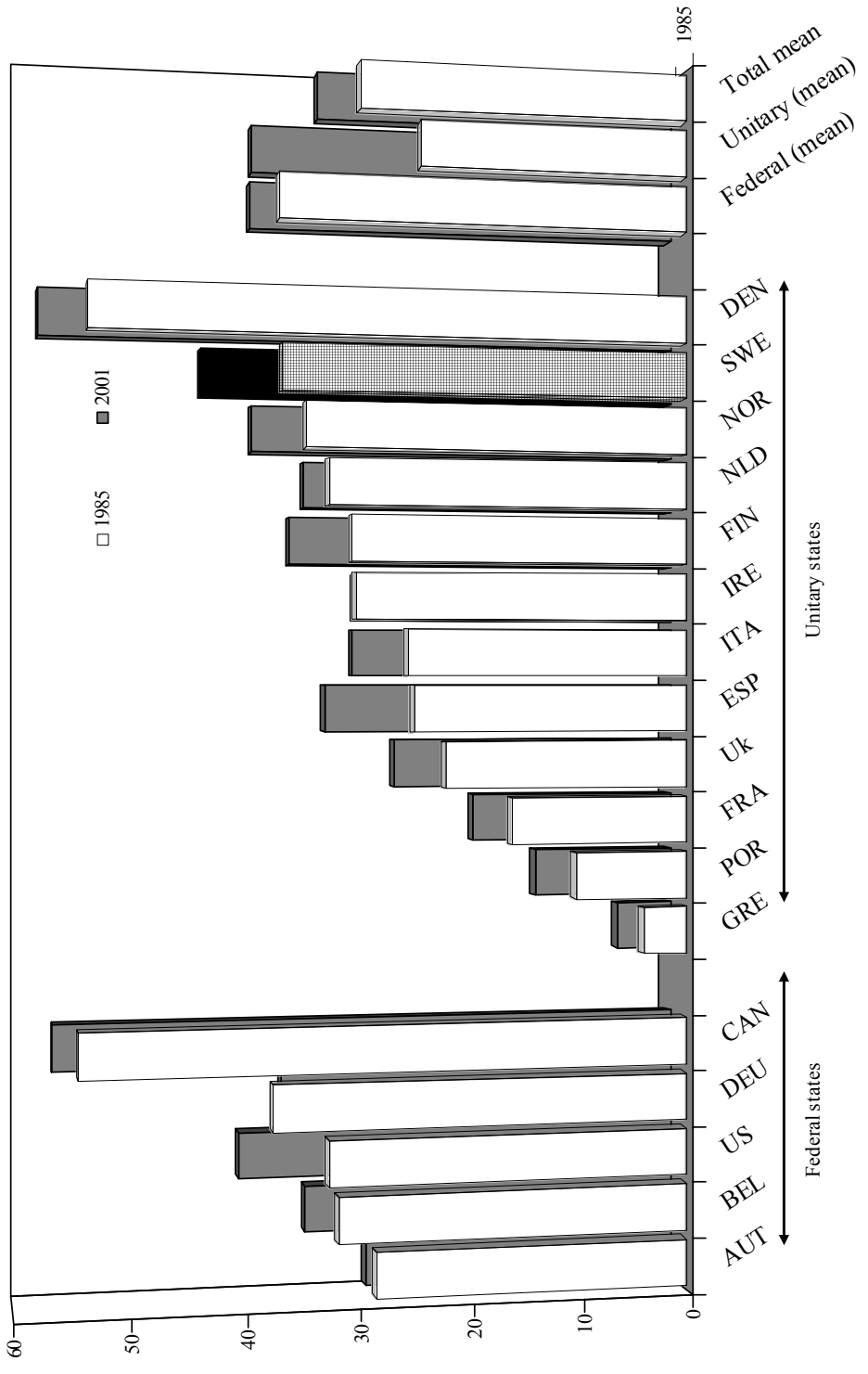
9. **Municipal and county councils are elected bodies and are required to provide public services on a balanced budget basis.** Local governments are mandated to carry out public services assigned to them by law,[3] but have the right to raise the necessary revenue to finance their activities. Municipalities have no restrictions on borrowing, and the central government plays no part in either monitoring or approving local government accounts. Since 2000, municipal and county council budgets are required not to show a deficit ex ante (LGA 8/4). If ex post expenditures for a particular financial year exceed income, then the deficit must be offset in the budgets of the subsequent two years. In exceptional cases, which are not defined by the law, local governments can decide that no such adjustment be made (LGA 8/6). The LGA does not contain sanctions for failing to meet the balanced budget or deficit adjustment requirement. Changes in the balance budget requirement has been proposed in a bill to the parliament in May 2004. The changes are expected to come into effect by January 2005. Municipal and county council budgets may then, if special circumstances are at hand, show a deficit ex ante. Ex post deficits are to be offset in the budgets of the subsequent three years.

**Size and composition of subnational spending**

10. **Subnational spending in Sweden exceeds the average expenditure level of European comparator countries.** Figure I.1 compares the share of local government expenditure in general government expenditure for various European countries in 1985 and 2001. In Sweden subnational government spending reached 43 percent in 2001 and was only exceeded by Denmark and Canada. This high level is in line with other Nordic countries which traditionally rely on local governments to provide key public services. More generally, in most European countries devolution of public services has gradually moved forward during the 1990s. This trend has however been uneven. Decentralization of public services in unitary states became visibly more pronounced, and caught up to levels in federal states.

[3] They are defined in specific legislation such as the Social Services Act, Health and Medical Services Act, the Environment Code, and the Education Act.

Figure I.1. Sweden Subnational Spending as a Share of General Government Spending




Source: OECD 2003

11. **Differing growth trends in subnational spending between unitary and federal states are of particular interest due to their implications for vertical policy coordination.** Federal countries have traditionally placed more emphasis on a cooperative approach on fiscal policy partly because their government structure by definition required more intensive intergovernmental collaboration. In Germany for instance, medium-term fiscal policy targets are based on voluntary agreements between the Länder governments and the central government. An attempt to introduce a more formal arrangement failed in the run-up the EMU (Wendorff 2001). In unitary countries, on the other hand, a more formal approach has been adopted (e.g., Spain adopted a fiscal responsibility law in 2003). As unitary states have expanded the scope of subnational public finances, issues of fiscal relations among government levels have gained more prominence. These challenges are explored in more detail in section E below.

12. **The composition of Sweden's local expenditure is tilted towards demographically sensitive areas.** Similar to most European countries, Sweden's subnational responsibilities are broadly spread and cover most aspects of public services. Sweden stands out in a comparison with other unitary states with its high emphasis on health and social services. Taken together these two items account for over 50 percent of subnational spending, while in comparable unitary states they cover less than 30 percent. Not surprisingly, expenditure pressures from aging related areas have been of great concern to local governments in Sweden.

Sweden: Composition of Subnational Spending

| | Sweden | Unitary states 1/ |
|---|---|---|
| General public services | 12.0 | 13.3 |
| Public order and safety | 1.0 | 2.9 |
| Education | 21.0 | 20.1 |
| Health | 25.6 | 12.3 |
| Social security and welfare | 27.6 | 16.3 |
| Housing and community amenities | 2.9 | 11.8 |
| Transport and communication | 5.5 | 9.8 |
| Other | 4.3 | 13.5 |
| Total share | 100.0 | 100.0 |

Source OECD (2003)
1/ unweighted average

13. **An added problem with the devolution of health care related services is an unclear separation of tasks between municipalities and county councils.** In the early 1990s the government transferred responsibilities for long-term and disability care from county councils to municipalities. While the expenditure assignment was motivated by a concern to improve care through closer local accountability, the separation has led to implementation problems for two reasons. First, long-term care and disability services can often not be cleanly separated from health care related tasks, which has led to confusions about responsibilities. Second, the separation of functions has also imposed a formidable coordination problem, requiring a frequent information exchange between a large number of municipalities and the relatively small group of county councils. Local administrations have recognized these weaknesses. To improve coordination the two representation bodies for municipalities and country councils are being merged into one unified agency dealing with both municipal and county issues.

**Revenue assignments**

14. **The income tax is the largest revenue item and the only tax revenue source of local governments.** In 2003 the local income tax amounted to 16.7 percent of GDP compared to 27.3 percent of tax revenue by the central government. By law, income from employment is subject to both local and national taxation. Local taxes are proportional and levied separately by municipalities and counties. In 2003 local tax rates varied across municipalities between 28.9 and 33.7 per cent, with an average (population weighted) rate of 31.2 per cent. Taxable income includes salaries and pensions as well as fringe benefits although deductions are possible for certain work-related expenses. A relatively low allowance is provided which varies between SEK 11 400 and SEK 25 900 depending on income. Tax credits are granted for 25 per cent of union dues and 40 per cent of unemployment insurance fees. National income taxes are levied at 20 and 25 percent with high thresholds so that less than 10 percent of all full-time employees pay any national income tax.[4]

15. **Other own revenue sources are small.** Local authorities are permitted to charge user fees for services they provide. They can also engage in entrepreneurial activities and many municipalities own public enterprises. Income from fees for services (e.g., child care, elderly care, and health and medical care) and other non-tax income (e.g., interest income) account for 10 percent of subnational revenue

16. **Government transfers to local governments are divided in roughly equal parts into block and specific grants.** In 1993, a reform was initiated to permit greater flexibility and autonomy for local governments. As a first step, a large number of specific grants were replaced by a single new block grant, which was distributed according to local tax capacity and structural costs. A new per capita based central government grant was added in 1996 to further decrease reliance on specific grants. By 2003, vertical block grants amounted to roughly one half of overall transfers to local authorities. The remaining specific grants are used mainly for financing spending on pharmaceuticals, elementary and secondary education, and childcare services. In 1993, the "financing principle" was also introduced. Any measures introduced by the central government that directly affects local authorities must be accompanied by a means of financing that does not involve raising local taxes.

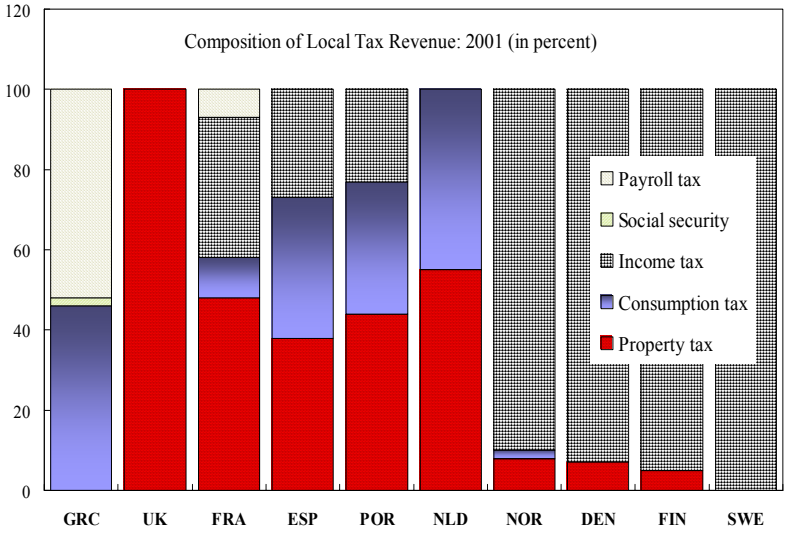
17. **The level of vertical grants are not determined by a formula, but decided by the central government during the annual budget process.** The central government has full authority to decide over the level of transfers to local governments within the requirement of the "financing principle." While formal consultations are held with local governments, there is no fixed rule or a mechanism that links changes in compensation to trends in local government demands or economic developments.[5] This uncertainty about the level of future

[4] The thresholds for the national income tax are SEK 284.300 and SEK 430.000 respectively.

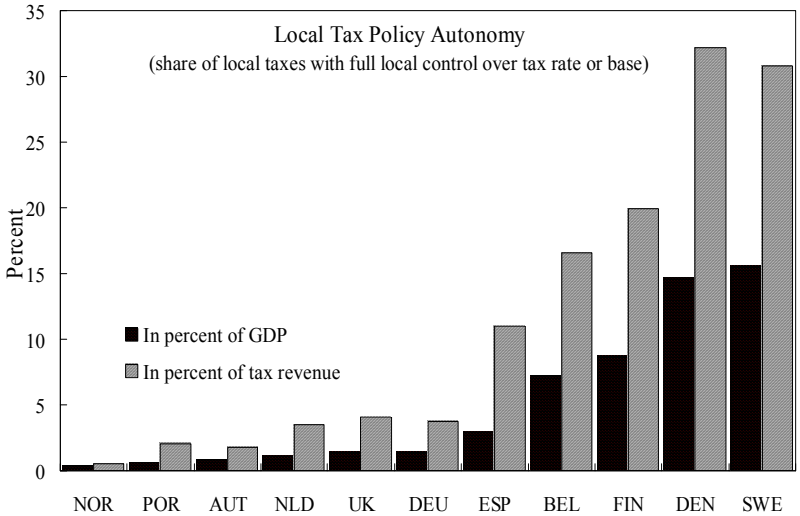
[5] One exception was the specific grant for pharmaceuticals until 2003, which covered all costs of pharmaceuticals in the context of healthcare services provided by the county councils.

vertical grants has hampered the ability of local governments to devise realistic medium-term plans and has even affected finances for the current budget year. One recent example is the larger than expected reduction in vertical grants in compensation for a tax base broadening measure related to the taxation of pensions.

18. **The lack of local tax base diversification is partly an unavoidable result of Sweden's large local government sector.** Public finance theory suggests that stable and immobile tax bases should be assigned to local governments (e.g., Mueller 2004) to prevent excessive volatility and tax competition among local governments. Most commonly, this entails the assignment of property taxes or excises to local governments. In Sweden, revenue from both of these taxes accrue to the central government. However given their small revenue capacity relative to financing needs—property taxes and excises amount to less than 5 percent of GDP—they would not be an substitute to the personal income tax. In fact, all Nordic countries rely heavily on the income tax as a the main local revenue source (text figure). Countries with a more balanced tax base distribution, such as France, Spain or Portugal, have either significantly smaller local governments or rely to a larger extent on vertical government grants.




19. **Sweden's local governments have very high tax policy autonomy.** The right of local authorities to levy taxes is set out in the constitution. In practice this means that local authorities can decide on the local tax rates while the state defines which tax base should reside with the local authorities. In an international comparison this high degree of local tax policy autonomy stands out. The text figure depicts two measures of discretional tax setting power. The two vertical bars measure

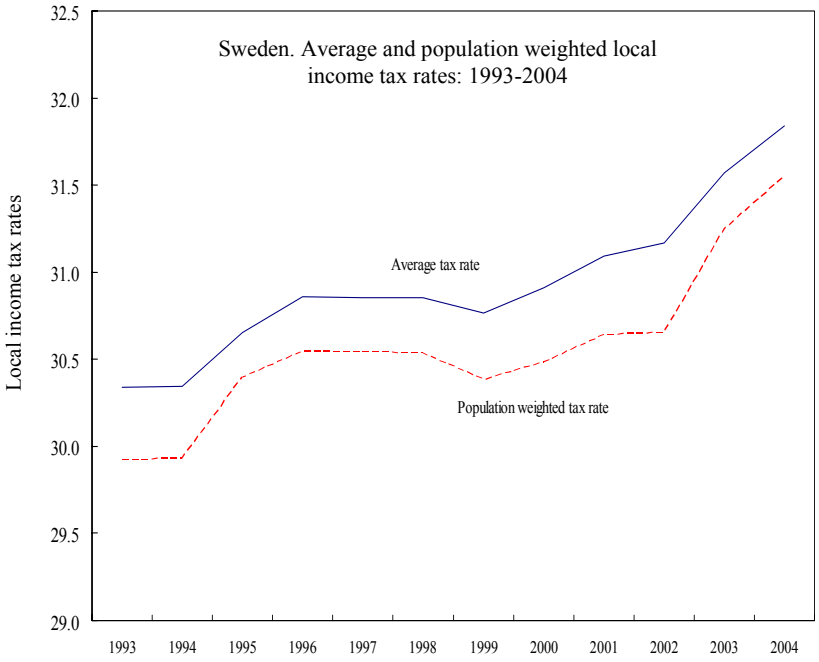


the share of local taxes—of total tax revenue or of GDP—for which local authorities have either full control over the tax base or the tax rate. Sweden scores very high on both indicators. Even among Nordic countries this high degree of autonomy is unusual.

## C. Local Tax Rate Structure and Trends

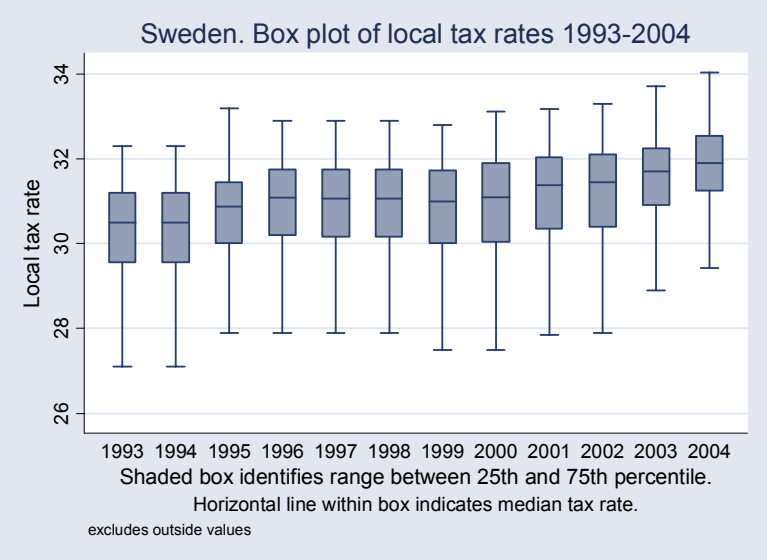
20. **Statutory tax rates of local governments have steadily increased since the early 1990s.** The average (population weighted) personal income tax rate in 2004 is 31.5 percent, roughly 1.6 percentage points higher than in 1993.[6] The text figure below plots the average and the population weighted level of local tax rates. Both measures show the same upward trend with a slight narrowing between the two at the end of the observation period. The text graph also indicates that the tax hike occurred in two main stages, one in 1994–96 and another one beginning in 1999. These two shifts can be partly explained by institutional changes which are discussed below.

21. **The local tax rate increase has been of macroeconomic significance**. In 2003 local tax revenue reached 16.7 percent of GDP, up 2.2 percentage points compared to the lowest revenue ratio recorded in 1995. The upward tax creep since 1999 eliminated more than one quarter of the tax relief granted by the central government in 2000 and 2001. A simple rule of thumb for the revenue impact of tax hikes can be derived by dividing the local tax revenue by the statutory tax rates. Assuming a revenue elasticity of 1, a one percentage point increase in the local tax rate raises revenue by 0.8-1.1 percentage points of GDP. Since local governments expect further tax rate increases in the coming years—between 1-2 percentage points by 2006—the tax burden would increase significantly.




[6] The year 1993 has been chosen as the first year unaffected by large fluctuations of the exchange rate.

22. **The increase in tax rates has been broad based, despite various attempts to regulate or influence local tax policy.** Between 1993 and 2003 local tax rates increased in all but 7 municipalities. The box plot shows the distribution of local tax rates over time. As the graph clearly demonstrates, tax rates have gone up in all parts of the tax rate spectrum. Moreover since 1999 a narrowing in the tax differential between low tax and high tax localities has occurred. The general upward drift in tax rates is quite remarkable in its uniformity given different attempts to contain local tax rates. During 1991-1993 a constitutional regulation prohibited a rise in the local income tax. After this regulation expired in 1994, the government offered local governments a compensation if they maintained the level of taxation. Despite these incentives the prolonged tax freeze led to a sharp increases in tax rates in 1995 and 1996. A new attempt in controlling local tax rates was made in 1997-99. During this time local governments received lower grants if their tax rate increased. This policy led to an aggregate decline in tax rates, but was abandoned. By 2000 tax rates began to rise again with a significant acceleration beginning in 2002. The latter increase may be related to the introduction of the balanced budget requirement in 2000.




23. **The dispersion of local tax rates has been quite low reflecting effective revenue equalization.** The difference between the lowest and the highest local tax rate is 5.2 percentage points in 2004. Moreover the tax rate structure across municipalities was stable over this period. The majority of local governments which had tax rates in the lowest quartile of tax rates distribution in 1980 was still in this group by 2000, and vice versa for local governments with high tax rates. Part of the reason is an extensive revenue equalization system. The scheme reallocates funds from regions with high tax bases to low tax base areas, thus reducing the need for compensatory tax rate differentials. In addition, local government receive compensation for cost differences further lowering the need for a greater tax rate dispersion. In 2003 income and cost equalization schemes redistributed about 1.1 percent of GDP of local revenue between local governments.

**Determinants of local tax rate structure**

24. **Local tax rates are higher and tax bases lower in smaller municipalities.** Table I.1 describes the distribution of tax rates and disposable per capita income across municipalities sorted by population size. Local tax rates in smaller municipalities with a population of less

than 50,000 are between 1 and 1.7 percentage points higher than in large cities (> 250.000). Part of the reason is that larger communities have higher tax bases. The average per capita tax base in the largest municipalities is about 20 percent higher than in the smallest ones. A large part of this discrepancy is however offset through the revenue equalization scheme and balancing grants. Thus other factors such as the population age structure and the expense ratios for other large local public services must be important.

Table I.1. Sweden: Local Tax Rates and Tax Base by Municipalities (2002)

| | *Population in municipality 1/* | | | | |
|---|---|---|---|---|---|
| | < 15000 | 15,000–50,000 | 50,000–100.000 | 100,000–250,000 | >250,000 |
| Local tax rates | 31.6 | 30.8 | 30.5 | 30.8 | 29.9 |
| Tax base per capita | 1090.9 | 1212.2 | 1286.5 | 1214.9 | 1316.3 |
| N | 119 | 94 | 29 | 8 | 3 |

Source: Statistics Sweden
1/ differences between group averages statistically significant at the 1 percent level.

Table I.2. Sweden: Determinants of the Local Tax Rate Structure 1/

| | (1) τ | (2) τ | (3) τ | (4) τ | (5) τ |
|---|---|---|---|---|---|
| Population | -0.002 | -0.000 | -0.001 | -0.001 | -0.000 |
| | (2.17)* | (0.41) | (1.34) | (1.09) | (0.56) |
| Tax base 2/ | -2.608 | -3.128 | -1.981 | -1.869 | -2.158 |
| | (6.11)** | (9.90)** | (5.57)** | (6.28)** | (5.82)** |
| Childcare cost 3/ | -0.263 | | | | 0.024 |
| | (3.24)** | | | | (0.30) |
| Education cost 3/ | | 0.231 | | | 0.079 |
| | | (6.65)** | | | (2.31)* |
| Age 65+ | | | 0.122 | | -0.046 |
| | | | (8.22)** | | (1.89) |
| Elderly care cost 3/ | | | | 0.211 | 0.240 |
| | | | | (14.15)** | (9.02)** |
| Constant | 35.229 | 31.571 | 31.021 | 30.415 | 30.057 |
| | (98.19)** | (50.15)** | (52.07)** | (67.89)** | (37.56)** |
| Observations | 505 | 505 | 506 | 505 | 505 |
| Adjusted R-squared | 0.24 | 0.29 | 0.31 | 0.45 | 0.46 |

Absolute value of τ statistics in parentheses; * significant at 5%; ** significant at 1%
1/ dependent variable: level of statutory local tax rate
2/ assessed personal income municipal population
3/ annual expense per municipal population

25. **A more systematic analysis reveals that municipal income levels and per capita expenses for public services determine the tax rate structure across local governments.** A pooled cross sectional analysis was carried out on municipal level data for the last two available years 2001 and 2002. The dependent variable is the level of statutory local tax rates $\tau$ (county plus municipal tax) in a municipality. The estimation method is ordinary least squares and controls for municipal population size, age structure, and levels of per capita expenses on three types of public services (education, childcare, and long-term and disability care). Municipal level data on expense levels for health care were not available and were approximated by the old-age ratio of local population.

26. **The following findings can be derived from the static analysis of the tax rate structure.** As on would expect, the local tax base size is negative related to tax rates in all regressions. A one standard deviation higher tax base is related to a 0.3–0.5 percentage points lower tax rate assuming that all other variables remain unchanged. An older population structure and higher per capita expenses for education and long-term and disability care are unequivocally associated with higher local tax rates. The effect of higher expenses on childcare is negative (model 1), but turns out to be affected by an omitted variable bias. Once the level of long-term care expenditure are taken into consideration (model 5), the negative sign of the childcare cost vanishes indicating a negative correlation between the level of local childcare and elderly care costs The level of health care expenditures are approximated by the share of elderly population in a municipality and is estimated to also increase local tax rates (model 3). In model 5 its effects turns negative due to multicollinearity with the elderly care cost variable. Among the different expense measures, the largest impact stems from long-term care expenses. A one-standard deviation higher expenditure level translates into a 0.75 percentage points higher local tax rate. It is also interesting to note that once all variables are included in the model, local population size does not matter. In other words, there is no big city advantage per se.

**Determinants of local tax rate increases**

27. **The recent increase in local tax rates can be attributed to a number of different factors.** Potential reasons for the tax rate increase are: an erosion of the income tax base, cyclically induced ratcheting up of public consumption, and emergence of underfunded expenditure mandates:

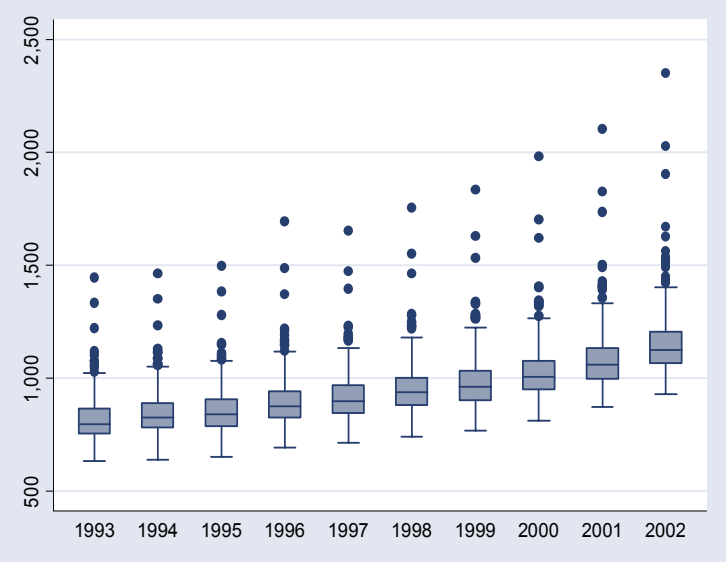
- *Tax base erosion.* A decline of the tax-base due to lower employment rates or moderate wage growth could have contributed to financing shortfalls and forced local government's to raise revenue through higher tax rates.

- *Ratcheting up of public consumption.* Local governments may have raised local public consumption during favorable economic situations and struggled to reduce spending during downturns, eventually requiring them to raise taxes.

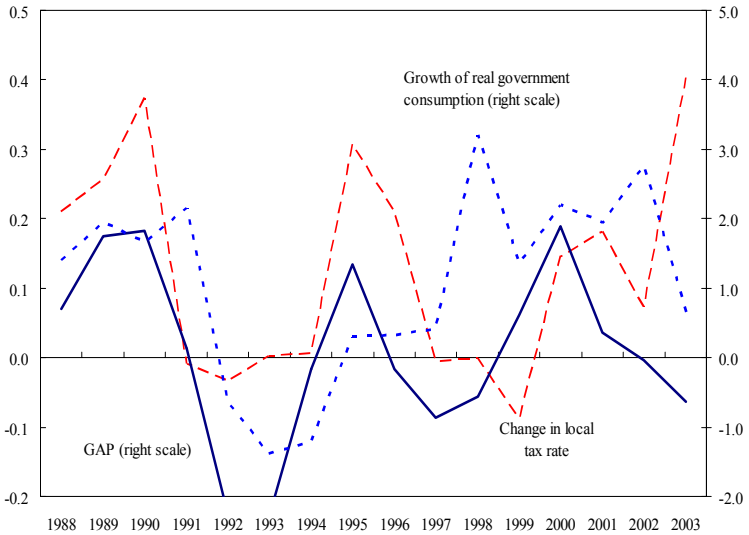
- *Emergence of underfunded mandates*. Demographic changes as well as a gradual expansion of the welfare benefit system may have led to a disproportional increase in the demand for public services. To the extent that local expenditure needs did not grow in line with available financing sources, local governments may have been forced to raise tax rates.

Competition over the local tax base appears to not have halted the tide towards raising tax rates. Interregional labor mobility is low in Sweden and migration decisions appear unrelated to the level of local tax rates (Aronsson, Lundberg and Wikstrom 2001). The plausibility of the three explanations are discussed below.

28. **There is little evidence of local tax base erosion.** Various local tax base measures show that disposable income has grown in line or even exceeded GDP growth. The text figure shows a box plot of the distribution of real per-capita taxable income. Average municipal income has grown steadily since 1993 and even increased in percent of GDP in the last three years. Similarly, aggregate local tax revenue divided by the statutory tax rate shows an upward trend if expressed in percent of GDP (not shown). While tax base broadening measures may explain this effect, the overall consensus is that the overall growth of the income tax base has been quite strong in the last decade. This effect is also confirmed in the multivariate analysis below.




29. **A ratcheting up of public consumption may have contributed to rising tax rates, but its effect is difficult to identify.** Some intuitive support for this argument can be derived from the text figure. At an aggregate level, real public consumption by local governments increased in two episodes, between 1993-1995 and 1997-2002 (dotted line). During both periods the acceleration of public consumption growth



coincided with an improvement of the output gap (solid line), while the intermittent deceleration of consumption growth (1995-1997 and 2002-2003) coincided with a widening of the output gap. This sequence would be consistent with a cyclically induced ratcheting up of consumption. The associated rising financing needs then triggered local tax rate increases starting in 1999. In other words, poor expenditure discipline in good time contributed to the tax hikes. A recent study by Soderstrom (2003) indirectly supports this line of argument. While the aggregate trends intuitively fit this explanation, a more definite answer have to await a more comprehensive study of local fiscal behavior.

30. **The effects of expenditure demand pressures were assessed through regression analysis.** The model relates changes in local tax rates between 1995[7] and 2002 to changes in several basic characteristics (B) and expense indicators (E) for various public services:

$$\Delta\tau_i = f(\tau_{94i}, \Delta B_i, \Delta E_i) \quad i... \textit{municipality}$$

where $\Delta$ refers to the difference operator ($\Delta X = X_{2002} - X_{1995}$), and $\tau_i$ to the statutory tax rate in municipality *i*. By looking at tax rate changes over a longer horizon, the estimation should not be affected by temporary factors, such as the incentive scheme for controlling tax rate growth (1997-1999). The model is specified in time differences ($\Delta$), but includes the level of the local tax rate at the beginning of the period to control for differences in initial conditions. The three basic characteristics *B* are: population size, per capita amount of vertical grants, and per capita level of the local tax base. The expense variables *E* are municipalities' per capita outlays for childcare, education, and long-term and disability care for the elderly. Data on health expenditures were not available and are approximated by the share of old age population in a municipality.

31. **Results from multivariate analysis show that rising costs related to population aging have been a main factor for tax rate increases.** The main findings from the regression analysis are:

- There is no evidence that the initial level of tax rate in 1994 affects the tax rate dynamics. The negative sign in models 5 and 6 indicate some convergence to the mean, but its effect is statistically insignificant.
- Rising expenses for long-term and disability care and an aging municipal population have significantly increased local tax rates. A one standard deviation higher expense ratio for long-term care (1866 SEK per capita) increased the tax rate by 0.2 percentage points. A one standard deviation increase in the population-age share has a more moderate effect of 0.05 percentage points.

[7] The comparison period was determined by the availability of data.

- Child-care or education expenses have not affected tax rate increases in a statistically significant sense.
- Local population growth has helped contain tax rate increases. A population increase by 5,000 residents lowered the tax rate by 0.2 percentage points. The effect is probably driven by the net revenue effect from local immigrants who are in the active labor force.
- As expected, growth of per capita tax base reduced the tax rate. The effect is however not statistically significant. This may indicate that an increase in the tax base may have induced local governments to increase public consumption and thus did not slow down the tax rate increase.
- Higher grants from the central government have helped contain the tax rate growth. An increase of the grants by 1000 SEK per capita decreases the tax rate by 0.7 percentage points leaving all other variables unchanged.
- The findings are robust to the inclusion of a large-city dummy or controlling for the initial level of per-capita income, grants, or population.

Table I.3. Sweden: Determinants of Local Tax Rate Changes Between 2002 and 1995[1/]

| | (1) Δτ | (2) Δτ | (3) Δτ | (4) Δτ | (5) Δτ | (6) Δτ |
|---|---|---|---|---|---|---|
| τ 1994 | 0.026 | 0.021 | 0.025 | 0.017 | -0.038 | -0.042 |
| | (0.71) | (0.56) | (0.66) | (0.46) | (1.05) | (1.14) |
| Δ _Pop | -0.045 | -0.045 | -0.046 | -0.037 | -0.037 | -0.033 |
| | (4.83)** | (4.76)** | (4.82)** | (3.62)** | (4.17)** | (3.36)** |
| Δ_Tax base | -0.773 | -0.517 | -0.870 | -0.739 | -1.740 | -1.660 |
| | (0.88) | (0.56) | (0.94) | (0.85) | (2.03)* | (1.85) |
| Δ_Grants | -0.041 | -0.035 | -0.046 | -0.038 | -0.075 | -0.071 |
| | (1.77) | (1.43) | (1.79) | (1.63) | (3.24)* | (2.85)** |
| Δ_Childcare cost | | -0.079 | | | | -0.013 |
| | | (1.33) | | | | (0.22) |
| Δτ _Educ Cost | | | 0.021 | | | 0.004 |
| | | | (0.60) | | | (0.13) |
| Δ_age65+ | | | | 0.096 | | 0.056 |
| | | | | (2.11)* | | (1.27) |
| Δ_Eld care cost | | | | | 0.116 | 0.111 |
| | | | | | (5.96)** | (5.48)** |
| Constant | 0.055 | 0.136 | 0.042 | 0.264 | 1.763 | 1.835 |
| | (0.04) | (0.10) | (0.03) | (0.20) | (1.37) | (1.42) |
| Observations | 241 | 237 | 237 | 241 | 237 | 237 |
| Adjusted R-squared | 0.12 | 0.13 | 0.12 | 0.13 | 0.24 | 0.24 |

Source: staff estimates

Absolute value of τ statistics in parentheses; * significant at 5%; ** significant at 1%

1/ dependent variable: change in statutory tax rate between 1995 and 2002; Changes over time are expressed by the difference operator: $\Delta X = X_{02} - X_{95}$;

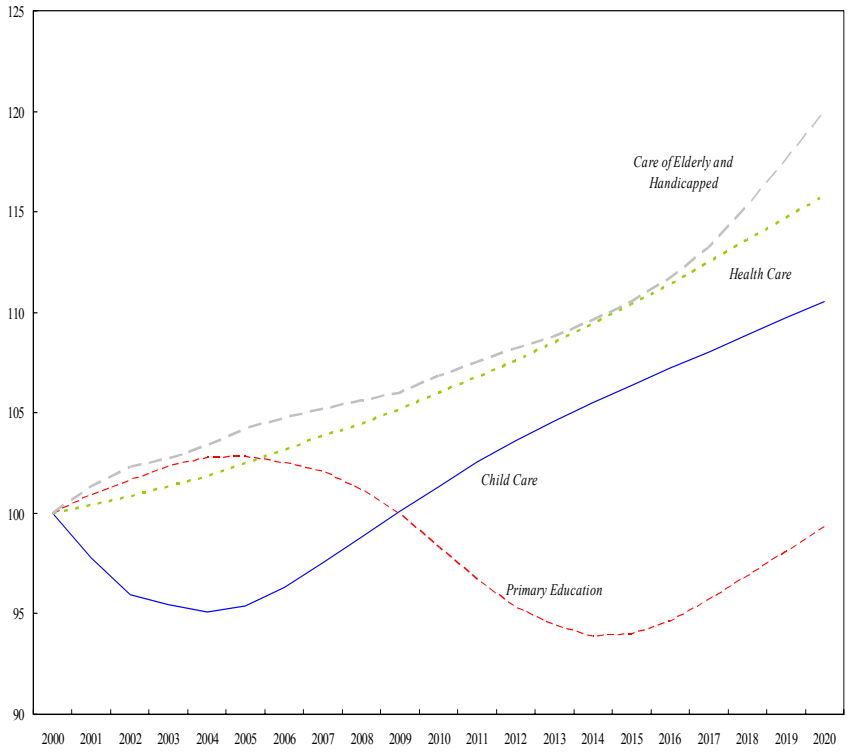
2/ Taxable personal income per municipal population

3/ Annual expense per municipal population

32. **In sum, the regression results indicate that expenditure pressures have been a major factor for local tax rate increases.** In particular, expenses on long-term care and disability care, and to a lesser extent an aging local population have been the main culprits. Anecdotal evidence suggests that part of the expenditure pressure is due to higher utilization of existing programs in particular in the case of disability benefits. It would therefore be too early to infer from the above findings that tax rate increases are due to demographic shifts. Another caveat is that the regression could not draw on detailed information on health expenditure trends, which exhibited large nominal cost increases.

## D. Longer-Term Challenges for the Local Public Finances

33. **Sweden's local public sector will be strained by demographic changes.** Population aging is affecting Sweden somewhat earlier than other EU countries. The old-age dependency ratio is currently at 30 percent—slightly above the EU 15 average—and will gradually increase to 44 percent in 2040 after which will stabilize at a lower level.[8] While Sweden has early on addressed the financing needs of its public pension scheme, it has been less forward looking in ensuring the financial viability of health and long-term care programs. Population aging will lead to rising demands for these services and growing pressure on local public finances. However, population aging also means a smaller cohort of children entering childcare and subsequently education, which could offset some of these cost increases. Finally aging also leads to a decline in the share of the domestically born labor force with the implication that a steady labor supply would have to come from greater employment of foreign born residents (OECD 2004).




[8] Defined as the share of population age 65 and older in working age population.

34. **The text figure above depicts projected increases in the demand for public services stemming from compositional changes in population age structure**. The projections distinguish between different public services provided by local governments and assumes constant utilization rates by age group and gender. Comparisons are made relative to the level of local public services provided in 2000 (standardized at 100). The depicted changes in the demand for public services over time are derived solely from the effect of different age and gender cohort sizes.

35. **Over the next 20 years two main developments can be distinguished.**

- As fewer children are born, demand for childcare and education services will decline. The use of childcare bottoms out by 2005, but subsequently immigration gradually increases demand over the next 15 years. Demand for schooling exhibits the same time-delayed pattern, and will decline until 2015 when a turning point is reached. By 2020 about the same volume of primary education will be needed as in 2000.

- The flip side of lower expenses for the young are rising demands for health related services. The need for both health and long-term care services will continuously increase, as more people grow older. By 2020 the volume of health and long-term care is expected to increase by 15 and 20 percent relative to 2000 levels solely due to population aging. The projections are based on an "unchanged-policy" basis and thus do not incorporate savings from potential reform measures. They do however also not account for higher utilization rates of existing services unrelated to population aging, such as greater familiarization with benefit entitlements under the existing system—a phenomenon currently observed for disability care benefits.

36. **The main increase of expenditures will be driven by cost developments.** Official estimates of the annual increases in service costs at constant volumes range between 4-5 percent per year. The text table summarizes the average expected cost developments for the respective local public services. Under the current generous benefit system the estimates for long-term care and health services appear conservative. Thus a tremendous financing needs could arise to local governments from both cost and demand increases.

| | Child Care | Primary Education | Health Care | Care of Elderly and Handicapped |
|---|---|---|---|---|
| 2000-2010 | 4.9 | 4.1 | 4.5 | 4.5 |
| 2010-2020 | 4.4 | 4.6 | 4.3 | 4.0 |

37. **Financing problems from rising expenditure needs will be compounded by a shrinking labor force.** Population aging decreases the labor force and thus reduces the available tax base for local governments. As Sweden has already a high labor force participation rate, in particular in pre-retirement cohorts, there is only little room to increase employment of the existing labor force. One possible alternative is immigration. Long-term demographic projections show that the share of foreign born population may increase from 11.8 percent in 2002 to about 16.5 percent by 2020. However immigrants have a lower employment rate, and OECD projections show that without further efforts to better integrate

immigrants into the labor market, total hours worked may stagnate or only grow modestly until 2020.

38. **Based on this outlook, there is little prospect for a tapering off of local tax rate increases.** As local governments will face a growing gap between resources from weakening tax bases and rising expenditure needs, they will be forced to continue raising tax rates unless they receive greater financial support from the central government, introduce service fees, or reduce benefits. A particular concern of a rising aggregate tax burden would be its negative effects on employment and thus on the prospects for integrating the foreign born population into the labor market. While immediate expenditure pressure may be subdued due to declining childcare and education needs, local governments may have to raise tax rates in the near future to avoid larger increases after 2010, when the costs of population aging begin to bite. The Swedish Local Government Association estimates that an upfront savings strategy may require a 2 percentage points tax rate increase by 2006.

### E. An International Perspective on Vertical Fiscal Policy Coordination

39. **Fiscal decentralization poses a formidable challenge for macroeconomic management.** Its overriding objectives are to maintain macroeconomic stability and to ensure fiscal sustainability. Both goals require that governments secure aggregate fiscal discipline and implement policies consistent with economic and demographic prospects. In decentralized economies this means that all tiers of government need to coordinate their fiscal plans and synchronize actions. Experience from a number of countries shows however that governments in decentralized economies have often not succeeded in achieving these goals due to ineffective fiscal management structures.

40. **In decentralized economies, threats to fiscal discipline and sustainability arise from fiscal externalities, unclear assignments of responsibilities, and underfunded mandates.** Subnational governments often do not incorporate the spillover effects of their decision making into their assessments. Costs of excessive spending and borrowing go beyond the local realm and are borne by higher borrowing costs for the rest of the economy. In the same vein, bail-out guarantees can induce moral hazard and may encourage fiscal laxity with similar consequences. A different problem is the emergence of underfunded mandates caused by transferring spending responsibilities to local authorities without fully taking costs into account. Examples of this burden shifting have been decentralization processes in Denmark, Norway, Russia, or the United States. Often emergence of underfinanced mandates reflect a poor information exchange between the center and the regions, but can also be the result of devolving fiscal problems to local authorities. Whatever the source of the underlying problem, the existence of coordination and enforcement mechanisms is critical to ensure fiscal discipline.

41. **In Europe, efforts to improve vertical fiscal policy coordination have received increased attention with the introduction of the EMU.** To ensure that fiscal policy supports the common currency, EU member countries subscribed to the Stability and Growth

Pact (SGP). Under this arrangement countries commit themselves to avoid excessive general government deficits over 3 percent of GDP and to pursue the medium-term objective of budgetary positions close to balance. For many countries with a centralized government structure this merely meant adherence to new fiscal policy targets. However, for countries with a decentralized government structure the new restrictions imposed indirectly commitments on local authorities outside central government control.

42. **In order to meet the new fiscal policy limits, many EU governments called for the introduction of internal stability pacts** (see Banca D'Italia 2001). These internal pacts (ISP) are the national policy instruments that translate national fiscal policy goals into sub-targets for the different tiers of governments. Formulation and success in implementing ISPs has been quite varied (see Daban et al 2001). In Spain, the ISP was initially based on negotiated fiscal targets for regions and the central government with varied success in implementation. In 2003 new legislation was passed setting tighter standards for greater transparency and implementation and has so far been successful in meeting fiscal targets. In Italy, efforts to impose fiscal discipline on regional governments through an ISP had only mixed success and faltered in recent years. In Austria the government relied quite successfully on recurring binding contracts between the federal and local governments, while Germany based fiscal policy on voluntary agreements between the central government and the Länder governments (Box I.1).

43. **Two broad approaches for fiscal vertical coordination have emerged in the advanced economies.** These are rules-based approaches relying on setting targets or limits, and cooperative approaches based on mutually agreed policies. The text table gives an overview of the most common practices used in achieving aggregate fiscal discipline (OECD 2003). Fiscal rules, such as the requirement of a balanced budget, or tight administrative controls have been adopted primarily in countries with a unitary government structure, such as Sweden. Cooperative approaches are more common in federal countries. They can be voluntary and indicative or entail a detailed fiscal contract as the result of a negotiation process. The distinction between the two strategies is gradual with significant differences in terms of tightness of rules and the formality of the cooperative process.

| | |
|---|---|
| Rules based | |
| Administrative controls | FRA, GRC, IRE, LUX, UK |
| Rules imposed by center | FIN, ITA, NOR, POR, SWE, |
| Cooperative approach | |
| Formalized cooperation | DEN, AUT, DEU, BEL, ICE, ESP, NLD |
| Cooperation w/o institutions | US, CAN, CH |

44. **The choice between the two coordination strategies reflects partly the degree of vertical power sharing.** To the extent that subnational governments enjoy larger economic bases and political power, countries have relied on the cooperative approach to impose fiscal discipline. On the other hand, countries with a uniform government structure and tighter central control have relied more often than not on a rules-based approach. Two contrasting examples are Germany and France, with the former having powerful subnational

**Box I.1. Cooperative Fiscal Coordination in Germany and Austria**

Germany and Austria are both federal countries and use a cooperative approach to vertical fiscal policy coordination. While Germany has relied on setting non-binding policy targets, Austria uses a contractual approach, which defines jointly vertical and horizontal transfers, local and central fiscal targets policy, and financial sanctions for non-observance.

Germany's vertical fiscal coordination process is conducted through an intergovernmental body (Finanzplanungsrat) chaired by the finance minister. The committee meets twice a year and is responsible for preparing fiscal projections for the general government. Targets are set within a medium-term horizon and based on independently derived tax revenue forecasts (Arbeitskreis Steuerschaetzung). In practice the fiscal coordination committee functions as a forum for reconciling competing fiscal plans between the regional and local governments (Gemeinden and Länder) on the one hand and the Ministry of Finance on the other hand. The determination of vertical and or equalization grants is made independently from this process and is based on revenue sharing rules. The committee has no formal authority and its targets are for the most part indicative.[1] As Germany entered EMU, the fiscal coordination committee has become the substitute for a formal internal stability pact (Wendorff 2002) and its targets are consistent with Germany's Stability Program under the SGP.

In Austria, vertical fiscal coordination is implemented through a fiscal equalization contract signed every four years in the context of negotiations about vertical and horizontal financial transfers. The agreement sets fiscal balance targets for all levels of government and determines financial sanctions. According to the last pact agreed upon in 2001, the regions have to produce an aggregate surplus of 0.75 percent of GDP per year with specific targets set for each individual region. Municipalities have to balance their budget. The targets are binding for each individual region as well as for the municipalities as a group within each region. Trading of deficit/surplus rights and obligations between local governments is possible. If governments fail to meet these targets, fines can be applied, but require a unanimous decision of a multi-government commission. Sanctions do not apply under serious economic conditions. The quantitative goals within the pact are annually reviewed and revised if necessary.

[1] In 2003 expenditure projections were conceived as binding spending caps, but have not been adhered to.

governments (Länder), which made the use of a rules-based approach infeasible. In France a centralized government structure goes hand in hand with tight administrative controls over local governments. But even with a strong centre based government structure, the scope for rules based approach may be limited.

45. **The success of cooperative versus rules based approaches also depends on the political cohesion of the government.** As Hallerberg, Strauch and von Hagen (2001) have convincingly argued, the type of political system plays an important role for the effectiveness of budgetary institutions and thus fiscal discipline. The study examines fiscal consolidations in Western Europe and argues that successful episodes of reform appear linked to the right mix of political and institutional conditions. In particular, different political constellations—one-party majority governments, multi-party majority coalitions, and minority governments—require different policy coordination mechanisms to be effective. Majority governments due to their strong support can rely on delegation schemes, such as a strong Ministry of Finance, to enforce policies. On the other hand, multi-party coalitions and minority governments are more likely to be effective under a commitment based scheme which binds together differing views of coalition partners and the opposition in detailed agreements (e.g., the Netherlands under the Kok administration). A corollary of this argument is, that countries with a broad political consensus will better be attuned to adhere to a fiscal rule, while countries with a less homogenous view and power bases in different regions will have to rely on carefully crafted cooperation agreements to ensure fiscal discipline.

46. **The case of Denmark provides valuable experience for Sweden since it is both characterized by a large local government sector and minority governments.** Similar to Sweden, the Danish government has devolved a wide variety of responsibilities to local governments. Local public sector services include childcare education, health and long-term care services and account for about 70 percent of total public consumption. In addition governments in Denmark had to rely on the support of nongovernmental parties. Both these elements contributed to a cooperative approach of fiscal policy coordination which differs from Sweden's rules-driven approach of vertical fiscal relations

47. **In the absence of binding fiscal targets for local governments, Denmark has opted for a system of formalized budget cooperation.** Budgets for both local and central governments are formulated as part of formal annual budgets, which have been gradually developed since the 1970s (OECD 2002). The agreements are multi-annual and stipulated between local government associations and the central government. They set both aggregate spending limits and tax rates, and also identify main fiscal policy objectives and initiatives in individual policy areas. The format of the agreements has been flexible with varying degrees of details on commitments ranging from declarations of intent to specific targets for particular services. Negotiations are fully aligned with the budget preparation calendar and are instrumental to mustering support in parliament for the approval of the annual block grant to local governments.

48. **The intragovernmental agreements in Denmark are however not binding and thus have only limited incentives for compliance.** Since the local government association cannot legally commit to fiscal targets for municipalities, enforcement depends on voluntary compliance by municipalities. In the past, the cooperative approach has only been partially successful. Local governments have typically responded to expenditure overruns by raising income taxes and constraining labor supply. This has undermined the credibility and efficiency of the accords between the center and the municipalities. A main shortcoming of the agreements is a lack of incentives for local governments to adhere to the set targets. A particularly interesting case is Austria, which has included financial incentives into its fiscal policy contract between the different levels of government (Box I.1).

49. **In contrast, Sweden's vertical fiscal cooperation between the different government levels is based on informal consultations, but final policy decisions are made autonomously.** While the Spring and the Fall Budget contain medium-term fiscal projections for the general government, they represent the central government forecasts and do not reflect the consensus forecast by all levels of government. There is a steady dialogue between the different government levels on policy relevant issues, but the discourse is not embedded in a formalized coordination process and not intended to arrive at common decision on financial or policy matters. As a result, decisions on the size of grants from the central government, expenditure plans local tax policy are made independently.

50. While Sweden's rules driven approach is in line with principles of self-government, the law would not preclude a closer cooperation between governments in the budget planning process. A more formalized exchange of information at the technical level could help to better assess rising fiscal demands and pressures on local tax policy. Effective medium-term planning is also hindered by uncertainties about volatile tax revenue and frequent changes to government grants. Finally, there are no additional incentives for municipalities to adhere to fiscal policy targets and to contribute to macroeconomic tax policy objectives.

## F. Conclusion

51. **Sweden has a long tradition of decentralized public service delivery.** Local governments are responsible for more than 40 percent of general government expenditure and absorb more than two thirds of overall public consumption. In international comparison Sweden stands out with greater local responsibilities in demographically sensitive areas and a very high degree of local tax policy autonomy. In addition to the common education and childcare duties, local spending is strongly tilted towards health and long-term care, which is sensitive to demographic changes.

52. **In recent years pressures on local public finances have led to rising local income tax rates.** Since 1993 the average (population weighted) local tax rate has increased from 29.9 to 31.5 percent in 2004. These increases have offset one quarter of tax relief granted by the central government. The study has examined the role of various possible explanations and has come to the following conclusions:

- **Underfunded mandates have been a main reason for tax rate increases.** Rising expenses for long-term and disability care and an aging population have significantly increased local tax rates, while changes in child-care or education expenses have not translated into tax rate hikes.

- **The local tax base has not weakened.** Growth of the local tax base and higher grants from the central government have helped eased pressures to raise taxes, but could not avert them.

- **Cyclically induced overspending may have played a part**. However available data did not allow to directly test for this possibility.

53. **Looking forward, Sweden's local public finances will face continued pressures from demographic changes.** The effects of population aging will be felt somewhat earlier in Sweden than in many other EU countries. While recent reforms have put the public pension system on a sustainable foundation, increases in demand for health related services will strain the fiscal capacities of local public finances. Growth in health related expenditures, primarily due to cost increases, are likely to exceed savings from childcare and education. An important issue will be that the government explores reform options which do not adversely affect labor supply.

54. **Balancing local public finances without further increases of the overall tax burden will therefore be key to avoid fiscal sustainability problems in the long-term.** Sweden's tax burden is already high and stands at 50 percent of GDP. Additional local tax rate increases will adversely affect labor supply and could begin to backfire when population aging begins to bite. Diversification of the tax base by transferring stable revenue sources to the local government, may help to smooth aggregate revenue fluctuations, but not address the problem of an increasing tax burden, since the lost revenue at the centre would have to be matched through other increases. Similarly, higher vertical grants would only shift the financing problem to the central government without solving it. Thus containing expenditures through either higher efficiency of local or central public services, or a reduction in the already generous welfare benefits system will need to be considered.

55. **An important measure to enhance long-term fiscal planning is to improve fiscal policy coordination between the centre and the local authorities.** Effective aggregate tax policy planning in particular would require:

- improved vertical policy coordination,

- more predictable local financing sources,

- and the use of incentives to stick to agreed expenditure targets also at the local level.

Sweden's reliance on a balanced budget rule has diverted efforts to develop a more integrated approach of intergovernmental fiscal policy planning. Budgets of local and central

government are drafted in parallel with limited exchange on policy objectives including tax policy. Effective medium-term planning at the local level is hindered by uncertainties about volatile tax revenue and by frequent modifications of central grants. Experience from Denmark and Austria shows that many of these shortcomings can be addressed through a formalized budget preparation process, in which local and central government reach agreement over medium-term expenditure targets, tax rates, and vertical grants. Making such an arrangement effective in Sweden would involve that transfers to local governments become more formula driven, their plans are embedded in a medium-term setting with observable targets, and their attainment is tied to incentives. An important element would also be high public visibility and transparency of agreed targets to heighten public accountability.

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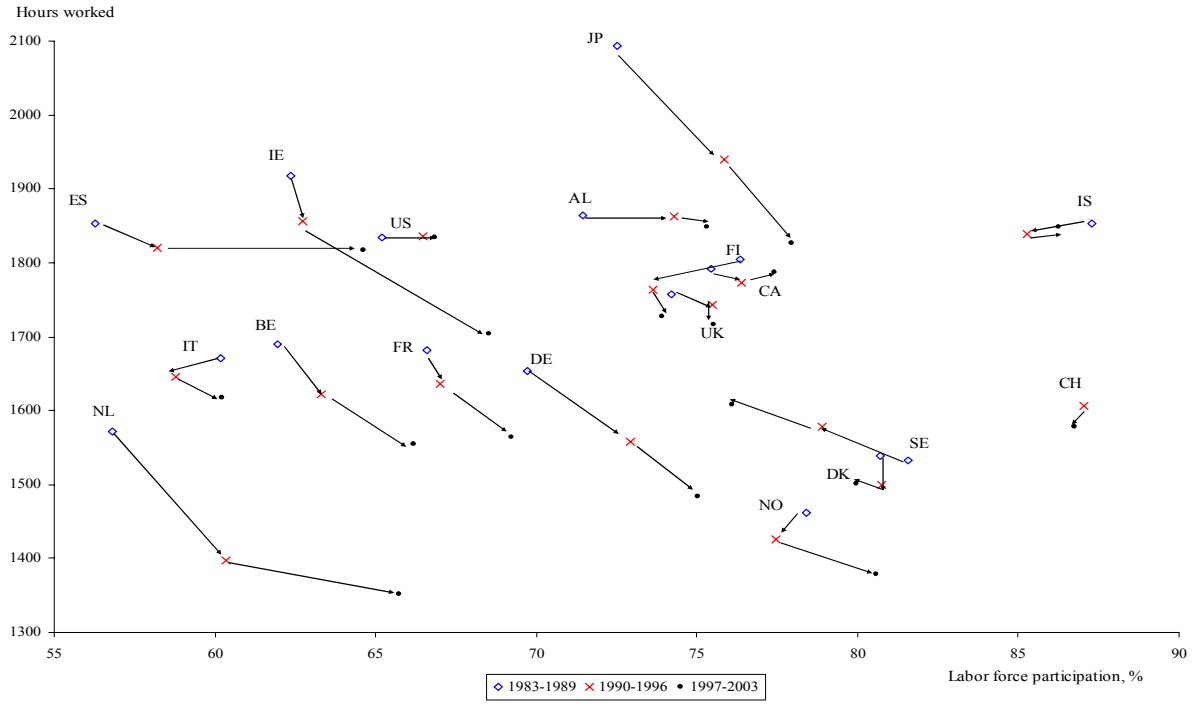
## II. Sickness Absence: Sweden in an International Perspective[1]

### A. Introduction and Overview

1. **Preventing the erosion of labor supply is a key long-term policy challenges facing Sweden.** Optimal mobilization and utilization of human resources are essential for ensuring sustainable economic growth, strong public finances, and high social security standards. This challenge, which is common to many European countries, is especially formidable for Sweden due to the size of its government, the generosity of its social insurance provisions, and the unfavorable demographic prospects.

2. **While participation rates are high, overall trends in labor supply are unfavorable.** Sweden has one of the highest participation rates in the OECD and its

Figure II.1. Labor Force Participation Rate and Average Hours Annually Worked Per Employee




Source: OECD, Economic Outlook

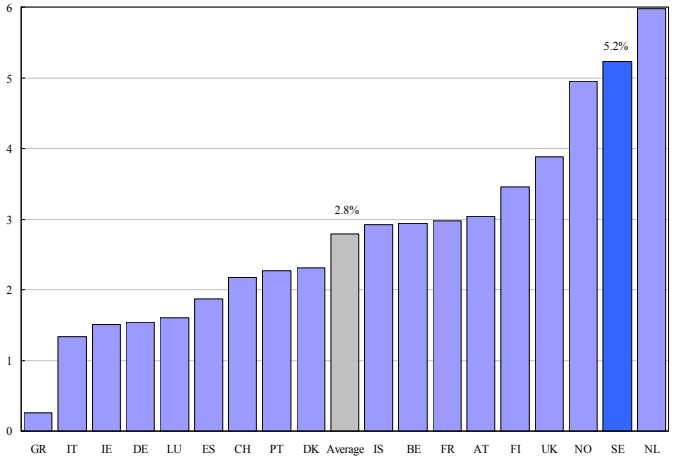
[1] Prepared by Leo Bonato and Lusine Lusinyan. This paper has benefited from comments from Clas Olsson, Gun Alm Stenflo, Krister Andersson, seminar participants at the Swedish Ministry of Finance, the Institute for Labour Market Policy Evaluation in Uppsala, and IMF headquarters. The authors are grateful to the Eurostat NewCronos LFS team for their assistance with the data on working time, and Lyle Scruggs, University of Connecticut, for providing the dataset on the main characteristics of social security systems across countries. The authors thank Xavier Debrun for providing the dataset on employment protection and Haiyan Shi for her excellent research assistance.

employment rate, at almost 75 percent, comfortably exceeds the target of 67 percent set by the Lisbon strategy for EU countries in 2005. However, participation has declined markedly in the last two decades, contrary to the trend observed in most European countries. Average hours worked per employee, which had been rising steadily in the business sector, began falling in the late 1990s, in line with a longer-standing tendency common to the majority of European countries and Japan (Figure II.1).[2] Looking ahead, labor supply is expected to decline. Working age population will rise by about 5 percent over the next five decades, the increase entirely due to immigration, but the ageing of the native population and the lower participation rate of immigrants will cause the employment rate to fall. The overall impact on labor supply will be compounded by continuing reduction in average working time.

3. **Contractual working hours have been declining**. Actual hours worked can be lower because contractual hours are falling or work absence is rising. In Sweden, contractual hours are marginally higher than the EU average, but have fallen slightly in recent years as unions have increasingly pushed for working time reductions in collective agreements. Average collectively-agreed weekly hours in Sweden were 38.8 in 2000–02, down from 40 hours in 1999, and slightly higher than the EU average (including Norway) of 38.2 hours.[3] In the chemical and retail sectors, as well as in the central civil service, the agreed weekly hours are still 40 and among the highest in the EU. Contractual working hours are expected to fall in the next few years as the objective of shortening working time remains high on the unions' agenda. The government is also promoting schemes for working time reduction.

4. **Work absence has a substantial impact on effective labor supply**. If national holidays and annual leave—for which country provisions vary widely—are excluded, absence can be accounted for essentially by sickness. Absence due to sickness is particularly pronounced in Sweden. The number of absent employees due to sickness was as high as 5.2 percent on average since 1995, second only to the Netherlands with 6 percent, and almost twice as high than the European average (Figure II.2). Unlike other

Figure II.2. Sickness Absence, Average 1995–2003
(as a percentage of employment)




Source: Eurostat, NewCronos

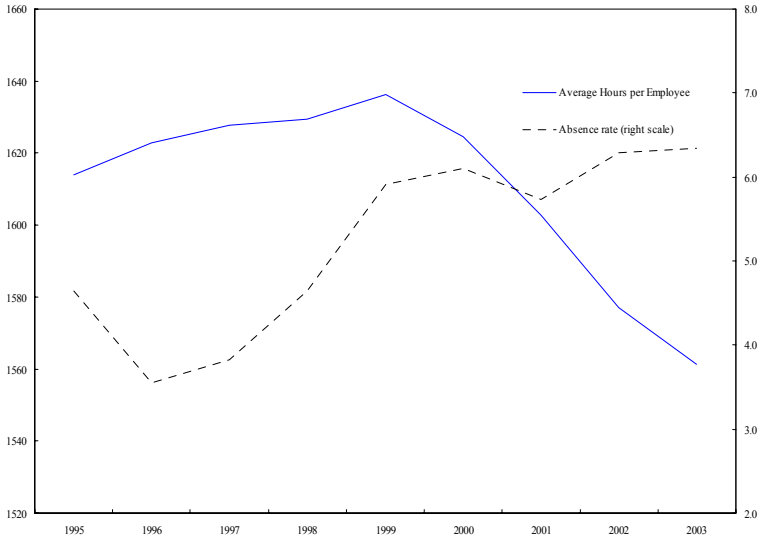
[2] The chart shows an increase in working hours on average over the subperiods, which masks the constant decline experienced since 1999 (Figure II.3). The data on average hours are intended for comparisons of trends over time and are not suitable for comparisons of levels (OECD Employment Outlook, Statistical annex).

[3] See European Industrial Relations Observatory on line, Working Time Developments, (various issues).

countries, Sweden has seen absence increase steadily since 1995, contributing to the recent decline in average working time (Figure II.3). Measures to reduce sickness absence are therefore a necessary complement to policies aimed at promoting higher participation.

5. **Containing work absence can be beneficial for a number of reasons.** Excessive work absence entails significant social and economic costs. In the presence of institutional constraints affecting the choice between work and leisure—such as minimum working hour requirements—absence can be seen as an efficient individual response to the need for flexibility (Dunn and Youngblood, 1986). However, when absence costs are not internalized by workers, significant efficiency costs may arise. Moral hazard may become widespread if insurance is too generous, altering incentives in a way that may not provide the best trade-off between protection and efficiency. Output and employment are likely to be lower in equilibrium due to the imperfect substitutability of absent workers. If insurance costs are mainly borne by the government, as is the case in most European countries, significant fiscal costs will also arise.

Figure II.3. Sickness Absence and Hours Worked per Employee




Sources: OECD Employment Outlook; Eurostat, NewCronos

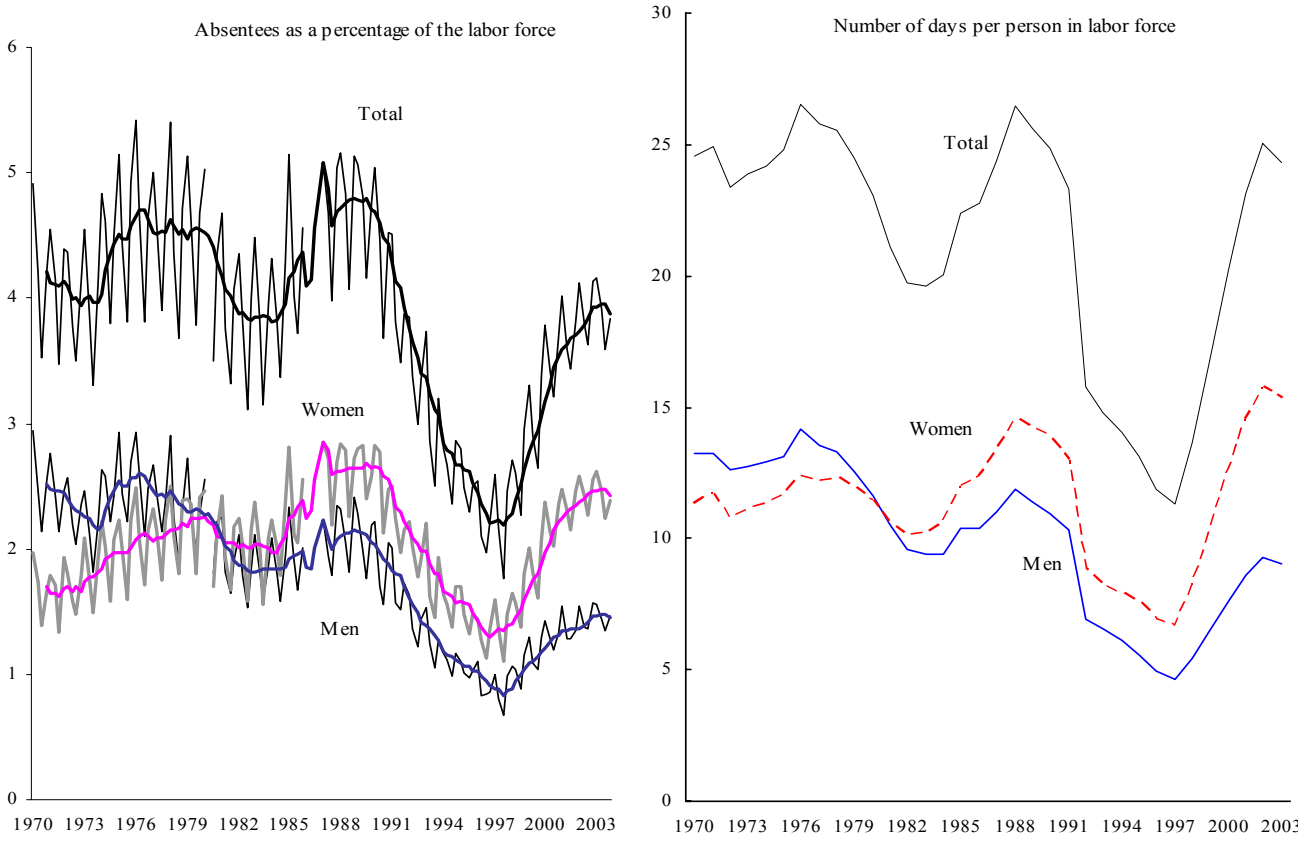
6. **This paper examines the Swedish experience of work absence in a European context**. The following section describes the facts regarding sickness absence in Sweden. Section C discusses the determinants of sickness absence and presents some stylized facts in a European comparative perspective. Section D presents the results of the econometric analysis of a panel of European countries. Concluding remarks and policy implications for Sweden are summarized in Section E.

7. **Results from this paper show that sickness absence is exceptionally high in Sweden, largely due to its generous insurance scheme.** The high level of sickness absence is not the necessary price for high participation, as demographic factors and labor force characteristics cannot fully explain the observed absence rates. Together with the insurance system, working time arrangements and cyclical effects play a decisive role. The study underscores the importance of interactions of the sickness insurance system with labor market institutions, in particular unemployment insurance and employment protection. Policies aimed at alleviating the problem need to take account of these interactions. Working time reductions may not be inconsistent with policies to lower absence, but promoting flexible working arrangements may be a better option to contain labor supply erosion.

## B. Sickness Absence in Sweden

8. **Rising sickness is the most important reason for the reduction of working time in Sweden**. According to the Labor Force Survey, about 20 percent of employees were absent on an average day in 2003. The main reason for work absence, in Sweden as elsewhere, is holidays (bank and annual). At 25 days in 2000–02, Swedish employees enjoy one of the longest statutory minimum annual paid leave among the EU countries, well above the EU average of 22.1 days. However, both in terms of average leave and total holidays, Sweden has been quite close to the EU average with no major changes over recent years. The second reason for work absence is flexible working arrangements. However, these should not on average affect the total hours actually worked. Sickness is the third most important reason, accounting for the absence of more than 6 percent of employees in 2003. Although the provisions for maternity leave and parental leave are comparatively generous in Sweden, the incidence of absence due to these reasons is much lower and has been fairly stable in recent years.

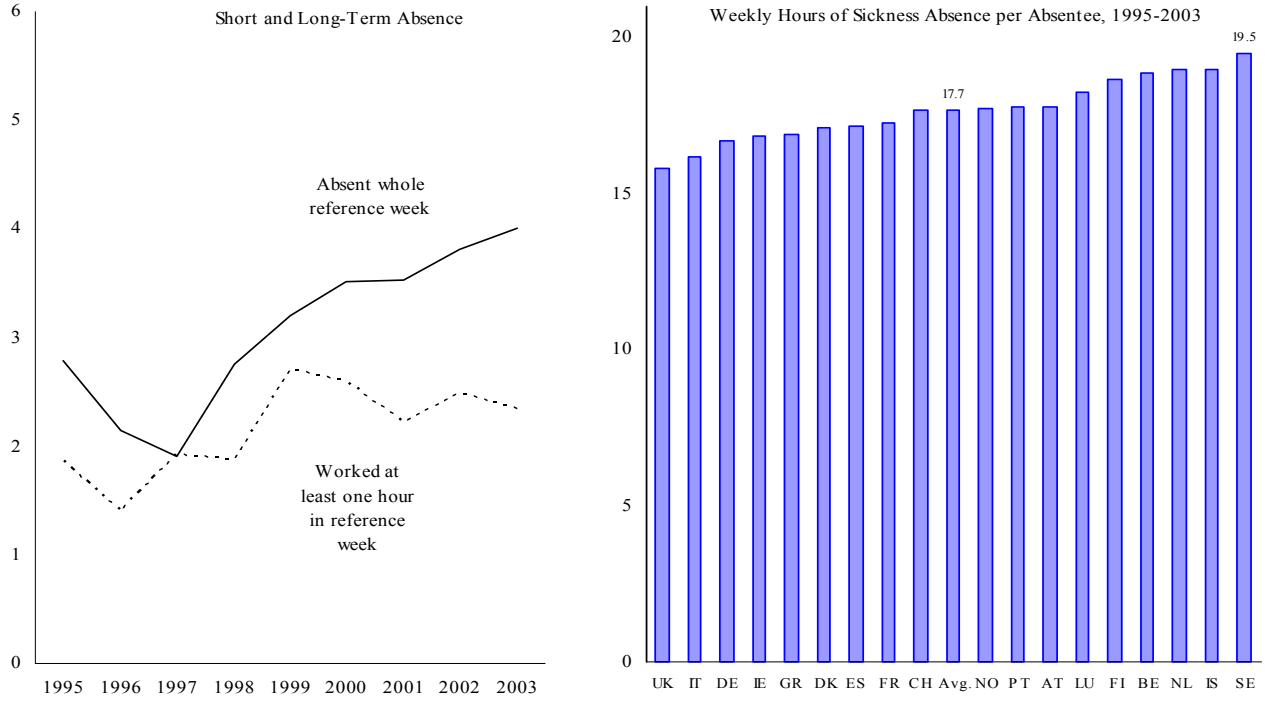
Figure II.4. Sweden: Sickness Absence, 1970–2003




Sources: Statistics Sweden, LFS; Swedish National Insurance Board

9. **High sickness absence is not a new phenomenon in Sweden**. Since 1997, both the number of workers on sick leave counted by the Labor Force Survey (Figure II.4, left panel) and the days of paid sick leave measured by administrative sources (Figure II.4, right panel) show a clear upward trend. However, the current overall levels are still below the highs reached in the late 1970s and the late 1980s, except for women, whose sick leave claims are at an historic high. In fact, possibly reflecting increasing female participation, women have become the majority among sickness absentees since the late 1970s, and the gap with male workers have continued widening since. The apparent leveling off of sick leave in 2003 should prevent absence rates to rise beyond those levels in the near future. It is interesting to note that sickness absence exhibits significant cyclical behavior as well as strong seasonality. While the cyclical component may be largely responsible for the recent deceleration, the seasonal pattern is clearly influenced by weather, as absence is highest in the first quarter and lowest in the third quarter. Seasonality, however, has declined over time.

Figure II.5. Duration of Sickness Absence




Source: Eurostat, NewCronos

10. **Absence spells are getting longer**. While the short-term component has been remarkably stable, those absent for more than one week have increased markedly (Figure II.5, right panel). In fact, sickness absence is generally more protracted in Sweden than in other countries, with an average weekly absence of 19.5 hours per full-time employee in 1995-2003

against a European average of 17.7 hours (Figure II.5, left panel). The increase in long-term sickness is of particular concern because longer absence is likely to be associated with a shift to disability pension. This has become one of the most common ways to exit the labor force before the statutory retirement age of 65.[4] Altogether, 830,000 people, or about 20 percent of the labor force, were either on sick leave or on disability pension in 2003.[5]

11. **Sickness absence is especially high in the public sector.** In most countries, public sector employees are more likely to be on sick leave than those in the private sector (Table II.1). This is particularly true for Sweden, where the difference in sickness absence rates between public and private sector is second only to the United Kingdom. This is largely explained by the high proportion of women in the public employment (about 74 percent, the highest in Europe). As a result, the overall sickness absence rate in Sweden tends to be higher due to the larger share of its public sector employment (close to 41 percent, the largest in Europe).

Table II.1. Sickness Absence in the Public and Private Sectors (average 1996–2000)

| | Sickness absence rate 1/ | | Share of public sector employment |
|---|---|---|---|
| | Public sector | Private sector | |
| France | 2.4 | 2.4 | 36.8 |
| Germany | 1.4 | 1.4 | 29.8 |
| Denmark | 1.7 | 1.5 | 38.9 |
| Finland | 2.4 | 2.2 | 35.5 |
| Netherlands | 4.7 | 3.8 | 34.4 |
| Norway | 3.8 | 3.3 | 38.4 |
| **Sweden** | **3.7** | **2.8** | **40.7** |
| United Kingdom | 2.3 | 1.7 | 33.0 |

Source: Bergendorff et al. (2004)

1/: Number of absentees for at least one week in percentage of all employees

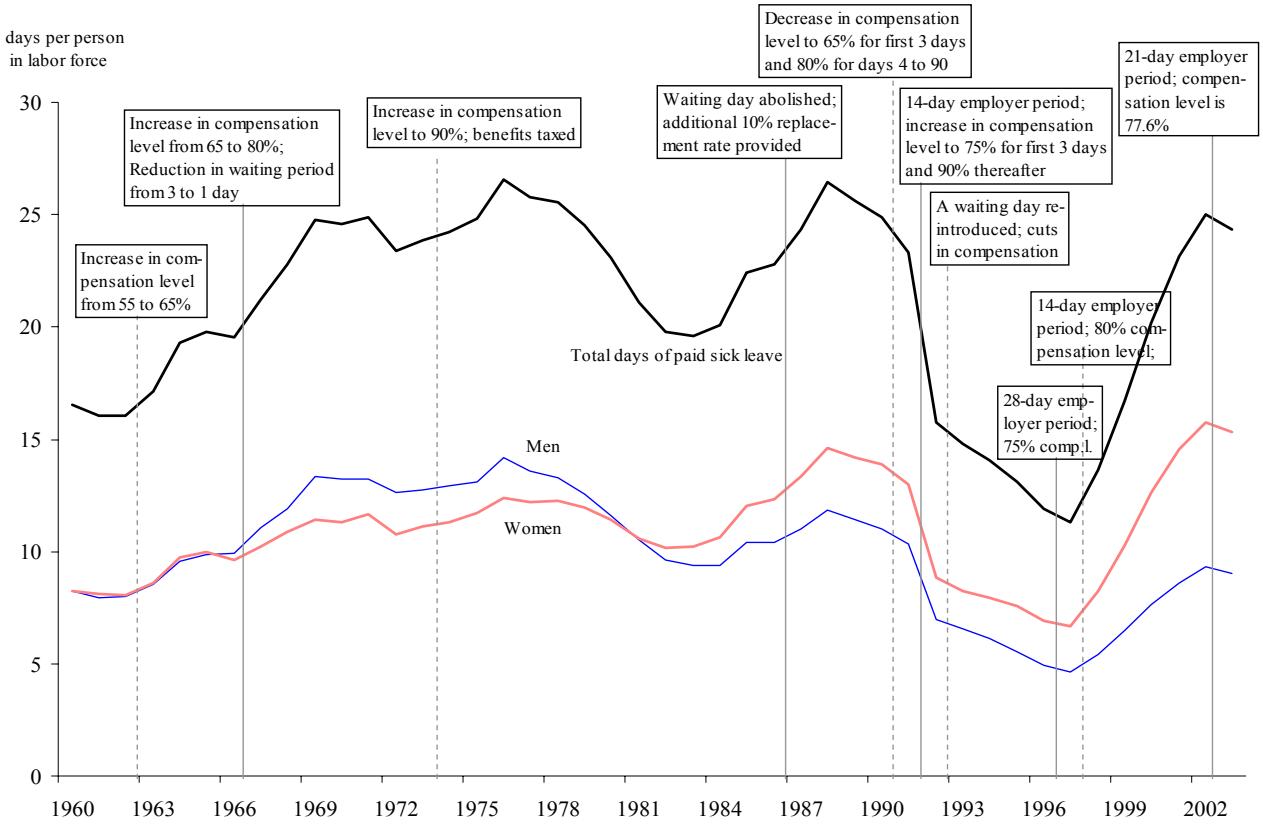
12. **The sickness insurance system is quite generous**. All employed workers earning above a certain wage are covered by sickness insurance. Students and unemployed workers are also eligible for insurance under certain conditions. Starting from the second day of sickness, the beneficiaries receive a cash benefit of 80 percent of their wage, subject to a ceiling, from their employers. After three weeks, a benefit of 77.6 percent of their wage is paid for by the social insurance system. Many labor contracts provide for an additional 10 percent from employers. There is no formal time limit, but the sickness benefit can be converted into a disability pension if the illness continues for a long time. There is no qualifying period during which an employee must pay contributions in order to receive full benefits. A medical certificate is required only after seven days of illness. According to an index encompassing different aspects of the sickness benefit system constructed by Scruggs (2004), Sweden is second only to Norway in the generosity of its sickness insurance system.

[4] Palme and Svensson (2003) find that 20.5 percent of males and 26.9 percent of females use sickness benefits as a pathway to retirement, the second most important avenue after state old-age pensions.

[5] See Ministry of Finance, Budget Bill for 2004, Budget Statement, p.16. (http://www.sweden.gov.se/content/1/c4/37/05/bbaf6e4f.pdf)

13. **The incentives stemming from the insurance scheme have a strong impact on absence behavior.** Figure II.6 juxtaposes the developments in the days of paid sick leave since 1960 and the main changes in the related regulations described in Box II.1. It clearly shows that whenever the system has become more generous (higher compensation level, shorter waiting period), the number of sick leave days has surged, and vice versa. Only in one instance—in 1992—the sick days continued to fall after an increase in the replacement rate, but this was accompanied by a shift in the responsibility of cash benefit payments for the first 14 days of illness from the social insurance system to employers. Moreover, there is a large literature providing empirical evidence of strong moral hazard effects of the insurance scheme.[6] Skogman Thoursie (2002), for example, finds a noticeable increase in male sick absence when popular sport events take place.

Figure II.6. Sick Leave and Insurance Provisions




Sources: Swedish National Social Insurance Board; Andrén (2003): Henrekson and Persson (2004); US Social Security Administration, Social Security Programs Throughout the World; European Industrial Relations Observatory on line.

[6] See, for example, Henrekson and Persson (2004); Andrén (2001a, 2001b, 2003); Johansson, and Palme (1996, 2002); Skogman Thoursie (2002).

14. **The interaction of sickness insurance with other elements of the social insurance system produces perverse incentives.** Larsson (2002, 2004) finds that higher compensation motivates middle- and high-wage unemployed to report sick, increasing sickness claims by as much as one third in that income group. By harmonizing the replacement rates and income ceilings between sickness and unemployment insurance systems in 2003, the government has eliminated this incentive. She also finds that unemployed increase sick reporting to preserve their benefit status as the end of the entitlement period for unemployment benefits (60 weeks) approaches. Palme and Svensson (2003) identify a link between sickness insurance, disability pensions, and early retirement.

15. **Work absence has substantial costs for public finances, employers, and workers**. Public sickness benefits as a percent of GDP have been very high in Sweden throughout the 1980s and 1990s. As Table II.2 shows, the benefits have been the second highest after the Netherlands, averaging about 1.4 percent of GDP in 1990-1999. Sickness absence costs to the public insurance system have been rapidly rising since 1997. Including disability pensions, the general government's total illness transfers amounted to 4.6 percent of GDP in 2003 and are expected to rise further in the coming years. For employers, total costs of worker's ill-health can be estimated to be around 4 percent of GDP, of which 1/7 is paid directly to employees in cash benefits while the rest are contributions to the public insurance scheme and collectively-agreed sickness insurance schemes. Workers pay a contribution to the public insurance system through their tax bill.

Table II.2. Public Sickness Benefits
(percent of GDP)

| | 1980-1989 | 1990-1999 |
|---|---|---|
| Netherlands | 2.18 | 1.55 |
| **Sweden** | **2.19** | **1.39** |
| Norway | 1.53 | 1.35 |
| Spain | 0.82 | 1.10 |
| Ireland | 1.68 | 0.90 |
| Greece | 0.16 | 0.79 |
| Luxembourg | 0.75 | 0.74 |
| Denmark | 1.38 | 0.66 |
| Finland | 0.53 | 0.55 |
| Portugal | 0.52 | 0.54 |
| France | 0.57 | 0.54 |
| Switzerland | 0.26 | 0.52 |
| Italy | 0.32 | 0.47 |
| Belgium | 0.66 | 0.44 |
| Germany | 0.36 | 0.41 |
| United States | 0.25 | 0.24 |
| Austria | 0.22 | 0.20 |
| United Kingdom | 0.15 | 0.19 |
| Iceland | n.a. | 0.09 |

Source: OECD

16. **The sickness insurance regime has a long history characterized by frequent changes, especially in recent years.** Box II.1 presents the chronology of the main reforms in sick leave regulations. The main features of the insurance system (compensation level or replacement rate, waiting days to receive the benefits, employers' responsibility in funding the sick pay during the initial period of sickness absence) have all been changed repeatedly over the years.

## Box II.1. Sweden: Main Changes in Sick Leave Regulation

First Law: 1891 (cash benefits paid when short-term illnesses prevent work)
Current Laws: 1962 and 1991 (Sick Pay Act)

- **1955:** Compulsory sickness insurance is introduced. Sickness benefit (not taxed) covers 55 percent of the expected earnings of the insured person. No compensation is paid during the 3-day waiting period.
- **1963:** The National Insurance Act (Allmän Försäkring Låg, AFL, 1962:381) replaces the 1955 Law, and the compensation level is increased to 65 percent.
- **1967:** The compensation level becomes 80 percent. The waiting period is reduced to 1 day.
- **1974:** The compensation level is 90 percent. The money from sickness benefits counts for the national supplementary pension scheme, ATP (allmän tilläggspension) but benefits are taxed.
- **July 1977:** The Work Injuries Insurance Act (Lagen om arbetsskadeförsäkring, LAF 1976:380) covers 100 percent of the income loss due to work injury or poisoning.
- **Jan. 1985:** A new system (Dagmar-systemet) of compensation is introduced including both public and private outpatient treatment. Additionally, the payment of the sickness benefit for the state employees is simplified, and the compensation is calculated based on a stereotyped model that it is applied by the state institutions for all spells less than 14 days.
- **Jan. 1986:** A pilot scheme of 1/4 and 3/4 compensation for sickness benefit and travel compensation (10 municipalities in 3 counties) is tested and extended until July 1990. The Dagmar system now even applies for the compensation for hospital costs.
- **Dec. 1987:** The waiting day is abolished, and a sickness cash benefit is provided from the first day the sickness was reported to the social insurance office. However, a cash benefit was now only provided for scheduled workdays during the first fourteen days of absence. Additional 10 percent replacement rate is provided by collective agreement.
- **July 1990:** Partial compensation of 3/4 and 1/4 is introduced in the whole country.
- **Mar. 1991:** The compensation rate from the sickness benefit is reduced from 90 percent to 65 percent for the first 3 days, 80 percent for day 4 to day 90.
- **Jan 1992:** The "employer period", which requires the employers to pay for the first 14 days of sickness is introduced. The compensation rate is increased to 75 percent for the first 3 days of compensation and to 90 percent thereafter.
- **Apr. 1993**: A waiting day for sick pay and/or sickness benefit is re-introduced . The sickness benefit rate is reduced from 90 percent to 80 percent from day 90. A "5-day repeated-spell" rule is introduced, according to which if a sick person records a new case within a five day period, the new spell is seen as a continuation of the previous one regarding the waiting day, the compensation rate and the length of the sick pay. The compensation rate for rehabilitation is reduced from 100 percent to 95 percent.
- **July 1993:** The sickness cash benefit rate is reduced from 80 percent to 70 percent from the 365 day of each sickness spell, but the compensation of 80 percent may be kept in certain cases, such as medical treatment.
- **June 1996:** The compensation level is 75 percent for both sickness cash benefit and rehabilitation cash benefit.
- **Jan. 1997:** The "employer period" is extended to the first 28 days.
- **Jan. 1998:** The payment level for full sickness benefit is 80 percent of the income qualifying for sickness allowance, for entire sickness period, excluding the waiting day.
- **Mar 1998:** The "employer period" is reduced back to 14 days.
- **Oct. 2002:** The newly elected government sets a target to halve sickness absence by 2008.
- **July 2003:** The sick pay period covered by employers is increased from 14 to 21 days, and there is a compensation ceiling for the sick unemployed that cannot be higher than the highest unemployment benefit. The compensation level is cut to 77.6 percent.

**Current proposal to be introduced from Jan. 2005:** The "employer period" will be cut back to the first two weeks of sickness absence, but the employer will be responsible —with no time limit— for about 15 percent of sick pay costs thereafter. In order to make the change cost-neutral, the payroll tax on employers will be decreased. The employer's responsibility stops, if the employee is rehabilitated. The compensation level will be increased back to 80 percent.

_____

Sources: Andrén (2003); Henrekson and Persson (2004); U.S. Bureau of Labor Statistics, Social Security Programs Throughout the World (various issues); and European Industrial Relations Observatory on line (various issues).

17. **Government efforts to reduce sick leave focus on prevention and rehabilitation**. The Swedish government has set itself an ambitious target of halving sickness absence between 2002 and 2008. Its strategy is based on measures aimed at improving the work environment and tightening controls.[7] Measures that attenuate the generosity of the system are extremely unpopular and there is no explicit recognition that an incentive problem exists. After reducing the replacement ratio slightly in 2003, the government has decided to reverse the reduction after political parties and social partners expressed their opposition (Box II.1). The measures undertaken contributed to a 2-percent decline in the number of days of sick leave claimed and the government expects further reductions in 2004.

## C. Determinants of Sickness Absence

18. **Theoretical analyses of labor absence and absenteeism mostly focus on labor supply characteristics.**[8] Facing a choice between labor supply and leisure, individuals maximize their utility given budget and time constraints (Allen, 1981; Leigh, 1985). Health, age, and gender influence the preference for leisure. If leisure is a normal good, its marginal utility will be decreasing, and the value of an hour of leisure will be higher the longer the typical working time. By allowing a more efficient use of the time available, flexible working arrangements are likely to attenuate the preference for leisure. Sickness insurance plays a crucial role. In most countries, the government, the employers, or both provide employees with insurance against the loss of income due to sickness. With imperfect monitoring, the decision about sickness leave is ultimately left to workers, and moral hazard arises. Its impact can be compounded by changing social norms, weakening work ethic, and decreasing stigma associated with "benefit cheating" (Lindbeck, 1997). In their decisions about absence, workers face costs in terms of both forgone income, which depend on the generosity of the insurance system, and the possibility of sanctions by the employers, ranging from slow career progression to dismissal.

19. **Demand considerations and labor market institutions are also likely to play a role**. The employers' reaction to absence is likely to depend on the costs they have to bear as a result of it. Absence normally involves some output loss, the magnitude depending on the firm's technology and worker heterogeneity. Other costs are related to the characteristics of the insurance scheme. Employers may have to disburse part or all of the cash benefits received by the absentee or pay contributions to the insurance funds. The more costly is absence to the employers, the more likely they are to respond. If absence is clearly connected with the working environment, the employer may attempt to improve it. Otherwise, the employer can increase monitoring or reinforce sanctions for absence. Then labor market

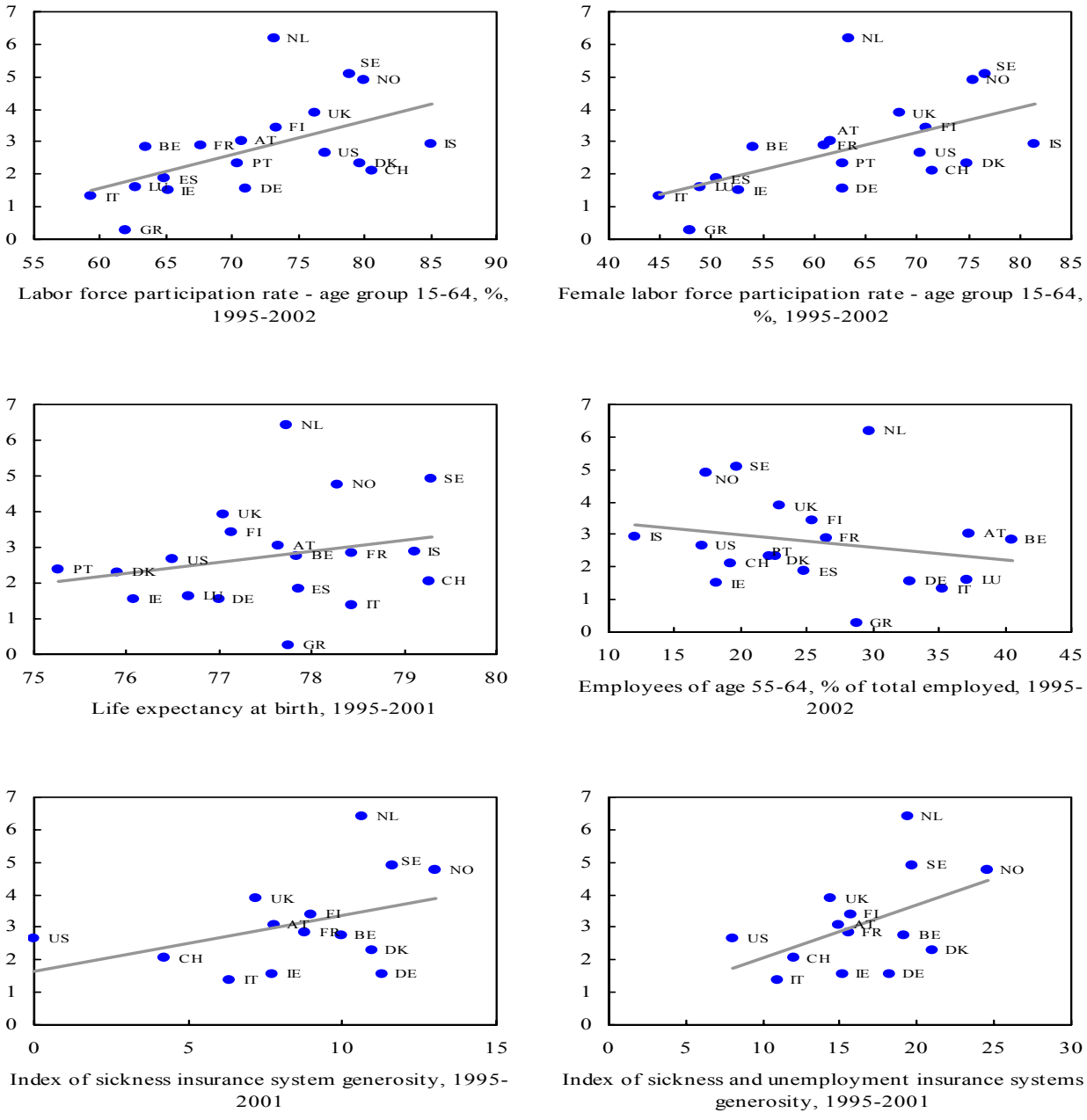
[7] See Ministry of Finance, 2004 Spring Fiscal Policy Bill, Budget Statement, pp. 20–21 (http://www.sweden.gov.se/content/1/c6/02/03/01/9f243de3.pdf)

[8] Brown and Sessions (1996) provide an extensive survey of the theoretical literature on labor absence.

institutions come into play. Both employment protection and unemployment insurance reduce the expected cost of work absence to the individual employee either by making it more difficult to sanction absenteeism or by reducing the effective cost of the sanction.

20. **A first glance at the evidence suggests that labor supply characteristics, insurance provisions, and labor market institutions are important.** Higher labor force participation and, particularly, higher female participation is normally associated with higher

Figure II.7. Sickness Absence and Its Determinants
(absentees as a percentage of employment)




Sources: Eurostat, NewCronos; ILO, Key Indicators of the Labor Market; OECD, Health Data; Scruggs (2004)

sickness absence (Figure II.7). The relationship with age and health indicators, however, is less clear. Figure II.7 presents the index of generosity of the sickness insurance system, both alone and combined with the unemployment insurance system, based on Scruggs (2004). The figures indeed show that absence increases with the generosity of sickness insurance and even more so when the unemployment insurance system is considered. Moreover, there is evidence that temporary workers, who enjoy lower employment protection, tend to be less sick prone than permanent workers (Table II.3).

Table II.3. Ration Between Sickness Absence of Permanent and Temporary Workers

| | 1995 | 2000 |
|---|---|---|
| France | 2.4 | 2.4 |
| Germany | 1.4 | 1.4 |
| Denmark | 1.7 | 1.5 |
| Finland | 2.4 | 2.2 |
| Netherlands | 4.7 | 3.8 |
| Norway | 3.8 | 3.3 |
| **Sweden** | **3.7** | **2.8** |
| United Kingdom | 2.3 | 1.7 |

Source: Bergendorff et al. (2004)

21. **Sickness absence appears to be pro-cyclical in some countries, including Sweden**. Table II.4 reports the correlation coefficients between sickness absence and the unemployment gap—defined as the percentage deviation of the unemployment rate from its trend (linear and quadratic)—during 1995–2003. The correlation is negative and significant at the 5 percent level for three countries (Belgium, Sweden, and the Netherlands). Pro-cyclicality of work absence may arise due to two main reasons suggested in the literature (Leigh, 1985; Kaivanto, 1997; Audas and Goddard, 2001). High unemployment acts a "disciplining device" (Shapiro and Stiglitz, 1984), raising the expected cost of absence to workers. Others emphasize a "selection" effect, as employers are more likely to lay off absence-prone workers in recessions, and hire them during expansions. Arai and Skogman Thoursie (2001) provide evidence in favor of the market discipline effect

Table II.4. Cyclicality of Sickness Absence, 1995–2003
(correlation between sickness absence and unemployment gap)

| | Linear trend | Quadratic trend |
|---|---|---|
| Belgium | -0.88* | -0.82* |
| Denmark | 0.09 | 0.08 |
| Germany | -0.24 | -0.23 |
| Greece | -0.03 | -0.36 |
| Spain | 0.21 | 0.30 |
| France | -0.26 | 0.03 |
| Ireland | 0.13 | 0.04 |
| Italy | 0.25 | 0.30 |
| Luxembourg | 0.27 | 0.28 |
| Netherlands | -0.14 | -0.47* |
| Austria | 0.16 | 0.28 |
| Portugal | 0.23 | 0.43 |
| Finland | 0.03 | 0.06 |
| **Sweden** | **-0.52*** | **-0.51*** |
| United Kingdom | 0.06 | -0.03 |
| Iceland | -0.31 | -0.24 |
| Norway | -0.07 | 0.17 |
| Switzerland | -0.16 | -0.09 |

* = significant at 5% significance level
Sources: Eurostat, Labor Force Survey; OECD Economic Outlook; IMF staff calculations

in Sweden. However, the strength of pro-cyclicality in countries where employment protection is high may cast some doubt on this interpretation. An alternative explanation could rely on sick leave as a reaction to work pressures, which are likely to be more intense when production volumes are high and labor flexibility is limited.

## D. An Econometric Analysis of Sickness Absence[9]

22. **While the empirical literature on work absence in individual countries is vast, there are few cross-country studies available.** Only a few comparative studies exist (Drago and Wooden, 1992, Barmby et al., 2002, Bergendorff et al., 2004). In this paper, drawing on a model that extends the literature to include labor demand considerations, we try to identify the determinants of sickness absence in a panel of 18 European countries (Table A.1 in Appendix).

23. **On the supply side, the model extends the conventional determinants in the labor-leisure choice to include a number of institutional characteristics**. In particular, the generosity of paid leave provisions is included, and the penalty for being absent is modeled as an inverse function of the probability of keeping the job. The latter is assumed to be determined by absence frequency and overall labor market tightness. In turn, the impact of both absence behavior and unemployment on the probability of maintaining one's job is linked to the strictness of employment protection. Finally, unemployment benefits and separation benefits are provided if the worker is discharged. On the demand side, a firm maximizes its profits depending on the expected costs, which are a weighted average of the wage costs incurred if the worker keeps her job and the costs of separation in case the worker is dismissed. The solution of the model then yields the equilibrium pair of absence and wage, with absence increasing with non-labor income and contractual hours, and decreasing with the unemployment rate.

24. **While the results for these conventional determinants of sickness absence are in line with the findings of the literature, the model offers a richer set of determinants**, providing further insights into the role that different institutional characteristics can play. In particular, unemployment benefits increase absence, while a lower sickness insurance replacement rate and weaker employment protection reduce it. The model also provides a possibility to distinguish between privately and publicly financed compensation schemes.

25. **The data on sickness absence draw on labor force surveys,** and particularly, on the Eurostat Labour Force Survey Results, which includes aggregated data on average usual and actual hours of work. Our definition of absence includes both short-term and long-term

[9] The analysis in this section draws on a forthcoming working paper (Bonato and Lusinyan, 2004), to which we refer for details.

absentees.[10] Data on age, health, unemployment, and participation are drawn from the ILO's Key Indicators of Labour Markets (KILM). Data on institutional characteristics of social security systems are derived from Scruggs (2004). Data on the cost to employers of the sickness insurance system have been constructed based on information from the U.S. Social Security Administration, Social Security Programs Throughout the World (Table A.2 in Appendix).

26. **The econometric exercise is based on standard panel data models.** While lacking extensive cross-sectional information typical of microeconomic datasets, this approach provides the opportunity to analyze sickness absence developments over time and across countries. The availability of working time data and some of the absence determinants by gender allows us to combine sickness absence for males and females and to double the effective cross-sectional dimension of the panel data. The results from static and dynamic panel data regressions are summarized in Table II.5.[11]

Table II.5. Summary of Estimation Results

| Variable[1)] | Average range of coefficient estimates[2)] | Elasticity at mean | Example |
|---|---|---|---|
| LFPR | (0.04, 0.10) | 1.50 | 1% increase in LFPR will increase the average absence rate from 2.75% to 2.8% |
| Life expectancy | (-0.40, -0.20) | -6.98 | If life expectancy increases by 1 year, absence rate will decline by 9% |
| Usual hours | (0.20, 0.30) | 2.90 | A reduction in usual/contractual hours worked by 1 hour will result in 7.3% less absence rate |
| Part-time employment | (-0.60, -0.30) | -1.54 | 1 percentage point increase in average share of part-time employment will results in about 11% decline in absence rate |
| Flexible hours | (-0.40, -0.30) | -0.26 | 10% increase in absence rate due to flexible time arrangements will bring the average sickness absence rate from 2.75% down to 2.69% |
| Unemployment gap | (-0.02, -0.004) | -0.004 | A decrease in average unemployment gap by one standard deviation will result in 7.6% increase in absence rate |
| Sickness benefit | (0.02, 0.06) | 0.75 | A cut in sickness benefit net replacement rate by 10 percentage points will reduce absence rate by around 11% |
| Union density | (0.02, 0.03) | 0.30 | 10% increase in union density will result in 3% increase in absence rate |
| Employer sick pay | (-0.03, -0.01) | 0.08 | Doubling employers responsibility through changes in days and benefit rates will result in 7.9% decrease in absence rate |

[1)] Only statistically significant variables are reported; [2)] Based on fixed-effects, pooled OLS, dynamic panel data GMM and Anderson-Hsiao IV estimates.

[10] Employees are grouped into two main subgroups: those who worked at least one hour during the reference week, and those who had a job, but did not work at all during the reference week. The reasons provided for absence —defined as a positive difference between usual and actual hours of work— are thirteen for the first group and nine for the second group. We refer to sickness absence as that due to own illness, injury, or temporary disability. Sickness absence of those in the first group is defined as 'short-term,' that of those in the second group is defined as 'long-term.'

[11] Tables A.3 and A.4 present the results in detail.

27. **As expected, labor force characteristics are important in determining sickness absence.** In particular, good health—proxied here by life expectancy—and low labor force participation reduce absence. Age shows no significant independent impact, suggesting that its effect might already be captured by participation. The significant coefficient for the gender dummy indicates that females are more likely to be on sick leave than males.

28. **Working time arrangements have a significant impact.** In particular, while more flexibility—measured by the share of part-time employment and flexible working time arrangements—helps to reduce sickness absence, longer usual hours of work tend to increase it. The results also suggest that more flexible work arrangements reduce the impact of long working hours on attendance. The estimated impact of usual hours worked appears to be close to the findings by Barmby et al. (2004) for the United Kingdom, where the estimated coefficient on usual hours is 0.16. A major conclusion of Barmby et al. (2004) is that sickness absence is relatively more sensitive to the determinants that measure contractual arrangements than to individual characteristics.

29. **Sickness absence in Sweden is pro-cyclical**. The unemployment gap enters the regressions with a negative sign, in line with the hypothesis that market conditions exert a disciplining effect on absence. This effect is however reduced by employment protection—proxied here by union density—as shown by the negative interaction term. These results can hardly be generalized. When the unemployment gap is interacted with country dummies, the coefficient estimate is negative and significant only for Sweden.

30. **Sickness benefits have a robust and positive impact on absence, which is particularly strong for Sweden**. The coefficient for sickness benefits, as measured by the after-tax replacement rate, is estimated to be in a range between 0.02 and 0.06. However, a significant and large interaction term of Sweden's fixed effect with sickness benefit indicates that the impact for Sweden is substantially stronger than the cross-country average, more than twice as large. It can be estimated that a 10-percentage point reduction of the net replacement rate in Sweden would yield a 1-to-2 percentage point drop in the absence rate from the 2003 level of 6.35 percent. This in turn will translate into a reduction of sickness absence by at least around 30000 full-time employees.

31. **Absence declines when employers bear larger costs of sickness insurance.** Measured by the product of the cash benefit replacement rate with the period that falls under the employers' responsibility, these costs have a clear negative impact. This result suggests that higher costs, by changing employers' incentives and behavior, may indeed reduce absence.[12]

[12] The Netherlands have taken a radical approach in 1996, making employers responsible for the full cash benefit payment. Most firms, however, opted to reinsure their sick pay liability with private insurance companies, reducing the incentive effect. Nonetheless, De Jong and Lindeboom (2004) do

(continued)

32. **Characteristics of labor market institutions affect the absence rate in different ways,** both directly and through their interaction with the business cycle and sickness insurance provisions. Employment protection has a significant positive impact on absence rates both directly and when interacted with the unemployment gap, which is consistent with the evidence provided by Ichino and Riphan (2004) for Italy. The negative impact of employers' sick pay provisions is somewhat reduced by employment protection, suggesting that the latter may reduce the employer's ability to enforce better work attendance. The results for unemployment benefits, while suggesting a possible role, are not robust enough to lead to definite conclusions.

## E. Conclusions and Policy Implications

33. **Reducing sickness absence in Sweden is a key policy objective**. The evidence presented in the paper suggests that sickness absence is exceptionally high in Sweden. The cost in terms of forgone output and public finances are substantial. Rising sickness absence aggravates the erosion of labor supply stemming from demographics and working time reductions. The government fully recognizes the importance of reducing sickness absence and has set itself the ambitious target of halving the number of people on sick leave between 2002 and 2008.

34. **High sickness absence in Sweden reflects to some extent high participation, particularly of women.** Despite a decline in recent years, Sweden has a comparatively high participation rate, particularly among women and older people. The traditional strong emphasis of Swedish policies on social inclusion and the high quality and scope of public services have contributed to this result. Even though the employment rate target of 80 percent will not be achieved in 2004, the government's focus on high employment remains strong. Going forward, as immigration becomes the only source of net addition to the labor force, maintaining high employment rates will be increasingly challenging and containing the erosion of labor supply even more urgent. With large changes in the composition of the labor force, the overall impact of these changes on sickness absence is difficult to predict.

35. **However, the high level of sickness absence in Sweden is not the necessary price for high participation.** The results presented in this paper, as well as the evidence provided by the considerable Swedish literature on the issue, indicate the existence of a significant incentive problem due to the generosity and the leniency of the public insurance scheme. Streamlining the system appears necessary to bring it more in line with international practice and to improve labor supply incentives. Our results show that a modest reduction of the replacement rate would yield a sizeable reduction in sickness absence. The benefits of a well-designed reform are likely to be substantial, possibly yielding a reduction in public

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not find any difference in absence rates of firms that opted for reinsurance. Although any conclusion from that experience is still tentative, absence started declining three years later and has now dropped below the Swedish level.

expenditure on sickness insurance in the order of 0.5 to 1 percent of GDP (Andersen and Molander, 2003b).

36. **A shift of part of the insurance costs to employers is advisable**. The paper shows that higher costs are likely to produce a response by employers, which ultimately helps to reduce absence. This effect, however, is likely to be smaller in Sweden due to its high employment protection. To be most effective, the cost shift must affect the employer incentives via an increase in the marginal cost of absence. If the incentive is diluted, and the shift translates into a mere increase in labor costs, negative effects on employment are more likely. One way to achieve a more efficient impact would be to leave more room for workers and employers to determine the level of protection, which could be achieved only by a substantial reduction in the replacement rate of the public insurance scheme.

37. **Encouraging flexible work arrangements is likely to pay off**. The results presented here suggest that policies promoting shorter working hours may not be inconsistent with the objective of reducing absence. However, even if the accompanying reduction in sickness absence would partly offset their effect, these policies would still determine a net reduction of hours worked, adding to the current trend. Encouraging the diffusion of flexible work arrangements, which are shown to substantially reduce absence, may be a better policy option.

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Table A.1. List of Countries and Data Availability

| | Country | Working time data |
|---|---|---|
| 1. | Belgium | 1983-2003 |
| 2. | Denmark | 1983-2003 |
| 3. | Germany* | 1983-2003 |
| 4. | Greece | 1983-2003 |
| 5. | Spain | 1987-2003 |
| 6. | France | 1983-2003 |
| 7. | Ireland | 1983-2003 |
| 8. | Italy* | 1983-2003 |
| 9. | Luxembourg | 1983-2002 |
| 10. | Netherlands* | 1983-2003 |
| 11. | Austria | 1995-2003 |
| 12. | Portugal | 1986-2003 |
| 13. | Finland | 1995-2003 |
| 14. | Sweden | 1995-2003 |
| 15. | UK | 1983-2003 |
| 16. | Iceland | 1995-2002 |
| 17. | Norway | 1995-2003 |
| 18. | Switzerland | 1996-2003 |

* Missing data: Germany (1984), Italy (1992), Netherlands (1984, 1986).

Table A.2. List of Variables, Definitions, and Sources

| Variable | Definition | Source |
|---|---|---|
| Absence rate | Share of persons absent due to sickness in percent of total employed, full-time employees only; includes persons who worked at least 1 hour and persons in employment who did not work at all during the reference week | Eurostat, NewCronos |
| LFPR | Labor force participation rate, defined as the ratio of the labor force (employed and unemployed) to the working age population (of age 15-64), in percent | ILO, KILM (2003) |
| Age structure | Share of labor force of age 55-64 in labor force of age 15-64, in percent | ILO, KILM (2003) |
| Life expectancy | Life expectancy at birth, in number of years | ILO, KILM (2003) |
| Usual hours | Average number of usual hours worked during the reference week, full-time employees only | Eurostat, NewCronos |
| Part-time employment | Share of part-time employment in total employed, in percent | ILO, KILM (2003) |
| Flexible hours | Share of persons absent due to flexible working time arrangement in percent of total employed, full-time employees only who worked at least 1 hour | Eurostat, NewCronos |
| Unemployment (UE) gap | Deviation of unemployment rate from (linear) trend unemployment rate, in percent trend unemployment rate | ILO, KILM (2003), OECD Economic Outlook |
| Sickness benefit | Sickness benefit net replacement rate | Scruggs (2004) |
| Index of sickness insurance system generosity | Weighted sum of four main components of sickness insurance system (net replacement rate, qualification period, duration, waiting period) in turn weighted by general coverage rate of sickness insurance | Scruggs (2004) |
| Unemployment (UE) benefit | Unemployment benefit net replacement rate | Scruggs (2004) |
| Index of unemployment insurance system generosity | Weighted sum of four main components of unemployment insurance system (net replacement rate, qualification period, duration, waiting period) in turn weighted by general coverage rate of unemployment insurance | Scruggs (2004) |
| Union density | Net union density | WEO (2004) |
| Employment protection (EP) | Index of employment protection | WEO (2004) |
| Employer sick pay | Sick pay paid by employers, calculated as number of days of sick pay multiplied by replacement rate | SSA, various issues |
| Gender | Dummy variable =1 for male employees, =0 for female employees | |

Table A.3. Determinants of Sickness Absence—Static Panel Data Model
Dependent variable: share of persons absent due to sickness in total employed

| | (1) | (2)‡ | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|---|---|---|---|---|---|---|---|---|---|
| *LFPR$_{i,t}$* | 0.06$^{**}$ | 0.06$^{**}$ | 0.06$^{**}$ | 0.06$^{**}$ | 0.04$^{**}$ | 0.04$^{**}$ | 0.09$^{**}$ | 0.08$^{**}$ | 0.08$^{**}$ |
| | *(5.33)* | *(10.59)* | *(5.20)* | *(4.29)* | *(3.02)* | *(3.69)* | *(4.83)* | *(5.32)* | *(5.46)* |
| *Age structure$_{i,t}$* | 0.001 | -0.001 | | | | | | | |
| | *(0.05)* | *(0.06)* | | | | | | | |
| *Life expectancy$_{i,t}$* | -0.20$^{*}$ | -0.21$^{*}$ | | | -0.16 | | -0.41$^{**}$ | -0.34$^{**}$ | -0.46$^{**}$ |
| | *(2.02)* | *(1.97)* | | | *(1.30)* | | *(3.19)* | *(3.15)* | *(4.28)* |
| *Part-time empl$_{i,t}$* | | | -0.29$^{*}$ | -0.28$^{-}$ | | | -0.67$^{**}$ | -0.40$^{*}$ | -0.49$^{**}$ |
| | | | *(2.24)* | *(1.60)* | | | *(3.23)* | *(2.20)* | *(2.65)* |
| *Usual hours$_{i,t}$* | | | | | 0.25$^{**}$ | 0.38$^{**}$ | | | |
| | | | | | *(2.59)* | *(4.15)* | | | |
| *Part-time empl** | | | 0.80$^{*}$ | 0.85$^{+}$ | | | 1.88$^{**}$ | 1.18$^{*}$ | 1.43$^{**}$ |
| *Usual hours $_{i,t}$* | | | *(2.42)* | *(1.90)* | | | *(3.55)* | *(2.53)* | *(2.94)* |
| *UE gap$_{i,t}$* | | | | -0.004$^{+}$ | -0.01$^{**}$ | -0.005$^{*}$ | | -0.01$^{**}$ | |
| | | | | *(1.80)* | *(3.30)* | *(2.13)* | | *(1.77)* | |
| *Sickness benefit$_{i,t}$* | | | | | 0.06$^{**}$ | | 0.03$^{**}$ | 0.03$^{**}$ | |
| | | | | | *(3.50)* | | *(2.64)* | *(2.69)* | |
| *Sweden*Sick. benefit$_{i,t}$* | | | | | 0.07$^{*}$ | 0.17$^{**}$ | | | |
| | | | | | *(2.01)* | *(4.96)* | | | |
| *UE benefit$_{i,t}$* | | | | | | | | 0.004 | |
| | | | | | | | | *(0.95)* | |
| *Sweden* UE benefit$_{i,t}$* | | | | | | -0.13$^{**}$ | | -0.09$^{*}$ | |
| | | | | | | *(3.64)* | | *(2.16)* | |
| *Employer sick pay$_{i,t}$* | | | | | | | -0.01$^{**}$ | | -0.03$^{**}$ |
| | | | | | | | (2.81) | | (3.15) |
| *EP index$_{i,t}$* | | | | | | | | -0.28 | |
| | | | | | | | | *(0.73)* | |
| *EP index*UE gap$_{i,t}$* | | | | | | | | 0.01$^{*}$ | |
| | | | | | | | | *(2.39)* | |
| *EP index*Empl. sick pay$_{i,t}$* | | | | | | | | | 0.0004$^{*}$ |
| | | | | | | | | | *(2.39)* |
| *Gender* | | -1.95$^{**}$ | | | | | | | |
| | | *(12.29)* | | | | | | | |
| *Sweden* | | 3.23$^{**}$ | | | | | | | |
| | | *(9.43)* | | | | | | | |
| *Netherlands* | | 5.15$^{**}$ | | | | | | | |
| | | *(17.39)* | | | | | | | |
| *Norway* | | 2.86$^{**}$ | | | | | | | |
| | | *(11.00)* | | | | | | | |
| *UK* | | 1.80$^{**}$ | | | | | | | |
| | | *(6.11)* | | | | | | | |
| *Constant* | 13.78$^{+}$ | 14.62$^{+}$ | -0.95 | 16.78$^{*}$ | 5.87 | -9.22$^{*}$ | 25.10$^{*}$ | 22.78$^{**}$ | 31.29$^{**}$ |
| | *(1.78)* | *(1.78)* | *(1.37)* | *(2.08)* | *(0.64)* | *(2.10)* | *(2.56)* | *(2.80)* | *(3.81)* |
| Within $R^2$ | 0.18 | | 0.14 | 0.22 | 0.51 | 0.48 | 0.32 | 0.39 | 0.39 |
| Overall $R^2$ | 0.01 | 0.89 | 0.03 | 0.05 | 0.01 | 0.01 | 0.02 | 0.03 | 0.02 |
| Obs. (groups) | 390(36) | 390 | 532(36) | 384(36) | 278(26) | 378(26) | 272(26) | 246(30) | 246(30) |

*t*-values in brackets. $^{**}(^{*},^{+},^{-})$ = significant at 1 (5, 10, 15)-percent level. All regressions include time fixed effects (not reported).
‡ LSDV estimates with robust errors, fixed effects of other countries are not reported.

Table A.4. Determinants of Sickness Absence—Dynamic Panel Data Model
Dependent variable: share of persons absent due to sickness in total employed

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|---|---|---|---|---|---|---|---|---|---|
| *Absence rate$_{i,t-1}$* | 0.39$^{**}$ | 0.58$^{**}$ | 0.55$^{**}$ | 0.49$^{**}$ | 0.53$^{**}$ | 0.51$^{**}$ | 0.52$^{**}$ | 0.37$^{**}$ | 0.31$^{**}$ |
| | *(3.86)* | *(5.60)* | *(6.00)* | *(5.91)* | *(8.47)* | *(8.07)* | *(8.86)* | *(5.37)* | *(3.88)* |
| *LFPR$_{i,t}$* | -0.05 | -0.01 | -0.02 | -0.04 | | | | | -0.07$^{-}$ |
| | *(1.17)* | *(0.54)* | *(1.14)* | *(1.29)* | | | | | *(1.53)* |
| *LFPR$_{i,t-1}$* | 0.04 | 0.03 | 0.04$^{+}$ | 0.05$^{*}$ | | | | | 0.11$^{**}$ |
| | *(1.02)* | *(1.11)* | *(1.70)* | *(2.05)* | | | | | *(2.64)* |
| *Age structure$_{i,t}$* | 0.03 | | | | | | | | |
| | *(0.64)* | | | | | | | | |
| *Life expectancy$_{i,t}$* | -0.16$^{*}$ | | | | | | | | |
| | *(1.97)* | | | | | | | | |
| *Flexible hours$_{i,t}$* | | -0.29$^{*}$ | | | | | | | |
| | | *(2.50)* | | | | | | | |
| *Usual hours$_{i,t}$* | | | 0.20$^{**}$ | | 0.19$^{*}$ | 0.18$^{*}$ | 0.25$^{*}$ | 0.21$^{*}$ | 0.21$^{**}$ |
| | | | *(2.68)* | | *(2.37)* | *(2.14)* | *(2.19)* | *(2.10)* | *(5.00)* |
| *Usual hours** | | 0.62$^{*}$ | -0.09$^{*}$ | | | | | | |
| *Flexible hours $_{i,t}$* | | *(2.36)* | *(2.22)* | | | | | | |
| *Part-time empl$_{i,t}$* | | | | -0.32$^{+}$ | | | | | |
| | | | | *(1.71)* | | | | | |
| *Part-time empl** | | | | 0.81$^{*}$ | | | | | |
| *Usual hours $_{i,t}$* | | | | *(1.86)* | | | | | |
| *UE gap$_{i,t}$* | | | | -0.001$^{-}$ | | | -0.003$^{+}$ | -0.02$^{*}$ | -0.004$^{+}$ |
| | | | | *(1.47)* | | | *(1.83)* | *(2.15)* | *(1.91)* |
| *Sweden*UE gap$_{i,t}$* | | | | -0.02$^{**}$ | | | | | |
| | | | | *(2.66)* | | | | | |
| *Sickness benefit$_{i,t}$* | | | | | 0.02$^{**}$ | 0.02$^{*}$ | 0.04$^{*}$ | | 0.01$^{*}$ |
| | | | | | *(3.41)* | *(2.39)* | *(3.16)* | | *(2.13* |
| *Sweden*Sick. benefit$_{i,t}$* | | | | | 0.21$^{**}$ | 0.27$^{**}$ | | | |
| | | | | | *(3.18)* | *(4.21)* | | | |
| *UE benefit$_{i,t}$* | | | | | | 0.01 | | | -0.02$^{**}$ |
| | | | | | | *(1.42)* | | | *(2.59)* |
| *Sweden* UE benefit$_{i,t}$* | | | | | | 0.06$^{*}$ | | | |
| | | | | | | *(8.24)* | | | |
| *Employer sick pay$_{i,t}$* | | | | | | | -0.01$^{+}$ | | |
| | | | | | | | *(1.74)* | | |
| *Union density$_{i,t}$* | | | | | | | | 0.02$^{*}$ | |
| | | | | | | | | *(2.07)* | |
| *Union*Empl. sick pay$_{i,t}$* | | | | | | | | 0.0002$^{-}$ | |
| | | | | | | | | *(1.53)* | |
| *Union*UE benefit$_{i,t}$* | | | | | | | | | 0.001$^{**}$ |
| | | | | | | | | | *(2.87)* |
| *constant* | 0.03$^{-}$ | -0.002 | 0.003 | -0.009 | 0.01 | 0.01 | 0.02$^{+}$ | 0.01 | 0.01$^{-}$ |
| | *(1.57)* | *(0.19)* | *(0.31)* | *(0.90)* | *(1.05)* | *(1.12)* | *(1.85)* | *(0.94)* | *(1.51)* |
| AR(2) - *p*-values | 0.48 | 0.22 | 0.28 | 0.96 | 0.49 | 0.30 | 0.22 | 0.36 | 0.23 |
| Obs. (groups) | 248(36) | 437(36) | 437(36) | 454(36) | 320(26) | 320(26) | 320(26) | 264(30) | 220(26) |

*t*-values in brackets. $^{**}(^{*},^{+},^{-})$ = significant at 1 (5, 10, 15)-percent level. Arellano-Bond GMM estimates are reported. Regressions include time fixed effects (not reported). AR(2) test refers to the test of the null of no second-order autocorrelation in the first-differenced residuals. Regressions pass the Sargan test of overidentifying restrictions.