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**Working Paper**

## A Three Tier Strategy for Successful European Countries in the Nineties

WIFO Working Papers, No. 205

**Provided in Cooperation with:**

Austrian Institute of Economic Research (WIFO), Vienna

*Suggested Citation:* Aiginger, Karl (2003) : A Three Tier Strategy for Successful European Countries in the Nineties, WIFO Working Papers, No. 205, Austrian Institute of Economic Research (WIFO), Vienna

This Version is available at:

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July 2003

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# A three tier strategy for successful European countries in the nineties

*Karl Aiginger\**

**Abstract:** The economic performance of European countries was in general disappointing in the nineties. However, country difference increased, as it was that in some European countries economic growth and productivity accelerated or could match US rates. This paper uses a broad set of performance indicators - plus some deliberate choices- to carve out a group of successful countries and to compare their economic strategy to that of the low performing large European economies. The analysis shows that these successful countries used a policy mixture of cost cutting, improving institutions, and investing in future growth. We consider the first two strategy elements as preconditions, the investment in growth drivers as the sufficient condition for long-run growth. The difference between top and low performers is the largest for investments into determinants of future growth such as research, education and the diffusion of new technologies. The top countries surpassed the large European countries in research outlays in 1988 and are steadily increasing their lead since that time. The top performers are welfare states with a comprehensive social net, which they maintained in principle, while improving the incentive structure and the inner workings of their institutions. The results are not in line with the usual twin hypotheses that high welfare costs and insufficient labour market flexibility are responsible for European underperformance.

JEL: E60, O11, O40

Keywords:

Austrian Institute of Economic Research WIFO

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\* A former version of this paper was published as European Forum Working Paper 2/2002, Stanford University, December 2002. The author would like to thank Karl Pichelmann, Gunther Tichy, and Andreas Wörgötter for their comments on an earlier draft.

# **A three tier strategy for the successful European countries in the nineties**

*Karl Aiginger*

## **1. Introduction and plan of the paper**

It is now well documented that the nineties were a disappointing decade for Europe. Macroeconomic growth decelerated, relative to the eighties and to the seventies<sup>1</sup>. Productivity catching up versus the US, stopped or was even reversed in the second half, the gap between Europe and the US increased in per worker and per hour GDP. The employment rate remained lower and unemployment higher in Europe, even if for these two indicators the difference to the US decreased in recent years. The successful launch of the Euro, a persistent trade surplus and the catching up of the Accession Countries are bright spots for the European Union, yet they did not boost growth, productivity or employment to a significant extent.

Most international studies and specifically the OECD, the IMF and the European Commission explicitly or implicitly blame high welfare costs and low market flexibility for the European underperformance. Welfare states suffered from high labour costs and taxation. Comprehensive reforms of the labour and product markets should be the first priority for European countries to regain economic growth<sup>2</sup>.

The objective of this paper is first, to group the European countries according to their performance in the nineties. This is not an easy task since firstly, some countries experienced a severe crisis and measured performance consequently differs according to the exact time period and indicator chosen. Secondly, economic policy differed in its emphasis on regaining

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<sup>1</sup> Aiginger et al. (2001), Aiginger (2002), Aiginger, Landesmann (2002), European Commission (2001, 2002), Gordon (2002), OECD (2001, 2003). See also Annex 1.1 for literature on European and US performance.

<sup>2</sup> Examples for this assessment are the following. For OECD: "Key policies to raise labour utilization are well known: to reform tax and benefit system, specifically unemployment support and tax wedge, to ease labour and product market regulation." (OECD Economic Outlook 2003, Chapter 5). For the Commission: "A coherent strategy with the goals of non inflationary rate of growth... basically requires deep, comprehensive reforms of the product, capital and labour markets. .... Growth is sluggish since labour utilization is low in Europe" (Pichelmann, 2003.) To be fair we have to acknowledge that extremely valuable empirical material has been gathered by OECD showing that economic growth depends on research, human capital on information and communication technology (OECD, 2001C, Scarpetta et al., 2003), but the more the papers switch from analysis to policy conclusion, the more the deregulation and flexibilisation issues are stressed. And for the EU we have to acknowledge that the Lisbon targets stress research, innovation and knowledge as strategies for increasing growth (and making Europe the most competitive economy). But this strategy is monitored much softer (by means of "open coordination" or benchmarking) than the stability pact (where processes and finally penalties are ex ante defined).

competitiveness by enhancing productivity respectively to spread employment among a larger number of persons. Thirdly, the burden of the past and the challenges from geographical position and industry structure were different for individual countries. However a broad set of indicators allows together with some explicit choices to carve out Sweden, Finland, Denmark and - with some reservations - the Netherlands as successful countries in the nineties and to assess the performance of large European economies such as Germany, France, Italy – and with some important reservations the United Kingdom – as less impressive. This grouping is similar to that in the other rankings such as in the European Structural Indicators or the World Competitiveness Forum.<sup>3</sup>

If we look into the strategies of the four successful countries we see that all countries combined a set of strategy elements in three fields

- to reduce or contain private and public costs, specifically to regain price competitiveness and fiscal stability
- to reform institutions, to make labour and product markets more competitive
- to increase long-run growth and productivity by enforcing innovation, education and new technologies

*Table 1: Europe underperforms relative to the US*

	Growth of real GDP		Productivity growth per worker		Employment growth	
	EU	USA	EU	USA	EU	USA
1991-1995	1.59	2.39	2.06	1.37	-0.46	1.01
1996-2000	2.65	4.04	1.22	2.40	1.41	1.60
2001-2002	1.29	1.27	0.41	1.58	0.87	-0.30
1996-2002	2.26	3.24	0.99	2.16	1.26	1.05
1991-2002	2.16	3.15	1.56	2.00	0.59	1.13

*Source:* WIFO calculations using data from Groningen Growth and Development Centre.

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<sup>3</sup> According the ranking of the Structural Indicators 2003 (unweighted average over 88 indicators on growth, employment, social cohesion, economic reforms and environment) Denmark, Sweden, the Netherlands and Finland are leading. In the ranking of the Global Competitiveness Report of 2002-2003, the top European Union member countries are first Finland, second Sweden, third Denmark, and 6<sup>th</sup> Netherlands.

## **2. Carving out a group of successful countries**

### **Choosing indicators for performance**

Measuring performance, welfare or competitiveness of countries has been the subject of intensive and controversial discussion, including the question of whether one or the other of these notions exists on the level of an aggregate or country. We pragmatically decided to measure the economic performance by the dynamics of GDP, as well as by the ability to increase productivity, in order to create employment and to provide stability. The indicators on dynamics include data on manufacturing, since output may be better measured in this sector than in services, it includes data on the rate of growth, acceleration and starting level, it contains an indicator for correcting growth for cyclical waves (potential output). For productivity we again measure growth and acceleration of labour productivity, as well as total factor productivity. Employment is measured by unemployment and employment rates (levels and changes), stability by price and fiscal prudence (deficits, debts, and taxes). The period we chose was for the last 10 years up to 2002. For the quantitative results for our 25 indicators see table 2, countries are ranked in table 3. Changing the exact number of indicators, their weights and the timing has an influence on some positions, but the overall ranking is rather stable.

Even this process does not allow a mechanical choice of good and low performers. First, we do not include Ireland into the top performers, though it excels in growth of output and productivity and would obtain the best overall rank. The main reason is that Ireland achieved its remarkable catching up partly by using regional funds and tax exemptions, which is not a feasible strategy for other countries. A second argument is that wages and per capita national income are still low (while profits and GDP per capita are above the European average).

Unambiguously among the top performers are Sweden, Denmark and Finland. Sweden excels in growth of productivity, employment level and fiscal stability, employment could not increase quickly from its already high position, and per capita GDP had fallen below the European average after the devaluation. Finland also excels in productivity, but still has a high unemployment rate. Denmark enjoys the highest GDP per capita income, as well as employment rate, and output growth accelerates. A matter of choice is whether or not to include the Netherlands into this group. Netherlands excels in employment and in the productivity level, but not in productivity growth. Furthermore, problems with price competitiveness and fiscal stability have re-emerged recently.

Similarly, it is not easy to carve out the low performers. Three large countries being Germany, France, and Italy obtain rankings in the lowest third. All have below average growth, high and rising unemployment and fiscal deficits at or beyond the criteria provided by the European



Stability pact. The fact that these are three large economies makes it attractive to build a group of "four large countries" in contrast to the top four, which are all small economies. Performance for the UK in the nineties does not suggest this, since the performance is in the medium range or even leaning a bit to the positive side. In a longer perspective, the United Kingdom had lost its significant lead in per capita GDP per head over the past decades and is confronted now with an infrastructure seen as fragile, and that large tax increases are considered as necessary to compensate for past underinvestment. It is therefore our choice to include the UK in the group of the large four, as we include the Netherlands in the top 4, keeping in mind the reservations listed.<sup>4</sup>

*Table 2: Economic performance across countries: 25 indicators*

	Belgium	Denmark	Germany	Greece	Spain	France	Ireland	Italy	Netherlands	Austria	Portugal	Finland	Sweden	United Kingdom	Top 4	Large 4
Real growth of GDP																
Growth 1993/2002	2.0	2.5	1.3	2.8	2.8	1.9	7.9	1.6	2.7	2.0	2.5	3.3	2.9	2.8	2.8	1.9
Acceleration*	-0.3	0.8	-1.8	1.4	-0.4	-0.4	4.3	-0.7	-0.2	-0.7	-1.0	1.7	1.1	0.3	0.8	-0.7
Macro productivity growth																
Growth 1993/2002	1.4	1.8	1.1	2.1	1.0	1.3	3.6	1.3	1.1	1.7	1.7	2.5	2.7	1.9	2.0	1.4
Acceleration*	-0.6	0.5	-1.2	1.3	-0.8	-0.9	0.1	-0.4	-0.5	-0.6	-1.3	-0.1	1.0	0.1	0.2	-0.6
Manufacturing growth																
Growth 1993/2002	1.7	3.2	1.2	1.7	2.4	1.8	13.1	1.4	1.5	4.2	2.5	6.1	3.8	0.9	3.7	1.3
Acceleration*	-0.1	0.5	-1.4	1.1	0.7	0.3	6.0	-0.9	-0.6	1.1	-0.9	4.5	1.6	-1.0	1.5	-0.7
Productivity growth in manufacturing																
Growth 1993/2002	3.1	3.4	3.2	3.7	3.4	0.6	14.1	-0.2	1.9	4.7	3.6	7.2	2.8	1.4	3.8	1.2
Acceleration*	0.4	0.8	0.3	3.4	0.1	-0.9	5.3	-3.3	-1.6	1.4	-0.7	4.7	-2.8	-2.7	0.3	-1.6
Potential output																
Growth 1993/2002	2.1	2.2	1.7	2.6	2.9	2.0	7.5	1.6	2.8	2.2	2.8	2.7	2.4	2.5	2.5	2.0
Acceleration*	0.0	0.6	-0.7	1.4	0.2	-0.1	4.0	-0.6	0.4	-0.2	-0.3	0.5	0.4	0.1	0.5	-0.3
Total Factor Productivity																
Growth 1993/2002	0.7	1.6	0.4	1.4	0.4	0.9	3.6	0.8	0.9	0.8	0.7	2.7	2.4	1.6	1.9	0.9
Acceleration*	-0.6	0.6	-1.4	1.4	-0.7	-0.4	1.2	-0.3	-0.4	-0.7	-1.2	1.3	1.4	0.1	0.7	-0.5
Employment rate																
Average 1993-2002	57.5	76.2	67.7	54.3	54.1	61.1	60.6	56.8	71.3	72.9	69.0	63.2	73.2	74.9	71.0	65.1
Absolute change 1993-2002	2.7	2.9	0.6	1.6	6.5	3.3	13.7	1.9	9.8	-0.6	1.6	3.1	-2.3	4.2	3.4	2.5
Unemployment rate																
Average 1993-2002	8.6	5.8	8.4	10.0	15.4	10.7	9.0	10.8	4.5	4.1	5.7	12.5	7.7	7.1	7.7	9.2
Absolute change 1993/2002	0.2	-4.1	1.8	2.0	-3.5	-1.3	-11.0	0.3	-2.6	0.9	0.8	-2.6	-0.7	-4.7	-2.5	-1.0
Inflation rate																
Average 1993-2002	1.9	2.2	1.9	6.6	3.4	1.5	2.9	3.1	2.6	2.0	3.7	1.6	1.6	2.4	2.0	2.2
Absolute change 1993/2002	-0.8	0.3	-2.6	-12.3	-2.4	-0.5	1.4	-2.7	0.3	-2.2	-5.4	-1.4	0.1	-2.1	-0.2	-2.0
Budget deficit in % of GDP																
2002	-0.1	-1.8	3.3	1.7	0.4	3.4	1.7	2.3	1.5	0.6	3.0	-4.4	-0.8	1.3	-1.4	2.6
Absolute change 1993/2002	-8.9	-2.4	-1.1	-6.8	-5.9	-1.4	-0.5	-8.6	-3.2	-1.9	-2.8	-6.1	-6.4	-3.6	-4.5	-3.6
Public debt in % of GDP																
2002	105.3	45.2	60.8	97.8	54.0	59.5	33.3	106.7	52.6	67.6	58.1	42.7	52.4	38.4	48.2	66.4
Absolute change 1993/2002	-27.3	-21.1	17.9	17.1	7.1	20.0	-66.9	-1.0	-25.2	10.4	3.7	2.1	-10.7	-0.8	-13.7	9.0
Taxes in % of GDP																
2002	50.1	57.1	45.3	44.7	39.3	50.6	32.6	45.2	45.9	51.3	43.2	53.7	59.1	39.4	53.9	45.1
Absolute change 1993/2002	4.2	-0.8	1.4	8.7	-2.8	2.3	-10.4	-0.6	-5.4	-1.0	2.6	-7.3	-5.4	-1.2	-4.7	0.5
GDP per capita at PPP 2002																
1000 EURO	26.1	27.2	24.6	15.9	20.2	24.5	29.3	24.5	27.0	26.4	16.6	24.4	24.3	24.7	25.7	24.6

\* Acceleration: growth p.a. 1993/2002 minus growth p.a. 1983/1992.

Source: WIFO calculations using AMECO (April 2003).

<sup>4</sup> The remaining six countries constitute a heterogeneous group, due to the excellence of Ireland on the one side, while Greece, Spain and Portugal are ranked close together at 7<sup>th</sup>, 10<sup>th</sup> and 11<sup>th</sup>. Belgium and Austria are ranked at 8<sup>th</sup> and 9<sup>th</sup>, stuck a little bit in the middle as far as dynamics is concerned, however enjoying high incomes due to past growth.

*Table 3: Ranking European countries according to a set of indicators*

	Belgium	Denmark	Germany	Greece	Spain	France	Ireland	Italy	Netherlands	Austria	Portugal	Finland	Sweden	United Kingdom
Real growth of GDP														
Growth 1993/2002	11	9	14	6	5	12	1	13	7	10	8	2	3	4
Acceleration*	8	5	14	3	9	10	1	11	7	12	13	2	4	6
Macro productivity growth														
Growth 1993/2002	9	6	13	4	14	11	1	10	12	7	8	3	2	5
Acceleration*	9	3	13	1	11	12	5	7	8	10	14	6	2	4
Manufacturing growth														
Growth 1993/2002	10	5	13	9	7	8	1	12	11	3	6	2	4	14
Acceleration*	9	7	14	5	6	8	1	12	10	4	11	2	3	13
Productivity growth in manufacturing														
Growth 1993/2002	9	6	8	4	7	13	1	14	11	3	5	2	10	12
Acceleration*	6	5	7	3	8	10	1	14	11	4	9	2	13	12
Potential output														
Growth 1993/2002	11	9	13	6	2	12	1	14	4	10	3	5	8	7
Acceleration*	9	3	14	2	7	10	1	13	6	11	12	4	5	8
Total Factor Productivity														
Growth 1993/2002	12	5	14	6	13	8	1	9	7	10	11	2	3	4
Acceleration*	10	5	14	2	11	9	4	7	8	12	13	3	1	6
Employment rate														
Average 1993-2002	11	1	7	13	14	9	10	12	5	4	6	8	3	2
Absolute change 1993-2002	8	7	12	10	3	5	1	9	2	13	11	6	14	4
Unemployment rate														
Average 1993-2002	8	4	7	10	14	11	9	12	2	1	3	13	6	5
Absolute change 1993/2002	9	3	13	14	4	7	1	10	5	12	11	5	8	2
Inflation rate														
Average 1993-2002	5	7	4	14	12	1	10	11	9	6	13	2	3	8
Absolute change 1993/2002	9	12	4	1	5	10	14	3	13	6	2	8	11	7
Budget deficit in % of GDP														
2002	4	2	13	10	5	14	9	11	8	6	12	1	3	7
Absolute change 1993/2002	1	10	13	3	6	12	14	2	8	11	9	5	4	7
Public debt in % of GDP														
Absolute change 1993/2002	2	4	13	12	10	14	1	6	3	11	9	8	5	7
Taxes in % of GDP														
Absolute change 1993/2002	13	8	10	14	5	11	1	9	4	7	12	2	3	6
GDP per capita at PPP 2002														
1000 EURO	5	2	7	14	12	9	1	8	3	4	13	10	11	6
Superrank comprehensive	8.2	5.6	11.0	7.2	8.3	9.8	3.9	10.0	7.1	7.7	9.3	4.5	5.6	6.8
Superrank ranked	9	3	14	7	10	12	1	13	6	8	11	2	4	5

\* Acceleration: growth p.a. 1993/2002 minus growth p.a. 1983/1992.

Source: WIFO calculations using AMECO (April 2003).

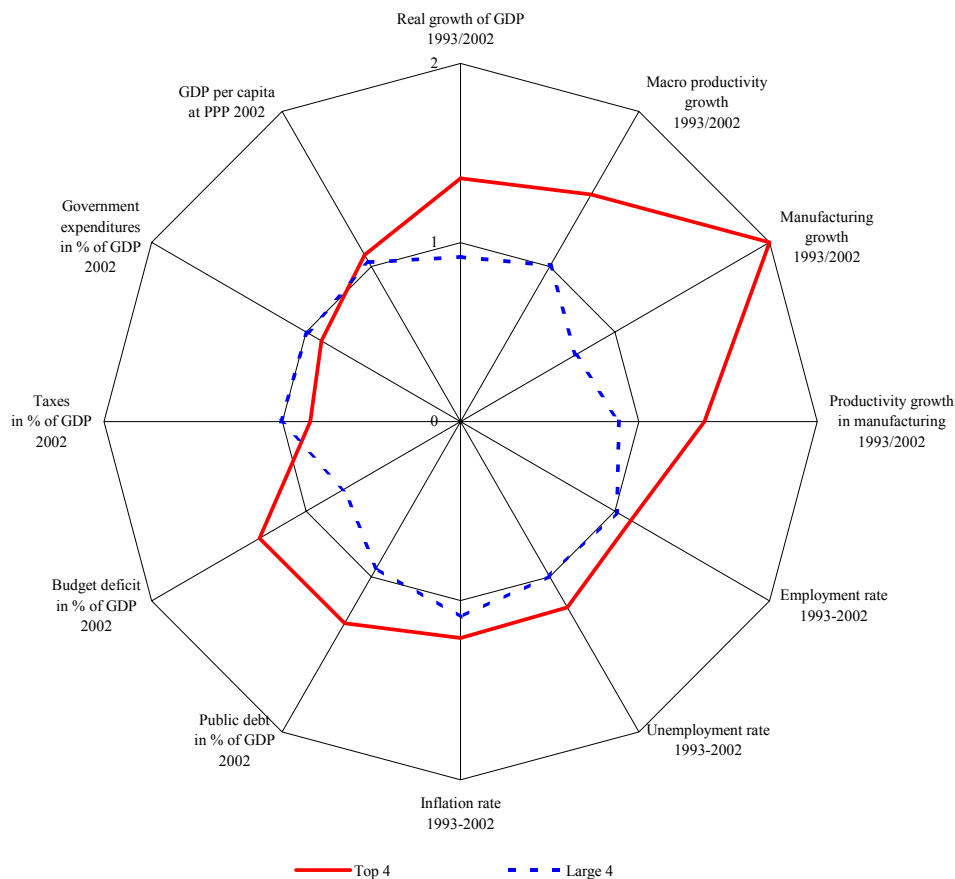
## Top 4 versus the large four: a first comparison according to average performance

Here we shall report the difference in performance for the group of top four countries, namely Finland, Sweden, Denmark and the Netherlands, using an unweighted average across countries, and for the group of the large four countries, which comprise Germany, France, United Kingdom and Italy, Figure 1 shows the performance indicators relative to the EU average.

The top four countries enjoy an average growth of 2.8 % (1993/2002), as compared to 1.9% for the large four countries. For manufacturing growth in the top countries triple that of the large countries (3.7 % vs. 1.3 %). The productivity difference is half a point for the total economy, and one and a half point for manufacturing. The reason for the larger difference in manufacturing is that two of the top economies (the Netherlands and Denmark) have intentionally tried to spread employment among more workers and this effected mainly the service sector. Per capita income is 25,700 EURO for the top 4 and 24,600 EURO for the large 4. The employment rate is 74 % (2003) in the top economies and had been increased by 3.4 points since 1993. For the large

countries the employment rate is 7 points lower and it increased only by 2.5% in the past decade. Unemployment is lower in the top countries (7.7 % vs. 9.2 % on the average for 1993/2002). The difference decreased for this indicator since Finland has a high unemployment rate and United Kingdom a low one, each in contrast to the respective group average. Inflation is slightly lower in the top 4 group.

*Figure 1: Performance difference top 4 vs. large 4 in Europe vs. EU*



Remark: Values outside the unit circle represent a better performance (e.g. lower inflation, higher employment rate; lower tax rates and government shares are rated as "better", as well). The top 4 countries have a budget surplus of 1.4 % in 2002, the EU a deficit of 2 %; for graphical reasons for the top 4 countries a value of 1.5 was set (which is not a full arithmetic equivalent, but indicates the better performance of the top 4 countries vs. the large 4).

### 3. Strategies in four successful countries (top 4 countries)

In this section we describe the challenges faced by the top 4 countries and the policy response of the individual countries. We structure the response according to cost strategies, strategies to change incentives and to enhance economic growth.

### 3.1 Denmark

Denmark experienced a particularly sluggish period of growth from between 1985 and 1992. It amounted to 1.4 % far below the EU average of 2.7 %. Unemployment which had been as low as 3 % in 1974 climbed up to 9.6 % in 1993. The general reaction to the crisis was a smooth or gradual reform in several policy areas, or in the words of Madson "an increased focus on changes in economic structures rather than on fine tuning effective demand" (Madson, 1999, p. 11).

As far as cost cutting strategies were concerned, Denmark committed not to devalue, and subsequently fixed its currency relative to European partners (for the exact mechanism see OECD, 1997, p. 38). Wages were increased moderately specifically between 1983 and 1994, but in the long run wages increased faster than in the European average. An important change was to suspend the automatic indexation of wages on inflation (it had been restricted already in 1975; Plougmann, Madson, 2002, p. 16). The government committed in the long run to an expenditure ceiling, but stimulated growth in 1993/94 ("kick-start"<sup>5</sup>). This stimulus was then gradually withdrawn for the rest of the decade. The growth of transfers and frontloading of public investment was scaled back, taxes increased by raising "indirect" (green) taxes. (OECD, 1997, p. 46). Controlling the growth of local government expenditures has been the main fiscal challenge. Communities are responsible for education, health, and social services, in which this responsibility is combined with the ability to raise taxes.

The central government committed in the reform of 1994 to a ceiling for the highest marginal tax rate for wage earners, committing to reduce taxes if local authorities increased them.<sup>6</sup> Fiscal stability was achieved by reducing the share of government consumption, as well as the growth of transfers (together by – 4½ % of GDP between 1993 and 1996; see OECD, 1997, p. 48f). Government expenditure in relation to GDP are nevertheless still 8 percentage points higher (2002) than on the EU average, taxes by 11 points. Social expenditures relative to GDP remained at about 29%, this is 1½ % above the EU average and the fourth highest position in EU member countries.

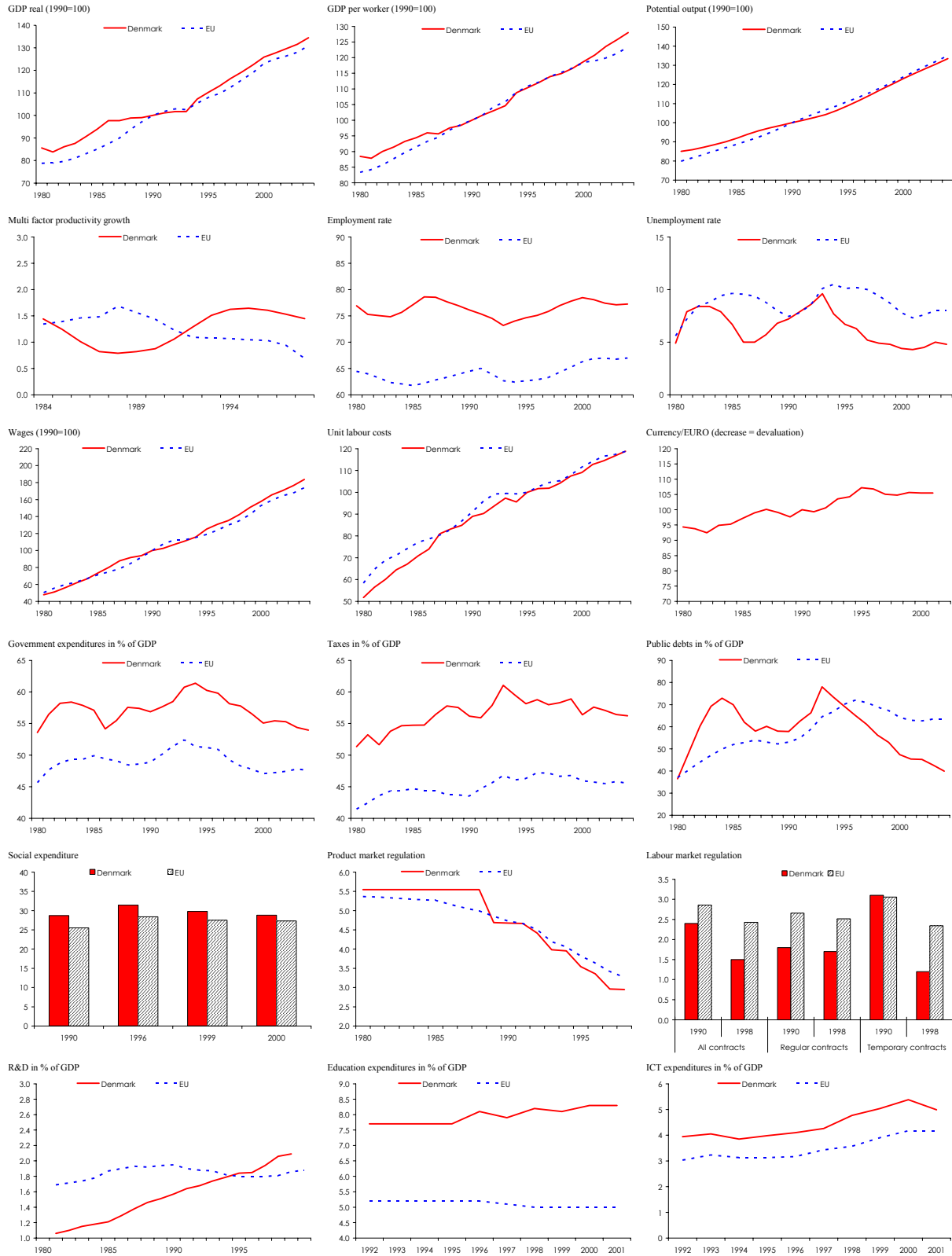
The key reform elements were labour market reforms, partly measures of spreading work among more employees as in sabbatical schemes, and partly active labour market measures such as offering training and making continued benefits conditional (welfare to work schemes). Labour market policy was decentralized, jobs were subsidized for people with a reduced ability to work (flexi jobs), and subsidies of in the home service area were introduced (OECD, 1994, p. 47 and 2002, p. 15).

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<sup>5</sup> The non-cyclical stimulus is assessed to be between 1 % and 2 % of GDP in 1993 and 1994, with the largest share of the increase going to labour market initiatives and education and to growth stimulatory measures (OECD, 1994, p. 39).

<sup>6</sup> Annual negotiations about expenditures, local taxes and bloc grants - from the central government to local authorities - constitute up to 15 % of their revenues (OECD, 1997, p. 47).

Figure 2: Policy strategy in Denmark in a nutshell



## **Sabbaticals**

Paid leave schemes were introduced for childminding, education and non-specified purposes (sabbatical). Payment continued to be between 60 % to 100 % (the latter for the educational type) for a period of up to one year, a parallel scheme was introduced for unemployed. The idea of job rotation or of spreading employment among more persons was supported by the mandatory substitution of the person on leave (this rule applied for the sabbatical leave). A maximum of 140,000 persons utilized such schemes, in which more than one half of them were on educational leave, which is somewhat less for the child- minding leave and a very small share on sabbatical. Half of the persons came from the unemployed group, 60% of those employed before came from the public sector. The average leave was for 200 days. 3/4 of the leavers were substituted, in the majority not from the unemployed, but from the former employed. Paid leave schemes are assessed to have reduced measured unemployment by 60,000 - 70,000. Subtracting the former unemployed who were now on leave would provide a net effect of only 15,000 – 20,000 (Madson, 1999). The main effect of the paid leave schemes therefore might be more flexibility of working time over the individual life cycle (Madson, p. 64).

## **Welfare to work elements**

The labour market reforms had three parts, which were the steering reform, activation reform and a reduction of the length of benefits<sup>7</sup>:

- The steering reform consisted first of a decentralisation of policy implementation to regional labour market councils (composed of employer's representatives, trade unions and local authorities) which should design programmes in line with local need and to make regional policy to comply with national goals.
- The activation reform created a two period system, with unconditioned support in the first phase (benefit period) and with strong emphasis on activation including mandatory individual action plans during the second period. The rule that allowed unemployment benefits to be resumed, if a person became unemployed again after a training period was cancelled. In general the unemployed had a right and obligation to education or job training in the activation period and had to recur to means tested social security if they refused or failed to obtain an unsubsidised job after the maximum period.
- The maximum duration of benefits of unemployment was reduced from 9 years to 5 years, passive support from 4 to 2 years and finally to one year and to 6 months for unemployed youth.

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<sup>7</sup> For the situation before 1990 see OECD (1990/91, p. 35).

Formal labour market regulation had historically been low in Denmark all the time, well below the EU average for fixed contracts even in 1990 (1.8 vs. 2.7).<sup>8</sup> Replacement ratios had been high specifically for low wages and were reduced (as was the length benefits could be paid, see above). Formal job protection was low, but people are rather optimistic to find a new job, if the current one is lost (Madson, 2002). For temporary contracts nearly all restrictions were removed in the nineties, including the number of renewals, and the maximum duration of succeeding contracts was increased (Nicoletti et al., 2000, p. 49f). Historically low regulation for fixed contracts plus the cancellation of restrictions for temporary contracts provided the overall labour market regulation with the steepest decline in the nineties for all countries (-35 %) and the third lowest level in 1998 (1.5 vs. 2.4).

### **Cluster policy and information technology**

On the technology front, Denmark emphasized diffusion and cluster policies. A ministry for Business Policy Coordination was created to provide a favourable environment for "national strongholds", introducing a cluster type industrial policy in a country with traditionally low public support and intervention and a low share of technology intensive industries (OECD, 1994, p. 84). The diffusion of information and communication technology was encouraged, existing strength stemming from high health and food safety standards were used to create a medical cluster. Biotechnology was embraced, start ups and venture capital encouraged. Denmark developed an ICT growth strategy, formulating the goals to offer the best technology at the cheapest price<sup>9</sup>. Denmark provides growth centres for IT and favours stock options. It created public spearhead programmes and enforced e-government. A virtual IT bridge to Sweden encourages the transfer of techniques, capabilities and fostered cooperation, broadband and a real bridge over the Oresund connects Denmark now closer with the leading country in telecommunication. Denmark is leading in lifelong learning, offering adult educational centres for people above 25 years of age, adult vocational education and post graduate part-time PHD programmes, (OECD, 1997, p. 15). Denmark had been laggard in research expenditures relative to GDP with about 1 % in 1980 (EU 1.7 %), it crossed the EU average in 1995 and its ratio is now 2.1 %. Taking all 16 growth drivers together, Denmark is ranked 4<sup>th</sup> in 1990 and 3<sup>rd</sup> recently, reaching a top 3 position for 7 indicators.

Summing up, Denmark made its position compatible as a high wage and high tax country with a comprehensive welfare state, taxes and expenditures much higher than in European average.

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<sup>8</sup> A measure of increasing regulation was that the notice period for collective dismissals in firms with more than 100 employees which plan to lay off more than 50 % of the employees was increased from 30 days to 11 weeks, following an EU directive (OECD, 1994, p. 46).

<sup>9</sup> Ministry of Business and Industry, Denmark's Strategy for Growth, December 1998.

Fiscal discipline was regained gradually, wage increases were moderated, but they increased at least on the European average in the long run. Their currency was not devaluated despite of strong pressure from the international markets. Labour markets are characterized by low regulation, but high replacement rates and intensive support in finding new and qualified jobs. The originally very high replacement ratio and the maximum length of benefits were reduced, assistance to find a new job increased partly by way of decentralisation, partly by targeting and personalisation of help offers. This constitutes a welfare-to-work scheme with a true intention to help and without any offending rhetoric<sup>10</sup>. Formal labour market regulation had already been traditionally low at the beginning of the nineties, it was then that most of the regulations for temporary contracts were removed. Denmark has now the third most deregulated labour market. Research was enforced, education upgraded, information technology embraced, and diffusion enforced. Cluster policy in health, ICT, biotechnology, but also in toys, entertainment and food helped to increase productivity.

### **3.2 Sweden**

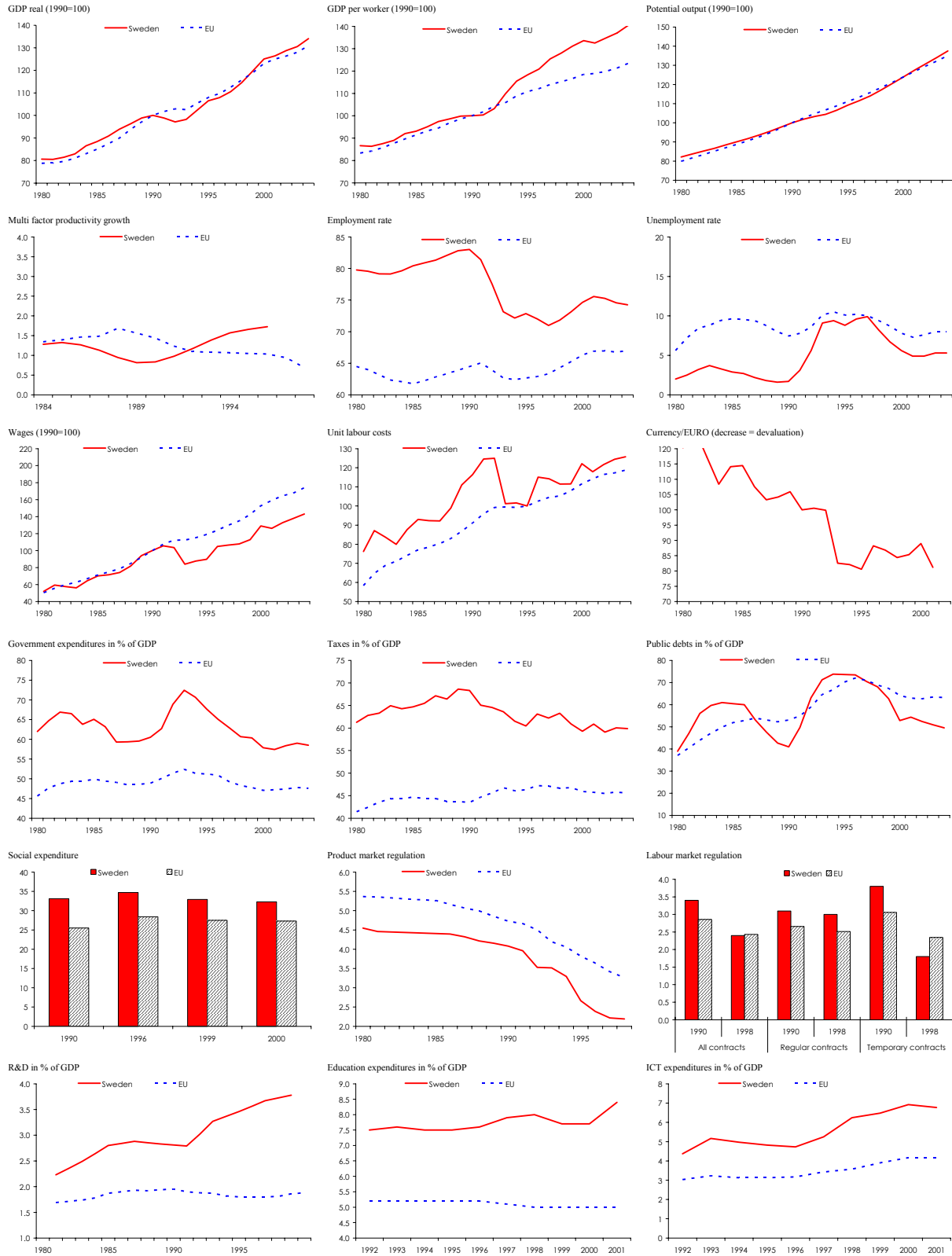
Sweden had gradually lost its position as one of the leading European countries in per capita GDP by underperforming in growth over the largest part of the post World War II period. In the early nineties exports, GDP and employment decreased dramatically, leading OECD to introduce its 1994 report with the sentence, that "the current recession is comparable in depth to that of the 1930s" (OECD, Sweden, 1994). The reasons for the specifically strong crisis – second to that in Finland only - had several reasons: the Russian crisis effected Sweden stronger than continental countries, and Sweden suffered a specific crisis of its financial sectors (following deregulation without caring for bad loans and a tax system which favoured borrowing). Competitiveness suffered from high and rising costs without parallel increases in productivity and the Swedish industry maintained to be specialised in capital intensive basic goods under strong price competition (steel, paper) without product differentiation and specialisation in the high tech segments. See Lindbeck et al. (1994) for the responsibility of the welfare state from cradle to grave as the cause of Swedish problems.

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<sup>10</sup> The overall labour market system is called flexicurity, since it combined rather high flexibility for firms, with high opportunities (security) for workers to become re-employed, if dismissed.



Figure 3: Policy strategy in Sweden in a nutshell



## **Restoring balances**

The short run policy reaction was to bring costs into balance. The first element of this strategy was yet another devaluation of the Swedish Krona, namely of 18% vs. the Euro in the beginning of the nineties. The second element in this direction was a discretionary fiscal stability package which amounted to 7.5 % of the GDP and was negotiated between the government and the Socialist party, which was in opposition at that time. Taxes were partly raised, and partly government expenditures were cut. The budget cuts did include moderate cuts in benefits and transfers, but did not change the system in principle: higher incomes had to take a higher burden in the combined impact of tax increases and transfer deduction, therefore the opposition, as well as the trade unions could accept the package. The government committed to long-term expenditure limits, with different targets for 27 expenditure categories (Brandner, 2003). The fiscal stability package, the long term commitment to expenditure limits, the declining costs of the bailing out of banks and a strong cyclical element inherent in Swedish budgets led to a switch from a deficit of nearly 10 % in 1993 into a surplus of about 1 % in 2002. The policy goal of government now is to have a surplus of 2 % for a full business cycle. Wage moderation was tried first unsuccessfully as a centralized bargaining outcome for two years (Rehmberg moderation) that subsequently looked moderate as it was negotiated in 1991, but proved as being excessive in the second year. The next two year contract for 1993-95 proved to be moderate also ex-post, leading to the first fall in unit labour costs in post World War II history (OECD, 1994, p. 39).

## **Changing incentives**

Elements of welfare to work reforms were introduced. An active labour market policy and low capital taxes had been long constituent elements of the Swedish system (Marterbauer, 2000). Institutional reforms redesigned the competition and monetary authority with the goal that tough “after care” should make the devaluation successfully in the long term this time. Regulation of the labour market which had been slightly stricter than European average in 1990 is now below the European average. The main changes occurred for temporary contracts, where tight regulation in 1990 was changed to one of the least regulated frameworks: the overall index for labour market regulation dropped from 3.4 in 1990 to 2.4 in 1998, the fourth lowest rank. Regulation of product markets had been less stringent also in 1990, further deregulation increased the difference to other European countries. Sweden has now, apart from UK, the most deregulated product market.

Regarding incentives, the responsibility of the first two weeks of sickness was transferred to employers (whose contribution to social security was reduced in turn). Compensation for the first day of sick leave was cancelled, sickness compensation which had been as high as 100 %, was

reduced to between 65 % and 90 % depending on the length of insurance and supplementary insurance (OECD, Sweden, 1994, p. 95). Replacement ratios for unemployment was reduced from 90 % to 80 % and the first five days remain uncompensated, work insurance assistance was reduced. In the public sector, transfers from central government to local government were reduced if the local authorities increased taxes. Government agencies introduced competition, enforced contracting out including social services and vouchers for private schools, general practitioners were allowed to compete with public services in the health sector (OECD, 1994, p. 91), municipalities took full responsibility for schools and care for elderly, getting lump sum transfers from the central government without being directed to specific services, thus increasing cost consciousness, as well as increasing its ability to meet demand.

### **Leader in research and ICT**

Regarding the policy to enhance long term growth, Sweden developed the most pervasive and comprehensive programmes in order to promote information technology: the distribution of the PC for private use was made attractive by tax deduction, education expenses were enforced, alliances for electronic commerce were created, the use of ICT in government became compulsory. Sweden is today the European leader in information technology, having surpassed the US according to many indicators. It achieved this position and its lead in research by the way of a consistent long-run government assisted policy during a severe crisis in the first half of the nineties. High tech schools and universities were spread over the country, expenditures for education are the highest in Europe since 2001 and are increasing. Expenses for research and development increased from 2 % in 1981 to 3.8 %. The research/GDP ratio has risen from 2.2 % in 1981 to 3.8 % in 1999. Research expenditures are relative to GDP higher than in the US and is today among the highest in Europe and well above the US. Sweden is ranked first in the set of 16 growth drivers. It had a good position already at the start, but enforced it to a larger degree than all other countries except Finland. It is among the top 3 countries in 15 indicators and leads in seven.

Economic growth rebounded, and in the second half of the nineties, growth of the GDP is one of the highest in Europe. Specifically high is the growth of output and productivity, with the strongest results in manufacturing and here again specifically in the telecom industries. Growth remained rather high in 2002, although the technology crisis could have hit the leading information technology country in Europe stronger and Ericsson suffered a severe crisis with massive layoffs. Sweden is still a leading welfare state, and a high tax country. It has some features not expected a priori from a country with strong government: corporate taxes are rather low, labour market is flexible insofar as wages react to unemployment; pre-tax incomes differences are rather large (the low differences in final incomes originate from taxes and

transfers). Product markets were historically not regulated stronger than in other countries, and the existing regulations were removed as to arrive at the second most deregulated product markets in network industries after the United Kingdom. Labour markets were and are rather strictly regulated for regular contracts, but changing rules for temporary contracts removed the difference to the EU average for total regulation. Sweden invests in active labour market policies, with carrot and stick strategies of obligations and training. On the cost side, devaluation of the currency, a negotiated reform package to reduce the deficit plus expenditure limits moderated expenditures, and decreased debt. Together with the higher growth path achieved this yielded budget surpluses, and encouraged government to set a target of a 2 % budget surplus for a full business cycle. Social expenditures to GDP declined only slightly and are still 5 % above the EU average. The overall tax rate is above the EU average by 14 points, corporate taxes were decreased from 30 % to 28 %, and are 2.5 points below the EU average. The most impressive part of the strategy is the high and increasing investment in research, in education and in telecom expenditures. Sweden is today among the top 3 countries for 15 out of 16 drivers of growth and has surpassed the US for example in research expenditures. The echo of the past devaluation is reflected in the below European real GDP per head.

### **3.3 Finland**

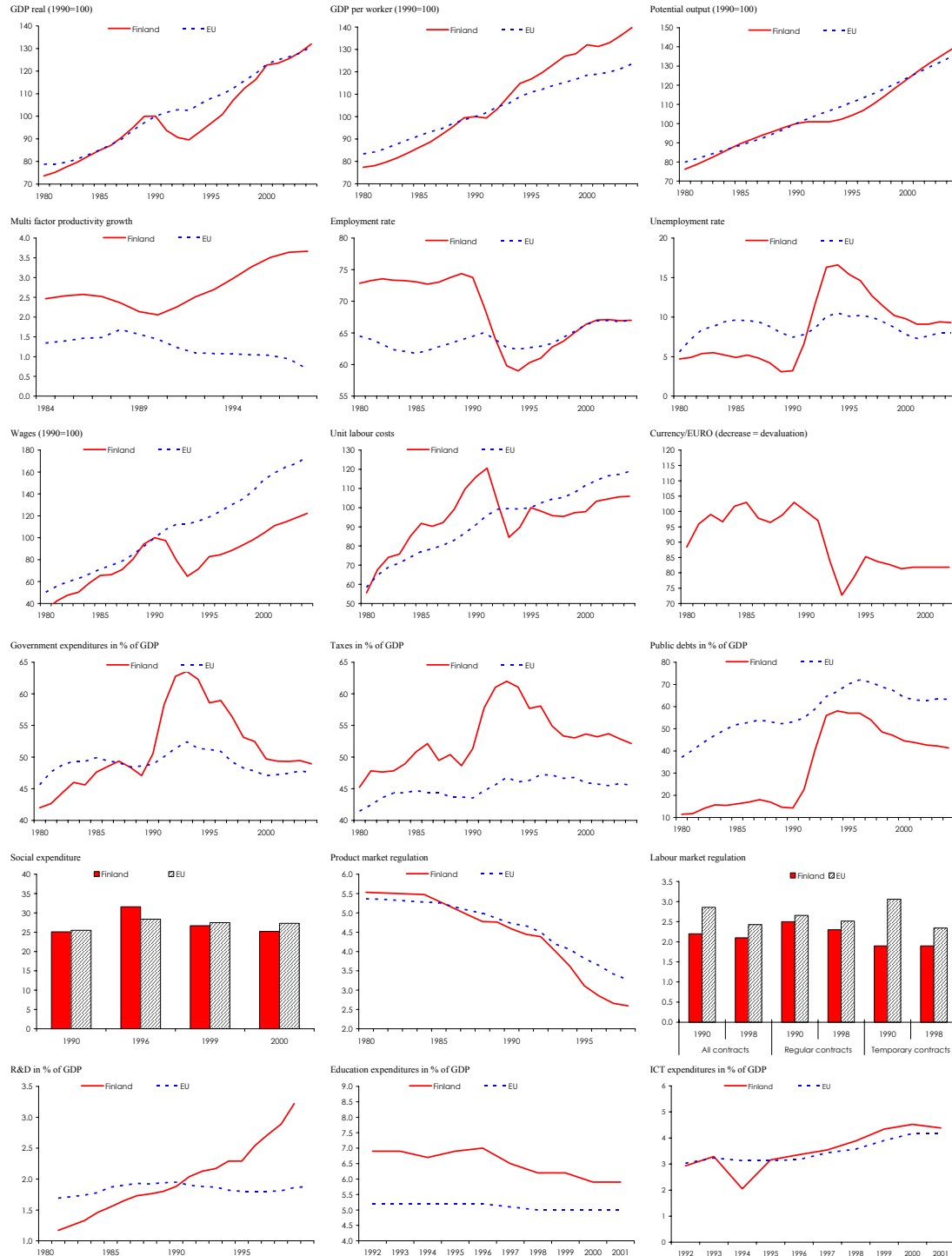
Finland has incurred the most radical change in its industrial structure over the past 10 years. It was severely hit in the early nineties by the double breakdown of its regional market and as a close partner to the Soviet Union and of its resource based product market such as textiles, wood, and paper. Over three years, GDP declined cumulatively by almost 15 %, unemployment was stopped short below 20 % (OECD, 1995).

#### **Devaluation, fiscal rules and the convergence programme**

Finland regained its price competitiveness similar to Sweden by a steep devaluation of the markka over 1992/93 (by 15 %). Nominal wages were frozen in a two year contract in 1991, which implied a decrease in real wages in 1992 and 1993 (OECD 1996). In October 1993, the government decided to disengage itself from the wage formation process in an effort to encourage labour unions and employers' organisation to seek a greater differentiation of wages across industries (OECD 1996, p 25). The government tried to reduce its budget deficit first by committing to expenditure ceilings, secondly the central government changed the grant system to local authorities from historical costs to problem oriented criteria (demographic, geographic, and health; OECD, 1996). A "convergence programme" to qualify for EU membership, a package of additional cuts totalling 3.9 % of GDP was introduced. Taxes on capital income, environmental

charges and indirect taxes were raised, while employers and employees' contributions to occupational pensions were decreased (OECD, 1996).

*Figure 4: Policy strategy in Finland in a nutshell*



### **Latecomer in welfare spending**

Finland is a latecomer among the welfare states of the northern type, it had introduced several measures characterizing a welfare state as late as in the eighties. Social expenditure in GDP had been with 25 % in 1990 below the EU average, far below that in Sweden, Netherlands or Denmark, it was kept constant over the nineties, still 2 percentage points below the EU average. Replacement rates for unemployment have even increased in the nineties, a means tested labour market support was created in 1994, since the number of people which had exhausted their 500 working days limit of the benefits increased. Regulation for regular contracts had been slightly below the European average. Finland is one of the few European countries which additionally waived some regulation even for permanent contracts (the delay to the start of notice, as well as the notice period were shortened, Nicoletti et al. (2000, p. 49). Finland had very few regulations for temporary contracts, so that no restrictions had to be removed to make Finland similar to that of Sweden, which is one of the most liberal countries in that respect. Finland surpassed many other European countries in the liberalisation of network industries. Product market regulation is on average due to a relatively large number of state owned firms.

### **The decision to enforce new technologies**

An active technology policy started already in the early eighties "when the Finns came to realise the strategic importance of research and development as a requirement for the country's economy.... National objectives were set for research inputs" (Pohjola, 2003, p. 1). A central measure was to establish in 1983 Tekes, which is a government agency providing finance and expert service for R&D in Finland. Complementary institutions supporting cooperative networks, training, exploitation of inventions were created. Start up companies and internationalization was encouraged, venture capital provided, all in a system of semi-public institutions came into existence. Defining innovation as the key figure of success and sticking to this strategy was one decisive factor, why a country facing such a severe crisis could regain growth that quickly and then forging ahead on productivity and output dynamics. The second decisive factor was the early embracement of information technology as seen by concepts of Finland in the telecommunication society in the early nineties. "The focus was not completely on high tech industries, but also the use of ICT in traditional sectors such as wood and paper (Saarnivara, 2003, p. 2). The technology strategy was comprehensive, consistent and consensual. Technology parks were created, universities and technical schools were upgraded, new sites in regionally disadvantaged regions were founded. Education in general, language skills in specific were enforced. Industry experts estimated that half of the new employees should be academically trained and the other half should have completed a vocational diploma (Pohjola, 2003, p. 2). Outlays for education had always been high, the quality was upgraded, pushing Finland up to the first places in international

evaluations of educational performance (OECD, 2002). Finland has today the highest share of workers with tertiary education. In the overall set of indicators on the determinants of future growth Finland is ranked second, it has made the fastest leap forward in the nineties. What is specifically impressive is the share of research and development in GDP: this ratio had been about 1.2 % in 1980, well below the EU average, it increased steadily, including the period of the crisis to arrive at 3.4 % of GDP in 2000, nearly double the EU rate. Finland is leading in many indicators on ICT use, even if expenditures are not as high as in Sweden.

The role of Nokia for the new image as an information society has to be acknowledged. However, it is not unrelated to its environment and to economic policy. Nokia had been a diversified company producing textiles, boots and paper 15 years ago. As a market leader in a high tech segment it needs qualified personnel, complementary research facilities and an innovative climate supported if not created by policy. Growth of output and productivity is similar in strength and structure to Sweden with high growth in manufacturing and in high tech sectors, and productivity acceleration in the second half of the nineties. Unemployment is higher than in Sweden and in the EU, since the development started from larger unused reserves, and a higher agricultural sector. But the change in industrial structure from capital intensive sectors to technology driven industries is even more impressive.

Summing up, Finland has partly regained competitiveness by a devaluation of currency and a moderation of wage increases. Government expenditures had been at or below the EU average up to the eighties and were moderated, by changing the financing of lower level government, by expenditure limits and a cost cut package. Government expenditures in relation to GDP have now returned to the EU average, the budget in the surplus, debt is relatively low. Product market regulation fell below the EU average, labour market regulation has been and is below, as well. Finland did not have excessive regulation enacted for temporary contracts to be cut. Finland invests heavily in all three types of growth drivers: research expenditures boomed, double as many patents per capita exist than in the EU average. Education outlays are as high as is the quality as demonstrated in OECD's Pisa ratings. The share of workers with tertiary education is the highest in Europe. ICT share in manufacturing is large, as is the Internet use. The Finnish success in information policy is not only the success of Nokia, but also of a carefully designed innovation policy and a set of institutions created in the eighties. Policy adhered to this strategy and even enforced it in the severe crisis in the nineties. Multi-factor productivity is increasing much faster than in other countries, unemployment is still relatively high.

### **3.4 The Netherlands**

The Netherlands had a severe economic crisis in the eighties, as productivity did not match the increase in wages. The problem had been coming up for years, but became finally evident after

the second oil crisis. GDP declined for a consecutive eight quarters and unemployment rose to 12 %, together with hidden unemployment about one-fourth of the work force was unemployed; the Netherlands was therefore labelled as a social welfare system without work (Visser, Hemerijck, 1998, p. 21, Visser, Hemerijck, 1997). These problems returned in 1993 and to a certain extent re-emerged recently<sup>11</sup>. The Netherlands is the most open European economy with extremely high export and import ratios. Together with a capital intensive industry structure, this implies that any loss in price competitiveness translates immediately into deficits in exports and employment.

### **Cost cutting deals**

At the beginning of the eighties the trade unions, the employers and the government struck a deal called Wasenaar agreement (1982). It contained elements of cost reductions and of reforming institutions. Workers accepted reduced working hours without wage compensation in exchange for the promise of the government to decrease taxes and social contributions. Trade unions agreed that the reduction in working time happened primarily on the individual level instead of an industry wide basis, thus increasing the flexibility of labour. Real wages were reduced by 6 %, the overall increase in unit labour costs was the lowest in EU countries for the entire decade.<sup>12</sup> Per hour wages are today significantly lower than in neighbouring countries (Denmark, Germany, and Belgium). The minimum wage rate was decreased, as was the unemployment benefits relative to wages (replacement ratio). The government committed to a path of reducing its deficit by setting a spending ceiling to its expenditures.

### **Incentives: Changes and failures**

On the incentive front, the responsibility for sickness was shifted to employees (the compensation for the first two days was cancelled) and to entrepreneurs (which had to pay the first weeks after this). Work to welfare measures were intensified, the minimum employment period for receiving the highest benefits were increased. Active labour market policy as providing training opportunities was enforced. Job generation was encouraged by lowering social security contributions. Private labour hiring institutions were forced and premia set for jobs to long term unemployed, and the government offered jobs as the last resort.

The reform path had to face critical phases and not all problems are solved yet today. High unemployment encouraged to exit into pensions and into disability schemes (up to one million persons in 1993). The government brokered a new agreement, with the now all dominant goal of

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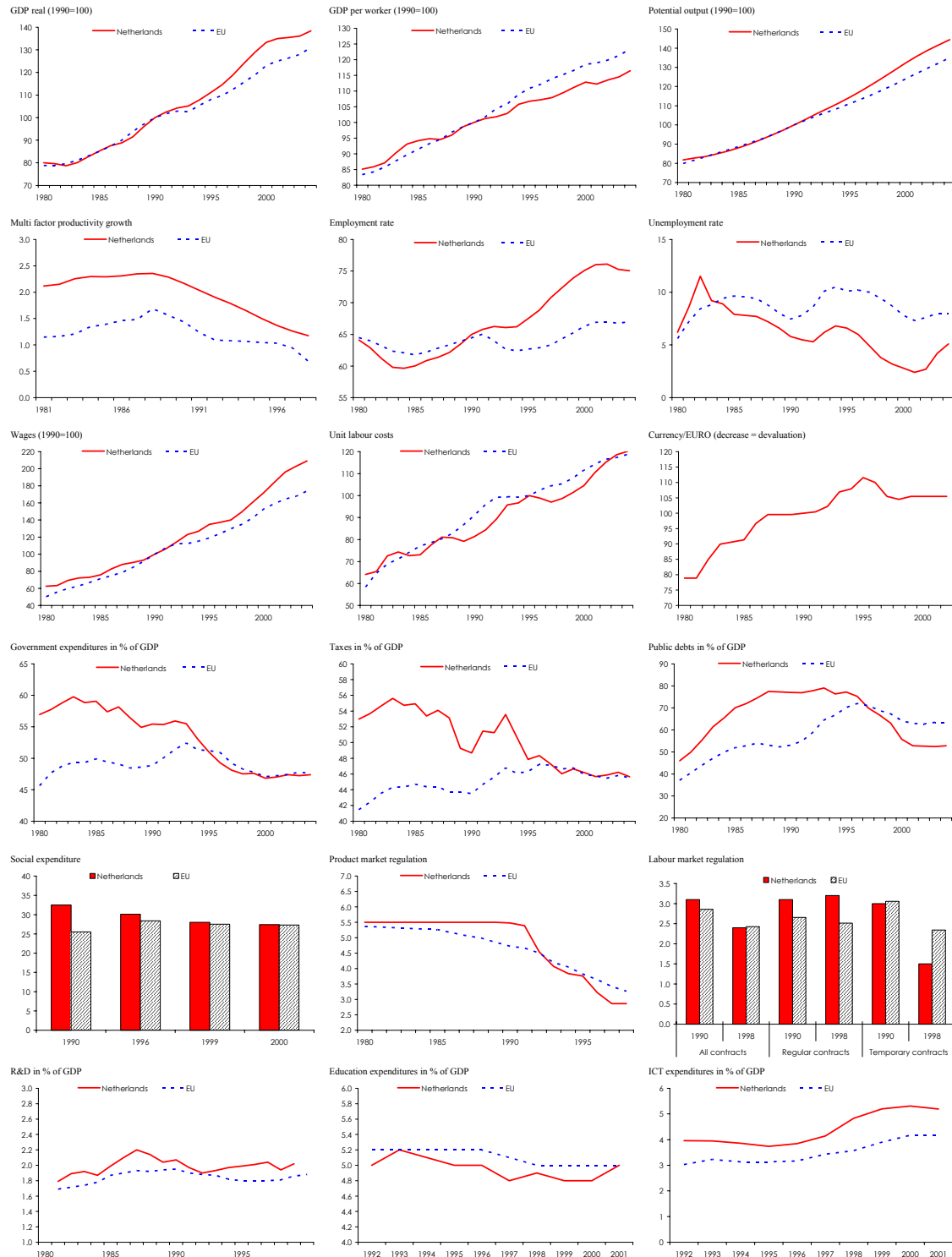
<sup>11</sup> For a more detailed description see Visser, Hemerijck (1997) and Visser (2002), EIU 2002 Country Report Netherlands.

<sup>12</sup> Unit labour costs increase in the Netherlands between 1983 and 1992 by 2 % versus 4 % on the EU average.



maximizing the employment rate. Exit rates from employment into the schemes were made more difficult, partly by institutional reforms, partly by stricter rules, and double checks. This problem is not solved, since it proved extremely difficult to bring people back to work after they had left.

*Figure 5: Policy strategy in the Netherlands in a nutshell*



Part-time work was encouraged to an extent that it is today the highest in Europe. The 1½ worker model is now considered as the new "norm", instead of the old "male breadwinner model" (Visser, 2002). The greatest surprise is however that part-time work did not lead to marginalisation and that it did not further enhance gender differences. On the contrary, an economy in which 20 years ago women had formerly legally and then often by tradition to quit public jobs if they married (Becker, 2000, Visser, 2001), is today embracing part-time work as a strategy to adapt the work effort to the changing priorities during the life cycle and to promote gender equality in the child rearing duties. The number of female workers in part-time jobs increased from 25 % to 39 %; that of males jumped from 3 % to 17 %. The main incentive effects which allowed this new assessment of part-time work even among trade unions and female worker activists is that social benefits are extended to part-time workers, including minimum wage and social security. There is a right to change to full-time work after 2 years, and the right to reduce work to part-time work (with restrictions for very small firms; EIU, 2002).

Labour market regulation was comparable with the European average in 1990. It decreased strongly due to the decrease of regulation for temporary contracts, which is the most deregulated according to the OECD data in 1998 (after the UK, Ireland and Denmark)<sup>13</sup>. Regulations for fixed contracts were not changed. Product market regulation had been higher in the Netherlands up to the late eighties, but is now lower. Government expenditures in relation to GDP, as well as taxes were more than ten percentage points higher in the mid-eighties and are now in the European average, public debt is below, budget deficits changed into surpluses in the nineties, but have reoccurred as of late. Social expenditure in relation to GDP had been 32.5 %, second highest to Sweden, and has now come down to the EU average, to a large extent by the higher growth and the decline in unemployment.

### **Enforcing training, research and ICT**

To increase the long run path of growth, tax incentives for innovations and education were increased. The Netherlands introduced tax credits for firms engaging in training and education programmes (Renique, 2002). It introduced a substantial wage subsidy for firms employing researchers (WBSO)<sup>14</sup>. Research expenditures in GDP increased from 1.8 % in 1981 to 2 % in 1999. New research institutions were financed, existing institutions were evaluated and restructured. The expenditures in information and communication technologies were encouraged and the Netherlands has today the second highest expenditures in information and

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<sup>13</sup> Note however that the specific rules mentioned which should prevent a sector of workers permanently staying in the part-time sector and being without social benefits. This may not be fully captured in the set of indicators on regulations for temporary employees.

<sup>14</sup> Promotion of Research and Development Act 1994; for an evaluation see PriceWaterhouseCoopers, 2002.

communication technology in Europe. Industrial policy switched from defensive support of declining industries to stimulating technological change. R&D was stimulated, innovative firms were subsidised, government support for R&D went up from 5.6 % of total R&D (1979) to 12.5 % in 1985 (Van Zander, 2000, p. 79). However, a few large companies profited the most from this new "technology policy", including Volvo Car, DAF trucks, Fokker and Philips (with a project to develop megabyte chips together with Siemens). In 1992/93 the debate on industrial policy came up again, with the background to help large firms (Philips, DAF trucks, Fokker) and to supply venture capital. While industrial policy often prevented and cushioned structural change, it assisted also in the creation of highly successful companies such as DSM, Hoogovens and the predecessor of AKZO (Van Zander, 2000, p. 192).

Summing up, the Netherlands is a very open economy, still producing goods under strong price competition. To regain competitiveness it decreased labour costs, but did not devalue the currency. It increased choices on the labour market and pushed the employment rate up, by enforcing part-time work for existing employees, as well as for entrants. Policy succeeded to do this without the usual consequence of marginalizing part-time workers. This succeeded by attaching pro rata benefits to part-time work, and by providing part-time workers a priority to switch to full-time jobs after a certain period. This part-time work became an option for employees, which is effectively chosen by very different occupation groups in response to life cycle priorities. While rules for full-time contracts were not changed much and are definitely stricter than in other countries, the liberal use of part-time work provides firms with the flexibility needed. Government expenditures, tax rates and social expenditures relative to GDP have been reduced to a position near the EU average. The decrease comes from higher growth and decreasing unemployment, rather than by dismantling the basic features of the welfare state. Firms were taken in their responsibility for monitoring social obligations and exits to disability were narrowed. Expenditures in education are favourably treated, as is research and promotion of ICT. The Netherlands is today one of the European leaders in ICT and excels in many rankings of its innovation system. Looking back shows that (i) the development was not without intermediate crisis, including a deterioration of the performance in the most recent period (ii), that not all the elements of the reform strategy were actually planned (iii), some reforms were introduced in steps or happened by chance (Visser, Hemerijck, 1997), and (iv) by far not all incentives have been set optimally if evaluated with hindsight (disability schemes)<sup>15</sup>.

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<sup>15</sup> The Netherlands' model is sometimes called Polder model, referring to that part of the sea converted into land by artificial docks, indicating working together of all constituencies in the Netherlands, this time against the "flood of unemployment".

#### **4. Strategy differences between the top 4 and large 4 countries and their relation to performance**

In this section we analyse the difference between the strategies of the top 4 and the large 4 countries and relate the strategies used to the performance ranking as developed in section 2.

##### **Differences in cost reduction strategies**

There is no consistent difference in overall cost strategies between the top and the large countries. Sweden and Finland experienced strong devaluations in the first half of the nineties, following a long term trend specifically in Sweden. The currencies of Denmark and the Netherlands continued their upward movement lead by the German Mark. Out of the large countries, the United Kingdom and Italy first continued to devalue, but this was reversed in the mid nineties. Germany and France continued to appreciate, then the currency value decreased a little bit in the process of entering the Monetary Union. Nominal unit costs increased rather similar in the eighties with a 3.4 % annual increase for the top and 3.6 % for the large ones. The top countries then had lower increases in the nineties (0.2 % versus 1.6 %), first due to wage moderation, later as a consequence of productivity acceleration. The largest difference between the top and large countries lies in public expenditures. Government expenditure relative to GDP dropped from 63 % in the top countries in 1993 to 53 % in 2002, or by 10 percentage points, but decreased moderately (from 52 % to 48 %) in the large countries. Debt in % of GDP returned in the top countries to the level reached in 1990<sup>16</sup>, in the large countries debt ratio increased from 51 % (1990) to 66 % in 2002. We have to keep in mind however, that government expenditure is still higher in the top countries, and that part of the development of government expenditures is cyclical. Cyclical adjusted deficits try to compensate for the cyclical effect: the budget is in surplus in the top countries in 2002 (with the exception of the Netherlands). Deficits are at the brink or outside of the range defined by the stability pact criteria in Germany, France and Italy. The United Kingdom is the positive outsider with regard to budget deficit in the group of large countries, but has a backlog in infrastructure investment.

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<sup>16</sup> Debt in percent of GDP was 48 % in 1990 as well as in 2002, after a peak of 71 % in 1993.

Figure 6: Policy strategies in top 4 vs. large 4 countries in a nutshell

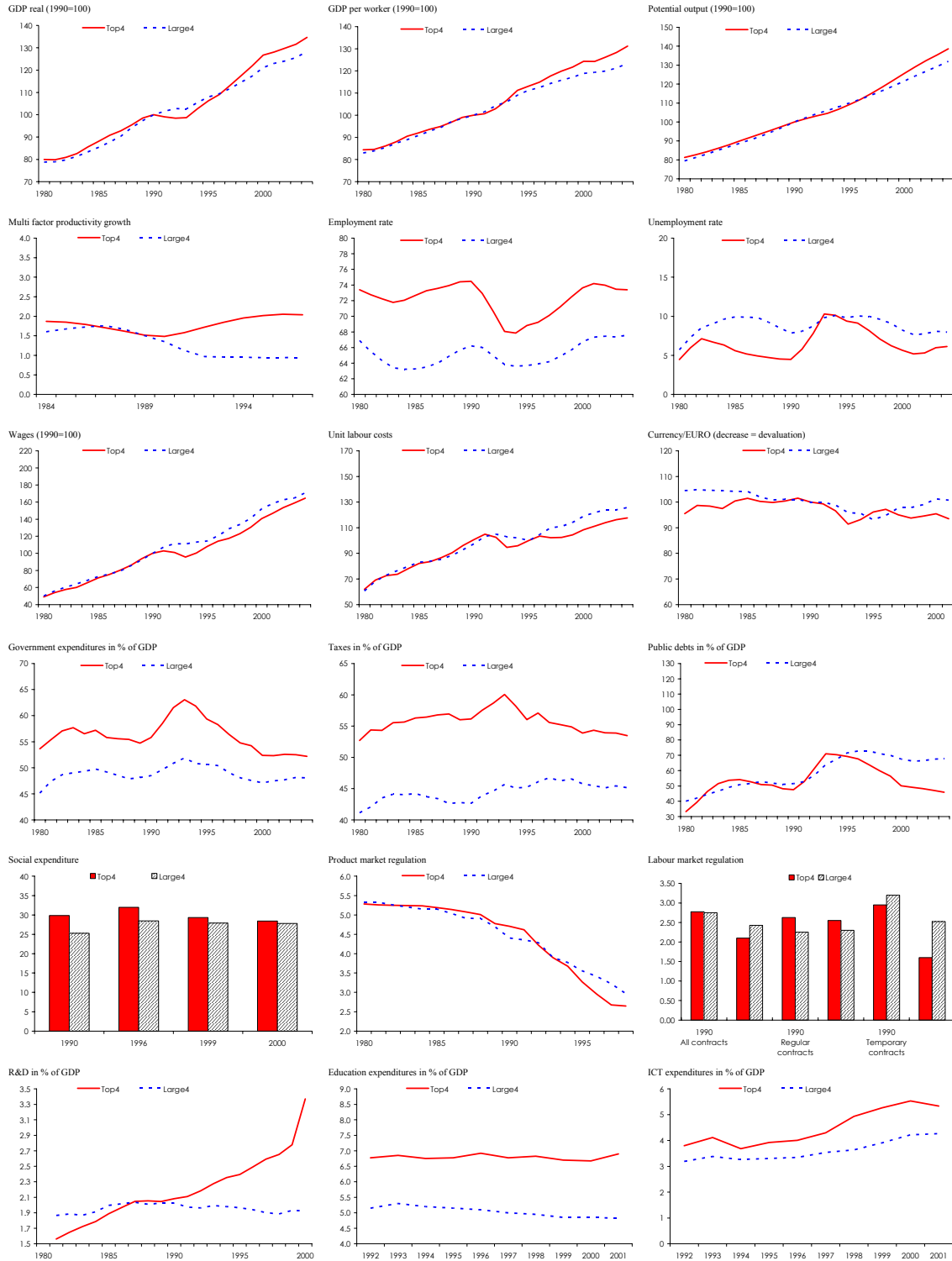


Table 4: Indicators on cost dynamics

	Belgium	Den- mark	Germany	Greece	Spain	France	Ireland	Italy	Nether- lands	Austria	Portugal	Finland	Sweden	United Kingdom	Top 4	Large 4	EU
Wages																	
Growth 1983/1992	6.3	6.6	7.0	4.0	9.3	5.3	6.1	8.0	-3.6	7.4	9.6	5.2	6.0	5.2	3.6	6.4	6.5
Growth 1993/2002	4.2	4.8	2.5	6.7	3.8	3.8	9.9	1.7	-5.5	3.5	5.1	3.7	2.5	7.0	1.4	3.7	3.9
Unit labour costs																	
Growth 1983/1992	4.1	4.6	3.7	2.0	5.5	2.4	2.5	5.5	1.6	4.2	5.9	3.2	4.1	3.0	3.4	3.6	3.7
Growth 1993/2002	2.0	2.0	1.3	2.9	0.5	1.5	1.3	-0.2	-1.0	1.3	3.0	0.2	-0.3	3.9	0.2	1.6	1.6
Currency																	
1990	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	0.0
2002	105.2	0.0	104.6	59.1	77.9	105.3	97.5	78.6	105.5	105.2	90.5	81.8	0.0	0.0	46.8	72.1	0.0
Taxes in % of GDP																	
1990	45.5	56.2	41.4	34.2	39.6	47.7	39.7	41.8	48.7	50.2	34.4	51.3	68.3	39.6	56.1	42.7	43.5
1995	48.8	58.1	45.9	40.0	39.1	50.1	40.4	45.9	47.8	52.2	40.3	57.7	60.4	39.1	56.0	45.2	46.3
2002	50.1	57.1	45.3	44.7	39.3	50.6	32.6	45.2	45.9	51.3	43.2	53.7	59.1	39.4	53.9	45.1	45.5
Corporate tax in % of GDP																	
1990	41.0	40.0	50.0	46.0	35.0	37.0	43.0	36.0	35.0	30.0	40.2	33.0	30.0	35.0	34.5	39.5	37.7
2002	39.0	30.0	25.0	37.5	35.0	33.3	16.0	36.0	34.5	34.0	30.0	29.0	28.0	30.0	30.4	31.1	30.6
Government expenditures in % of GDP																	
1990	53.7	56.9	46.1	42.2	45.5	51.0	43.5	54.4	55.4	53.1	42.2	50.5	60.5	42.4	55.8	48.5	48.9
1995	52.8	60.3	49.6	49.4	45.0	55.1	41.2	53.4	51.0	57.3	45.0	58.6	67.7	44.6	59.4	50.7	51.2
2002	50.0	55.3	48.6	46.3	39.7	54.0	34.3	47.5	47.4	52.0	46.2	49.3	58.4	40.7	52.6	47.7	47.4
Public debt in % of GDP																	
1990	129.2	57.8	39.6	79.6	43.6	35.1	101.5	97.2	77.0	57.2	58.3	14.3	41.0	34.0	47.5	51.5	53.1
1995	134.0	69.3	57.0	108.7	63.9	54.6	82.7	123.2	77.2	69.2	64.3	57.1	73.6	51.8	69.3	71.6	70.2
2002	105.3	45.2	60.8	104.9	54.0	59.5	33.3	106.7	52.6	67.6	58.1	42.7	52.4	38.4	48.2	66.4	62.7
Social costs in % of GDP																	
1990	26.4	28.7	25.4	22.9	19.9	27.9	18.4	24.7	32.5	26.7	15.2	25.1	33.1	23.0	29.9	25.3	25.5
2000	26.7	28.8	29.5	26.4	20.1	29.7	14.1	25.2	27.4	28.7	22.7	25.2	32.3	26.8	28.4	27.8	27.3
Budget deficit in % of GDP																	
1990	-8.2	-0.7	-1.8	-8.1	-5.9	-3.3	-3.8	-12.6	-6.8	-2.9	-7.8	0.8	3.0	-2.8	-0.9	-5.1	-4.8
1995	-4.0	-2.1	-3.7	-9.4	-5.9	-5.0	-0.8	-7.5	-3.2	-5.1	-4.6	-0.9	-7.2	-5.5	-3.3	-5.4	-4.9
2002	0.1	1.8	-3.3	-1.7	-0.4	-3.4	-1.7	-2.3	-1.5	-0.6	-3.0	4.4	0.8	-1.3	1.4	-2.6	-2.0

Source: WIFO calculations using AMECO (April 2003) and ESSOS for social expenditures.

## Differences in incentives and welfare institutions

The top countries are welfare economies, three of them of the Nordic type<sup>18</sup>. Social outlays in % of GDP amounted to 29.9 % in 1990, well above the EU average. It decreased to 28.4 % for the top 4 in 2000. The large countries had been marginally below the EU average (which is biased down by the southern low income countries) and increased their share by 2 percentage points to 27.8 (marginally above the EU average). The top countries maintained in principle their comprehensive system of welfare institutions, but first tried to make the labour market more flexible by deregulating temporary contracts and secondly increased the obligations for obtaining benefits at the exchange for intensive retraining. These reforms are associated with labels such as carrot and stick strategies, welfare to work measures or flexicurity. The reforms often are accompanied by organisational changes like decentralisation, private competition, stricter entrance into disability or pension schemes. The top countries had and still have high replacement ratios (specifically for low incomes), these were decreased only marginally. The index of labour market regulation published by OECD did not show much difference between the top countries and the EU average in 1990. Now labour markets are less regulated in the top countries, mainly

<sup>18</sup> The Netherlands switched to some extent from the continental type to the Nordic one due to greater equality of employment across genders and higher participation rates (in this case via part-time employment).

since they deregulated temporary contracts. Regulations for regular contracts were reduced, but are still stricter in the top countries. In parallel, the top countries did deregulate product markets, network industries are now much less regulated than in the large countries.

*Table 5: Regulation in product and labour markets*

	PMRSTAT	PMRDyn			EPL total			EPL Regular contracts			EPL Temporary contracts		
	1998	1990	1998	1998-1990	1990	1998	1998-1990	1990	1998	1998-1990	1990	1998	1998-1990
Belgium	1.9	4.99	3.35	-1.64	3.0	2.1	-30.0	1.6	1.6	0.0	4.4	2.6	-40.9
Denmark	1.4	4.68	2.95	-1.73	2.4	1.5	-37.5	1.8	1.7	-5.6	3.1	1.2	-61.3
Germany	1.4	4.13	2.59	-1.54	3.6	2.8	-22.2	2.9	3.0	3.4	4.2	2.5	-40.5
Greece	2.2	5.67	5.08	-0.59	3.6	3.5	-2.8	2.8	2.6	-7.1	4.5	4.5	0.0
Spain	1.6	4.32	3.24	-1.08	3.7	3.2	-13.5	3.8	2.8	-26.3	3.5	3.7	5.7
France	2.1	5.01	3.92	-1.09	2.7	3.1	14.8	2.4	2.5	4.2	3.0	3.7	23.3
Ireland	0.8	5.05	4.26	-0.79	1.0	1.0	0.0	1.7	1.7	0.0	0.3	0.3	0.0
Italy	2.3	5.78	4.32	-1.45	4.2	3.3	-21.4	3.0	3.0	0.0	5.3	3.6	-32.1
Netherlands	1.4	5.48	2.86	-2.62	3.1	2.4	-22.6	3.1	3.2	3.2	3.0	1.5	-50.0
Austria	1.4	4.41	3.19	-1.22	2.4	2.4	0.0	2.8	2.8	0.0	2.0	2.0	0.0
Portugal	1.7	5.29	4.13	-1.16	4.2	3.7	-11.9	5.0	4.3	-14.0	3.5	3.2	-8.6
Finland	1.7	4.59	2.59	-1.99	2.2	2.1	-4.5	2.5	2.3	-8.0	1.9	1.9	0.0
Sweden	1.4	4.08	2.19	-1.89	3.4	2.4	-29.4	3.1	3.0	-3.2	3.8	1.8	-52.6
United Kingdom	0.5	2.69	1.02	-1.67	0.5	0.5	0.0	0.7	0.7	0.0	0.3	0.3	0.0
EU	1.6	4.73	3.26	-1.46	2.9	2.4	-15.0	2.7	2.5	-5.4	3.1	2.3	-23.4
Japan	1.5	3.45	2.93	-0.52	2.6	2.6	0.0	2.5	3.0	20.0	2.7	2.3	-14.8
USA	1.0	2.21	1.36	-0.85	0.2	0.2	0.0	0.1	0.1	0.0	0.3	0.3	0.0
Top 4	1.5	4.71	2.65	-2.06	2.8	2.1	-24.3	2.6	2.6	-2.9	3.0	1.6	-45.8
Large 4	1.6	4.40	2.96	-1.44	2.8	2.4	-11.8	2.3	2.3	2.2	3.2	2.5	-21.1

PMR = Product market regulation; STAT = Static indicator (1998 only); DYN = Dynamic indicator for network industries; EPL = Employment regulation

Source: OECD Regulatory Indicators.

## Differences in investment into future growth (growth drivers)

The largest and most important difference is to be seen in the investments into future growth. The top countries are leading the large countries in 14 out of 16 indicators on research, education and information technology. The two exceptions are the share in production of high tech and skill intensive industries. The lead is specifically large for R&D expenditures, publications per resident, educational attainment, and the diffusion of information technologies. For most indicators the difference widened or even emerged in the nineties.

We start with the indicator most often used in innovation studies. R&D expenditure for the top four countries were 1.6 % of GDP in 1982, this was less than that of the large 4 countries (1.9 %). The top countries overtook the large ones in 1988 and increased their share and their lead without impact of the crisis in the early nineties continuously to 3 %. Sweden has with 3.8 % the highest R&D share in GDP in the EU countries. The share in the large countries peaked in 1987 and is decreasing slightly. The top countries are also leading in the other indicators on research (business expenditure, patents, and publications), have a higher share of secondary and tertiary education and are leading in all indicators on the production and the diffusion of information technology. For a comparison of the top 4 countries with the EU average see Figure 7.

Table 6: Investment into the future growth

	Nineties		Change last vs. first		The nineties relative to EU		The nineties relative to US	
	Top 4	Large 4	Top 4	Large 4	Top 4	Large 4	Top 4	Large 4
<b>Indicators on R&amp;D: input and output</b>								
Total expenditure on R&D in % of GDP 1992/98	2.43	1.95	0.59	-0.03	1.32	1.06	0.94	0.75
Business Enterprise Expenditure on R&D (BERD) in % of GDP 1992/98	1.58	1.21	0.40	-0.14	1.37	1.05	0.81	0.62
Research intensity in manufacturing 1990/98	2.22	1.96	0.38	-0.15	1.07	0.95	0.73	0.64
Publications per inhabitant 1992/99	12.41	7.28	3.27	1.78	1.74	1.02	1.31	0.77
Patents per resident 1990/97	3.10	2.84	0.58	0.24	1.29	1.18	0.77	0.70
<b>Indicators on education system: input and output</b>								
Percentage of the population that has attained at least upper secondary education by age group (1998)	69.38	59.88	-4.25	-3.25	1.23	1.06	0.83	0.72
Percentage of the population that has attained at least tertiary education, by age group (1998)	26.50	18.88	0.00	-0.75	1.33	0.96	0.76	0.55
<b>Indicators on ICT: production and use</b>								
ICT expenditure in % of GDP 1992/2000	5.44	4.66	2.82	2.45	1.13	0.97	0.77	0.66
Information technology (IT) expenditure in % of GDP 1992/2000	2.85	2.26	1.52	1.09	1.33	1.05	0.68	0.54
Telecommunication (TLC) expenditure in % of GDP 1992/2000	2.59	2.41	1.31	1.36	0.98	0.91	0.90	0.84
PCs per 1000 inhabitant 1992/99	2.58	1.66	2.58	1.55	1.59	1.02	0.71	0.46
Internet users per 1000 inhabitant 1992/99	1.17	0.43	3.14	1.47	2.48	0.91	1.03	0.38
Cellular Mobile Subscribers per 100 capita 1992/99	23.19	12.29	48.81	37.65	1.87	0.99	1.50	0.80
<b>Indicators on share of "progressive" industries</b>								
Share of technology driven industries in nominal value added 1990/98	17.89	23.12	4.40	0.32	0.81	1.05	0.64	0.83
Share of skill intensive industries in nominal value added 1990/98	16.79	17.51	0.44	-0.50	1.02	1.06	0.94	0.98
Share of ICT industries in nominal value added 1990/98	7.95	7.44	3.25	-0.91	1.16	1.09	0.70	0.65

Remarks: First year (last year) means that year in the nineties for which earliest (or latest data) are available (both are indicated after the name of the variable). For the percentage with secondary and tertiary education the older (45-54) and the younger (25-34) age groups are compared. Large European countries: Germany, France, the United Kingdom, and Italy. Leading European countries: Sweden, Finland, Denmark, and the Netherlands.

Table 7: Investment into the future growth in EU countries (last year)

	Belgium	Denmark	Germany	Greece	Spain	France	Ireland	Italy	Netherlands	Austria	Portugal	Finland	Sweden	United Kingdom	Top 4	Large 4
<b>Indicators on R&amp;D: input and output</b>																
Total expenditure on R&D in % of GDP 1992/98	1.57	1.92	2.29	0.49	0.90	2.18	1.41	1.02	2.04	1.63	0.63	2.90	3.70	1.83	2.64	1.83
Business Enterprise Expenditure on R&D (BERD) in % of GDP 1992/98	1.06	1.20	1.55	0.11	0.47	1.35	1.03	0.55	1.11	0.83	0.14	1.95	2.77	1.21	1.76	1.17
Research intensity in manufacturing 1990/98	1.20	1.85	2.52	0.00	5.63	2.20	0.00	0.75	1.58	0.00	0.00	2.43	3.81	1.97	2.42	1.86
Publications per inhabitant 1992/99	9.63	14.02	7.84	4.14	5.33	8.03	6.90	5.13	11.62	8.31	2.84	13.50	16.66	11.67	13.95	8.17
Patents per resident 1990/97	0.89	2.54	5.50	0.37	0.58	2.24	2.21	1.18	1.61	2.33	0.07	4.65	4.74	3.05	3.39	2.99
<b>Indicators on education system: input and output</b>																
Percentage of the population that has attained at least upper secondary education by age group (1998)	73.00	85.00	88.00	66.00	53.00	75.00	67.00	55.00	74.00	84.00	29.00	84.00	87.00	63.00	82.50	70.25
Percentage of the population that has attained at least tertiary education, by age group (1998)	34.00	27.00	22.00	22.00	32.00	30.00	29.00	11.00	27.00	12.00	11.00	36.00	31.00	26.00	30.25	22.25
<b>Indicators on ICT: production and use</b>																
ICT expenditure in % of GDP 1992/2000	5.75	6.20	5.71	6.08	6.82	6.22	5.35	5.49	6.94	5.89	7.01	6.43	8.27	7.40	6.96	6.21
Information technology (IT) expenditure in % of GDP 1992/2000	2.71	3.41	2.76	1.05	1.99	3.15	1.81	1.84	3.34	2.48	1.69	3.03	4.78	3.92	3.64	2.92
Telecommunication (TLC) expenditure in % of GDP 1992/2000	3.05	2.79	2.95	5.03	4.83	3.07	3.54	3.64	3.61	3.41	5.33	3.40	3.49	3.48	3.32	3.29
PCs per inhabitant 1992/99	3.15	4.14	2.97	0.60	1.19	2.22	4.05	1.92	3.60	2.57	0.93	3.60	4.51	3.03	3.96	2.53
Internet users per inhabitant 1992/99	1.38	2.82	1.75	0.71	1.16	0.92	1.83	1.22	1.89	2.25	0.70	4.15	4.14	2.10	3.25	1.50
Cellular Mobile Subscribers per 100 capita 1992/99	31.09	49.84	28.35	37.68	37.39	34.96	44.79	52.28	42.87	50.74	47.72	64.96	57.30	40.98	53.74	39.14
<b>Indicators on share of "progressive" industries</b>																
Share of technology driven industries in nominal value added 1990/98	20.31	16.10	26.41	6.74	15.53	27.24	29.56	17.50	18.35	14.16	10.51	17.32	29.79	24.32	20.39	23.87
Share of skill intensive industries in nominal value added 1990/98	10.79	20.79	19.22	4.82	10.71	15.96	18.59	18.21	13.27	13.11	7.39	14.42	19.38	16.99	16.97	17.60
Share of ICT industries in nominal value added 1990/98	4.81	5.22	4.95	2.21	3.53	9.44	12.00	5.64	9.27	6.43	4.00	13.05	12.43	8.58	9.99	7.15

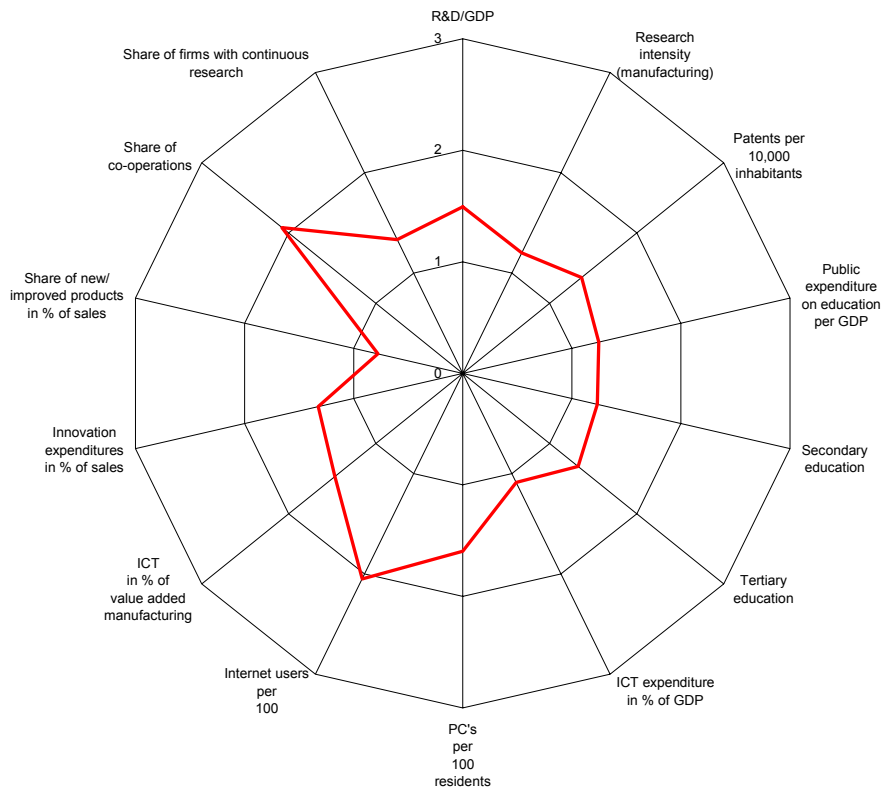
Remarks: First year (last year) means that year in the nineties for which earliest (or latest data) are available (both are indicated after the name of the variable). For the percentage with secondary and tertiary education the older (45-54) and the younger (25-34) age groups are compared. Large European countries: Germany, France, the United Kingdom, and Italy. Leading European countries: Sweden, Finland, Denmark, and the Netherlands.

If we compare the top four European countries with the US they have improved their positions relative to the USA for thirteen out of the 16 indicators (Aiginger, 2002 and Table 6). The leading European countries surpassed the USA in publications per inhabitant and Internet users (in addition to mobile phones and telecom expenditures, where Europe as a total entity is ahead). The



only areas where the top four European countries are not improving their relative positions are patents, the share of IT expenditures and the share of ICT industries in production.<sup>19</sup> In contrast the top four economies are lagging the US in 14 out of 16 indicators and had improved their position in only 4.

*Figure 7: Investment into the future growth; top 4 vs. EU*

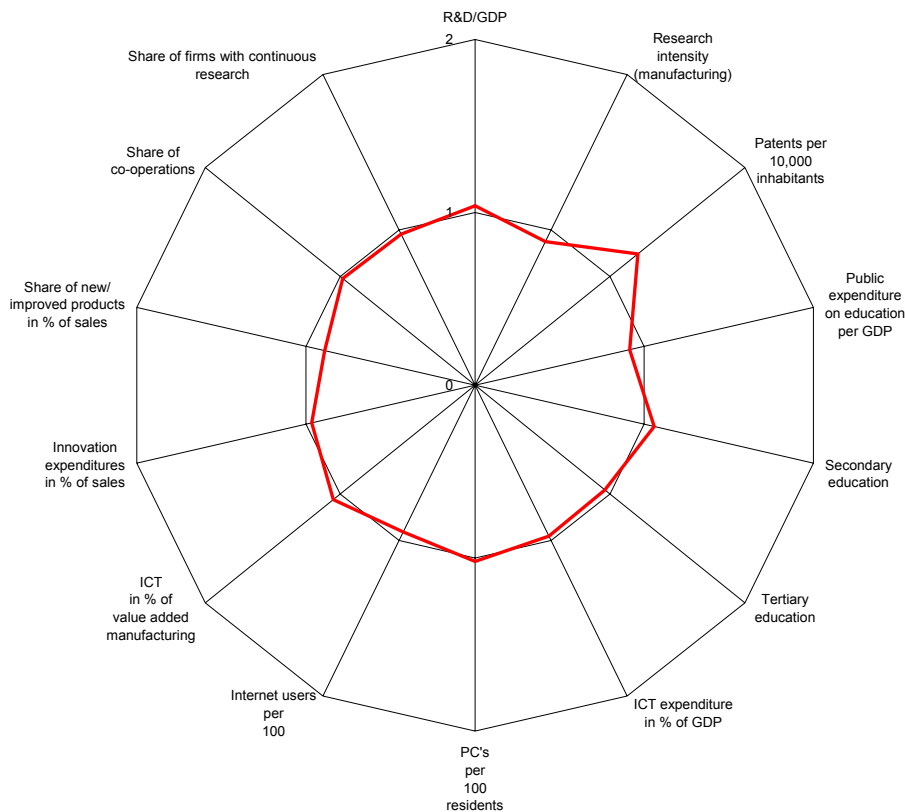


### The relation between strategies and performance

We have argued that cost cutting strategies and correcting the incentives are important preconditions, but are not sufficient to boost long-run growth. Increasing the investment into future determinants of growth is considered as the most important strategy element. The analysis of the performance between the top 4 countries and the large 4 confirmed this hypothesis as the differences are specifically large for this group of determinants. Figure 9 provides the relation between the performance ranking and the ranking of the three strategy elements for the individual countries.

<sup>19</sup> The top four European countries are falling back marginally in their shares of skill intensive industries.

*Figure 8: Investment into the future growth; large 4 vs. EU*



The correlation between performance and cost cutting is the weakest. Sweden and Finland made use of several measures of cost cutting and France and Portugal mark the other extreme of low performance and low application of cost cutting strategies. However, Denmark, Ireland and the UK have performed better than average without cost cutting strategies (in the last case note again the reservation of the period chosen), and Italy did achieve performance neither by devaluation nor by decreasing government expenditures or budget deficits. The overall correlation between the performance ranking and the ranking in cost cutting measures is insignificant.

The correlation between performance and regulatory change is somewhat stronger, but still not significant. Sweden, Finland and Denmark are leading in deregulation as measured by the OECD indicators on regulatory change, as well as in performance and France and Germany are the other extremes. However Ireland and Spain did perform much better than the correlation would suggest weakening the correlation. The correlation is somewhat closer if we relate performance to the status of regulation in 1990, instead of the change between 1990 and 1998 as we do in Figure 9. However, the correlation is closer between performance and regulatory status as of 1998, we might indicate a reversed causality, that liberalization is easier if macro performance is better.

The correlation between performance and an increase of investment into growth drivers is very close and highly significant according to the usual statistical criteria. Sweden, Finland, Denmark

and Ireland are high performers and strongly intensified investment. Germany, France and Italy mark the other extreme of sluggish investment and performance. The countries farthest away from the line are the UK, which performed better than "predicted" by its relative low increase in investment and to lesser extent, Spain.

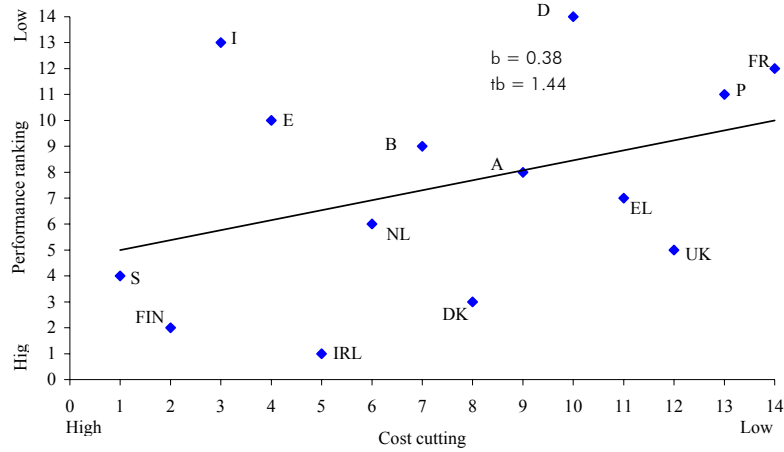
The correlations support the hypothesis that the third part of the strategy may be the most important. Note however, that neither correlations nor plots can prove an argument. There may be reversed causality, insofar as growth provides profits and tax revenues, which makes it easier to increase research and training<sup>20</sup>. On the other side, growth provides the possibility to raise wages, so that moderation at the beginning of a period is not reflected in the full period etc. Correlations can be spurious and are subject to the omitted variable bias, since they represent a bivariate analysis and not a complete explanation. Furthermore, without an elaborated model of growth, there is always a choice between different specifications, for example it is probable that the level, as well as the change in research outlays will be important for performance. An elaborated growth model and a complete econometric analysis of the importance of cost drivers, regulation and growth drivers is beyond the scope of this paper.

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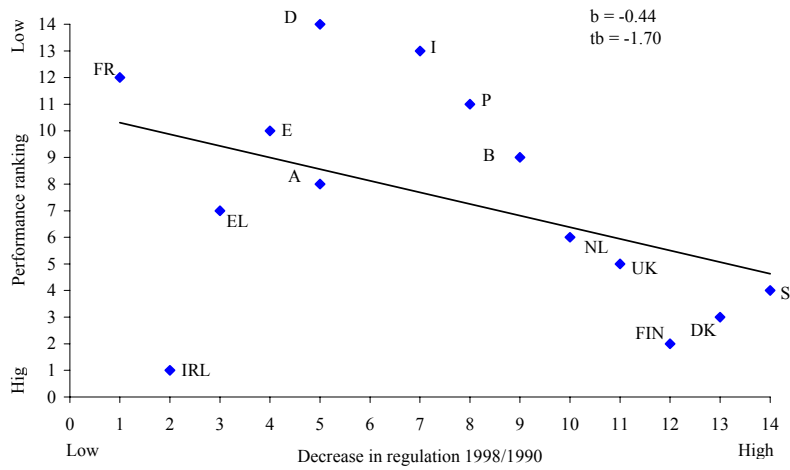
<sup>20</sup> The problem of reversed causality is somewhat mitigated since the performance ranking is for 1993/2002, while the growth drivers are calculated for 1990/2000

Figure 9: Performance, cost cutting, regulatory change and investment into growth drivers

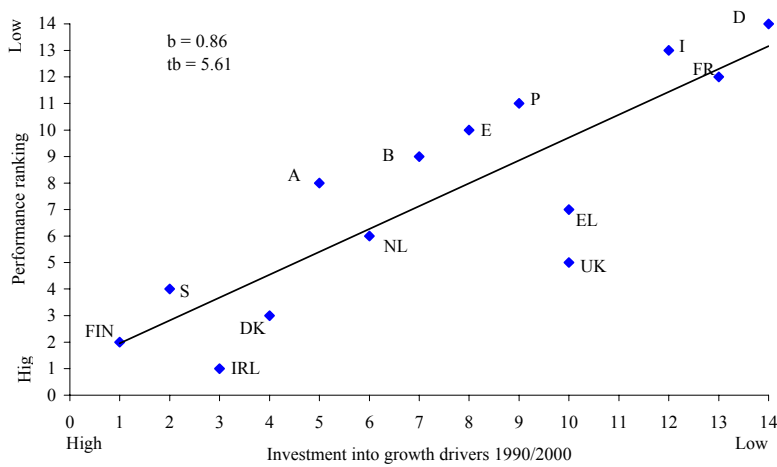
Cost cutting



Regulatory change



Increasing investment into growth drivers



## 5. Conclusions

- (1) The economic performance of Europe in the nineties is disappointing. Growth of output and productivity was lower than in the eighties, both were also below the potential growth and lower than in the US. Unemployment is higher, employment rates are lower in the EU. Inflation is still considered as excessively high and potential output growth as excessively low as to allow an expansionary monetary policy to the extent of the US.
- (2) Analysing the reasons as to why Europe underperformed, many analysts refer to the twin hypothesis of the costly welfare state and the insufficient labour market flexibility in Europe. If this hypothesis was correct, countries with a higher welfare burden or with higher taxes and government shares should have underperformed specifically strong. The objectives of this paper are firstly to investigate whether the performance differences across European countries are in line with this hypothesis and secondly what policy strategies the successful countries pursued.
- (3) Evaluating the economic performance in the nineties by a broad set of indicators on output and productivity growth, employment and stability suggests Sweden, Finland, Denmark and - with some reservations – the Netherlands as top performers. In contrast to these countries the large European countries, Germany, France, and Italy, did particularly underperform. We include the United Kingdom to build a group of large countries, which is not justified without a look back to the eighties or forward to unsolved problems such as e.g. low productivity and the deficit in infrastructure. Similarly, the inclusion of the Netherlands contains an element of personal choice since some past problems have re-emerged recently. A purely statistical clustering would have suggested one to put Ireland into the top performer group.
- (4) If we accept these choices we obtain a growth difference between the top 4 and the large 4 countries of half a percentage point for GDP and of 1½ percentage point for manufacturing. Productivity accelerates for the top 4, and decelerates for the large 4. Employment is higher in the top 4, unemployment lower. The most impressive differences occurred in the fiscal indicators. The debt/GDP ratio used to be higher in the top 4 and is now 20 percentage points lower. Budget deficits had been 5 % of GDP in each, now three of the four large countries approach the upper limit allowed in the European Stability Pact, three countries of the top 4 enjoy surpluses or balanced budgets even in 2003. The improvement in the top countries was on the one hand the result of a strategy to limit expenditures, on the other hand the consequence of regaining growth.

(5) If we look for structural characteristics of these top 4 countries we find them to be small open economies of the northern welfare type. Rather high costs and taxes are combined with a consensual tripartite style of policy making. Additionally, all four countries experienced a severe crisis in their development.

(6) Looking into the policy strategies there are three common elements:

- The first pillar of the strategy was to restore the balance between production costs and productivity in the market sector and between taxes and revenues in the public sector. Sweden and Finland did devalue their currency, Denmark and the Netherlands maintained their currency value relative to their main trading partners. Wage moderation was used specifically in the Netherlands and Finland, less in Denmark and Sweden. The government tries to moderate expenditures, but levels remained above average with the exception of the Netherlands. The Netherlands decreased taxes by a large proportion, Finland by a smaller; taxes are relatively unchanged and well above the level of large countries in Sweden and Denmark. Moderating wage increases and reducing taxes and government expenditure was a major strategy in the Netherlands, much less in Denmark. The relation between the performance ranking as defined in Table 3 and the ranking in cost cutting is not significant.<sup>21</sup> Cost reduction is however only the necessary condition for success, not the sufficient one. Cost reduction, if the crisis is over, will prove unsustainable, since economies head for higher incomes again and people will forget restraints if the crisis is over. Only if the increase in aspiration is in line with the increase in productivity, the long-run condition for competitiveness is fulfilled.
- The second strategy element was to improve the incentive structure. Product markets were deregulated faster than in large countries. For labour markets the main changes in regulation occurred for temporary contracts. Labour market regulation for regular contracts was not changed dramatically. It is stricter in Sweden and the Netherlands, far below the EU average in Denmark, a little bit in Finland. Training schemes were forced and personalised, welfare to work measures with true assistance and without offensive rhetoric were installed. Replacement ratios were reduced marginally, where they were extremely high, and benefit periods were shortened. Specifically in Denmark and the Netherlands labour market policy tried to increase the flexibility of firms, while retaining security for people to find new jobs, a system labelled as flexicurity (flexibility plus

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<sup>21</sup> An econometric analysis of the importance of cost cutting, regulation and growth drivers is beyond the scope of this paper. Correlations between rankings involve additional econometric problems to all the other problems in empirical growth studies. We present only degrees to illustrate the similarity or difference. Implicitly however also diagrams may be misleading due to the usual problems in formal models such as the direction of causality, completeness of the model, omitted variables etc.

security). The correlation between performance and change of regulation is somewhat tighter than for cost cutting, but still not close.

- The third and most important strategy element was to increase the long-term growth path. All these countries invested into growth drivers and new technologies. The top 4 countries increased research expenditures, maintained or upgraded quality in education and invested in new technologies, specifically ICT and biotechnology. Denmark went into more of a strategy of diffusion of ICT and of supporting successful clusters (IT bridge, medical sector), Finland increased the research expenditures dramatically, even in a period where total government expenditures were reduced, Sweden enforced production and diffusion of telecom to become no. 1 in most ratings for the implementation of the information society, and the Netherlands obtained a top position in a broad set of innovation indicators. R&D expenditures of the top 4 countries surpassed that of the large countries in 1988 and are now twice as high. For education expenditures the top 4 countries increased their lead towards that of large countries and the top countries excel in performance ratings, the lead in information technology is increasing. The correlation between the performance ranking and the increase in investment in growth drivers is highly significant.

- (7) The top four countries outperform the large ones according to 14 out of 16 determinants for long-term growth. Particularly revealing is the dynamics in the research input. The large countries had a research ratio of 1.9 % GDP in 1981, the top 4 lagged at that time with 1.6 %. These lines crossed around 1988 and today the top countries have a research ratio of 2.8 % practically even with the US. The large countries increased their research expenditures up to 1993, since then they are decreasing slightly to 2.3 %, one-fifth lower than in the top group. In four determinants for long-term growth the top 4 lead relative to the US (telecom expenditures, publications, Internet and cellular phone use). The high performers in GDP, productivity and fiscal discipline have invested strongly in the growth drivers as expected by economic theory. Policies enforcing education, research, clusters and information technology started in the late eighties in Sweden, Finland, Denmark and the Netherlands, growth accelerated in the mid-nineties.
- (8) The fact that welfare countries performed rather well in the nineties does not indicate that costs and incentives are irrelevant for performance. These countries realized after a severe crisis, that costs had to be cut and fiscal balances to be restored, secondly that incentives had to be corrected and institutions had to be reformed. But most importantly they realized also that cost cuts represent a short term strategy, which had to be complemented by an active policy to promote research, education and the diffusion of new technologies. Cutting costs

and changing incentives is the necessary condition for growth, investment in research, education and the diffusion of new technologies is the sufficient condition.



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*Annex 1.1: Recent studies on cross-country differences in economic growth*

Author/Institution	Title	Scope	Additional features
Aiginger, K., European Forum at Stanford University, Working Paper 2/2002	The New European Model of the Reformed Welfare State	Analysing performance differences in Europe & determinants	Excellent performance of reformed welfare states with specific innovation policy
Aiginger, K., Landesmann, M., WIFO Working Papers 179/2002	Competitive Economic Performance: The European View	Productivity comparison EU vs. US: determinants on prospect	Impact of differences in industry structure
Ark Van, B., et al., GGCG 2003	ICT Investments and Growth Accounts for the European Union 1980-2000	Contribution of ICT or growth in EU and US	Structural impact in product and labour markets may limit growth
European Commission, 2003	Choosing to grow: Knowledge, innovation and jobs in a cohesive society	Progress of Lisbon Strategy	Role of knowledge, innovation and jobs
European Commission, European Economy 6/2002	The EU Economy 2002 Review	Macroeconomic Development	Convergence of Accession countries
European Commission, European Economy 71/2000	The EU Economy 2000 Review	Is there a new pattern of growth emerging?	Prospects and challenges for Europe
European Commission, 2002	The competitiveness Report 2002	Productivity growth in services	Human capital, environmental performance
European Commission, 2001	The competitiveness Report 2001	Productivity and innovation	Increasing gap to USA; industry study on biotechnology
European Commission, 2000	The competitiveness Report 2000	Competition in quality	Industry study on service inputs, pharmaceuticals
Gordon, R.J., North-western University, 2002	Two Centuries of Economic Growth: Europe Chasing the American Frontier	Performance Europe vs. US in the long and short run	Specific differences in per capita and per hour performance
McMorrow, K., Roeger, W., European Commission, Economic papers no 150, 2001	Potential Output: Measurement Methods	New Economy effect on potential growth	Growth scenarios for the EU and the USA
OECD, 2003	The Sources of Economic Growth in OECD Countries	Econometric evidence and growth determinants	Impact of regulation and public sector human capital
OECD, 2001	The New Economy: beyond the hype, Final report on the OECD Growth Project	Explaining differences in growth performance of OECD countries	Policy conclusions
Pichelmann, K., Roeger, W., Review of International Economics 2003 (forthcoming)	The EU Growth Strategy and the Impact of Ageing	Impact of ageing on growth and stability pact	Changes in work incentives needed

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