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The Delta-model revisited

van Ark, Bart; de Haan, Jakob

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**The Delta-Model Revisited: Recent Trends in the
Structural Performance of the Dutch Economy**

Research Memorandum GD-38

Bart van Ark and Jakob de Haan

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The Delta-Model Revisited: Recent Trends in the Structural Performance of the Dutch Economy

by Bart van Ark and Jakob de Haan*
University of Groningen

December 1997

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Abstract

The rapid growth performance of the Dutch economy in terms of growth in real GDP, employment and per capita income can be traced back to the mid-1980s. This paper suggests that the growth acceleration of the Dutch economy has primarily been the result of a below-average performance during earlier times (i.e. the 1970s and early 1980s). Wage moderation and strict exchange rate and fiscal policies have contributed to the fact that the Netherlands has more or less returned to the Northwest European average of GDP per capita. This paper argues that this catch-up effect may disappear in the near future. According to many authors the acceleration of growth in the Netherlands is also related to recent structural reforms in the labour and product markets. If this were to be the case, we may expect that the Dutch economy will continue to perform on a structurally higher growth path than economies where such reforms are slower or absent.

This paper begins with a review of GDP and GDP per capita growth performance of the Netherlands in an internationally comparative perspective. It then presents an overview of structural reform measures and evaluates to what extent deregulation of product and labour markets has enhanced the economic growth performance. Next, it is shown that the increase of the participation rate is an important factor behind the improvement of the Dutch economic performance. Despite the improved GDP and per capita income performance, labour productivity growth in the Netherlands has slowed down since the mid 1980s, and the productivity bonus of the Netherlands over other Northwest European countries has eroded. This strengthens the view that the recent growth performance may in fact be no more than a catch-up process in terms of labour market expansion at the expense of productivity. The deceleration of productivity growth occurred across the board: in almost all sectors growth in labour productivity and multifactor productivity slowed down. However, the productivity problem should not be mixed up with a technology problem “per se”. As multifactor productivity growth is weakest in service sectors, it is suggested that technology diffusion and organizational innovations require at least as much attention as technology creation.

1. Introduction

Since the late 1980s, the Dutch economy has outperformed neighbouring countries on several fronts. It has achieved higher employment and GDP growth in combination with low inflation, and it had the lowest long-term interest rates in the European Union (EU). Dutch per capita GDP growth, which had moved well below the Northwest European average during the first half of the 1980s, is now almost back to that average.¹ The economy of the Netherlands also suffered less than other European economies from the recessions in 1992-93 and 1995. This performance represents a marked turnaround from the early 1980s, when the country faced a deep recession, the profitability of firms was close to zero, unemployment had risen sharply, and the fiscal deficit amounted to 9½ percent of GDP.

The rapid growth performance of the Dutch economy in terms of growth in real GDP, employment and per capita income can be traced back to the mid-1980s (OECD, 1996b; van Ark and de Haan, 1996; van Ark and de Jong, 1996; van Ark, de Haan and de Jong, 1996). It has been widely accepted that wage moderation since the early 1980s, probably strengthened by an effective wage negotiation structure, was a critical factor in fostering expansion of output and employment. Sometimes this turnaround has been referred to as the “Dutch miracle”. Recently the IMF concluded, however, that the “Dutch miracle” is neither a miracle nor uniquely Dutch (IMF, 1997).²

An important question is whether the structural reforms that have taken place will allow the Dutch economy to perform on a structurally higher growth path than economies where such reforms are slower or absent. An alternative interpretation might be that the recent growth performance of the Netherlands has primarily been the result of a correction of the below-average performance of earlier times (i.e. the 1970s and early 1980s). In the latter case we might expect growth rates to fall back to the Northwest European average in due time.

This paper analyses structural reforms in the Netherlands and examines to what extent Dutch growth performance has structurally increased or whether the recent growth bonus merely represents a catch-up effect. The remainder of the paper is structured as follows. Section 2 starts with a comparison of growth and level estimates of GDP and GDP per capita in the Netherlands relative to Northwest Europe, the EU and the OECD. One of our aims here is to see whether there are more cases of below-average performance in Northwest European countries in earlier periods that lead to catch-up in later periods. Section 3 presents an overview of structural reform measures in relation to recent research suggesting that deregulation of product and labour markets will enhance the economic growth performance. In section 4 we look in more detail at the relation between GDP per capita and productivity. We show that labour productivity growth in the Netherlands has slowed down since the mid 1980s. In section

¹ Our Northwest European average includes Austria, Belgium, Denmark, Germany (since 1991 including East Germany), Finland, France, Netherlands, Norway, Sweden, Switzerland and United Kingdom. See section 3 for more details.

² See also van Zanden (1997) for an historical assessment of the Dutch growth performance.

5 we therefore investigate whether the overall slowdown in productivity growth can be related to an increased concentration of labour in low-productivity sectors, or whether it is the result of a slowdown of productivity growth within the sectors. We also look at the intrasectoral productivity slowdown itself and provide tentative estimates of multifactor productivity growth by sector.

2. Comparative GDP and per capita income performance

The growth acceleration of the Dutch economy has now been well documented, and is confirmed by the most recent estimates of growth rates of GDP and GDP per capita for the Netherlands and the averages for Northwest Europe, the European Union and the OECD presented in Table 1. Compared to Northwest Europe, growth of real GDP and GDP per capita in the Netherlands has been 0.7 percentage points higher between 1987 and 1996. Table 2 presents corresponding figures in terms of relative levels. Whereas GDP per capita in 1996 was still around 4 per cent below the Northwest European average it came up from a level as much as 11 percentage points below the Northwest European level in 1987. In 1987 Dutch GDP per capita was at the bottom of the league of the 11 Northwest European countries, whereas in 1996 it was in 8th place behind Norway, Switzerland, Denmark, Belgium, Austria, France and Germany, although the differences between the latter five countries and the Netherlands were within a range of 7 percentage points. The estimates clearly lead to the conclusion that between 1987 and 1996 the Netherlands has been in the process of making up for what it had lost in terms of relative wealth compared to the rest of Northwest Europe between 1973 and 1987.

It should be emphasized here that ‘catch up’ has not been an automatic process. Indeed, as we show in section 3, it is our contention that due to the combined efforts of trade unions, employers organizations and government, the relative decline of the Netherlands was reversed. The very bad economic situation at the beginning of the 1980s created the right conditions for a change in wage and governmental policies. Indeed, it could be argued that a crisis was perhaps a necessary (but not a sufficient) condition for these changes to take place.

Table 1
Growth of GDP and GDP per Capita, 1960-1996

	Netherlands	Northwest Europe (a)	European Union (b)	OECD (c)
<i>Gross Domestic Product (constant prices)</i>				
1960-1996	3.1	2.9	3.4	3.5
1960-1973	4.8	4.5	5.3	5.3
1973-1987	1.8	2.1	2.2	2.5
1987-1996	2.7	2.0	2.3	2.4
<i>Gross Domestic Product per Capita</i>				
1960-1996	2.3	2.4	2.7	2.6
1960-1973	3.6	3.6	4.3	4.0
1973-1987	1.2	1.8	1.8	1.9
1987-1996	2.1	1.4	1.9	1.6

(a) unweighted average for Austria, Belgium, Denmark, Germany (since 1991 including East Germany), Finland, France, Netherlands, Norway, Sweden, Switzerland and United Kingdom.

(b) excluding Luxembourg

(c) unweighted average for 22 OECD member states (pre-1995 membership)

Source: 1960-1990 from Maddison (1995), linked to 1990-1995 from OECD *National Accounts 1960-1995* (Paris, 1997), with 1993 GDP in national currencies converted to US\$ with EKS PPPs. 1995-1996 from OECD *Economic Outlook* (Paris, June 1997)

Table 2
Relative Level of GDP per Capita, Northwest Europe=100

	Netherlands	Northwest Europe	European Union	OECD
1960	98	100	79	86
1973	97	100	85	89
1987	89	100	85	89
1996	96	100	88	92

Source: see Table 1

Table 3
Analysis of strong recovery periods in Northwest Europe

	Period with "above NWE average" growth (a)	% -GDP growth rate above "NWE average" GDP growth rate			% -inflation rate above "NWE average" inflation rate	
		in given period (column 1)	in subsequent five years	Differential (3)-(2)	in given period (column 1)	in subsequent five years
	(1)	(2)	(3)	(4)	(5)	(6)
Austria	1966-1977	1.1	-0.2	-1.3	-1.5	-3.0
Belgium	1966-1974	0.7	-0.4	-1.1	-0.8	-8.1
Denmark	1964-1969	0.5	-1.5	-2.0	1.7	1.1
Denmark	1982-1986	1.2	-1.8	-3.0	1.1	-0.3
Finland	1979-1989	1.6	-4.8	-6.4	1.5	-0.2
France	1961-1978	0.8	-0.1	-0.9	0.3	3.6
Germany	1967-1973	-0.3	0.0	0.3	-1.7	-4.8
Germany (b)	1988-1992	1.9	-1.5(c)	-3.4	-0.9	0.0
Netherlands	1962-1971	1.4	0.2	-1.2	0.5	-0.5
Netherlands	1973-1978	0.6	-1.3	-1.9	-1.4	-2.9
Norway	1974-1981	2.3	1.7	-0.6	0.4	2.4
Norway	1983-1987	1.8	-0.4	-2.2	2.9	2.9
Switzerland	1967-1971	0.1	-3.2	-3.4	-0.1	-2.7
Switzerland	1985-1989	0.2	-1.0	-1.2	-1.4	0.5
UK	1983-1988	1.1	-1.0	-2.1	0.5	1.8
Average		1.0	-1.0	-2.0	0.1	-0.7
Netherlands 1989-1996		0.9	??			

(a) periods were defined as more than 5 years of growth above Northwest European average or no more than -0.5% below Northwest European average; (b) only West Germany; (c) only 1993 and 1994.

Source: for GDP see Table 1; inflation rates from IMF, *Financial Statistics* (CDrom)

A very important question is how long this "above average" growth for the Netherlands can continue if it is just a reflection of catching up with the Northwest European average. At some stage a slowdown in the growth rate may then be expected. Column (1) of Table 3 shows the periods during which Northwest European countries achieved an "above average" growth. Column (2) shows the average growth rate above the Northwest European average. On average this growth surplus amounted to about 1 percentage point. Column (3) shows the average growth rate above (or below) the Northwest European average in the subsequent five years. It shows that on average the growth rate is 1 percentage point below the Northwest European average during these years. If we would imply this outcome to the Dutch "above average" growth rate from 1989 to 1996, we may expect a GDP growth rate of 1 percentage point below the Northwest European average once the catching-up process has been completed.

Of course, the reasons for acceleration and slowdown vary across countries and across periods. However, as we include in Table 3 only periods with 5 or more years of “above average” growth, the reasons are mainly structural and not cyclical. We checked this by calculating the inflation rates during the periods with above average growth as well, from which no clear pattern emerges (see columns (5) and (6) in Table 3). In eight cases (Denmark (twice), Finland, France, Netherlands (1962-1971), Norway (twice) and the UK) inflation is above the average of NW-Europe during periods with a relatively good growth performance, while in the other seven cases inflation is below the average inflation in NW Europe. This suggests that the periods that we have figured out are not just strong cyclical recovery periods.

There are two arguments against drawing too many inferences from the past growth experience in Northwest Europe for the future growth perspective of the Netherlands. First, the “catch-up hypothesis” may be too conservative, as the reforms in labour and product markets may move the Netherlands on a structurally higher growth path compared to neighbouring economies. The impact of the reforms on growth in the Netherlands is the topic of section 3. Second, a comparison with the average of Northwest Europe (or any other average) as the yardstick might be less useful in case Europe as a whole has a potential for faster growth relative to, for example, the United States. This will be the main topic of analysis in section 4.

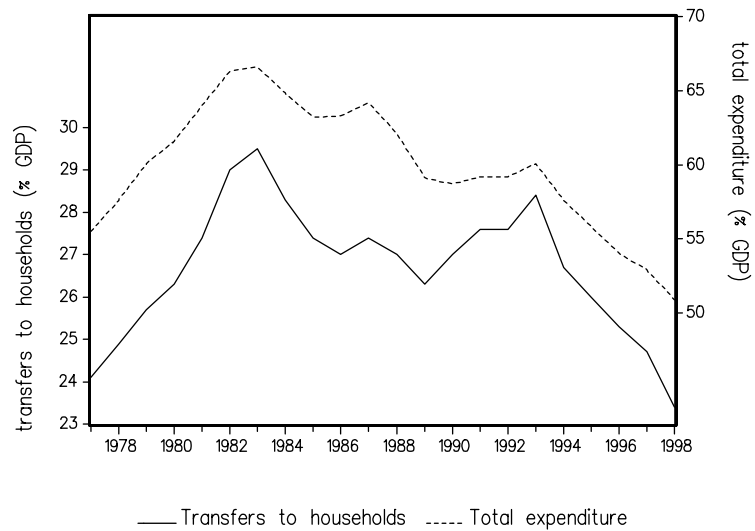
3. Structural reform in the Netherlands³

Since the beginning of the 1980s two changes in the Netherlands occurred that are often referred to when explaining the “Dutch miracle”. First, with the so-called Wassenaar agreement (1982) between trade unions and employer organisations a policy of moderation of wage costs was introduced. This policy of restraint was encouraged by the government, by reducing the level of taxes and social security premiums, which allowed real net incomes to rise, even in the absence of gross wage increases. Second, government policy was - at least according to policy statements - geared towards structural reform. In one respect this structural reform was indeed more than just rhetoric: independent of the political parties participating in the governing coalitions, the share of government outlays in national income has been reduced since its peak in 1983 (see Figure1).

³ For this section we greatly benefitted from chapter III (prepared by Bas B. Bakker) of a recent IMF study (IMF, 1997).

Figure 1

Total government expenditure and transfers to households (% GDP), 1977-98



Source: *Budget Memorandum 1998*

During the 1970-82 period the fiscal situation had deteriorated seriously. Public expenditures had risen sharply, mainly as a result of an increase in transfers to households, which in turn reflected a rapid increase in the number of social security recipients. Initially, this rise in public spending did not lead to a sharp increase in budget deficits, since it was matched by a substantial increase in taxes and social security premiums. However, when economic growth slowed down, budget projections initially continued to assume rather strong growth, leading to high central government deficits (almost 9% of GDP in 1983), despite a substantial increase in natural gas revenues. Since 1982 fiscal policy aimed at reducing budget deficits. Initially, the operational target was the fiscal deficit for which a time-path was set.⁴ As limits were also set for the so-called collective burden (roughly, the total of taxes and social security premiums), main adjustments took place through government expenditures. As follows from figure 1, a substantial reduction of social transfers took place, which was realised mainly by holding down the value of benefits. The volume component contributed much less to the reduction of social transfers as a percentage of GDP as (until recently) the number of social security benefit recipients continued to rise. The share of government expenditure in GDP declined from a peak of almost 67% in 1983 to a projected level of 51% in 1998. Transfers to households came down from almost 30% to 23%.

⁴ Since 1994 policy is aimed at medium-term expenditure ceilings, with separate ceilings for central government, social security and health care.

Box 1. Structural reforms in the Netherlands: an overview

Labour market reforms:

- in 1986 *unemployment benefits* have been reduced to 70% of the last earned wage, while in 1987 the duration for younger workers was shortened and eligibility was tightened
- in 1985 *disability benefits* have been reduced to 70% of the last earned wage; if a partially disabled person could not find a job, he/she would no longer receive full disability benefits; instead the disability benefits were supplemented by unemployment benefits, which taper off after a few years
- in 1993 *disability benefits* were reduced further by limiting the duration of full benefits to no more than six years, while a lower entitlement is paid subsequently, depending on the age at which the scheme was entered and the salary previously earned
- *sick leave benefits* have been reduced in various steps from 100 to 70% of wages; in 1996 the collective insurance was abolished and employers were made responsible for sickness payments during the first year of sickness
- due to various measures the gross real *minimum wage* declined substantially and by 1996 was 22% lower than in 1979; real youth minimum wages declined even by 46%
- due to its link to the minimum wage, the gross *minimum social benefit* declined in real terms by more than 20%
- introduction of schemes to cut *labour costs* at the lower end of the wage spectrum

Product market reforms:

- general prohibition of *price fixing* from July 1993 and of *collusive tendering* from June 1994
- a new *Competition Law* was passed in early 1997 which is based on the prohibition principle
- liberalization of business *licensing requirements* in 1996
- *shop opening hours* were extended significantly in 1996 (until 10 p.m. and up to 12 times a year on Sunday)
- *privatization* of postal and telephone services in 1994/95 which face new competitors due to newly licensed operators; preparations are under way to privatize the national railroad company

Source: IMF (1997)

Apart from fiscal consolidation, the subsequent Dutch governments have also reduced government regulation. Less government interference and more reliance on market forces became another characteristic of economic policy in the Netherlands. Box 1, which is based upon a recent report from the IMF (1997), summarizes the main policy initiatives taken.

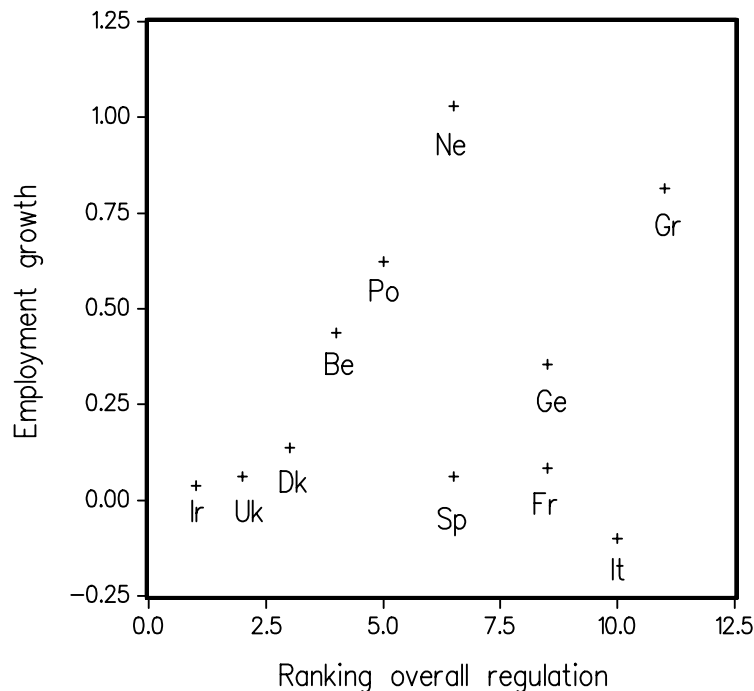
It is widely believed that less regulation and more market flexibility enhances economic performance (Gradus, 1994; Haffner and van Bergeijk, 1997). Indeed, a recent study by Koedijk and Kremers (1996) concludes that productivity growth during the period 1980-94 in 11 EU Member States is negatively related to overall market regulation. Interestingly, they find that labour productivity growth is significantly related to product market regulation and not to labour market regulation, while the opposite holds for capital productivity growth. Innovative as this study may be, it still raises a number of important questions that need further analysis before one may conclude that structural reform indeed may help explain the recent economic performance of the Netherlands.

First, the ranking of the Netherlands in terms of market deregulation according to Koedijk and Kremers is rather low. So either market deregulation has accelerated recently, or the improvement of the Dutch performance since the late 1980s is due to other factors. Although it follows from Box 1 that various measures have been taken recently, it is unlikely that these measures had a large impact on such a short notice.

This brings us to a second question: is the index of Koedijk and Kremers in line with other indicators for market regulation that have been suggested in the literature? The Appendix to this paper shows the original rankings of Koedijk and Kremers and compares them with two other rankings, namely those of Gwartney et al. (1996) and of Holmes et al. (1997). An important conclusion is that the ratings of Gwartney et al. (1996) and Holmes et al. (1997) differ quite substantially from those of Koedijk and Kremers (1996). The ranking of the Netherlands is substantially higher according to these alternative indexes.

In line with Winston's (1993) results for the United States, Koedijk and Kremers find no clearcut correlation between regulation and employment growth. Indeed, using data from the OECD (1996a) on employment growth, we do not find any relationship between regulation and employment growth (see Figure 2). This conclusion also holds for the indicators of product market regulation and - more interesting - labour market regulation (not shown).

Figure 2
Employment growth (1981-93) and ranking of overall regulation



Still, a major characteristic of the recent Dutch economic performance is the impressive employment growth. So what then explains this performance if it is apparently not deregulation? At least two possibilities come to mind: the Netherlands have a more flexible labour market than other countries and/or the development of Dutch unit labour costs outperforms that of other countries.

Generally when economists think of market flexibility they have in mind whether prices (are able to) respond to market conditions. Referring to the labour market: there is more flexibility the more (real) wages are responsive to unemployment. Alternatively, one could think of flexibility in terms of employment conditions. Table 4 shows some comparative evidence on labour market flexibility based on work by Layard et al. (1991) and OECD (1996c). The second column shows the impact of the labour market situation on real wage growth, while the third column shows the degree of inertia in unemployment. It follows that, apart from the high share of people working in part-time employment (see also section 3), labour market flexibility in the Netherlands is not exceptional in comparison to most other EU Member States.

Table 4
Indicators for labour market flexibility in EU Member States

	impact of unemployment on real wages (a)	persistence in unemployment (b)	Part-time workers as share of total employment (1995)
Belgium	0.65	0.36	13.6
Denmark	0.66	0.52	21.6
Germany	0.55	0.38	16.3
France	2.22	0.88	15.6
Ireland	0.80	1.16	11.3
Italy	2.07	0.82	6.4
Netherlands	0.66	0.80	37.4
Portugal	n.a.	n.a.	7.5
Spain	0.17	1.11	7.5
UK	0.98	0.55	24.1

(a) The first column shows the (negative) influence of unemployment on real wage growth.

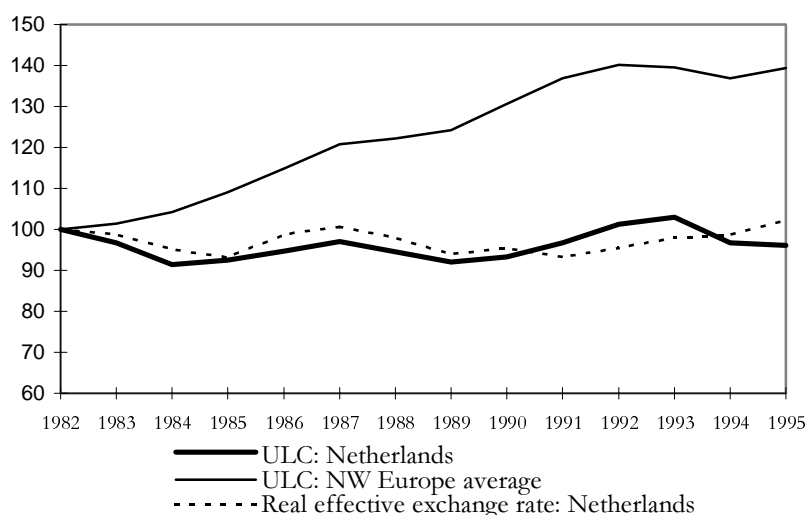
(b) The second column shows persistence in unemployment, i.e. the coefficient of lagged unemployment in a regression for the unemployment rate.

Sources: Layard, Nickel and Jackman (1991, p. 406 and 413); OECD (1996c).

This brings us to the second explanation of employment growth in the Netherlands, i.e. moderation of wage costs. Generally, the share of labour income in GDP is regarded as a proxy in this respect. In the 1970s labour income rose to over 80% in 1980 (excl. mining); thereafter it has declined to just over 72% in 1996 (IMF, 1997). According to a study by the Netherlands Bureau for Economic Policy Analysis (CPB, 1991), the enormous improvement in terms of employment growth over the period 1983-90 was related to the moderation of average wage increases and to the de-linking of the minimum social benefit from contract wages (see Box 1). According to the CPB study, if there had been no wage moderation and no delinkage, employment would have been 400,000 persons lower in 1990. Delinkage accounted for 150,000 jobs, while wage moderation accounted for some 250,000 jobs. A recent study of the IMF criticizes these findings, arguing that “any autonomous contribution of wage moderation to employment growth in the Netherlands, over and above what would have been implied by underlying fundamental trends and policy changes ... appears to be negligible” (IMF, 1997, p. 74). This conclusion is based on a simple model for the employment growth in which the replacement rate, the change in payroll taxes and social security contributions, the unemployment rate, the rate of change of population at working age and the rate of growth of real GDP relative to trend are the explanatory variables. The estimation period is 1975-1995. According to the IMF study there is no effect of the Wassenaar agreement over and above these explanatory variables.

This conclusion is based on the insignificance of the coefficient of real wage growth if this variable is added as explanatory variable. We have serious doubts about these conclusions. For one thing the estimation period is simply too short to test for the impact of the Wassenaar Agreement. Second, the Wassenaar agreement is not an independent variable which has only directly affected wages, but may have also had an indirect impact on some of the other explanatory variables. Third, as Figure 3 shows, manufacturing unit labour costs in the Netherlands have developed very favourably in comparison to those of Northwest Europe, which no doubt has had a positive effect on employment growth. Without wage moderation this improvement in competitiveness would probably not have been realised.

Figure 3
Unit labour cost in manufacturing on national currency basis and
effective exchange rate (1982=100)



Source: Unit labour cost: Bureau of Labor Statistics, August 1997; real effective exchange rate (CPI-based): De Nederlandsche Bank.

Since 1983 the Dutch Guilder has been pegged to the German mark. Indeed, ever since, the fluctuation margin of the Guilder-Dmark exchange rate was much less than the margin allowed for by the Exchange Rate Mechanism (ERM) of the European Monetary System (EMS). Even after the turmoil of 1992 and 1993 the Guilder became the only currency that kept the small band as existed in the ERM before August 1993. This strict exchange rate policy can be considered as having some disciplinary influence on wage developments as a loss of market share due to excessive wage claims cannot be recouped by a devaluation. On the other hand, a moderate wage growth also enables the Dutch central bank to credibly stick to its policy target. It was widely believed at the time that the Netherlands had to pay a high price for the devaluation of the Guilder in March 1983 in terms of higher interest rates than the ones prevailing in Germany. Indeed, it took some time for the interest differential vis-a-vis Germany to diminish; during the 1990s it often turned negative. As inflation in the Netherlands was more or less in line

with German inflation and since Germany is still by far the most important trading partner of the Netherlands, the real effective exchange rate does not show much variation since 1982 (see Figure 3).⁵

Be it as it may, future employment growth is vital for the Netherlands, as employment growth together with the increased participation rate, are behind the improvement of the Dutch GDP per capita performance as will be shown in the next section.

4. Opposite trends in GDP per capita and Labour Productivity Performance

Rapid increase in labour input in the Netherlands has raised real GDP growth and per capita income. However, at the same time we observe a slowdown in the labour productivity growth rate (Figure 4 and Figure 5a). Between 1973 and 1987, labour productivity grew at 2.8 per cent per year on average, which was higher than the Northwest European average (2.4 per cent), the EU average (2.5 per cent) and the OECD average (2.1 per cent). Between 1987 and 1996, labour productivity increased at 1.4 per cent per year, which was lower than for Northwest Europe (2.0 per cent), the EU (2.2 per cent) and the OECD (2.1 per cent).

Figure 5b shows in more detail the factors that explain the divergent development between the development of per capita income and labour productivity in the Netherlands since 1982 as exhibited in Figure 5a. During the early 1980s the fall in working hours drove the faster productivity growth, but since 1987 this has been largely offset by the rapid improvement in the participation of the labour force in the population of the age-group 15-64 years. As a result productivity growth fell relative to per capita income growth. The effects on the difference between the per capita income and productivity growth trends of the fall in unemployment and the rise in share in total population of the population in the age group 15-64 years were negligible.

⁵ The real effective exchange rate has been calculated using CPI figures as price index. Using other deflators does not lead to very different conclusions. The data have been provided by De Nederlandsche Bank.

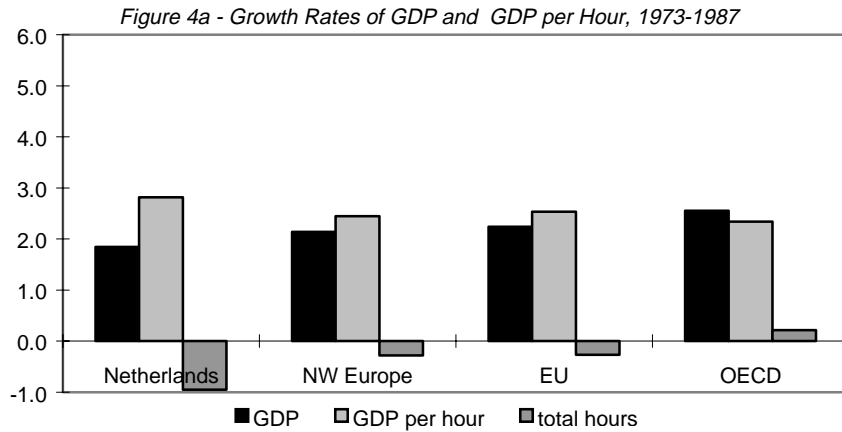
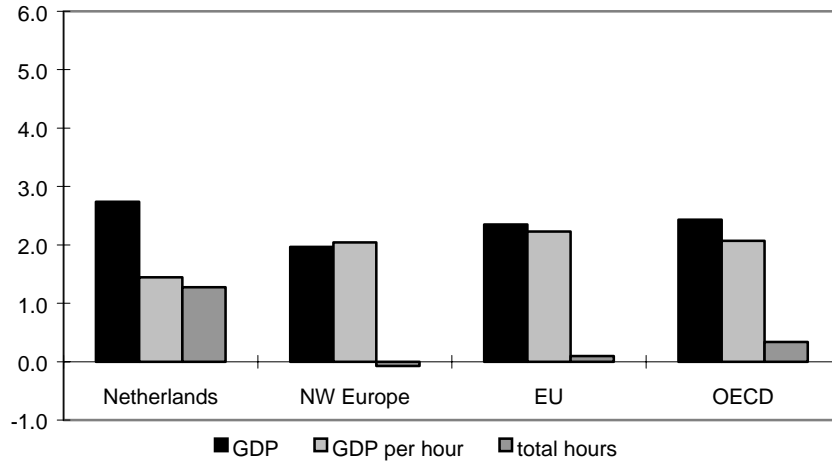


Figure 4b - Growth Rates of GDP and GDP per Hour, 1987-1996



Source: For GDP see Table 1. Employment and hours up to 1990 from Maddison (1995). Employment since 1990 from OECD, *Labour Force Statistics 1976-1996* (Paris, 1997). In some cases 1996 employment figures were obtained from *OECD Economic Outlook* (Paris, June 1997). Hours updated from 1992 (in Maddison, 1995) to 1996 with annual hours from *OECD Employment Outlook* (Paris, July 1997). Where no estimates for 1996 hours were available, we applied the estimate for the most recent year available.

Figure 5a
 GDP per Capita and GDP per hour Worked, Netherlands (1982=100)

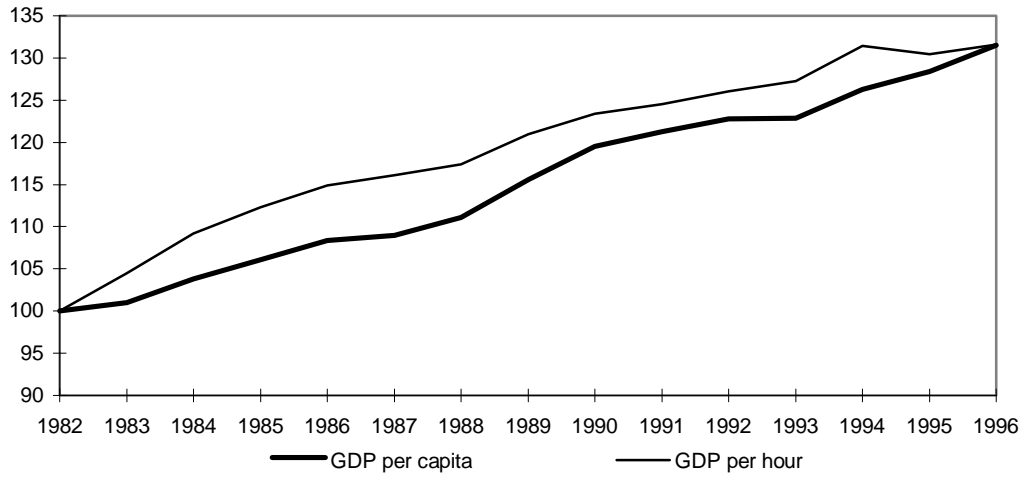
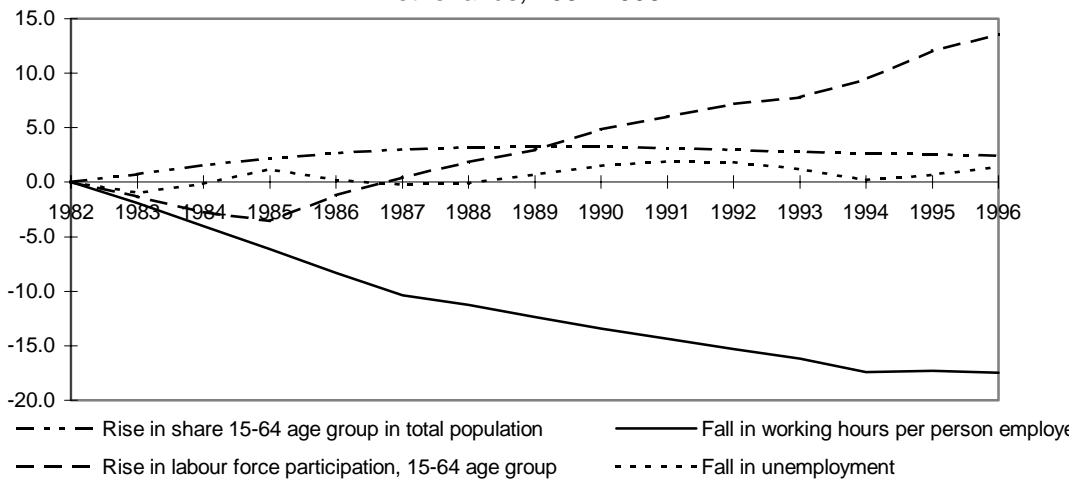


Figure 5b
 Effects of Working Hours and Participation on GDP per Capita, Netherlands, 1982-1996



Source: see Tables 1 and 2, Figure 4 and de Haan and van Ark (1996)

As a consequence of the rapid increase of the participation rate, the position of the Netherlands is no longer exceptionally low in contrast to the past. There is, however, a clear exception: the participation of people of age 50 or higher remains relatively low (see Table 5). Note the large differences in this respect between Denmark and the Netherlands. Denmark is known for its relatively high share of senior people in the labour force. For example, over 80 per cent of men between 55-59 years is still in the labour force, compared to 67 per cent in the Netherlands. In the age group 60-64 years the difference between the two countries is even bigger: 35 per cent of men that age group is still at work in Denmark compared to 14 per cent in the Netherlands (European Commission, 1996; see also Table 5).

Table 5
Participation rates in the EC, Japan and the US, 1995

	Participation rates				
	50-54	55-59	60-64	65-69	70-74
Belgium	62.1	37.0	11.7	2.9	0.8
Denmark	81.1	70.2	35.5	8.6	-
France	78.6	52.5	10.8	3.1	0.8
Germany	79.7	60.0	19.3	4.5	1.6
Greece	62.8	51.0	33.1	13.7	3.5
Ireland	60.3	49.7	35.6	14.8	5.8
Italy	57.3	37.9	18.2	6.0	2.2
Luxembourg	60.7	36.1	11.4	0.0	0.0
Netherlands	67.1	44.4	13.9	5.6	1.5
Portugal	72.6	55.3	38.6	23.8	9.4
Spain	60.2	47.0	26.8	4.3	1.0
United	78.8	64.7	37.2	10.9	2.8
Austria	72.9	44.8	14.6	7.4	2.3
Finland	81.1	57.2	19.7	6.8	1.4
Sweden	91.8	82.3	52.0	10.0	-
EC	72.4	53.6	22.8	6.6	2.0
		55-64	→	65-74	→
Japan		69.4	→	48.5	→
United States		58.4	→	13.4	→

Source: EUROSTAT, *Labour Force Survey*, results 1995. Japan from *Statistical Yearbook of Japan*, 1997. US from *Statistical Abstract*, 1997.

Table 6
Relation between GDP per Capita and GDP per hour Worked relative to the United States, 1996

	Nether- lands	Northwest Europe (a)	European Union (b)	United States
GDP per capita	75	78	69	100
Lower labour force participation of which:	6	6	11	0
* more unemployment (c)	1	2	4	0
* smaller labour force as % of working age population (d)	8	5	8	0
* smaller working age population as % of total population (e)	-3	-1	-1	0
Fewer working hours per person (f)	18	4	2	0
GDP per hour worked	99	89	82	100

(a) Northwest Europe is an unweighted average for Austria, Belgium, Denmark, Germany (including East Germany), Finland, France, Netherlands, Norway, Sweden, Switzerland and United Kingdom (b) excl. Luxembourg; (c) calculated on basis of standardised unemployment rates from OECD, *Employment Outlook* (Paris, July 1997) and OECD, *Economic Outlook* (Paris, June 1997); (d) calculated on basis of labour force as % of population from 15-64 years; (e) calculated on basis of population from 15-64 years as % of total population; (f) calculated on basis of actual hours worked per person per year

Source: OECD, *National Accounts; Economic Outlook, Employment Outlook and Labour Force Statistics*, with GDP converted to US\$ at 1993 EKS PPPs.

As mentioned in section 2, it may not be all that useful to compare the Netherlands or any other European country with an average for Europe, in case Europe itself would have potential to grow more rapidly as well. Between 1987 and 1996 the average growth of real GDP in Northwest Europe was 2.0 per cent, compared to 2.3 per cent in the USA. This also appears from Table 6, which shows that in 1996 GDP per capita in Northwest Europe was only at 78 per cent of the US level. In the European Union it was even lower, namely at 69 per cent of the US level. The Netherlands was relatively close to the Northwest European average, namely at 75 and 81 per cent of the US level.

Table 6 also shows that for the Netherlands, Northwest Europe and the EU the gap in terms of labour productivity compared to the USA is much smaller than the per capita income gap in 1996. In Northwest Europe and the EU, the productivity gap with the USA is 11 and 18 percentage points respectively (compared to a gap of 22 and 31 percentage points for GDP per capita). The major part of the difference between the two performance measures is due to Europe's lower labour force participation and, to a lesser extent, to fewer hours worked per person employed. The extraordinary high share of parttime workers in the Netherlands, in

particular among women is the major explanation for this. About half of the net employment creation of 5.5 per cent among women in 1995 is due to a rise in parttimers and of the 4.5 per cent increase for men, 5.5 percentage points was due to parttimers, whereas employment for fulltime men even fell by almost 1 percentage points (European Commission, 1996). Labour productivity in the Netherlands is almost the same as in the USA.

5. Is there a Productivity Problem?

One might hypothesize, on the basis of the previous section, that there is a relation between the acceleration in employment growth and the deceleration in productivity growth. This would be the case if the net expansion of labour input has led to an increased concentration of economic activity in low productivity activities, in particular in the service sector. This would not be a particular serious problem as long as total GDP increases. A second reason for the productivity slowdown, however, could be a slowdown in productivity growth within the sectors. This in turn could be a sign of a stagnation in accumulation of inputs or, when not already embodied in inputs, of technological change.

To measure the effect of the contribution of labour input shifts on the overall productivity growth, one may express the productivity for the economy as a whole as the productivity level by sector weighted by the sectoral employment shares:

$$P_m = \frac{Y_m}{L_m} = \sum_{k=1}^n \left(\frac{Y_k}{L_k} \right) \left(\frac{L_k}{L_m} \right) = \sum_{k=1}^n (P_k S_k) \quad (1)$$

with Y and L representing output and labour input by sector (k=1..n) and the total economy (m), P representing productivity (Y/L) and S representing the sectoral labour input share (L_k/L_m).

In a time perspective this expression can be rewritten as:

$$\Delta P_m = \sum_{k=1}^n (\Delta P_k * S_k) + \sum_{k=1}^n (P_k * \Delta S_k) + \sum_{k=1}^n (\Delta P_k * \Delta S_k) \quad (2)$$

In a discrete format the latter can be rewritten into three components as:

$$\frac{P_m^t - P_m^0}{P_m^0} = \frac{\sum_{k=1}^n (P_k^t - P_k^0) * S_k^0}{\sum_{k=1}^n P_k^0} + \frac{\sum_{k=1}^n P_k^0 * (S_k^t - S_k^0)}{\sum_{k=1}^n P_k^0} + \frac{\sum_{k=1}^n (P_k^t - P_k^0) * (S_k^t - S_k^0)}{\sum_{k=1}^n P_k^0} \quad (3)$$

for a current year (t) and a base year (0).

The first term on the right-hand side of equation (3) represents the intrasectoral productivity growth, i.e. that part of the overall productivity change which is caused by productivity growth within the sectors. The second term is the net shift effect, which measures the effect of the change in sectoral employment shares on overall growth. The third term is derived as a residual and represents the joint effect of changes in employment shares and sectoral productivity, called the interaction effect. The latter effect can be either negative or positive, depending on whether sectors with a falling share show rising productivity (then it is negative) or sectors with a rising share show falling productivity (then it is positive).⁶

Table 7
Intra-Sectoral Effect, Net-Shift Effect and Interactive Term on Growth Rates
of Labour Productivity, Netherlands, 1973-87 and 1987-95

	Value added per person employed		Value added per hour worked	
	1973-87	1987-95	1987-95(a)	1987-95(b)
annual compound growth rate(c)	1.22	0.73	1.32	1.32
intrasectoral effect	1.45	0.62	1.15	1.07
net shift effect	0.23	0.26	0.30	0.30
interaction effect	-0.46	-0.15	-0.13	-0.05

(a) calculation based on formula (3) in the text; (b) calculation based on formula (3) in the text but reducing the productivity growth rate of agriculture and manufacturing by the rate at which labour input in these sectors fell; (c) the annual productivity growth rates differs slightly from those reported above, because the present data are based on different price levels (i.e. 1990 prices instead of 1993 prices) and the national accounts deduction for bank services is only made at the aggregate level (compare GDP per hour growth rates in Table 8)

Source: van Ark (1996), updated; working hours on the basis of CBS, *Arbeidsrekeningen*, various issues

⁶ See van Ark (1996) for a detailed assessment of the shift-share method.

Table 7, which is based on a disaggregation to ten sectors, shows a number of interesting results. Firstly, compared to the 1973-1987 period, the slowdown in the growth of value added per person during the 1987-1995 period has found its way primarily into a substantial slowdown in intrasectoral productivity growth.⁷ The smaller negative interaction effect is mainly related to a moderation in the fall of labour shares of agriculture and manufacturing (which both show above-average productivity growth rates) compared to the period 1973-87. In other words, most of the restructuring of these sectors has been realised during the period before 1987.

Secondly, we find that the net shift effect is small, but remained positive during the 1987-1995 period. This suggests that the shift of resources between sectors has helped productivity to accelerate instead of decelerate. This perhaps somewhat counterintuitive result can be related to the fact that even though productivity *growth* in sectors like finance and business services (which increased their share in the economy most substantially) was *slower* than in agriculture or manufacturing, the absolute *level* of value added per hour in the service industries was *higher*.⁸

From these figures it appears that there is little support for the view that the slowdown in productivity growth in the Netherlands is related to a rise in low-productivity activities. However, further research is required to settle the issue. A more detailed measurement below the level of ten sectors that we looked at may reveal new information. Secondly, measurement problems may lead to an overstatement of productivity in service sectors with little technological and organizational changes, whereas productivity growth may be understated in sectors which have been more dynamic. Finally, the assessment of the productivity slowdown effect may be expanded to other variables than the distribution of employment by sector. This may include, for example, distributions by schooling levels, age, sex, etc.. For example, recently the Netherlands Bureau for Economic Policy Analysis reported that the creation of low-wage jobs accounted for part of the productivity slowdown (CPB, 1997).

In any case, the productivity slowdown is primarily associated with a productivity slowdown across the board. Table 8 shows that for the total economy, growth in value added per person employed slowed down from 1.1 per cent between 1973 and 1987 to 0.8 per cent between 1987 and 1995.⁹ Table 9 shows that labour productivity growth decelerated in all sectors, except public utilities, transport and communication and government services.¹⁰ Finance, insurance, real estate and business services, which was the sector with the most rapid increase in labour input, even experienced a productivity decline. A correction for the continuous fall in annual working hours leads to slightly higher growth rates, in particular in services, where a lot of parttime labour has been created.

⁷ For the period 1973-1987 we presently have no sectoral estimates of value added per hour.

⁸ See van Ark and de Haan (1996) for a comparison of labour productivity levels by sector as percentage of the labour productivity level of the total economy.

⁹ The annual productivity growth rates for the total GDP differ slightly from those reported for all sectors together, because the sectoral data are based on different price levels (i.e. 1990 prices instead of 1993 prices) and the national accounts deduction for bank services is only made at the aggregate level. See Table 7.

¹⁰ The productivity growth rate in other market services declined less than during the 1973-1987 period.

A first reason for the sectoral slowdown in labour productivity growth, might be slower accumulation of resources. Table 8 shows that for the total economy the increase in capital intensity decelerated quite substantially. Sectoral estimates of the capital stock are still difficult to obtain because of serious data problems, and could only be estimated for the period 1987-1995. The figures in Table 9 suggest that the accumulation of fixed capital was positive in all sectors except mining, and was above average in agriculture, manufacturing, public utilities, construction, distribution and transport and communication. However, it was clearly below average in the large services group, including finance, insurance, real estate and business services, other market services and government services.

Table 8
Labour Productivity, Capital Intensity and Various Concepts of Multifactor Productivity, Netherlands, 1973-1987 and 1987-1995

	1973-87	1987-95
Value Added per Person Employed	1.1	0.8
Value Added per Hour Worked	2.8	1.5
Nonresidential Capital Stock per Hour Worked	4.0	1.5
Multifactor Productivity		
- incl. Nonresidential Capital (NRS)	1.6	1.0
- incl. NRS Capital and Human Capital	1.1	0.6 (a)
- incl. NRS Capital, Human Capital and R&D	0.9	0.5 (a)

(a) 1987-1994.

Source: van Ark and de Jong (1996)

Table 9
Sectoral Labour Productivity, Capital Intensity and Multifactor
Productivity Growth, Netherlands, 1987-1995

	Value Added per Hour Worked	Nonresi- dential Capital per Hour Worked	Multi- factor Produc- tivity
Agriculture (a)	5.1	2.5	4.3
Mining	-2.6	-1.7	-2.1
Manufacturing	2.6	1.6	2.0
Public utilities	4.0	4.0	2.7
Construction	0.1	1.5	-0.4
Wholesale and retail trade	0.6	2.9	-0.4
Transport & communication	3.9	2.7	3.1
FIRE and business services	0.0	(c)	(c)
Other market services	-0.5	(c)	(c)
Government services	0.8	0.9	0.3
<u>Total sectors (d)</u>	<u>1.3</u>	<u>1.4</u>	<u>0.9</u>

* The sectoral multifactor productivity estimates are of a tentative nature and subject to revision depending on investment data and a sectoral weighting system.

(a) includes forestry and fisheries; (b) FIRE=finance, insurance and real estates; (c) included in government services; (d) the annual productivity growth rates for the total GDP differ slightly from those reported in Table 8, because the sectoral data are based on different price levels (i.e. 1990 prices instead of 1993 prices) and the national accounts deduction for bank services is only made at the aggregate level.

Source: GDP and labour input from van Ark (1996), updated; hours from CBS, *Arbeidsrekeningen*, various issues. Capital stock based on perpetual inventory method using investment figures from CBS, and method as described in Groote, Albers and de Jong (1996).

A second reason for slower labour productivity growth might be a deceleration in the rise of multifactor productivity. Table 8 shows various concepts of multifactor productivity (ranging from including only nonresidential capital as an input, to including a variable for human capital and one for the R&D stock) for the total economy as derived from van Ark and de Jong (1996). According to all concepts we observe a slowdown in MFP growth for the most recent period.¹¹

¹¹ MFP estimates were obtained by applying a Tornqvist index based on a Solow-type production function, using average factor shares for each current year and the previous year as weights. For details, see van Ark and de Jong (1996).

For sectoral MFP growth, we could only estimate figures that included fixed capital (see Table 9). We find sectoral MFP growth rates which were above the total economy average for most sectors which also showed above average growth in capital intensity, namely agriculture, manufacturing, public utilities and transport and communication. In contrast, MFP growth was quite slow in the large services group. This suggests that the productivity problem cannot be directly translated as a problem of insufficient technology creation. Sectors which include most technology producers still perform above average, whereas major technology users perform below average.¹² Policies to combat the productivity problem should therefore not exclusively concentrate on producing more high-tech goods, but also on stimulating diffusion of technology in the economy. Technology diffusion policies may include, for example, greater investment in human capital and supporting various types of organizational innovation in services.

6. Conclusion

In this paper we argue that the recent improvement in economic performance of the Netherlands is mainly due to a catch-up effect. The acceleration in the growth of GDP per capita and employment growth needs to be seen in the light of the losses that occurred during the previous period, in particular between 1973 and 1987. The increase of the participation rate (except for people of age 55 or more) is an important factor behind the improvement in economic performance. This “catch-up process” has of course not been automatic, but is the result of combined efforts of trade unions, employers organizations and the government. It has led to a moderation in the growth of wage costs and inflation, a strict exchange rate policy and a reduction in the budget deficit and the size of government. Consequently, the position of the Netherlands in terms of GDP per capita relative to Northwestern Europe is now more or less the same as it used to be in the 1960s and 1970s.

Our analysis of past growth performance past suggests that it is highly unlikely that a country will experience substantially higher growth rates over a longer term period than surrounding countries. Although structural reform has taken place (and was, no doubt, necessary) our analysis does not indicate that it will enable the Netherlands to reach a structurally higher rate of growth than other Northwest European countries.

We also observe a decline in productivity growth since the mid 1980s. Although still ahead in comparison with the average for Northwest Europe, the productivity advantage in terms of the level of GDP per hour worked in the Netherlands has eroded. This deceleration of productivity growth occurred across the board: in almost all sectors growth in labour productivity and multifactor productivity slowed down. However, the productivity problem should not be mixed up with a technology problem “per se”. As multifactor productivity growth is weakest in sectors

¹² Clearly, while drawing these conclusion, we need to remain aware of the serious problems in estimating services output and in estimating the output of technology products (such as computers) which are used as inputs by the technology users.

which mainly consist of technology users, government policies should not only focus on technology creation but also on improving technology diffusion and organizational innovations.

Appendix - How regulated is the Dutch economy?

This appendix provides a comparison of the indicators of Koedijk and Kremers (1996) with a number of alternative so-called “economic freedom” indicators. The index for product market regulation of Koedijk and Kremers refers to regulation for business establishments, competition policy, public ownership, support to manufacturing companies, regulation of shop opening hours, and the implementation at the national level of the European Single Market program. Their overall index is the total of their product and labour market indices. Gwartney et al. (1996) used 17 measures in four broad areas (money and inflation, government operations and regulations, "takings" and discriminatory taxation and international exchange) to measure economic freedom. They rated 102 countries on each of these measures on a scale of 0-10. A crucial issue is how these measures are weighted. In Table A.1 we show the ranking - adjusted to make them comparable with those of Koedijk and Kremers - in which money and inflation is giving a low weight. An important conclusion is that the ratings of Gwartney et al. (1996) differ quite substantially from those of Koedijk and Kremers (1996). The ranking of the Netherlands is substantially higher both in 1980 (in parentheses) and 1995 according to the index of Gwartney et al. (1996). We have also calculated the ranking for one of the subgroups of the Gwartney data set, i.e. those referring to government operations and regulations (group 2). Again this yields a different position for the Netherlands. A similar conclusion follows from a comparison with the indicator of Holmes et al. (1996).

Table A.1
A comparison of liberalization indicators

	Koedijk/Kremers		Gwartney et al.			Holmes et al.
	product markets	overall	total 1995	(1980)	group 2 in 1995	total 1996
Ireland	1	1	2	(5)	6	6
UK	3	2	1	(4)	3	2.5
Denmark	5	3	6	(7)	4	2.5
Belgium	6	4	4.5	(1)	5	4.5
Portugal	4	5	10	(11)	9	8
Spain	2	6.5	8	(8.5)	8	9.5
Netherlands	9	6.5	3	(3)	1	1
France	7.5	8.5	7	(6)	7	7
Germany	7.5	8.5	4.5	(2)	2	4.5
Italy	10	10	9	(8.5)	10	4.5
Greece	11	11	11	(10)	11	11

1=free; 11=not free

Source: Koedijk and Kremers (1996); Gwartney et al. (1996); Holmes et al. (1997)

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