

THE PATH TO SUSTAINABLE GROWTH

LESSONS FROM 20 YEARS GROWTH DIFFERENTIALS IN EUROPE

PART 5 - APPENDIX AND DATA



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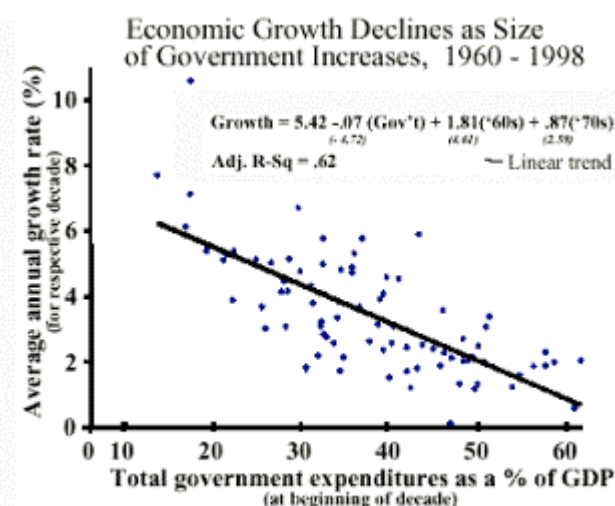
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Appendix 1: Comparison With Other Studies

A. Studies Concerning Growth Effects Of Size of Government Expenditures

The Negative Impact Of Taxation On Economic Growth. - Graeme Leach (2003)

<http://www.reform.co.uk/filestore/pdf/negativeimpact.pdf>



Source: Derived from *OECD Historical Statistics: 1960-1994* and *OECD Economic Outlook*, June 1999. This analysis is based upon 84 observations (21 OECD countries for which data were available times 4 decades).

In 2003, Graeme Leach gave the most comprehensive overview of empirical research projects studying the impact of taxation on economic growth.

Although all studies included time periods as early as 1970, during which some positive impact of government spending has taken place, all these studies found a negative overall effect of government spending. The differences in the values of the elasticity's are due to the differences in time periods and the choice of the country groups. However the fact that all studies include time periods earlier to 1985 during which in some countries public spending was below the optimum level, leads to an underestimation of the negative growth effects of excessive government spending.

Table 2: The negative impact of taxation on economic growth

Study	Coverage	GDP impact
Cashin (1995)	23 OECD countries over the 1971-1988 period.	1% point of GDP increase in tax to GDP ratio lowers output per worker by 2%.
Engen & Skinner (1996)	US modelling together with a sample of OECD countries.	2.5% point increase in tax to GDP ratio reduces GDP growth by 0.2% to 0.3%.
OECD - Leibfritz, Thornton & Bibbee (1997)	OECD countries over the 1965-1995 period.	10% point increase in tax to GDP ratio reduces GDP growth by 0.5% to 1%.
OECD (1997) additional model simulations	European Commission Quest 2 - model simulations.	1% of GDP rise in labour taxes reduces UK GDP by 2.4% - versus baseline level.
Bleaney, Gemmell & Kneller (2000)	17 OECD countries over the 1970-1994 period.	1% point of GDP increase in distortionary tax revenue reduces GDP growth by 0.4% points.
Folster & Henrekson (2000)	Sample of rich OECD/non-OECD countries over the 1970-1995 period.	10% point increase in tax to GDP ratio reduces GDP growth by 1%.
Bassanini & Scarpetta (2001)	21 OECD countries over the 1971-1998 period.	1% point increase in tax/GDP ratio reduces per capita output levels by 0.3% to 0.6%.
PricewaterhouseCoopers (2003)	18 OECD countries over the 1970-1999 period.	1% of GDP rise in distortionary taxation reduces GDP growth by 0.2% to 0.4%.

European Economy. Public finances in EMU - European Commission (2000)

http://ec.europa.eu/comm/economy_finance/publications/european_economy/2000/eers0300en.pdf

We quote from the report page 93-94: Lowering Taxes: How can it be done?

As shown in Parts I and II of this report, fiscal consolidation during the 1990s has not reversed the long-run trend of ever increasing tax burdens, particularly on labour. With a few notable exceptions, budgetary consolidation may at best only have slowed down such trends. Even though increased tax revenues have been instrumental in bringing about compliance with the Maastricht convergence criteria, the distortions caused by high tax burdens and the current structure of taxes need to be addressed promptly. There is a growing recognition of the need to lower the overall tax burden, and, in particular, the tax burden on labour to boost employment creation.

Although the empirical evidence on efficiency and growth effects of taxes is somewhat ambiguous, the supply-side effects of tax cuts could be sizeable especially if framed within comprehensive economic reform programmes. To maximise their positive effects the interactions of tax and welfare systems need to be taken into account when designing tax reforms.

The BEPG have called for lowering the tax burden, especially on labour. However, as there is no unique way to implement tax reforms, the relative merits of alternative strategies — which range from a generalised tax cut to targeted reductions of labour taxes and tax shifts — need to be investigated. To illustrate the potential effects of various tax reforms on the economy, simulations based on the Commission services' QUEST model were performed. The results, shown in Table 22, are the average for the EU.

Long-run effects of a 1% of GDP tax reform

(growth in %)

	GDP	Employment	Investment
(1) Reduction of labour, corporate and value added taxes (*)	0.54	0.54	1.28
(2) Reduction of labour and corporate taxes only (*)	0.65	0.57	1.88
(3) Reduction of labour taxes only (*)	0.81	0.97	1.24
(4) Tax shift from labour to VAT without compensating transfer recipients (**)	0.66	0.82	0.73
(5) Tax shift from labour to VAT with compensating transfer recipients (***)	0.37	0.48	0.32

(*) The simulations in rows (1) to (3) are conducted under the assumption that unemployment benefits are kept constant in real consumption terms, i. e. the reservation wage is assumed to remain constant. In this case the labour tax reduction is partly shifted onto firms in the form of lower wage costs. Under the assumption that unemployment benefits are linked to net wages, the real output and employment effects of a labour tax reform would be less strong and could even be absent.

(**) The experiment reported in row (4) assumes that unemployed workers (and other transfer recipients) are not compensated for the increase in consumer prices, i. e. the reservation wage is assumed to fall by an amount equivalent to the rise in consumer prices.

(***) Unemployed workers (and other transfer recipients) are compensated for the increase in consumer prices.

Source: Commission services.

Clearly, the effects of tax cuts depend on whether or not they are accompanied by spending retrenchment. A tax cut, fully offset by a reduction in government consumption, is likely to have a positive economic impact in the longer run. Depending on the type of tax reform a reduction of taxes in the order of magnitude of 1% of GDP could increase GDP between 0.5 and 0.8 % after 10 years.

Employment could be increased by between 0.5 and 1%. The economic expansion would also lead to a reduction of government deficits of roughly 0.5 % of GDP after 10 years. A tax cut, without offsetting spending cuts, would entail a deterioration in the budget balance: according to the simulation results, a 1% of GDP tax reduction without spending cuts would lead to an increase in the budget deficit (as % of GDP) of around 0.75 % points. That means that the degree in which tax reforms are selffinancing is only about 25%.

The impact on employment would be larger if the tax cut is targeted on labour. The long-run effects on employment of a reduction by 1% of GDP in the tax burden on labour income offset by a reduction in government consumption amount to 1% (1.5 million jobs). This contrasts with the 0.5 % increase obtained for general tax cuts (1).

A possible alternative to expenditure reductions is a tax shift from labour income to indirect taxes, such as taxes on consumption or energy (2).

Consumption taxes are less distortionary than labour income tax because they fall on all production factors and not only on labour. The positive effects are not, however, straightforward since the impact of a tax shift from labour income to consumption depends very much on the benefit system and especially on the accompanying policies towards recipients of social transfers and unemployment benefits. A reduction of labour taxes by 1% of GDP, coupled with an increase in value added taxes, would increase employment by almost 0.7% in the long run if transfer recipients are not compensated for their income loss. However, if transfer recipients were fully compensated for the increase in value added taxes, the employment effect would be half that figure. Similarly, the reduction in nonwage labour costs for low-paid workers would have larger effects when financed by cutting spending than through tax shifting.

All in all, tax cuts can have sizeable effects on output, investment and employment. However, unless accompanied by offsetting spending retrenchments, the reduction of taxes may not be sustainable in the long run. This is particularly important in countries where social protection represents a large fraction of total spending and where the growth in government spending has been mainly driven by rising welfare expenditure such as pensions and social transfers to households. The need to frame tax reductions within comprehensive economic reforms is also important to enhance the beneficial effects of shifting the tax burden away from labour to other tax bases.

(1) That result must, however, be interpreted with caution; strongly on the assumed reaction of welfare transfers explicative notes in Table 22).

(2) Tax shifts away from labour towards energy are sometimes expected to generate a 'double dividend' by reducing simultaneously pollution and unemployment. Shifting taxes on consumption expected to generate positive employment effects.

[The Importance of Public Expenditure for Economic Growth and Stability.](http://www.ecb.int/pub/pdf/mobu/mb200604en.pdf) - ECB (2006)

<http://www.ecb.int/pub/pdf/mobu/mb200604en.pdf> p. 61-74

We quote their conclusions :

CONCLUSION :

Public expenditure policies respecting sound government finances are key to fostering growth and preserving macroeconomic stability. Public expenditure supports growth via public services, such as security, infrastructure, education and basic social safety nets. If public expenditure enhances growth and is appropriately financed it also guarantees the sustainability of fiscal accounts and it can smooth economic fluctuations via automatic stabilisers.

This article shows that public expenditure ratios have steadily increased in the euro area countries since the 1960s before peaking and, in some cases, declining in more recent years. Public expenditure in the euro area is, moreover, much higher than in most other industrialised countries. According to many observers, it exceeds the levels required for the efficient provision of essential public services. The increasing levels of spending coincided with rising taxes and disincentives to work and invest, as well as growing fiscal imbalances.

More recently, population ageing is pointing to additional expenditure pressures that risk undermining fiscal sustainability. This article explains that further expenditure reforms are needed in many countries to reduce the level of spending on non-core tasks of the public sector, enhance the efficiency and incentive effects of public spending and prioritise productive objectives within public sector activity. Moreover, spending reductions would alleviate fiscal imbalances while also allowing for lower taxes. Such measures would support macroeconomic stability, promote growth and create a better environment for price stability.

The positive experiences of some euro area countries with expenditure reforms have received too little attention in the past. They point to a virtuous circle of expenditure reform, growth and sustainability when the strategy is ambitious and comprehensive. These cases also show that institutional reforms of domestic budgetary procedures and compliance with the European governance framework for fiscal and structural policies can support the reform process decisively. Such countries have experienced strong fiscal and growth performance.

Ireland

Ireland faced a persistent slowdown in GDP growth in the early 1980s, accompanied by rising unemployment and inflation as well as widening fiscal deficits. Following some retrenchment after 1982, a comprehensive turnaround was undertaken from 1987 which, under the "Programme for National Recovery", centred on a deep-rooted expenditure reform. These reforms resulted in a decline in primary spending of over 11% of GDP up to 1989 compared with the maximum level of 41.6% of GDP in 1982. Total spending was lastingly reduced by more than 15% of GDP, to stand at 34.2% of GDP in 2004 compared with the peak level of 49.8% of GDP in 1982.

The Irish expenditure reform comprised fiscal consolidation with comprehensive structural reform measures. On the fiscal side, public consumption was brought down by a combination of wage constraint and a significant reduction in civil service personnel. Public employment declined by almost 14% between 1982 and 1989. In addition, expenditure reforms involved sizeable reductions in income transfers and subsidies, the latter being cut by almost two-thirds in 1988 alone. Furthermore, social spending and specifically health and pension expenditure was reduced to a considerable extent. Eligibility for social security benefits was tightened and targeting was improved while the real value of benefits was frozen. This enhanced labour market incentives. Economic growth picked up in the wake of the reform and delivered fiscal surpluses, enabling a rapid decline in public debt and significant tax cuts to be achieved.

Size and Functions Of Government And Economic Growth - James Gwartney (1998)

Florida State University. <http://www.house.gov/jec/growth/function/function.pdf>

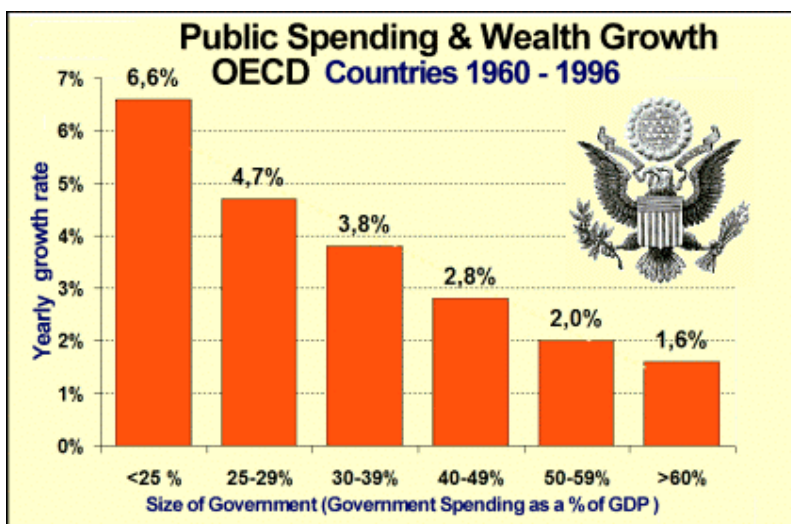
We quote the executive summary of this study Prepared for the Joint Economic Committee in Washington. Results are largely consistent with the WFA findings.

Executive Summary

This paper shows that excessively large government has reduced economic growth. These findings present a compelling case that rather than devising new programs to spend any surplus that may emerge from the current economic expansion, Congress should develop a long-range strategy to reduce the size of government so we will be able to achieve a more rapid rate of economic growth in the future.

Government provision of both (a) a legal and physical infrastructure for the operation of a market economy and (b) a limited set of public goods can provide a framework conducive

for economic growth. However, as governments move beyond these core functions, they will adversely affect economic growth because of (a) the disincentive effects of higher taxes, (b) diminishing returns as governments undertake activities for which they are ill-suited, and (c) an interference with the wealth creation process, because governments are not as good as markets at adjusting to changing circumstances and finding innovative new ways of increasing the value of resources.



In the United States, government expenditures as a share of GDP have grown during the last several decades. At the same time, the investment rate has declined and the growth rates of both productivity and real GDP have fallen. An empirical analysis of the data from 23 OECD countries shows a strong negative relationship between both (a) the size of government and GDP growth and (b) increases in government expenditures and GDP growth. A 10 percentage point increase in government expenditures as a share of GDP is associated with approximately a one percentage point decline in the growth rate of real GDP.

An analysis of a larger data set of 60 countries reinforces the conclusions reached by analysing OECD. After adjustment for cross-country differences in the security of property rights, inflation, education, and investment, higher levels of government spending as a percentage of GDP exert a strong negative impact on GDP growth.

The five fastest-growing economies in the world from 1980 to 1995 had total government expenditures as a percentage of GDP averaging 20.1 percent, which is less than half the average of OECD countries.

If government expenditures as a share of GDP in the United States had remained at their 1960 level, real GDP in 1996 would have been \$9.16 trillion instead of \$7.64 trillion, and the average income for a family of four would have been \$23,440 higher!

The OECD countries currently spend 15 percent of GDP or less on the core functions of government—protection of persons and property, national defence, education, monetary stability, and physical infrastructure. When governments move beyond these core functions, the empirical evidence indicates that they retard economic growth. The reduction in GDP growth rates in the United States and in many nations around the world can be traced directly to their increases in government expenditures far in excess of the growth-maximising level.

[Does Optimal Size Of Government Spending Exist? - Primož Pevcin \(2004\)](#)

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<http://soc.kuleuven.be/pol/io/egpa/fin/paper/slov2004/pevcin.pdf>

Introduction

Growth theory is an important part of modern macroeconomics. The analysis of growth has long been based on the Solow (1956) "growth accounting" approach, also termed as neo-classical growth theory, which has two important predictions about growth in the long run. These predictions are that economic growth occurs as a result of exogenous technological change, and that income per capita of countries will converge. Since it is presumed that all determinants of growth are exogenous, it is obvious that government policy cannot affect growth rates, except temporarily during the transition of economies to their steady state. Consequently, the role of government in growth process was usually not investigated in standard neo-classical growth models.

The advent of the class of growth models developed by Romer (1986), Lucas (1988), Barro (1990) and Rebelo (1991), which in essence constitute a new, endogenous growth theory, has caused that the view on the role of government in growth process changed. According to this theory, both transition and steady state growth rates are endogenous, implying that also long-run economic growth rates are endogenous. There are several factors that should be important for determining long run growth, although in all endogenous growth models, government can influence growth, either directly or indirectly (see Brons, de Groot and Nijkamp, 1999).

As a result, long-term growth rates can differ across nations, and there is no necessity that convergence in income per capita should occur. More significantly, as Dar and AmirKhalkhali (2002) report, a major implication of endogenous growth models is that government policy can have wide-ranging implications for a country's long-run growth performance. Namely, the three main fiscal instruments, being taxation, expenditure, and the aggregate budgetary balance, affect long-term growth through their effects on the efficiency of resource use, the rate of factor accumulation and the pace of technological progress.

Concluding remarks

A substantial broadening in the scope of government activities occurred in recent decades in the majority of developed countries, primarily due to the development of modern welfare states. However, those welfare states have faced with several problems, especially in the form of efficiency losses from redistribution and disincentives of high taxation, which have obviously caused the decline of long-term GDP growth.

Although negative and statistically significant relationship between government size and GDP growth has been established in this and several other studies, mainstream theory predicts that the negative effect should be expected in countries where the size of government sector exceeds a certain threshold. Consequently, optimal size of government sector from GDP growth perspective should exist. The panel data estimates of Armeey Curve suggest that optimal size of government in the sample of 12 European countries is approximately between 36 and 42 percent of GDP, indicating that potential scope for reduction of government spending ratio is from approximately 19 to approximately 30 percent.

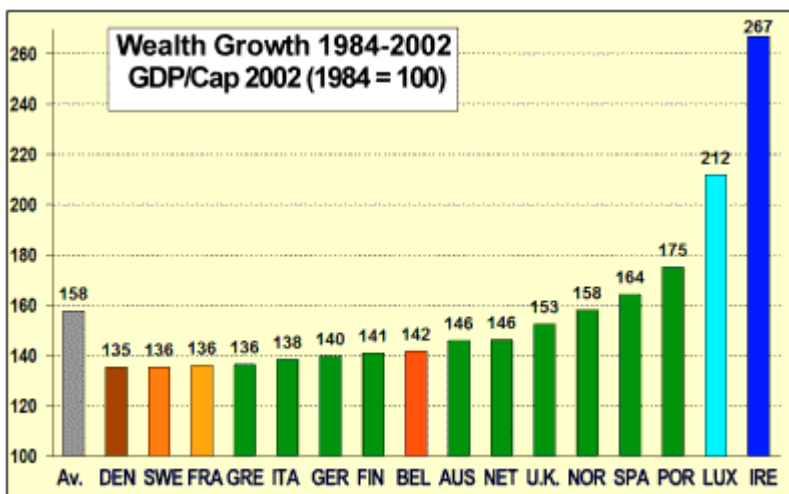
However, given the fact that large differences in the size of government across countries included in the sample exist, some theoretical as well as methodological considerations about panel data estimation occurred. Consequently, separate time series data estimations are implemented, implying, on average, approximately 19 percent reduction in government spending ratio.

Fiscal Policy, Employment And Growth. Tine Dhont & Freddy Heylen (2005)

Why Is Continental Europe Lagging Behind?

http://www.feb.ugent.be/fac/research/WP/Papers/wp_04_275.pdf

This overview would not be complete without mentioning the remarkable work of a study conducted with the support from the Belgian Program on Interuniversity Poles of Attraction, initiated by the Belgian State. The authors continue to claim that the Scandinavian Model would be superior to the European policy mixes, in spite of basic growth and employment statistics overwhelmingly evidencing the opposite. Contrary to the evidence in American literature they also claim that distorting taxes may raise long-run growth and employment when taxes are not too high and when they are used to finance productive government expenditures.



employment and long-run growth.

This study finds higher growth and employment in Scandinavia, thanks to their policies characterised by high taxes, and high productive expenditures and low transfers related to structural non-employment. Contrary to European policies that yield lower growth and poor employment due to their high taxes, high transfers, and lower productive government expenditures. In addition to the potentially positive effect of taxes and productive government expenditures, this paper also finds a strong negative relationship between the transfer replacement rate and

Although their findings that “productive expenditures” have higher positive growth effects over consumption expenditures are consistent with the WFA study, we cannot but strongly contest their policy advice to adopt Scandinavian policies in Europe, as both growth performances and job creation have proved deplorable in Scandinavia during the last 20 years.

Basically the study compares "the European Model" to the "Scandinavian model". The main methodological error of their study lies in the selection of the period and countries considered in the Scandinavian-European comparison. We quote the motivation for their selection:

"We consider the period 1969-2003. As to Europe, we will in our discussion basically focus on averages for two relatively homogeneous country groups: continental Europe (including Belgium, France, Germany, the Netherlands and Italy) and Scandinavia (including Denmark, Finland, Norway and Sweden)..... Finally, note that we do not consider countries like Ireland, Spain and Portugal. The major influence of European integration and conditional convergence effects on these countries' growth performance goes beyond the framework developed here."

In the selection of their data the authors eliminate Ireland, Spain and Portugal (3 out of the 4 best performing European countries) from their European country list and add Oil wealthy and non EU-member Norway (over 20% of GDP is oil) to their Scandinavian selection. The arbitrary selection obviously results in distorted conclusions glorifying the Scandinavian model.

It is hardly conceivable that professors of one of the major Belgian universities would not be aware of the distortion of the results caused by their arbitrary country selection. In our opinion their text must therefore be regarded as a pamphlet promoting an ideology of big government, rather than as a study with any scientific value.

B. Studies Concerning Growth Effects of Tax Structure.

The Impact Of Government Size and Composition of Revenue and Expenditure on Growth

IMF - Mercedes García-Escribano And Gil Mehrez (2004). <http://www.fma.gv.at/de/pdf/selected.PDF>

These results of our investigation are confirmed in large in the above study of the IMF of July 2004. The IMF uses the identical investigation methods as we did but examined a different country group over a different period of time (1970-2002). The IMF comes to the same significant conclusions that government spending and a high ratio direct/indirect tax has a negative effect on the growth. The IMF study however results in smaller significance's and a smaller regression coefficient due to the smaller number of explanatory variables. Also the fact that the IMF implied in its study a period during which some countries were still at the left side of the Armeo-optimum explains the smaller value of the regression coefficient relating to the size of government.

We quote their conclusions:

The empirical analysis presented in this paper shows Austria can enhance its long-term growth rate by reducing the size of its public sector and shifting the burden of taxes from direct to indirect taxes. We demonstrate that part of the impact of government size and budget composition on economic growth occurs through investment and employment. Further research is needed to investigate the direct impact of the government on productivity growth rate, and the specific channels through which the government influences productivity.

Fiscal Policy, Private Investment And Economic Growth - Kerim Peren Arin. (2004)

Evidence From G-7 Countries.

Department of Commerce Massey University Auckland New Zealand

http://papers.ssrn.com/sol3/papers.cfm?abstract_id=438785#PaperDownload

Abstract

Measuring the effects of fiscal policy on economic growth is difficult, because fiscal policy variables are influenced by changes in income. This paper uses an unbalanced panel data set for G-7 countries for the period 1965-2000 that includes annual estimates of cyclically adjusted government expenditures, capital outlays, income tax revenues, indirect tax revenues, corporate tax revenues and social security tax revenues, based on definitions developed by OECD revenue statistics. The percentage share of these estimates in GDP is used to investigate the effects of fiscal policy on economic growth, and results are compared with regression results that use 5-year averages of cyclically unadjusted variables. The empirical results from both sets of regressions suggest that only taxes on household income and government expenditures have negative effects on per capita income growth. We consolidate our findings by showing that both government expenditures and income taxes have distortionary effects on private investment.

Concluding thoughts

This study provides further evidence that fiscal policy does indeed matter for growth. Our results suggest that taxes on household income interfere with the labor/leisure choice of the individuals and create distortions for output growth whereas other tax groups do not. Contrary to previous literature, we do not find any harmful effect of social security taxes, which may be due to using a different sample (G-7 countries). Consequently, different tax groups should be incorporated separately into empirical studies. Our results also suggest that the composition of the fiscal response is more important than the overall magnitude in the determination of economic growth.

Consistent with recent theoretical and empirical literature, we find that when government wage bill is included in government expenditures, the spending side also has distortionary effects on private investment and growth. Perhaps surprisingly, the spending side has larger effects compared to the revenue side, in both magnitude and significance

[Growth, Public Policy and Government Budget Constraint.](#) - Richard Kneller (1999)

Evidence from OECD Countries by Richard Kneller, Michael Bleaney and Norman Gemmell (1999) (School of Economics, University of Nottingham, Nottingham NG7 2RD, U.K.)

http://www.nottingham.ac.uk/economics/research/dp/school_dp/dp.98.14.pdf

Abstract

This paper examines whether the evidence from OECD countries is consistent with the predictions of endogenous growth models that the structure of taxation and public expenditure can affect the steady-state growth rate. We find strong support for the Barro (1990) public policy endogenous growth model for a panel of 22 OECD countries over the period 1970-95. Specifically we find that (1) distortionary taxation reduces growth, whilst non-distortionary taxation does not; and (2) productive government expenditure enhances growth, whilst non-productive expenditure does not. Our results are robust to different time aggregations of the data, and the estimates are free from biases associated with incomplete specification of the government budget constraint.

Conclusions

Theory predicts that the impact of fiscal policy on growth depends on the structure as well as the level of taxation and expenditure. We have attempted to test this systematically using a panel data set for 22 OECD countries over the period 1970-95, aggregating the data into five-year averages to take out short-run factors. An important feature of our methodology is that we have taken full account of the implicit financing assumptions associated with the government budget constraint. Few previous studies have done this, and none for such a comprehensive data set (e.g. Miller and Russek (1993) use annual data for the period 1975-84, although they do have a larger sample of (39) countries). Failure to take account of the government budget constraint will in general introduce a bias into the regression coefficients, and we have shown that this bias can be substantial.

The government budget constraint implies that the estimated coefficient of each fiscal element within a growth regression will depend on how it is financed. The effect of an individual element cannot be isolated, since it is only possible to estimate the difference between the coefficients associated with each element of the government budget. Where theory predicts the coefficients to be zero, however, it is possible to test the equality of these coefficients in a growth regression. We find expenditures classified as non-productive and tax revenues classified as non-distortionary to have equal coefficients, and cannot reject the hypothesis that these variables have a zero impact on growth, consistent with the predictions of Barro (1990).

When financed by some combination of non-distortionary taxation and non-productive expenditure, an increase in productive expenditures significantly enhances growth, and an increase in distortionary taxation significantly reduces growth. Both of these results are consistent with the Barro (1990) model. We have tested the robustness of our results to various changes in specification, and found them to be robust. We have found, however, that the magnitude of the estimated impacts of (productive) expenditures and (distortionary) taxation is sensitive to the process of five-year averaging of the data. This suggests that considerable caution should be exercised in predicting the precise growth effects of fiscal changes; further work should seek to identify those magnitudes more reliably. Nevertheless, even our lowest estimates suggest that increasing productive expenditure or reducing distortionary taxes by 1% of GDP can modestly increase the growth rate (by between 0.1 and 0.2 of a percent per year).

[Restructuring the Canadian Tax system](#) - Bev Dahlby (2001)

changing the Mix of direct and indirect Taxes

Department of Economics University of Alberta

http://oldfraser.lexi.net/publications/tax_reform/dahlby_1.pdf

Introduction

John Stuart Mill defined a direct tax as one that is levied on the individual or firm that is "intended" to pay it. Indirect taxes are, by default, those taxes where the individual or firm, from whom the taxes are collected, is not intended to bear the burden of the tax. This distinction between direct and indirect taxes is necessarily highly imprecise because it is frequently difficult, if not impossible, to discern the legislators' intentions with regard to who should bear the burden of a tax or their understanding of how the tax burden is likely to be shifted through the adjustment of market prices.

Overtime, however, indirect taxes have come to mean sales and excise taxes on goods and services, while direct taxes usually refer to personal and corporate income taxes. Canada, as well as most OECD countries, relies on a mix of direct and indirect taxes. As Figure 1 indicates, Canada, the United States, Australia, New Zealand and Japan place a greater reliance on taxes on income and profits and a lesser reliance on taxes on goods and services than the European countries of France, Germany, Italy and the United Kingdom. Determining the mix of direct and indirect taxes is a fundamental tax policy choice. On what basis should this choice be made? I will approach this issue by first noting that the taxation of goods and services is a form on consumption taxation.

Therefore the decision to rely to a greater or lesser degree on indirect taxes is ultimately a decision to concerning the level of consumption taxation. This is the main issue that is addressed in this paper. I review the theoretical models and some of the empirical evidence regarding the efficiency consequences of consumption taxes. My reading of the evidence suggests that while the level effects (static efficiency gains) from adopting a consumption tax are ambiguous, there is mounting evidence from simulation models and econometric studies that switching to consumption taxation has very significant growth, or dynamic efficiency, effects.

In Section 3, I argue that consumption taxation is a fair or equitable form of taxation if we adopt the intuitively appealing notion that those with a higher standard of living should pay higher taxes. Increasing reliance on consumption taxation does not necessarily imply an increased reliance on indirect taxes because consumption taxes can be imposed through an expenditure tax, which is a form of direct taxation. In the final section of the paper, I briefly consider the direct vs. indirect tax mix under a consumption tax system. I argue that one would want to impose both direct and indirect taxes under a consumption tax system because both types of taxes are subject to different forms of tax evasion and avoidance. Therefore a combination of direct and indirect consumption taxes would produce a more efficient and equitable tax system than simple reliance on one form of consumption taxation.

Conclusions and policy implications

Endogenous growth models and recent econometric studies indicate that increasing reliance on consumption taxes can boost the long-run growth rate of the economy. Therefore, an increased reliance of consumption taxes would raise Canadian living standards significantly over time. The chief obstacle to the adoption of consumption taxation is the perception that consumption taxes are regressive while most Canadians favour a progressive tax burden under which those with a higher income bear a higher share of the tax burden than those with lower incomes.

However, income is not a proper base for measuring the progressivity of a tax system. As argued above, the proper base is individuals' consumption of goods and services over a number of years since it reflects their real standard of living. It follows that the progressivity of the tax system should be measured by individuals' tax burdens as a percentage of consumption over a long period of time. Measuring tax progressivity in this way means that consumption taxes are proportional or slightly progressive, not regressive. Redistributive policy objectives should be pursued through government expenditures rather than taxes because redistributive expenditures are more cost effective than highly progressive taxes. Finally, and most importantly, in discussing the redistributive effects of switching to consumption taxes, we must not overlook "the rising tide that floats all ships."

A higher rate of economic growth due to the switch to growth-enhancing consumption taxes will, over time, improve everyone's standard of living, rich as well as poor. The policy implications that flow from this analysis are relatively straightforward and "do-able." Canada's personal income-tax system, which is already three-quarters of the way to a consumption tax system, should be fully converted to a consumption tax system. This goal could be reached easily by removing existing limits on RRSP and RPP contributions and by introducing a savings plan where taxes are prepaid, along the lines of the Kesselman and Poshmann proposal. Any reductions in tax revenues from these reforms should be offset through increases in the GST rate. The provincial governments that have not already done so should adopt the GST as the base for their sales taxes. Some realignment Changing the Mix of Direct and Indirect Taxes 103 of tax powers between federal and provincial governments would be desirable to improve transparency and accountability, with the federal government having the dominant role in the sales tax field, and the provincial governments having a larger role, if not the dominant role, in the expenditure tax area. The potential payoffs for Canadian society from switching to a consumption tax system are so significant that these tax policy changes must receive serious consideration.

Estructura Fiscal y Crecimiento Económico en la OCDE - Rafael Doménech (2000)

Rafael Doménech y José Ramón García Julio. Universidad de Valencia, Spain.

http://iei.uv.es/~rdomenec/efce_1/efce_1.pdf

Resumen

Este trabajo analiza cómo ha afectado la estructura impositiva al crecimiento de los países de la OCDE en el periodo 1960-1995. Para ello, se presentan los resultados de simulaciones que ilustran los efectos de la estructura impositiva sobre el crecimiento y el nivel de la renta per capita utilizando modelos que, según los supuestos sobre el tipo de rendimientos de los factores acumulables, exhiben crecimiento endógeno o exógeno. En general, la evidencia empírica confirma los resultados teóricos, según los cuales la financiación de un determinado nivel de gasto público debe evitar un peso excesivo de imposición sobre las rentas del trabajo y, sobre todo, de las rentas del capital, por sus consecuencias negativas sobre la acumulación de capital físico y sobre la productividad del trabajo.

Conclusiones.

En este trabajo se han analizado los efectos de la estructura fiscal sobre el crecimiento económico en una muestra de países industrializados. Los resultados obtenidos al estimar ecuaciones de crecimiento y de inversión privada parecen apuntar la existencia de efectos sobre el crecimiento a través de la acumulación de capital, que a su vez pueden interpretarse como una manifestación de efectos sobre el nivel de la productividad del trabajo más que sobre su tasa de crecimiento a largo plazo. En general, la evidencia empírica confirma los resultados teóricos, según los cuales la financiación de un determinado nivel de gasto público debe evitar un peso excesivo de imposición sobre las rentas del trabajo y, sobre todo, de las rentas del capital, por sus consecuencias negativas sobre la acumulación de capital físico y sobre la productividad.

En el ámbito de las recomendaciones de política económica, estos resultados son favorables a las propuestas que apuntan a una reforma impositiva que aumente la imposición indirecta a cambio de una reducción en la imposición directa, garantizando el equilibrio presupuestario, como forma de reducir las distorsiones que genera la fiscalidad sobre el funcionamiento de la economía y las decisiones de los agentes privados. No obstante, las reformas impositivas en esta dirección van posiblemente asociadas a una mayor regresividad del sistema impositivo que nos puede alejar, en principio, del objetivo de equidad. La solución a los problemas de pobreza y marginalidad dentro de las sociedades occidentales debería acometerse mediante programas de gastos más que a través de la imposición directa, formalmente más progresiva, pero que ha podido tener escasos resultados y que parece haber afectado negativamente a las perspectivas de crecimiento de estas economías.

Al valorar los problemas que plantea el trade-off existente entre eficiencia y equidad conviene recordar que, a parte de sus efectos distorsionadores, una financiación que descansa en una imposición directa excesiva incentiva el fraude fiscal y perjudica notablemente a la equidad, ya que el impuesto más injusto es aquel que no se paga.

[A Growth Maximising Tax Structure for New Zealand](#) - Johannah Branson (2001)

University of Exeter, Exeter,

<http://www.terry.uga.edu/~knox/webdocs/Branson2001.pdf>

Abstract

Annual growth rates of real GDP in New Zealand have varied widely, from 18% to .8%, since World War II. During this period the tax burden (the ratio of tax revenue to GDP) has trended upward from 23% to 35%. The tax mix (the ratio of indirect taxes to direct taxes) has varied between 0.31 and 0.75, having increased recently with the introduction of the goods and services tax. In this paper we estimate a combination of the tax burden and the tax mix which would maximise the rate of growth of real GDP. We find that such a tax structure would have a time-varying tax burden with a mean of 22.5%, and a time-varying tax mix with a mean of 0.54, which implies a mean share of direct taxes in total tax revenue of 65%. We also find that a move to such a tax structure would generate nearly a 17% increase in real GDP, and while this increase would yield a 6% reduction in tax revenue to the Treasury, it would deliver a 27% increase in purchasing power to the remainder of the economy.

Summary and Conclusions

Nation's tax structure has important consequences for the rate at which its economy grows. In this paper we have attempted to uncover the relationship between New Zealand's tax 144 BRANSON AND LOVELL structure and the rate of growth of its real GDP. Two assumptions underlie our analysis. The first assumption is that in evaluating the structure of the tax system, the driving policy objective is one of maximising the rate of growth of real GDP. It is possible that different policy objectives would lead to different evaluations. The second assumption is that the tax structure is adequately characterised by two dimensions: the tax burden and the tax mix. In the Introduction we asked five questions concerning taxation and economic growth in New Zealand.

In Section 2 we developed an analytical framework capable of providing answers to each of these questions. In Section 3 we applied this framework to New Zealand macroeconomic data covering the period 1946–1995 in an effort to provide quantitative answers to each of these questions. We have found that an excessive tax burden has done far more damage to economic growth than has an inappropriate tax mix. However, the damages are measured, reducing the tax burden is a more potent way of enhancing economic growth than is fine-tuning the tax mix. This is due in part to the fact that the actual tax burden has consistently been far higher than the growth-maximising tax burden, while the actual tax mix has typically been much closer to the growth-maximising tax mix.

Our second finding concerns the cost of maintaining the existing tax structure, or the potential benefit to be gained by adopting a growth maximising tax structure. One measure of the cost or the benefit is provided by the output gap, the difference between growth maximising and observed real GDP, which we estimate to have been 16.4% of observed real GDP in 1995.

Another measure of the cost or benefit is provided by the composition of the output gap. We estimate that in 1995 a growth maximising tax structure would have reduced tax revenue to the Treasury by 10.8%, and would have increased purchasing power in the remainder of the economy by 31%.

Taxation, Individual Incentives and Economic Growth - Alex Robson (2004)

School of Economics Australian National University Canberra,
http://www.iref-europe.org/ang/pub/pub_contest/RobsonEssay.pdf

Abstract

Economists have long recognized that high levels of taxation may have adverse consequences for individual economic incentives. Standard microeconomic measures of the welfare costs of wage taxation reveal that these adverse effects can be considerable. To the extent that economic growth is a sensible indicator of economic welfare, taxes which reduce welfare will also tend to reduce economic growth. Thus, as a general proposition, higher tax rates should tend to have negative consequences for economic growth, but certain kinds of tax structures may tend to favour economic growth more than others. Overall, existing empirical evidence tends to suggest that higher taxes are associated with lower economic growth, but since no econometric test can prove the direction of causation in the true sense of that term, the direction of causality remains unclear. Nevertheless, this paper finds that for the case of personal income taxes, a positive correlation between higher growth and higher personal income tax rates does not tend to show up in OECD data for the 1980-2000 period. Indeed, in economies where substantial tax cuts took place during this period, per capita economic growth rates were almost double those enjoyed by economies where no substantial tax cuts took place.

Conclusions and Directions for Tax Reform

Smith's wisdom regarding the nature of taxation continues to elude some economists. Whatever view one takes of the merits or otherwise of higher taxes, it is simply erroneous to assert that, at current levels of taxation and spending, confiscating an additional dollar from an individual would have little or no effect on economic incentives. The reason is that personal income taxes not only reduce the ability of individuals to enjoy the fruits of our own labour; they also alter the incentives to work, consume and save, all of which have additional harmful economic effects. Because taxation always alters economic choices, a dollar increase in government revenue often ends up costing the economy more in real terms than the dollar that is actually paid in taxes. Graduated personal income taxes systems tend to be more distortionary than flatter tax structures. This is confirmed by both microeconomic and macroeconomic studies. For an example of the latter, Cassou and Lansin (2004) simulate changes in the income tax schedule from a graduated-rate tax system to a flat tax.

They examine an endogenous growth model and a standard neoclassical growth model. For the former, they find that a flat tax can permanently increase per capita growth by up to 0.143 percentage points per year. There are other important differences between graduated tax structures that currently exist in most advanced economies and flat, proportional taxes. Once a flat tax is chosen, further policy deliberations regarding changes in the tax system essentially involve only three choices — should the rate stay the same, be increased, or decreased? A tax increase for one group of taxpayers is a tax increase for all. The same applies to tax cuts.

These observations immediately suggest why a system of graduated income taxes (and even, to a certain extent, the flat tax with a tax free threshold) tend to discourage reductions in tax rates, particularly at higher income levels. It is not at all obvious why one particular graduated tax schedule is "fairer" than any other. Any proposal to change a graduated tax schedule cannot be based on first principles, since nobody can agree on what makes one tax system more "progressive" than another. Hence, proposals for change usually involve setting different taxpayers against one another as political competitors. When a change in a graduated schedule is proposed, a tax increase for one group of income earners could mean a reduction for others, and vice versa.

The same reasoning applies to income tax deductions for special interest groups or classes of individuals or income earners. Once these are entertained for one group, they could potentially be entertained for all groups, setting off a costly process of lobbying and political competition. As discussed above, not only does this involve a direct waste of resources on lobbying and so on; it creates greater administrative and compliance costs as the tax code becomes progressively more complex and voluminous, as discussed earlier. This is wonderful for accountants and tax lawyers, but is a net loss for the economy as a whole.

However, a flat tax which does not allow for any deductions or a tax-free threshold is administratively very simple, and easy to comply with. Whatever disincentive effects it creates are not altered by inflation. In most existing tax systems, changes in nominal wages (but not real wages) move some individuals into higher tax brackets ("bracket creep") when their real incomes have in fact not changed. With a flat tax, there are no "brackets" to creep into when one's nominal wage changes with inflation. Individuals pay a higher real tax bill if and only if their real wage increases. Moreover, they pay the same proportion of their income in taxes, which does not occur even when brackets are indexed for inflation as they are in the US. However, a flat tax which has a high marginal rate still distorts economic incentives and creates an excess burden. Indeed, a graduated tax system with low marginal rates may be preferable to a flat tax system with a high marginal rate.

This suggests that it is pointless discussing flat taxes if government spending is not controlled. In fact, some economists have gone further and argue that implementing "efficient" taxes such as flat consumption taxes and flat income taxes may actually cause governments to spend more, since the economic costs of raising a particular amount of revenue under such systems are relatively lower.¹⁴ Because the "price" of increasing spending is lower, demand for spending rises. Flat taxes, it is argued, are so efficient that they create an incentive for governments to spend more money, which, as we have already mentioned, tends to distort economic behavior in other ways. Regulatory agencies and policy institutions, like markets, are not perfect.

We should avoid the presumption that "solutions" to problems (like the flat tax) can always be found. In most cases, we are faced with policy trade-offs, rather than policy solutions. This reflects a constrained view of economic policy making, which is a relatively recent way of thinking about policy formation issues. It can be contrasted with the older, unconstrained view of economic policy making, which tends to argue that policy "solutions" can always be found, and that regulatory and policy institutions themselves are not subject to the same kinds of failures that may affect markets (i.e. imperfect knowledge, informational asymmetries, distorted incentives, etc.).¹⁵ The key lesson is that tax reform is a policy process that can only be implemented by governments, and must be implemented within an imperfect world. A high flat tax is still a high tax, and, based on the available evidence, would still have adverse consequences for economic growth.

C. Concluding remarks

Most of the studies analysing growth effects in developed countries of government spending and different tax structures lead to similar empirical findings:

- Government spending above the optimal level causes significant growth slowdown.
- Direct taxes on income are the most distortionary taxes causing most harm to growth.
- A shift from direct taxes to consumption taxes can boost growth prospects

Generally speaking the WorkForAll study found empirical results with higher significance and higher absolute values of the regression coefficients than most prior studies. This is due to:

- The large number of and original selection of relevant independent variables determining growth. A larger number of determining factors evidently allows explaining growth with higher precision than studies considering fewer determining factors only.
- WFA confined the study to the relative homogeneous group of European welfare states.
- The WFA study was confined to the time period since 1985, during which public spending was above the optimal level over the whole investigated period. Most prior growth models have been considering vast periods from 1970 to 2003, during which both government under-spending and overspending have been co-existing. As a result, positive and negative growth effects of government spending on both sides of the Armey-optimum have been compensating in the linear regressions. This has resulted in grossly underestimated coefficients and significance of the growth effect of government spending in prior growth models.

About the Authors



Dr. Martin De Vlieghere is economist and doctor of philosophy since 1993. His PhD was written on the conditions of modernity in the works of Habermas and Hayek. He has been assistant professor at the Department of Philosophy of the University of Ghent. He is president of the "Free Association for Civilization Studies" and member of the board of directors of Nova Civitas. Paul Vreymans is econometrist and advisor at the Free Institute for Economic Research. As an international businessman he is a close witness of Europe's industrial collapse and the rise of the parasitical bureaucratic complex. He is a founding member of the Brussels' think tank WorkForAll.

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Appendix 3: Data

Gross domestic product per head at the price levels and PPPs of 2000 (US dollars) 1985 = 100

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004		average	st dev
Austria	100,0	102,1	103,6	107,1	110,4	114,6	117,5	119,0	118,4	121,1	123,2	126,3	128,4	132,9	137,0	141,3	141,9	142,5	143,9	146,4	AUS	146,4	14,61
Belgium	100,0	101,8	104,0	108,6	111,9	115,1	116,8	118,1	116,5	119,9	122,5	123,7	127,5	129,7	133,4	138,3	139,2	140,6	141,3	144,4	BEL	144,4	13,45
Denmark	100,0	103,9	103,8	105,0	105,1	105,9	107,0	108,8	108,3	113,9	116,9	119,5	122,7	125,0	127,7	131,8	132,3	132,4	133,0	135,2	DEN	135,2	11,81
Finland	100,0	102,0	106,1	110,8	115,7	114,8	106,9	102,2	100,5	103,9	107,1	110,8	117,3	122,8	126,7	132,7	133,8	136,4	139,4	144,0	FIN	144,0	13,86
France	100,0	101,8	103,4	107,3	110,7	113,1	113,9	115,5	113,9	115,9	118,2	119,1	121,5	125,4	129,0	133,5	135,4	136,2	136,4	138,8	FRA	138,8	11,89
Germany	100,0	102,4	103,9	107,2	110,6	115,9	120,9	122,6	120,8	123,6	125,6	126,5	128,5	131,1	133,7	137,8	139,2	139,1	138,8	141,1	GER	141,1	12,90
Greece	100,0	100,2	97,6	101,4	104,7	104,0	106,3	106,3	104,0	105,6	107,5	109,3	112,6	115,7	119,2	124,1	129,4	133,9	139,6	145,7	GRE	145,7	13,75
Ireland	100,0	99,5	104,2	110,0	117,1	127,1	128,8	132,0	134,9	142,2	155,2	166,9	184,6	197,6	216,5	233,4	244,0	254,5	261,5	268,6	IRE	268,6	57,30
Italy	100,0	102,9	106,1	110,5	114,2	116,4	118,1	119,0	117,8	120,3	123,7	124,6	126,9	128,7	131,1	135,8	138,1	138,2	137,1	137,2	ITA	137,2	11,62
Luxembourg	100,0	109,5	113,1	121,6	132,2	137,7	147,5	148,2	152,3	155,8	155,8	158,7	169,6	179,0	190,3	204,6	206,4	209,3	213,5	222,3	LUX	222,3	36,15
Netherlands	100,0	102,6	103,8	106,2	110,6	114,3	116,1	117,0	116,9	119,5	122,5	125,7	129,9	134,7	139,1	142,9	143,9	143,1	142,2	144,2	NET	144,2	14,93
Norway	100,0	103,3	104,9	104,3	104,8	106,7	110,0	113,0	115,3	120,7	125,4	131,3	137,3	140,1	142,1	145,2	148,4	149,2	150,0	153,8	NOR	153,8	18,52
Portugal	100,0	104,1	111,0	119,6	127,7	133,3	139,5	141,0	138,0	139,0	144,5	149,2	154,6	161,1	166,5	171,2	173,0	172,5	169,3	169,6	POR	169,6	22,70
Spain	100,0	102,9	108,4	113,7	118,9	123,2	126,1	127,0	125,4	128,2	131,5	134,4	139,2	144,9	151,0	157,3	161,1	163,0	165,2	167,5	SPA	167,5	20,50
Sweden	100,0	102,5	105,7	107,9	110,2	110,4	108,5	106,6	103,9	107,1	110,7	112,1	114,6	118,7	124,0	129,2	130,2	132,4	134,1	138,6	SWE	138,6	11,48
Switzerland	100,0	101,1	101,7	104,2	108,1	111,0	108,7	107,7	106,8	107,2	106,9	107,1	109,0	111,8	112,7	116,1	116,1	115,5	114,2	115,4	SWI	115,4	4,88
U.K.	100,0	103,7	108,2	113,4	115,5	116,0	114,0	114,0	116,5	121,4	124,5	127,6	131,3	135,1	138,7	143,8	146,5	148,9	152,0	156,1	U.K.	156,1	16,40
Average	100,0	102,7	105,2	109,3	113,4	116,4	118,0	118,7	118,2	121,5	124,8	127,8	132,7	137,3	142,3	148,2	150,5	152,2	153,6	157,0		156,99	18,04
St.Dev.	0,0	2,1	3,4	5,2	7,3	8,9	11,3	12,1	13,0	13,3	14,5	16,2	19,5	21,9	25,6	28,9	30,6	32,5	33,9	35,4		35,36	11,73

<http://cs4hq.oecd.org/oecd/eng/TableView/wdsview/download.asp>

Annex Table 25. General government total outlays Per cent of nominal GDP

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004		average	st dev
Austria	50,3	51,2	51,6	53,2	51,7	51,5	52,4	53,0	56,0	55,6	56,0	55,5	53,0	53,5	53,2	51,4	50,8	50,7	50,6	49,9	AUS	52,6	1,90
Belgium	57,1	56,3	54,3	53,6	52,0	51,9	52,9	53,2	54,2	51,9	51,4	51,9	50,5	49,8	49,5	48,6	48,4	49,0	50,1	48,7	BEL	51,8	2,44
Denmark	56,2	56,5	55,2	55,7	56,1	55,9	56,5	57,5	60,6	60,4	59,5	59,1	57,1	56,8	55,8	53,9	54,5	55,2	55,2	55,1	DEN	56,6	1,86
Finland	42,6	43,5	44,0	46,6	44,7	48,3	57,1	62,3	63,6	62,2	59,0	59,3	56,0	52,4	51,7	48,8	48,8	49,7	50,7	50,8	FIN	52,1	6,47
France	49,8	49,2	48,2	49,9	48,8	49,3	50,5	51,7	54,3	54,2	54,4	54,5	53,7	52,6	52,6	51,6	51,5	52,6	53,6	53,5	FRA	51,8	2,03
Germany	45,6	45,0	45,3	45,3	44,0	44,5	46,1	47,3	48,3	47,9	48,3	49,3	48,3	48,1	48,2	45,1	47,5	48,0	48,3	47,0	GER	46,9	1,54
Greece	43,8	42,9	43,1	44,0	45,4	50,2	46,7	49,4	52,0	49,9	51,0	49,2	50,1	49,5	49,5	52,1	50,2	49,7	49,9	49,8	GRE	48,4	2,88
Ireland	50,7	50,6	48,1	48,5	42,7	42,9	44,5	44,9	44,7	43,9	41,2	39,3	36,8	34,4	34,1	31,5	33,2	33,4	33,5	33,7	IRE	40,6	6,22
Italy	49,5	50,0	49,4	51,5	52,8	54,4	55,5	56,7	57,7	54,5	53,4	53,2	51,1	49,9	48,9	46,9	49,2	48,5	49,3	48,7	ITA	51,6	2,97
Luxembourg	43,6	43,8	42,8	44,0	43,5	43,3	44,6	46,5	45,7	44,7	45,0	45,4	43,7	42,1	41,6	38,6	39,1	43,7	45,0	45,2	LUX	43,6	1,97
Netherlands	51,9	52,0	53,3	54,3	52,3	52,5	52,6	53,5	53,7	51,4	49,3	47,6	46,3	45,3	45,0	43,4	45,4	46,2	47,1	46,6	NET	49,5	3,50
Norway	41,5	45,4	47,7	52,6	52,2	54,0	54,9	56,2	55,1	54,1	51,5	49,0	47,2	49,6	48,1	42,7	44,3	47,5	48,9	46,7	NOR	49,5	4,15
Portugal	39,3	39,8	38,4	37,1	37,4	40,6	43,5	44,6	46,0	44,3	43,4	44,1	43,0	42,3	43,7	43,7	44,8	44,7	46,2	46,5	POR	42,7	2,83
Spain	39,7	40,6	39,6	40,0	41,3	42,5	43,9	44,9	48,4	46,3	44,1	42,9	41,0	40,7	39,2	38,9	38,4	38,7	38,3	38,8	SPA	41,4	2,79
Sweden	60,4	58,6	54,8	60,1	62,1	61,9	63,3	71,8	73,0	70,9	67,7	65,3	63,0	60,7	60,3	57,4	57,0	58,4	58,7	57,3	SWE	62,1	5,05
Switzerland	34,4	34,5	33,8	34,7	34,3	30,0	31,7	33,8	34,7	34,7	34,6	35,2	35,6	36,1	34,6	33,9	34,8	35,7	36,7	36,7	SWI	34,5	1,50
U.K.	41,7	41,9	40,5	41,1	40,5	42,2	44,0	46,1	46,1	45,3	45,0	43,1	41,5	40,2	39,7	37,5	41,0	41,7	43,3	43,9	U.K.	42,3	2,20
Average	46,9	47,2	46,5	47,8	47,2	48,0	49,4	51,4	52,6	51,3	50,3	49,6	48,1	47,3	46,8	45,1	45,8	46,7	47,4	47,0		48,12	3,08
St.Dev.	6,9	6,4	6,1	6,8	7,0	7,2	7,2	8,2	8,4	8,1	7,7	7,5	7,1	7,0	7,0	7,1	6,5	6,4	6,3	6,0		6,50	1,50

<http://www.oecd.org/dataoecd/5/51/2483816.xls>

Annex Table 27. General government financial balances Surplus (+) or deficit (-) as a per cent of nominal GDP

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004		average	st dev
Austria	-2,6	-3,8	-4,4	-3,4	-3,1	-2,5	-2,9	-2,0	-4,4	-4,8	-5,7	-4,0	-1,8	-2,4	-2,3	-1,6	0,0	-0,6	-1,3	-1,1	AUS	-2,7	1,44
Belgium	-10,2	-10,1	-7,9	-7,1	-7,5	-6,7	-7,3	-7,9	-7,2	-4,9	-4,3	-3,7	-1,9	-0,7	-0,4	0,1	0,6	0,1	0,3	0,0	BEL	-4,3	3,69
Denmark	-3,3	-3,4	-2,7	1,7	0,3	-1,3	-2,9	-2,6	-3,8	-3,3	-2,9	-1,9	-0,5	0,0	1,4	2,3	1,2	0,3	0,0	1,7	DEN	-1,0	1,98
Finland	3,3	3,8	1,4	5,2	6,8	5,4	-1,0	-5,5	-7,2	-5,7	-3,8	-2,9	-1,2	1,6	2,2	7,1	5,2	4,2	2,3	1,9	FIN	1,2	4,20
France	-3,0	-3,2	-2,0	-2,3	-1,6	-1,8	-2,3	-3,9	-5,8	-5,4	-5,5	-4,1	-3,0	-2,6	-1,7	-1,5	-1,6	-3,2	-4,2	-3,6	FRA	-3,1	1,32
Germany	-1,1	-1,3	-1,8	-2,0	0,1	-2,0	-2,8	-2,5	-3,0	-2,3	-3,2	-3,3	-2,6	-2,2	-1,5	1,3	-2,8	-3,7	-4,0	-3,7	GER	-2,2	1,26
Greece	-11,6	-9,6	-9,6	-11,6	-13,6	-15,7	-11,0	-12,2	-13,4	-9,3	-10,2	-7,4	-6,6	-4,3	-3,5	-4,2	-6,0	-5,0	-5,8	-6,5	GRE	-8,9	3,47
Ireland	-10,3	-10,2	-8,2	-4,6	-2,6	-2,8	-2,8	-2,9	-2,7	-1,9	-2,1	-0,1	1,5	2,3	2,4	4,4	0,8	-0,4	0,2	1,4	IRE	-1,9	3,91
Italy	-12,7	-12,2	-11,8	-11,3	-11,7	-11,8	-11,7	-10,7	-10,3	-9,3	-7,6	-7,1	-2,7	-3,1	-1,8	-0,7	-3,2	-2,9	-3,3	-3,3	ITA	-7,4	4,21
Luxembourg	0,1	0,1	0,7	1,8	2,0	4,8	0,9	-0,5	1,6	2,8	2,6	2,2	3,0	3,3	3,5	6,1	6,1	2,1	0,2	-0,6	LUX	2,1	1,91
Netherlands	-4,1	-5,7	-6,6	-4,0	-4,8	-5,1	-2,6	-4,0	-2,7	-3,3	-4,0	-1,7	-1,1	-0,7	0,6	2,1	-0,3	-2,0	-3,2	-2,1	NET	-2,8	2,13
Norway	9,9	5,9	4,6	2,6	1,8	2,2	0,1	-1,9	-1,4	0,3	3,4	6,5	7,7	3,6	6,2	15,6	13,6	9,3	7,6	11,4	NOR	5,5	4,72
Portugal	-7,2	-6,2	-5,4	-3,6	-3,0	-6,4	-7,3	-4,6	-7,8	-7,4	-5,3	-4,6	-3,4	-3,0	-2,8	-2,9	-4,3	-2,8	-2,9	-3,0	POR	-4,7	1,74
Spain	-5,6	-6,1	-3,7	-3,1	-2,6	-3,9	-4,6	-3,7	-6,9	-6,5	-6,3	-4,7	-2,9	-3,0	-0,9	-0,9	-0,5	-0,3	0,0	-0,2	SPA	-3,3	2,22
Sweden	-3,9	-1,4	3,9	3,4	3,3	3,4	-0,1	-9,0	-11,4	-9,3	-6,9	-2,8	-1,0	1,9	2,3	5,0	2,6	-0,5	-0,1	1,4	SWE	-1,0	4,72
Switzerland	-3,0	-3,1	-2,4	-1,3	-1,2	0,6	-1,1	-2,4	-2,7	-1,9	-1,2	-1,4	-2,4	-1,5	0,0	2,4	0,9	0,1	-1,5	-1,4	SWI	-1,2	1,37
U.K.	-2,9	-2,6	-1,8	0,5	0,8	-1,6	-3,1	-6,5	-7,9	-6,8	-5,8	-4,2	-2,2	0,1	1,0	3,8	0,7	-1,7	-3,3	-3,2	U.K.	-2,3	2,91
Average	-4,0	-4,1	-3,4	-2,3	-2,2	-2,7	-3,7	-4,9	-5,7	-4,7	-4,0	-2,7	-1,3	-0,6	0,3	2,3	0,8	-0,4	-1,1	-0,6		-2,25	2,78
St.Dev.	5,4	4,7	4,4	4,6	5,0	5,3	3,5	3,2	3,7	3,3	3,3	3,2	3,0	2,4	2,5	4,5	4,4	3,2	3,0	3,8		3,24	1,23

<http://www.oecd.org/dataoecd/5/51/2483816.xls>

Household Consumption as % of GDP

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004		average	st dev
Austria	72,7	72,8	73,1	72,6	72,6	72,5	72,5	73,5	73,6	74,0	72,9	73,2	72,8	71,6	70,6	70,7	70,5	70,2	70,4	69,4	AUS	72,1	1,30
Belgium	71,0	71,6	71,2	70,3	70,2	70,2	71,0	71,3	71,6	71,1	70,5	70,9	69,5	69,7	69,1	68,8	69,2	68,6	69,0	68,4	BEL	70,1	1,02
Denmark	72,4	72,8	72,3	71,4	71,1	70,4	70,5	71,0	71,5	71,2	70,5	70,4	69,9	70,2	68,7	67,0	67,0	68,0	68,5	69,5	DEN	70,2	1,63
Finland	64,6	65,4	65,7	65,7	65,7	65,8	68,3	68,1	65,9	64,7	64,9	64,7	62,7	62,1	62,0	60,6	61,4	61,3	62,1	61,7	FIN	64,2	2,21
France	75,5	76,1	76,6	75,4	74,7	74,7	74,6	74,3	75,2	74,8	74,3	74,7	73,4	73,3	73,2	72,8	73,2	74,3	75,0	74,8	FRA	74,5	0,97
Germany	72,5	73,4	74,7	74,0	72,7	71,7	71,8	73,0	74,2	74,0	74,3	74,8	74,2	73,9	74,4	73,7	74,1	73,9	74,2	73,1	GER	73,6	0,87
Greece	71,6	70,2	73,7	75,0	76,8	78,8	78,6	79,9	80,5	80,5	80,8	80,9	80,2	79,7	78,9	76,9	75,7	75,5	76,0	75,7	GRE	77,3	3,04
Ireland	72,2	74,0	73,0	72,5	73,0	68,3	68,2	68,1	68,3	67,5	63,3	62,0	59,6	58,5	57,4	57,1	57,4	56,3	55,8	55,3	IRE	64,4	6,61
Italy	73,8	74,7	74,4	73,7	73,7	73,6	74,4	75,1	73,4	72,6	71,1	71,1	71,6	72,7	73,0	72,2	71,8	72,0	72,5	71,9	ITA	73,0	1,16
Luxembourg	65,1	61,2	61,7	60,3	57,8	62,8	61,7	59,8	59,2	58,8	59,0	59,9	57,4	56,7	54,7	52,3	54,4	54,9	54,5	53,4	LUX	58,3	3,36
Netherlands	71,0	70,5	70,7	69,1	67,8	67,4	67,8	67,8	67,8	66,9	66,7	66,6	66,2	66,4	66,5	66,5	66,7	67,6	67,7	66,8	NET	67,7	1,44
Norway	59,0	59,5	58,4	57,6	56,8	56,3	55,3	55,1	55,0	53,8	53,4	53,8	52,8	53,0	53,6	54,0	54,1	55,3	56,3	57,0	NOR	55,5	1,98
Portugal	75,3	76,6	75,6	75,4	73,2	74,8	75,2	77,3	79,6	80,0	77,3	77,3	76,1	76,3	77,2	76,6	76,4	77,1	78,1	79,1	POR	76,7	1,62
Spain	71,6	71,8	72,4	72,1	72,8	72,9	73,4	74,4	74,3	73,3	72,6	72,6	72,2	72,4	72,7	72,6	72,4	72,8	72,7	73,8	SPA	72,8	0,71
Sweden	75,2	77,0	78,5	78,5	77,3	76,2	77,9	77,7	76,5	74,3	72,1	72,0	71,3	71,2	70,2	69,3	69,2	69,1	68,8	67,1	SWE	73,5	3,72
Switzerland	66,8	67,3	67,9	66,9	65,4	63,8	65,7	66,0	65,8	65,7	66,0	66,3	66,2	65,8	66,3	65,5	66,4	66,5	67,3	66,8	SWI	66,2	0,84
U.K.	75,2	77,2	77,2	78,3	78,9	79,2	79,7	80,2	80,6	79,2	78,5	79,0	79,0	79,2	80,0	80,1	80,7	81,8	81,9	82,1	U.K.	79,4	1,64
Average	70,9	71,3	71,6	71,1	70,6	70,5	71,0	71,3	71,4	70,7	69,9	70,0	69,1	69,0	68,7	68,0	68,3	68,5	68,9	68,6		69,98	2,01
St.Dev.	4,4	5,1	5,2	5,6	6,0	5,8	6,0	6,5	6,9	7,0	6,8	6,9	7,3	7,4	7,7	7,8	7,4	7,5	7,6	7,8		6,35	1,44

EMU MEMBERSHIP

Country	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003		average	st dev
Austria	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	AUS	0,3	0,43
Belgium	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	BEL	0,3	0,43
Denmark	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	DEN	0,0	0,00
Finland	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	FIN	0,3	0,43
France	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	FRA	0,3	0,43
Germany	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	GER	0,3	0,43
Greece	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	GRE	0,2	0,36
Ireland	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	IRE	0,3	0,43
Italy	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	ITA	0,3	0,43
Luxembourg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	LUX	0,3	0,43
Netherlands	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	NET	0,3	0,43
Norway	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NOR	0,0	0,00
Portugal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	POR	0,3	0,43
Spain	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	SPA	0,3	0,43
Sweden	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SWE	0,0	0,00
Switzerland	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SWI	0,0	0,00
U.K.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	U.K.	0,0	0,00
Average	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1		0,17	0,30
St.Dev.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0,11	0,20

Participation Hours : Annual Hours Worked per Person x Employment / Population rate

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004		average	st dev
Austria	759,8	766,4	765,7	764,4	766,9	771,6	776,0	778,7	767,0	752,6	723,8	734,3	691,9	695,7	698,7	704,0	711,0	691,6	689,2	682,5	AUS	734,6	34,50
Belgium	636,6	635,2	635,2	644,3	646,2	655,3	642,4	632,5	611,1	607,4	621,8	612,0	621,0	633,3	636,6	647,0	655,6	652,8	649,4	643,6	BEL	636,0	14,27
Denmark	796,3	803,8	795,2	801,7	784,2	769,1	758,4	759,1	727,1	774,3	757,9	760,5	769,3	774,4	804,0	788,1	802,7	779,4	776,4	762,9	DEN	777,2	19,65
Finland	854,1	836,0	850,1	866,5	861,3	834,7	773,5	723,8	668,4	670,5	678,7	692,5	710,1	714,9	732,9	741,6	744,1	746,5	741,0	748,3	FIN	759,5	65,39
France	620,9	617,9	621,4	627,5	629,1	627,4	624,4	615,2	598,4	596,2	600,2	602,2	602,1	608,0	615,7	611,3	610,2	596,1	590,6	592,3	FRA	610,4	12,21
All Germany	752,9	758,5	750,0	740,0	736,6	723,8	710,3	703,0	681,4	674,4	666,2	653,8	647,6	654,6	649,5	645,2	640,5	629,1	623,0	627,8	GER	683,4	45,38
Greece	702,4	696,9	680,1	687,9	698,4	700,0	676,8	691,7	700,6	699,2	700,1	713,5	703,8	735,7	742,8	742,3	743,9	757,3	775,6	777,5	GRE	716,3	29,89
Ireland	587,5	595,9	596,1	596,9	602,2	629,3	613,4	597,6	600,1	618,2	645,1	665,3	670,6	689,3	716,5	743,2	751,1	751,0	745,3	759,0	IRE	658,7	62,46
Italy	636,0	639,6	639,1	652,6	655,8	667,0	677,0	657,7	641,5	629,2	627,8	631,1	633,8	638,9	644,2	653,5	659,9	670,1	673,6	676,2	ITA	650,2	15,92
Luxem-bourg	725,3	732,0	739,8	757,1	782,1	806,9	815,7	812,0	809,4	818,8	824,7	833,5	849,2	876,9	903,7	939,0	968,7	978,6	970,8	960,9	LUX	845,2	81,09
Nether-lands	583,3	582,6	585,6	581,1	584,0	603,9	605,3	614,0	608,6	604,6	605,4	623,8	645,0	649,6	659,8	691,9	706,1	689,5	689,3	677,1	NET	629,5	41,59
Norway	720,6	739,4	737,6	731,1	705,8	693,4	681,7	680,8	678,8	682,8	685,5	692,7	705,0	718,1	717,9	707,1	695,9	685,3	674,2	685,6	NOR	701,0	19,94
Portugal	752,3	747,0	771,9	790,8	820,8	869,4	858,8	840,0	817,4	805,2	819,5	821,0	814,6	825,6	844,4	834,6	847,5	847,4	831,0	836,3	POR	819,8	31,94
Spain	524,9	529,9	551,3	569,5	583,5	596,5	602,1	587,0	558,7	556,5	568,7	582,4	604,2	635,5	664,2	699,1	727,1	740,1	769,5	797,7	SPA	622,4	80,00
Sweden	782,9	785,9	790,9	810,1	817,6	815,4	791,2	762,3	723,8	731,0	741,4	736,3	727,9	740,4	759,3	768,1	769,6	758,6	748,1	752,3	SWE	765,7	28,48
Switzer-land	878,2	888,3	903,3	919,1	927,3	941,2	945,6	920,4	905,9	901,6	882,3	875,8	871,1	882,7	895,2	888,6	880,6	869,6	864,1	859,5	SWI	895,0	24,38
U.K.	747,7	745,3	758,5	784,2	795,8	789,2	759,0	725,3	714,0	732,7	733,3	733,4	743,8	752,3	759,2	759,7	764,5	759,4	758,8	762,8	U.K.	753,9	20,24
Average	709,5	711,8	716,0	725,0	729,3	734,9	724,2	711,8	694,8	697,4	699,0	703,8	706,5	719,2	732,0	739,1	745,8	741,3	739,4	741,3		721,11	36,90
St.Dev.	95,1	94,7	95,7	98,6	99,1	97,2	94,5	90,0	89,2	90,3	84,7	82,5	79,6	81,0	85,4	84,8	88,4	91,2	90,4	89,7		81,05	21,83

<http://ocde.p4.siteinternet.com/publications/doi/files/812005131P1TF.xls>

Gross domestic expenditure on R&D As a percentage of GDP

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004		average	st dev
Austria	1,2	1,3	1,3	1,3	1,3	1,4	1,4	1,4	1,4	1,5	1,5	1,6	1,7	1,8	1,9	1,9	2,0	2,1	2,2	2,3	AUS	1,6	0,33
Belgium	1,6	1,6	1,6	1,6	1,7	1,6	1,6	1,7	1,7	1,7	1,7	1,8	1,9	1,9	2,0	2,0	2,1	2,0	1,9	2,1	BEL	1,8	0,16
Denmark	1,2	1,3	1,4	1,4	1,5	1,6	1,6	1,6	1,7	1,8	1,8	1,8	1,9	2,0	2,2	2,3	2,4	2,5	2,6	2,7	DEN	1,9	0,44
Finland	1,5	1,6	1,7	1,8	1,8	1,9	2,0	2,1	2,1	2,3	2,3	2,5	2,7	2,9	3,2	3,4	3,4	3,4	3,5	3,8	FIN	2,5	0,71
France	2,2	2,1	2,2	2,2	2,2	2,3	2,3	2,3	2,4	2,3	2,3	2,3	2,2	2,1	2,2	2,2	2,2	2,2	2,2	2,2	FRA	2,2	0,07
Germany ¹	2,7	2,7	2,8	2,8	2,8	2,7	2,5	2,4	2,3	2,2	2,2	2,2	2,2	2,3	2,4	2,5	2,5	2,5	2,5	2,5	GER	2,5	0,21
Greece	0,3	0,3	0,3	0,3	0,4	0,4	0,4	0,4	0,5	0,5	0,5	0,5	0,5	0,6	0,7	0,7	0,7	0,6	0,6	0,6	GRE	0,5	0,14
Ireland	0,8	0,8	0,8	0,8	0,8	0,8	0,9	1,0	1,2	1,3	1,3	1,3	1,3	1,3	1,2	1,1	1,1	1,1	1,2	1,2	IRE	1,1	0,19
Italy	1,1	1,1	1,2	1,2	1,2	1,3	1,2	1,2	1,1	1,1	1,0	1,0	1,1	1,1	1,0	1,1	1,1	1,2	1,0	1,1	ITA	1,1	0,08
Luxembourg	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,6	1,6	1,6	1,6	1,7	1,8	1,8	1,9	1,9	2,0	1,9	1,8	2,0	LUX	1,7	0,16
Netherlands	2,0	2,1	2,2	2,1	2,0	2,1	2,0	1,9	1,9	2,0	2,0	2,0	2,0	1,9	2,0	1,9	1,9	1,8	1,8	1,8	NET	2,0	0,10
Norway	1,5	1,6	1,7	1,7	1,7	1,7	1,6	1,7	1,7	1,7	1,7	1,7	1,6	1,6	1,7	1,6	1,6	1,7	1,8	1,7	NOR	1,7	0,06
Portugal	0,4	0,4	0,4	0,4	0,5	0,5	0,6	0,6	0,6	0,6	0,6	0,6	0,6	0,7	0,8	0,8	0,9	0,8	0,8	0,9	POR	0,6	0,16
Spain	0,5	0,6	0,6	0,7	0,7	0,8	0,8	0,9	0,9	0,8	0,8	0,8	0,8	0,9	0,9	0,9	0,9	1,0	1,1	1,0	SPA	0,8	0,14
Sweden ⁵	2,8	2,8	2,9	2,8	2,8	2,8	2,7	2,9	3,2	3,3	3,4	3,4	3,5	3,6	3,7	4,0	4,3	4,1	4,0	4,3	SWE	3,4	0,54
Switzerland	2,8	2,8	2,8	2,7	2,7	2,7	2,6	2,6	2,6	2,6	2,7	2,7	2,6	2,6	2,6	2,6	2,6	2,6	2,6	2,6	SWI	2,7	0,06
U.K.	2,2	2,3	2,2	2,1	2,2	2,2	2,1	2,0	2,1	2,0	2,0	1,9	1,8	1,8	1,9	1,9	1,9	1,9	1,9	1,8	U.K.	2,0	0,15
Average	1,5	1,6	1,6	1,6	1,6	1,6	1,6	1,7	1,7	1,7	1,7	1,8	1,8	1,8	1,9	1,9	2,0	2,0	2,0	2,0		1,76	0,22
St.Dev.	0,8	0,8	0,8	0,8	0,7	0,7	0,7	0,7	0,7	0,7	0,7	0,7	0,8	0,8	0,8	0,9	0,9	0,9	0,9	1,0		0,75	0,18

http://www1.oecd.org/publications/e-book/92-2003-04-1-7294/Annex_tables_excel/At2.1_e.xls

Education levels : Tertiary attainment for age group 25-64 as a percentage of the population of that age group

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004		average	st dev
Austria	6,7	6,7	6,7	6,7	6,7	6,7	6,7	6,9	7,3	7,7	7,9	8,1	10,6	10,9	10,9	13,9	14,1	14,5	14,5	15,7	AUS	9,5	3,23
Belgium	19,6	19,6	19,6	19,6	19,6	19,6	19,6	20,2	21,3	22,3	24,6	23,9	25,1	25,3	26,7	27,1	27,6	28,1	29,0	30,1	BEL	23,4	3,64
Denmark	18,3	18,3	18,3	18,3	18,3	18,3	18,3	19,2	19,4	19,6	20,4	20,9	23,1	25,4	26,5	25,8	26,5	27,4	31,9	30,6	DEN	22,2	4,39
Finland	25,0	25,0	25,0	25,0	25,0	25,0	25,0	25,9	26,3	26,8	27,7	28,4	29,4	30,2	31,3	32,0	32,3	32,6	33,3	34,4	FIN	28,3	3,25
France	15,2	15,2	15,2	15,2	15,2	15,2	15,2	16,0	17,1	17,8	18,6	19,2	20,0	20,6	21,5	22,0	23,0	24,0	23,4	25,0	FRA	18,7	3,39
Germany	20,5	20,5	20,5	20,5	20,5	20,5	20,5	20,1	20,3	20,4	22,2	21,8	22,6	23,0	22,9	23,5	23,2	23,4	24,0	24,5	GER	21,8	1,44
Greece	17,5	17,5	17,5	17,5	17,5	17,5	17,5	17,4	17,7	17,9	17,4	18,9	15,5	16,8	17,5	17,6	17,8	18,3	18,3	17,9	GRE	17,6	0,64
Ireland	15,9	15,9	15,9	15,9	15,9	15,9	15,9	17,0	17,8	18,6	19,9	22,6	22,8	21,1	20,5	21,8	23,7	25,4	26,3	26,3	IRE	19,7	3,70
Italy	6,1	6,1	6,1	6,1	6,1	6,1	6,1	6,4	6,9	7,5	7,9	8,1	8,4	8,6	9,3	9,4	10,0	10,4	10,4	11,0	ITA	7,8	1,70
Luxembourg	18,8	18,8	18,8	18,8	18,8	18,8	18,8	18,8	18,8	18,6	18,1	19,0	18,7	18,5	18,3	18,3	18,1	18,6	14,9	17,2	LUX	18,4	0,88
Netherlands	19,6	19,6	19,6	19,6	19,6	19,6	19,6	20,9	21,1	21,4	22,0	22,5	23,4	24,2	22,6	23,4	23,2	24,4	24,4	25,0	NET	21,8	1,93
Norway	24,8	24,8	24,8	24,8	24,8	24,8	24,8	25,3	26,3	27,4	28,6	26,9	25,8	27,4	27,5	28,4	30,2	31,0	31,0	30,9	NOR	27,0	2,25
Portugal	6,7	6,7	6,7	6,7	6,7	6,7	6,7	8,0	9,3	10,7	11,0	10,9	9,6	8,3	8,7	8,9	9,1	9,3	10,8	10,0	POR	8,6	1,60
Spain	9,9	9,9	9,9	9,9	9,9	9,9	9,9	13,1	14,0	15,0	16,1	17,5	18,6	19,7	21,0	22,6	23,6	24,4	25,2	27,0	SPA	16,4	5,91
Sweden	25,2	25,2	25,2	25,2	25,2	25,2	25,2	25,8	26,4	27,0	28,3	27,4	27,5	28,0	28,7	30,1	31,6	32,6	33,4	33,0	SWE	27,8	2,79
Switzerland	20,3	20,3	20,3	20,3	20,3	20,3	20,3	21,0	21,2	21,4	21,1	21,9	22,2	22,9	23,6	24,2	25,4	25,2	27,0	26,4	SWI	22,3	2,19
U.K.	16,3	16,3	16,3	16,3	16,3	16,3	16,3	18,5	19,9	21,3	21,9	22,3	22,7	23,7	24,8	25,7	26,1	26,9	28,0	29,0	U.K.	21,2	4,38
Average	16,9	16,9	16,9	16,9	16,9	16,9	16,9	17,7	18,3	18,9	19,6	20,0	20,4	20,9	21,3	22,0	22,7	23,3	23,9	24,4		19,56	2,78
St.Dev.	6,1	6,1	6,1	6,1	6,1	6,1	6,1	5,9	5,8	5,8	6,1	5,9	6,0	6,3	6,5	6,4	6,6	6,8	7,3	7,2		6,03	1,36

<http://hermia.sourceoecd.org/vl=10432555/cl=12/nw=1/rpsv/factbook/08-01-02.htm>

Inflation

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004		average	st dev
Austria	2,9	3,0	2,3	1,6	3,2	3,0	3,8	3,6	2,7	2,7	2,0	1,0	0,0	0,3	0,6	1,8	1,8	1,3	1,4	2,0	AUS	2,0	1,06
Belgium	4,6	2,8	1,7	2,2	4,8	2,8	2,9	3,4	4,0	2,1	1,2	1,2	1,4	1,7	1,4	1,3	1,8	1,8	1,9	2,3	BEL	2,4	1,07
Denmark	4,9	4,0	5,1	2,6	5,2	3,7	2,7	1,7	0,7	1,5	1,3	2,0	2,0	1,2	1,7	3,0	2,5	1,5	2,2	2,1	DEN	2,6	1,31
Finland	5,3	4,4	4,1	8,4	6,3	6,4	1,9	1,4	2,6	1,8	4,8	-0,4	2,2	3,7	-0,3	3,1	3,2	1,0	-0,3	0,5	FIN	3,0	2,38
France	5,5	4,9	3,0	3,3	3,3	2,2	2,3	2,0	1,8	1,5	1,0	1,7	0,9	0,8	-0,2	1,4	1,8	2,2	1,6	1,6	FRA	2,1	1,30
Germany	2,2	3,3	1,8	1,5	2,4	3,2	3,5	5,0	3,7	2,4	1,9	0,5	0,3	0,6	0,4	-0,7	1,2	1,5	1,1	0,8	GER	1,8	1,37
Greece	19,0	18,9	15,3	16,7	14,5	20,7	19,8	14,8	14,4	11,2	9,8	7,4	6,8	5,2	3,0	3,4	3,5	4,1	3,5	3,6	GRE	10,8	6,28
Ireland	5,2	6,6	2,2	3,3	5,5	-0,7	1,8	2,8	5,2	1,7	3,0	1,8	4,4	6,4	3,8	4,8	5,7	4,5	1,6	3,5	IRE	3,6	1,85
Italy	8,9	7,9	6,2	6,8	6,5	8,2	7,6	4,6	3,9	3,5	5,0	5,3	2,4	2,7	1,6	2,2	2,7	3,1	2,9	2,6	ITA	4,7	2,24
Luxembourg	3,1	-0,1	0,1	2,8	4,0	2,5	1,8	3,7	6,0	3,5	2,3	2,0	2,7	2,7	2,2	4,2	1,9	1,1	2,1	2,5	LUX	2,6	1,34
Netherlands	1,8	0,1	-0,7	0,9	1,1	2,2	2,9	2,3	1,9	2,3	2,0	1,2	2,0	1,7	1,6	3,9	5,2	3,1	3,0	1,2	NET	2,0	1,26
Norway	4,7	-1,2	7,2	4,8	5,4	3,8	2,2	-0,6	2,3	-0,1	2,9	4,1	2,9	-0,7	6,6	15,9	1,1	-1,6	2,4	5,0	NOR	3,4	3,81
Portugal	21,7	20,5	10,1	11,2	10,5	13,1	10,1	11,5	7,4	7,3	3,4	3,0	3,8	3,8	3,1	3,5	4,3	4,4	2,8	2,5	POR	7,9	5,56
Spain	8,6	10,9	5,9	5,9	6,9	7,3	6,9	6,7	4,5	3,9	4,9	3,5	2,3	2,4	2,8	3,4	4,2	4,4	4,0	4,1	SPA	5,2	2,15
Sweden	6,6	6,5	4,8	6,4	8,0	8,8	9,0	1,0	3,0	2,3	3,4	1,2	1,6	0,8	0,7	1,3	2,3	1,7	2,1	0,8	SWE	3,6	2,81
Switzerland	2,5	3,2	2,5	2,8	3,2	4,5	5,7	2,2	2,4	1,5	0,9	-0,1	-0,1	-0,3	0,7	0,8	0,6	1,6	1,2	0,5	SWI	1,8	1,52
U.K.	5,7	3,4	5,3	6,3	7,5	7,6	6,6	3,9	2,6	1,6	2,6	3,5	2,9	2,8	2,1	1,2	2,3	3,1	2,9	2,0	U.K.	3,8	1,92
Average	6,7	5,8	4,5	5,1	5,8	5,8	5,4	4,1	4,1	3,0	3,1	2,3	2,3	2,1	1,9	3,2	2,7	2,3	2,1	2,2		3,72	2,31
St.Dev.	5,4	5,8	3,7	3,9	3,1	4,9	4,4	3,7	3,1	2,5	2,1	1,9	1,7	1,9	1,6	3,5	1,4	1,5	1,0	1,3		2,32	1,49

<http://caliban.sourceoecd.org/v1=5998072/cl=19/nw=1/rpsv/factbook/data/02-02-04-t01.xls>

REAL interest rates (Nominal Rates less inflation : Average 10Y note & 3 months deposit)

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004		average	st dev
Austria	4,1	3,3	3,3	4,1	4,1	5,8	5,2	5,2	4,1	3,4	3,9	3,9	4,6	3,8	3,2	3,2	2,9	2,9	1,8	1,2	AUS	3,7	1,06
Belgium	5,6	5,6	6,0	5,2	3,9	7,0	6,5	5,6	3,7	4,6	4,9	3,6	3,1	2,5	2,5	3,7	2,9	2,3	1,3	0,8	BEL	4,1	1,69
Denmark	5,9	5,6	5,6	6,7	4,4	7,1	6,8	8,3	8,2	5,4	5,9	3,5	3,0	3,4	2,4	2,3	2,4	2,8	1,1	1,1	DEN	4,6	2,19
Finland	6,9	6,3	4,8	1,8	6,1	7,3	10,5	11,2	5,7	5,4	2,5	5,8	2,4	0,6	4,2	1,9	1,4	3,2	3,5	2,6	FIN	4,7	2,80
France	5,5	3,5	6,0	5,2	5,8	7,8	7,0	7,4	5,9	5,0	6,0	3,5	3,7	3,3	4,0	3,5	2,8	1,9	1,7	1,5	FRA	4,5	1,83
Germany	4,1	2,2	3,4	4,0	4,8	5,4	5,3	3,7	3,2	3,8	3,8	4,3	4,2	3,5	3,4	5,5	3,4	2,6	2,2	2,3	GER	3,7	0,98
Greece	1,7	1,5	4,3	3,2	4,1	3,6	4,0	6,1	5,2	6,6	5,5	5,1	3,3	4,8	4,6	1,9	1,3	0,1	-0,2	-0,4	GRE	3,3	2,06
Ireland	7,2	5,3	8,9	5,5	4,1	11,5	8,1	9,0	3,2	5,3	4,2	4,5	1,8	-1,3	0,1	0,1	-1,0	-0,3	1,6	-0,4	IRE	3,9	3,67
Italy	5,5	4,5	4,8	4,1	6,2	4,6	5,2	9,1	6,8	6,0	6,3	3,8	4,5	2,2	2,3	2,8	2,1	1,1	0,4	0,6	ITA	4,1	2,21
Luxembourg	7,0	8,3	7,4	4,4	4,5	7,2	7,4	5,2	1,6	2,9	3,7	2,8	1,8	1,4	1,7	0,8	2,7	2,9	0,7	0,0	LUX	3,7	2,52
Netherlands	5,0	5,9	6,6	4,7	6,2	6,6	6,1	6,4	4,8	3,8	3,6	3,4	2,4	2,3	2,3	1,0	-0,6	1,0	0,3	1,9	NET	3,7	2,22
Norway	7,6	15,0	6,9	8,4	5,7	7,3	8,1	11,3	4,8	6,7	3,6	1,8	1,9	6,3	-0,6	-9,4	5,6	8,2	2,1	-1,8	NOR	5,0	5,04
Portugal	2,5	-0,3	4,6	3,3	4,4	4,8	6,5	5,3	4,7	3,5	7,2	5,0	2,3	0,8	0,8	1,5	0,5	-0,2	0,5	0,6	POR	2,9	2,27
Spain	4,1	0,7	8,4	5,8	7,5	7,6	6,1	5,8	6,4	5,1	5,4	4,6	3,6	2,1	1,1	1,5	0,5	-0,3	-0,8	-1,0	SPA	3,7	2,92
Sweden	7,1	3,6	5,7	4,4	3,4	4,7	2,2	10,5	5,4	6,1	6,1	5,7	3,8	3,8	3,4	3,4	2,2	3,0	1,7	2,5	SWE	4,4	2,02
Switzerland	2,3	1,0	1,4	0,7	3,1	3,2	1,5	5,0	2,4	3,1	2,9	3,1	2,6	2,5	1,6	2,8	2,5	0,6	0,3	1,1	SWI	2,2	1,12
U.K.	5,8	7,2	4,4	3,7	4,6	5,7	4,2	5,5	4,1	5,3	4,8	3,4	4,0	3,6	3,1	4,5	2,7	1,3	1,2	2,7	U.K.	4,1	1,43
Average	5,2	4,7	5,4	4,4	4,9	6,3	5,9	7,1	4,7	4,8	4,7	4,0	3,1	2,7	2,3	1,8	2,0	1,9	1,1	0,9		3,90	2,24
St.Dev.	1,7	3,5	1,8	1,7	1,1	1,9	2,1	2,3	1,6	1,2	1,3	1,0	0,9	1,7	1,4	3,1	1,5	2,0	1,0	1,3		0,67	0,98

<http://www.oecd.org/dataoecd/5/50/2483826.xls>

Participation Hours : Annual Hours Worked per person x employment /pop rate

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004		average	st dev
Austria	759,8	766,4	765,7	764,4	766,9	771,6	776,0	778,7	767,0	752,6	723,8	734,3	691,9	695,7	698,7	704,0	711,0	691,6	689,2	682,5	AUS	734,6	34,50
Belgium	636,6	635,2	635,2	644,3	646,2	655,3	642,4	632,5	611,1	607,4	621,8	612,0	621,0	633,3	636,6	647,0	655,6	652,8	649,4	643,6	BEL	636,0	14,27
Denmark	796,3	803,8	795,2	801,7	784,2	769,1	758,4	759,1	727,1	774,3	757,9	760,5	769,3	774,4	804,0	788,1	802,7	779,4	776,4	762,9	DEN	777,2	19,65
Finland	854,1	836,0	850,1	866,5	861,3	834,7	773,5	723,8	668,4	670,5	678,7	692,5	710,1	714,9	732,9	741,6	744,1	746,5	741,0	748,3	FIN	759,5	65,39
France	620,9	617,9	621,4	627,5	629,1	627,4	624,4	615,2	598,4	596,2	600,2	602,2	602,1	608,0	615,7	611,3	610,2	596,1	590,6	592,3	FRA	610,4	12,21
All Germany	752,9	758,5	750,0	740,0	736,6	723,8	710,3	703,0	681,4	674,4	666,2	653,8	647,6	654,6	649,5	645,2	640,5	629,1	623,0	627,8	GER	683,4	45,38
Greece	702,4	696,9	680,1	687,9	698,4	700,0	676,8	691,7	700,6	699,2	700,1	713,5	703,8	735,7	742,8	742,3	743,9	757,3	775,6	777,5	GRE	716,3	29,89
Ireland	587,5	595,9	596,1	596,9	602,2	629,3	613,4	597,6	600,1	618,2	645,1	665,3	670,6	689,3	716,5	743,2	751,1	751,0	745,3	759,0	IRE	658,7	62,46
Italy	636,0	639,6	639,1	652,6	655,8	667,0	677,0	657,7	641,5	629,2	627,8	631,1	633,8	638,9	644,2	653,5	659,9	670,1	673,6	676,2	ITA	650,2	15,92
Luxem-bourg	725,3	732,0	739,8	757,1	782,1	806,9	815,7	812,0	809,4	818,8	824,7	833,5	849,2	876,9	903,7	939,0	968,7	978,6	970,8	960,9	LUX	845,2	81,09
Nether-lands	583,3	582,6	585,6	581,1	584,0	603,9	605,3	614,0	608,6	604,6	605,4	623,8	645,0	649,6	659,8	691,9	706,1	689,5	689,3	677,1	NET	629,5	41,59
Norway	720,6	739,4	737,6	731,1	705,8	693,4	681,7	680,8	678,8	682,8	685,5	692,7	705,0	718,1	717,9	707,1	695,9	685,3	674,2	685,6	NOR	701,0	19,94
Portugal	752,3	747,0	771,9	790,8	820,8	869,4	858,8	840,0	817,4	805,2	819,5	821,0	814,6	825,6	844,4	834,6	847,5	847,4	831,0	836,3	POR	819,8	31,94
Spain	524,9	529,9	551,3	569,5	583,5	596,5	602,1	587,0	558,7	556,5	568,7	582,4	604,2	635,5	664,2	699,1	727,1	740,1	769,5	797,7	SPA	622,4	80,00
Sweden	782,9	785,9	790,9	810,1	817,6	815,4	791,2	762,3	723,8	731,0	741,4	736,3	727,9	740,4	759,3	768,1	769,6	758,6	748,1	752,3	SWE	765,7	28,48
Switzer-land	878,2	888,3	903,3	919,1	927,3	941,2	945,6	920,4	905,9	901,6	882,3	875,8	871,1	882,7	895,2	888,6	880,6	869,6	864,1	859,5	SWI	895,0	24,38
U.K.	747,7	745,3	758,5	784,2	795,8	789,2	759,0	725,3	714,0	732,7	733,3	733,4	743,8	752,3	759,2	759,7	764,5	759,4	758,8	762,8	U.K.	753,9	20,24
Average	709,5	711,8	716,0	725,0	729,3	734,9	724,2	711,8	694,8	697,4	699,0	703,8	706,5	719,2	732,0	739,1	745,8	741,3	739,4	741,3		721,11	36,90
St.Dev.	95,1	94,7	95,7	98,6	99,1	97,2	94,5	90,0	89,2	90,3	84,7	82,5	79,6	81,0	85,4	84,8	88,4	91,2	90,4	89,7		81,05	21,83

<http://www.ggdc.net/dseries/data/ted/TED061a.xls>

Exchange rates - national currency per US dollar (1984=100)

TIME PERIOD	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003		average	st dev
Austria	100,0	96,7	131,1	158,3	162,1	151,2	176,0	171,4	182,1	172,0	175,2	198,5	189,0	164,0	161,6	154,9	134,0	130,1	136,8	164,1	AUS	155,4	26,31
Belgium	100,0	97,3	129,3	154,8	157,1	146,6	172,9	169,2	179,7	167,0	172,7	196,0	186,6	161,5	159,2	152,6	132,0	128,2	134,8	161,7	BEL	153,0	25,54
Denmark	100,0	97,7	128,0	151,4	153,9	141,7	167,3	161,9	171,6	159,7	162,8	184,9	178,6	156,8	154,6	148,5	128,1	124,4	131,2	157,2	DEN	148,0	22,95
Finland	100,0	97,0	118,6	136,7	143,7	140,1	157,2	148,6	134,2	105,2	115,1	137,6	130,8	115,8	112,5	107,7	93,1	90,5	95,1	114,1	FIN	119,7	19,65
France	100,0	97,3	126,2	145,4	146,7	137,0	160,5	154,9	165,1	154,3	157,4	175,1	170,8	149,7	148,1	141,9	122,7	119,2	125,4	150,4	FRA	142,4	20,93
Germany	100,0	96,7	131,1	158,3	162,1	151,4	176,1	171,5	182,2	172,1	175,4	198,6	189,1	164,1	161,7	155,0	134,1	130,2	136,9	164,2	GER	155,5	26,36
Greece	100,0	81,6	80,5	83,2	79,5	69,4	71,1	61,8	59,1	49,2	46,5	48,7	46,8	41,3	38,1	36,9	30,8	29,6	31,1	37,3	GRE	56,1	20,51
Ireland	100,0	97,6	124,1	137,1	140,5	130,8	152,6	148,5	157,0	136,2	138,0	147,9	147,6	139,9	131,4	124,8	107,9	104,8	110,2	132,2	IRE	130,5	17,46
Italy	100,0	92,0	117,9	135,6	135,0	128,1	146,6	141,6	142,6	111,7	109,0	107,9	113,9	103,2	101,2	96,7	83,6	81,2	85,4	102,4	ITA	111,8	19,93
Luxembourg	100,0	97,3	129,3	154,8	157,1	146,6	172,9	169,2	179,7	167,0	172,7	196,0	186,6	161,5	159,2	152,6	132,0	128,2	134,8	161,7	LUX	153,0	25,54
Netherlands	100,0	96,6	131,0	158,4	162,3	151,3	176,2	171,6	182,5	172,8	176,3	199,8	190,3	164,4	161,7	155,1	134,1	130,3	137,0	164,3	NET	155,8	26,62
Norway	100,0	94,9	110,4	121,1	125,2	118,2	130,4	125,9	131,3	115,0	115,6	128,8	126,5	115,4	108,2	104,6	92,7	90,8	102,2	115,3	NOR	113,6	12,47
Portugal	100,0	85,9	97,9	103,9	101,7	93,0	102,7	101,3	108,4	91,0	88,2	96,9	94,9	83,5	81,3	77,8	67,3	65,3	68,7	82,4	POR	89,6	12,49
Spain	100,0	94,5	114,8	130,2	138,0	135,8	157,7	154,7	157,0	126,3	120,0	128,9	126,9	109,8	107,6	102,9	89,0	86,5	90,9	109,1	SPA	119,0	21,79
Sweden	100,0	96,1	116,1	130,5	135,0	128,3	139,8	136,8	142,0	106,3	107,2	116,0	123,3	108,3	104,0	100,1	90,3	80,1	85,0	102,3	SWE	112,4	18,12
Switzerland	100,0	95,6	130,6	157,6	160,6	143,6	169,1	163,9	167,1	159,0	171,8	198,7	190,1	161,9	162,1	156,4	139,1	139,2	150,8	174,5	SWI	154,6	24,67
U.K.	100,0	96,5	110,2	122,9	133,7	123,0	133,5	132,6	131,9	112,7	115,1	118,6	117,3	123,1	124,5	121,6	113,8	108,2	112,7	122,7	U.K.	118,7	10,16
Average	100,0	94,8	119,2	137,7	140,8	131,5	150,7	146,2	151,4	134,0	136,4	151,7	147,6	130,8	128,1	123,0	107,3	103,9	109,9	130,3		128,77	20,68
St.Dev.	0,0	4,3	13,4	20,6	21,9	21,2	27,9	28,2	31,6	34,6	37,0	44,5	40,8	34,1	34,5	33,1	28,8	28,6	30,3	36,0		27,04	5,04

<http://cs4hq.oecd.org/oecd/enq/TableViewer/wdsview/download.asp>

Relative Wealth level at the start of the investigation (EU-15 = 100)

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004		average	st dev	
Austria	113,5	113,5	113,5	113,5	113,5	113,5	113,5	113,5	113,5	113,5	113,5	113,5	113,5	113,5	113,5	113,5	113,5	113,5	113,5	113,5	AUS	113,5	0,00	
Belgium	108,6	108,6	108,6	108,6	108,6	108,6	108,6	108,6	108,6	108,6	108,6	108,6	108,6	108,6	108,6	108,6	108,6	108,6	108,6	108,6	108,6	BEL	108,6	0,00
Denmark	120,9	120,9	120,9	120,9	120,9	120,9	120,9	120,9	120,9	120,9	120,9	120,9	120,9	120,9	120,9	120,9	120,9	120,9	120,9	120,9	120,9	DEN	120,9	0,00
Finland	108,1	108,1	108,1	108,1	108,1	108,1	108,1	108,1	108,1	108,1	108,1	108,1	108,1	108,1	108,1	108,1	108,1	108,1	108,1	108,1	108,1	FIN	108,1	0,00
France	109,8	109,8	109,8	109,8	109,8	109,8	109,8	109,8	109,8	109,8	109,8	109,8	109,8	109,8	109,8	109,8	109,8	109,8	109,8	109,8	109,8	FRA	109,8	0,00
All Germany	103,7	103,7	103,7	103,7	103,7	103,7	103,7	103,7	103,7	103,7	103,7	103,7	103,7	103,7	103,7	103,7	103,7	103,7	103,7	103,7	103,7	GER	103,7	0,00
Greece	73,5	73,5	73,5	73,5	73,5	73,5	73,5	73,5	73,5	73,5	73,5	73,5	73,5	73,5	73,5	73,5	73,5	73,5	73,5	73,5	73,5	GRE	73,5	0,00
Ireland	68,7	68,7	68,7	68,7	68,7	68,7	68,7	68,7	68,7	68,7	68,7	68,7	68,7	68,7	68,7	68,7	68,7	68,7	68,7	68,7	68,7	IRE	68,7	0,00
Italy	106,2	106,2	106,2	106,2	106,2	106,2	106,2	106,2	106,2	106,2	106,2	106,2	106,2	106,2	106,2	106,2	106,2	106,2	106,2	106,2	106,2	ITA	106,2	0,00
Luxem-bourg	133,8	133,8	133,8	133,8	133,8	133,8	133,8	133,8	133,8	133,8	133,8	133,8	133,8	133,8	133,8	133,8	133,8	133,8	133,8	133,8	133,8	LUX	133,8	0,00
Nether-lands	111,6	111,6	111,6	111,6	111,6	111,6	111,6	111,6	111,6	111,6	111,6	111,6	111,6	111,6	111,6	111,6	111,6	111,6	111,6	111,6	111,6	NET	111,6	0,00
Norway	136,4	136,4	136,4	136,4	136,4	136,4	136,4	136,4	136,4	136,4	136,4	136,4	136,4	136,4	136,4	136,4	136,4	136,4	136,4	136,4	136,4	NOR	136,4	0,00
Portugal	56,6	56,6	56,6	56,6	56,6	56,6	56,6	56,6	56,6	56,6	56,6	56,6	56,6	56,6	56,6	56,6	56,6	56,6	56,6	56,6	56,6	POR	56,6	0,00
Spain	75,2	75,2	75,2	75,2	75,2	75,2	75,2	75,2	75,2	75,2	75,2	75,2	75,2	75,2	75,2	75,2	75,2	75,2	75,2	75,2	75,2	SPA	75,2	0,00
Sweden	118,0	118,0	118,0	118,0	118,0	118,0	118,0	118,0	118,0	118,0	118,0	118,0	118,0	118,0	118,0	118,0	118,0	118,0	118,0	118,0	118,0	SWE	118,0	0,00
Switzer-land	145,2	145,2	145,2	145,2	145,2	145,2	145,2	145,2	145,2	145,2	145,2	145,2	145,2	145,2	145,2	145,2	145,2	145,2	145,2	145,2	145,2	SWI	145,2	0,00
U.K.	98,6	98,6	98,6	98,6	98,6	98,6	98,6	98,6	98,6	98,6	98,6	98,6	98,6	98,6	98,6	98,6	98,6	98,6	98,6	98,6	98,6	U.K.	98,6	0,00
Average	105,2	105,2	105,2	105,2	105,2	105,2	105,2	105,2	105,2	105,2	105,2	105,2	105,2	105,2	105,2	105,2	105,2	105,2	105,2	105,2	105,2		105,19	0,00
St.Dev.	23,8	23,8	23,8	23,8	23,8	23,8	23,8	23,8	23,8	23,8	23,8	23,8	23,8	23,8	23,8	23,8	23,8	23,8	23,8	23,8	23,8		23,76	0,00

Source: Groningen Growth and Development Centre and The Conference Board, Total Economy Database, January 2004, <http://www.ggdc.net>

Change in Openness (Imports as % of GDP in constant prices 1985 = 100)

TIME PERIOD	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004		average	st dev
Austria	100,0	95,1	97,4	101,3	105,8	108,4	110,7	109,7	107,9	112,4	115,4	119,0	131,3	135,6	143,5	155,6	157,4	161,1	164,7	168,3	AUS	125,0	24,22
Belgium	100,0	101,8	104,7	109,5	114,6	116,3	118,0	120,7	122,1	128,2	131,5	133,6	136,0	141,6	143,8	151,6	152,2	154,0	155,9	157,7	BEL	129,7	18,48
Denmark	100,0	100,2	101,1	107,7	112,0	115,3	119,6	118,1	116,0	120,0	122,1	123,9	128,2	130,4	135,6	145,7	145,4	147,4	149,4	151,4	DEN	124,5	16,35
Finland	100,0	98,7	100,2	102,1	101,9	102,3	98,5	107,8	119,6	129,7	135,3	137,9	146,3	150,9	153,3	169,5	169,8	172,8	175,9	178,9	FIN	132,6	29,47
France	100,0	101,2	102,3	105,8	111,7	114,2	119,4	123,2	122,7	129,5	137,1	139,4	149,9	158,7	160,8	176,6	178,2	182,0	185,7	189,4	FRA	139,4	30,19
Germany	100,0	98,3	98,7	99,9	104,9	104,2	101,6	99,7	95,3	100,0	103,8	107,3	116,1	122,7	128,9	139,7	141,5	144,8	148,1	151,4	GER	115,3	19,12
Greece	100,0	114,6	122,0	119,9	123,1	127,0	129,4	134,5	135,7	138,3	143,0	147,3	165,7	172,3	175,7	196,5	198,6	203,3	208,0	212,8	GRE	153,4	34,35
Ireland	100,0	104,8	109,8	111,3	117,3	113,9	116,4	125,4	132,8	144,7	155,5	162,1	171,1	194,1	199,7	210,1	216,0	221,7	227,3	233,0	IRE	158,3	45,67
Italy	100,0	99,8	104,7	103,7	109,2	117,0	115,9	123,5	123,8	132,0	142,5	141,2	149,3	155,3	156,3	169,1	170,2	172,9	175,7	178,4	ITA	137,0	26,87
Luxembourg	100,0	95,4	98,9	98,0	95,1	96,9	98,0	95,7	89,8	88,2	84,3	86,0	88,6	93,9	101,4	108,4	108,0	109,9	111,7	113,6	LUX	98,1	8,42
Netherlands	100,0	99,9	100,6	105,3	108,3	108,5	111,5	111,7	114,7	122,5	130,4	132,1	138,9	143,6	146,5	155,0	156,8	159,4	161,9	164,4	NET	128,6	22,46
Norway	100,0	103,2	98,3	100,2	105,9	109,9	110,2	110,2	111,2	112,6	113,4	117,6	121,1	122,5	122,5	122,9	124,8	125,8	126,8	127,7	NOR	114,3	9,40
Portugal	100,0	106,9	117,6	123,8	126,7	136,6	136,3	144,7	142,7	153,4	163,7	166,9	174,7	187,4	187,8	194,3	198,6	202,0	205,4	208,8	POR	158,9	33,89
Spain	100,0	103,9	110,8	115,2	121,3	123,8	131,7	140,5	144,6	160,9	160,8	184,3	202,4	214,4	226,5	238,7	246,7	253,7	260,8	267,8	SPA	175,4	56,86
Sweden	100,0	100,9	103,3	104,1	106,4	106,6	104,9	109,0	114,2	123,8	130,4	133,4	148,0	156,3	157,8	170,2	173,4	177,3	181,2	185,1	SWE	134,3	30,35
Switzerland	100,0	101,4	104,8	107,6	109,4	107,6	107,2	107,6	109,1	113,2	116,0	118,8	126,2	131,5	136,8	147,1	148,2	151,0	153,8	156,6	SWI	122,7	18,95
U.K.	100,0	101,4	104,0	105,2	109,2	111,5	110,6	116,4	117,9	120,9	125,9	133,6	140,6	144,9	152,1	163,3	165,4	168,8	172,2	175,6	U.K.	132,0	25,56
Average	100,0	101,6	104,6	107,1	110,8	112,9	114,1	117,6	118,8	125,3	130,1	134,4	143,2	150,4	154,7	165,5	167,7	171,1	174,4	177,7		134,10	26,51
St.Dev.	0,0	4,4	6,6	6,9	7,7	9,3	10,7	13,1	14,3	17,6	19,8	22,4	25,2	28,5	29,0	30,9	32,6	33,9	35,2	36,5		18,34	11,79

http://pwt.econ.upenn.edu/php_site/pwt_index.php

Net contributions to EU by member state 1986–2003 (% of GDP)

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004		average	st dev
Austria	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	-0,53	0,06	0,27	0,04	0,44	0,33	0,33	0,25	0,11	0,85	0,60	AUS	0,1	0,28
Belgium	0,18	0,35	0,63	0,79	0,52	-0,52	-0,71	-0,81	-0,82	-0,79	-1,88	-0,61	-0,43	1,18	-0,49	-0,26	-0,37	-0,45	1,27	0,54	BEL	-0,1	0,77
Denmark	-0,33	-0,37	-0,44	-0,09	-0,30	0,57	0,78	-0,44	-0,27	0,89	-0,24	-0,14	-0,01	0,09	0,00	0,19	0,17	0,10	0,94	0,39	DEN	0,1	0,42
Finland	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	-0,90	-0,17	-0,16	0,08	0,18	-0,15	0,86	0,02	-0,12	0,93	0,59	FIN	0,1	0,38
France	-0,01	0,02	-0,77	0,37	0,24	-0,72	0,14	0,00	0,13	0,20	-0,04	0,00	0,09	0,04	0,11	0,19	0,15	0,05	0,96	0,44	FRA	0,1	0,35
Germany	0,32	-0,33	0,34	0,90	-0,28	0,27	0,52	0,58	0,65	0,74	0,60	0,56	0,56	0,54	0,53	0,55	0,38	0,32	0,89	0,53	GER	0,5	0,30
Greece	-2,18	-2,32	-3,03	-3,58	-3,72	-4,49	-4,65	-5,50	-4,81	-4,24	-4,89	0,58	-4,44	-4,46	0,67	-3,58	-3,46	-2,47	1,00	-0,99	GRE	-3,0	1,91
Ireland	-4,12	-3,54	-3,77	-4,14	-5,08	0,22	-5,21	0,38	-4,22	-4,22	-4,76	-4,72	-3,52	0,87	-2,78	-1,19	1,01	-1,28	0,81	0,37	IRE	-2,4	2,25
Italy	-0,13	-0,08	-0,05	-0,10	0,22	-0,13	-0,79	-0,82	0,56	-0,57	-0,17	0,04	0,74	0,14	0,86	-0,73	0,27	0,05	0,88	0,48	ITA	0,0	0,50
Luxembourg	0,72	0,84	0,90	0,99	0,68	-2,11	-6,31	-7,27	-5,12	-5,47	-5,90	-5,28	-4,76	-3,62	-3,81	-3,36	-3,26	-3,85	0,86	-1,51	LUX	-2,8	2,73
Netherlands	-0,17	0,91	-0,72	1,05	-0,12	1,03	0,31	0,28	0,53	0,60	-0,53	0,57	0,79	0,90	0,72	0,91	0,88	0,53	0,10	0,65	NET	0,5	0,50
Norway	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	NOR	0,0	0,00
Portugal	0,00	-1,16	-1,42	-1,17	-1,20	-2,92	-3,28	-3,25	-2,91	-2,78	-3,62	0,95	-3,11	0,70	-1,88	-1,46	-2,13	-2,79	0,99	-0,88	POR	-1,7	1,42
Spain	0,00	0,12	-0,80	-0,26	-0,46	-0,74	-1,49	-0,69	1,01	-1,45	-1,61	-1,41	0,81	-1,33	-0,81	-1,14	-1,27	-1,28	0,95	-0,28	SPA	-0,6	0,81
Sweden	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	-0,43	0,19	0,37	0,44	0,54	0,48	0,59	0,44	0,24	0,93	0,74	SWE	0,2	0,32
Switzerland	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	SWI	0,0	0,00
U.K.	0,30	0,28	0,39	0,28	0,42	0,75	0,03	0,24	0,28	0,21	0,38	0,12	0,17	0,52	0,23	0,51	0,10	0,24	0,62	0,43	U.K.	0,3	0,17
Average	-0,32	-0,31	-0,51	-0,29	-0,53	-0,52	-1,22	-1,02	-0,88	-1,10	-1,33	-0,52	-0,74	-0,19	-0,35	-0,45	-0,40	-0,62	0,76	0,12		-0,52	0,77
St.Dev.	1,11	1,08	1,20	1,41	1,49	1,37	2,15	2,15	1,96	1,86	2,05	1,71	1,84	1,51	1,26	1,30	1,29	1,24	0,36	0,64		1,15	0,79

parliamentary written answer (25 February 2006) http://www.parliamentthe-stationery-office.com/pa/cm200405/cmhansrd/cm050225/text/50225w05.htm#50225w05.html_sbhd6

Taxes on income and profits (1000) + Social security contributions (2000) as percentage of total taxation

Tax.Dir.Shr	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004		average	st dev
Austria	58,2	58,2	58,3	58,3	58,4	58,4	59,3	60,2	61,1	62,0	62,9	62,9	62,9	62,8	62,8	62,8	64,2	63,0	63,8	63,8	AUS	61,2	2,21
Belgium	72,7	72,3	71,9	71,6	71,2	70,8	71,0	71,2	71,3	71,5	71,7	71,4	71,1	70,8	70,5	70,2	71,2	71,0	70,5	70,4	BEL	71,2	0,61
Denmark	60,9	61,1	61,2	61,4	61,5	61,7	62,1	62,5	63,0	63,4	63,8	63,8	63,7	63,7	63,6	63,6	63,6	62,6	63,4	63,2	DEN	62,7	1,02
Finland	62,7	63,1	63,5	64,0	64,4	64,8	65,2	65,6	66,1	66,5	66,9	67,2	67,5	67,7	68,0	68,3	67,7	67,2	68,3	68,3	FIN	66,1	1,81
France	59,3	59,5	59,7	59,8	60,0	60,2	59,9	59,5	59,2	58,8	58,5	58,9	59,4	59,8	60,3	60,7	61,5	60,9	61,5	61,9	FRA	60,0	0,91
Germany	71,3	71,0	70,7	70,5	70,2	69,9	69,8	69,7	69,5	69,4	69,3	69,3	69,2	69,2	69,1	69,1	68,6	68,3	68,5	68,4	GER	69,5	0,83
Greece	53,1	52,5	51,9	51,3	50,7	50,1	51,0	51,9	52,9	53,8	54,7	55,4	56,1	56,7	57,4	58,1	56,5	57,7	58,8	59,1	GRE	54,5	2,85
Ireland	49,3	49,8	50,3	50,7	51,2	51,7	52,1	52,4	52,8	53,1	53,5	53,8	54,0	54,3	54,5	54,8	55,9	54,2	55,5	55,7	IRE	53,0	1,94
Italy	71,5	71,1	70,7	70,2	69,8	69,4	68,9	68,4	67,8	67,3	66,8	65,8	64,8	63,8	62,8	61,8	62,8	61,9	60,6	59,8	ITA	66,3	3,66
Luxembourg	69,4	68,8	68,2	67,6	67,0	66,4	66,3	66,2	66,1	66,0	65,9	64,9	63,9	63,0	62,0	61,0	63,1	63,6	61,4	60,9	LUX	65,1	2,53
Netherlands	70,6	70,4	70,2	70,0	69,8	69,6	69,3	69,0	68,8	68,5	68,2	67,4	66,6	65,7	64,9	64,1	62,5	62,6	61,7	60,8	NET	67,0	3,12
Norway	60,5	60,7	60,9	61,1	61,3	61,5	60,9	60,3	59,8	59,2	58,6	60,0	61,4	62,7	64,1	65,5	66,1	66,4	67,6	69,0	NOR	62,4	2,92
Portugal	51,6	51,9	52,1	52,4	52,6	52,9	53,4	53,8	54,3	54,7	55,2	55,7	56,2	56,6	57,1	57,6	57,7	54,7	57,4	57,5	POR	54,8	2,06
Spain	67,5	67,2	66,9	66,6	66,3	66,0	65,9	65,8	65,6	65,5	65,4	64,9	64,4	64,0	63,5	63,0	64,0	64,4	63,2	63,0	SPA	65,2	1,38
Sweden	67,2	67,5	67,8	68,2	68,5	68,8	68,4	68,0	67,7	67,3	66,9	67,1	67,3	67,5	67,7	67,9	66,8	65,3	66,6	66,5	SWE	67,4	0,79
Switzerland	68,7	68,9	69,1	69,4	69,6	69,8	69,8	69,9	69,9	70,0	70,0	69,6	69,3	68,9	68,6	68,2	67,8	68,8	67,8	67,6	SWI	69,1	0,76
United Kingdom	56,4	56,3	56,2	56,2	56,1	56,0	55,6	55,3	54,9	54,6	54,2	54,5	54,9	55,2	55,6	55,9	56,6	54,8	56,0	56,2	U.K.	55,6	0,70
Average	63,0	63,0	62,9	62,9	62,9	62,8	62,9	62,9	63,0	63,0	63,1	63,1	63,1	63,1	63,1	63,1	63,3	62,8	63,1	63,1		63,00	1,77
St.Dev.	7,3	7,2	7,0	6,9	6,8	6,7	6,5	6,3	6,1	6,0	5,9	5,5	5,2	4,9	4,7	4,6	4,4	4,9	4,5	4,5		5,54	0,96

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Abstract

European countries have comparable states of industrial development, productivity, knowledge level and labour ethics. Yet economic performances differ notably. While economies like France and Belgium slowly progressed with 38% and 42% only from 1984 to 2002, Ireland's wealth grew at 4 times faster rate by no less than 167% over the same 18 year period. In barely half a generation Ireland evolved from the second poorest to the second richest country of Europe. The differences in new job creation are similar. The cause of these growth differences is found in different macro-economic public policy rather than in micro-economic differences between citizens and businesses.

PART 1 - The Economics of Taxation

In a first part of this paper, we discuss the newest developments in macro-economic theory and taxation policies. We have special attention for theory relative to optimising tax receipts by Laffer (1985) and the Barro-Armeij theories (1990-1995) concerning optimising prosperity growth and income distribution. We compare the taxation policies in different social models, and have particular interest whether the Scandinavian model is suited for maximizing growth and creating new jobs.

PART 2 - The Causes of Growth Differentials: Empirical Research

In the second part we search for the causes of European growth differentials by means of multiple regression. The main conclusion is that two factors of the public policy mix cause weak growth performances: excessive taxation and a demotivating tax structure, on the one hand, and over consumption with a lack of savings and investment on the other hand. We conclude that the public sector in most European countries is far too large, leaving the private sector with too little recourse for it to achieve its potential wealth creation.

PART 3 - Ireland versus Belgium : A Case Study

In part three we make a case study and analyse performances of two countries with opposite public policies: Ireland's with low public spending and a flat tax structure and Belgium with high levels of public spending and a heavy direct tax burden. We analyse the effects on growth, budget, public debt, job creation and social expenditure. We conclude that only stimulation of the supply-side of the economy rescue Europe's generous social system and provide sustainable recourses for the challenges of its fast ageing population. This confirms the overwhelming importance of production and investment as the prime social objective.

Part 4 - Loosing Overweight: A slimming Cure for fat Governments.

In part four, we look at possible scenarios on how to reduce the public spending as the most effective way to restore dynamism and growth. On the basis of simulations we investigate the possibilities and consequences of a budget-freeze in real terms. We analyse whether pruning bureaucracy and the parasitical sector can free resources and return our workforce to its real task of creating wealth, and ultimately restore efficiency and competitiveness of both private and public sector.