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Season's greetings and best wishes for 1998

When in doubt, deregulate?

"As an advice-giving profession we are in way over our heads."
Robert E. Lucas*

Regulatory reform, privatization, and competition policy have been embraced by policy makers in the Netherlands during the 1990s. Competitive markets and the information contained in market prices have been accepted by economists as important tools for coordination of individual actions in a decentralized economy for far longer. Unfortunately, policy makers' actions and their desired effects may not coincide with economists' tools and their expected outcomes derived under specific conditions. Unleashing competitive forces enhances efficiency, lowers prices and speeds innovation, if certain assumptions hold. Privatization, removal of entry barriers, prohibition of collusion, and reduction of governmental interventions boost economic growth, unless they don't...

The mismatch between policy makers' requirements for real-world advice in real-time and economists' predilection for circumscribed theoretical constructs made upon reflection is not a new phenomenon. The abuse of Keynesian theories through the policy rule-of-thumb "when in doubt, stimulate demand" led to stagflation and structural fiscal deficits. What may be the economic outcome if modern regulation theories were abused through "when in doubt, deregulate?"

Rather than wait for such a future, CPB conducts research on issues related to competition and translates results into a form that may aid policy makers in making informed choices. A selection of the research is included in this special theme issue of CPB Report. The analyses attempt to find novel policy combinations to cope with market or government failure and try to bring to the foreground the trade-offs inherent in political choices.

The research methodology at CPB in the area of competition is eclectic, as perusal of the articles will reveal. Case studies can highlight the pros and cons of various policy measures that strengthen market mechanisms. An analytical framework designed at CPB points researchers to the industrial organization models appropriate for study of a particular market. The case studies presented here not only provide sector-specific detail, but also are prototypes of research into more generic questions. The retrospective analysis of liberalization of shop-opening hours is an example of a study to monitor the effects of past policy changes. The empirical analysis of pricing in the coffee market displays a method to flag noncompetitive pricing behavior. The study of the communication and information sector shows how scenarios can be used to evaluate the future effects of policy choices. The case study on health care applies combinations of market and non-market mechanisms to improve the position on trade-offs. A summary of the aggregate effects of intensified competition using two different macroeconomic models available at CPB uncovers the need for special purpose models. A step towards meeting the need is provided in an article that reveals the effects of a change in competition on industry structure and welfare by means of small theoretical model.

Overall, research at CPB shows that significant efficiency gains can be reaped by relying more on market mechanisms in a wide variety of areas in the Dutch economy. Our responsibility to policy makers lies in communicating the obstacles that need to be overcome and the trade-offs associated with policy choices. Policy makers, for their part, have the responsibility to make the difficult choices.

Eric J. Bartelsman

Eric Bartelsman, economic advisor at CPB, coordinates competition-related work at CPB and is a member of *CPB Report's* editorial board.

* Robert E. Lucas, 1981, "Rules, discretion, and the role of the economic advisor," p.259, in *Studies in Business-Cycle Theory*, MIT Press, Cambridge.

The cut-off date used in the compilation of the projections in ECONOMIC OUTLOOK was end November.

The world economy: short-term developments*

Abstract

Recent short-term forecasts for the world economy project a continuing strong growth of world output in combination with low inflation. In fact, the views have not changed much during the past three to six months. The unchanged assessment for the world economy is remarkable in view of the unexpected cyclical developments in major industrial countries and major shocks in the Asian area.

Samenvatting

De jongste ramingen voor de wereldeconomie behelzen een aanhoudend krachtige groei van de wereldproductie gecombineerd met een lage inflatie. In de afgelopen drie tot zes maanden zijn de inzichten omtrent de wereld als geheel opvallend weinig veranderd, in het licht van het onverwachte conjunctuurverloop in enkele grote industrielanden en de aanzienlijke schokken in de Aziatische regio.

Recent developments

International stock markets plummeted in October, and the Asian area has been hit by a financial crisis. The US and the UK economies showed unexpected strong growth, while optimism about the Japanese recovery has dwindled. In continental Europe the recovery is gathering momentum as expected. Noteworthy developments concerning EMU include the growing determination of EU governments to start EMU in time with a widespread participation, and the British decision not to join in the first wave.

Favorable prospects for the industrial world

Overall growth in the industrial world will remain favorable, with real GDP expanding at 2¾% this year and 2½% next. Inflation in the industrial countries will remain muted. Spare capacity is large in much of the area, in particular in continental Europe and Japan. In continental Europe, consumer price inflation rates have largely converged at slightly above 1½%, and next year's rates will not be much higher. Japan's inflation rate hovers around ½%. Both US and UK economies face considerable uncertainty about how close activity is to the point at which demand pressure would ignite inflation. Inflation may pick up somewhat in the UK and the US, but several indicators suggest a continuation of noninflationary growth.

American economy still going strong

Although the *American* economy is ahead in the current cycle, growth will be rather strong well into the coming year. Production has continued to increase above the trend rate, and survey evidence points to buoyant output also in the period ahead. In the third quarter, domestic demand grew strongly. High confidence reflected strong employment rises, with unemployment falling below the level generally considered to be the natural rate. Net exports fell further, reflecting dollar appreciation as well as stronger domestic demand than abroad. Despite low unemployment, inflation has remained low, with consumer prices rising by only 2¼% year on year, falling producer prices and the lowest rise in unit labor costs for years. Cheap oil and computer chips and the stronger dollar contributed to the favorable inflation picture.

Japanese recovery delayed

Some strengthening of economic activity in *Japan* can be expected, given the competitive yen, low interest costs and less fiscal restraint. The current problems in the financial sphere, however, may delay the rebound of activity. Indeed, the recovery has been quite erratic ever since it began in mid-1993. Last year's strong growth was followed by a good first quarter, but private consumption fell sharply in the second quarter of this year due to the consumption tax hike from 3 to 5% in April. Consumption has remained sluggish, although the impact of the tax increase is gradually subsiding. Net exports and corporate investment, in contrast, have been supporting economic activity. Thus, income and employment conditions have improved, which favors an early recovery of consumers' expenditure. Next year may bring a gradual economic recovery, if private consumption and exports cooperate. Net exports have contributed much to the recovery of the past two years. However, export prospects have become less bright due to the Asian financial crisis. As far as prices are concerned, the depressing effect of cheaper imports has weakened. Domestic wholesale prices, however, have remained under downward pressure, reflecting stock adjustment and innovation-induced cost reductions of electrical goods.

European upswing continues

In *continental Europe*, exports will remain supportive next year, given strong expected market growth and improved competitiveness. Nevertheless, the impulses will increasingly come from domestic demand, in response to low interest rates and strengthening confidence of households and companies. In the *UK*, however, the top of the cycle may have been reached now, due to the combination of tight fiscal and monetary policies and a less competitive sterling. Output has continued to grow at an annual rate of about 4% in the third quarter. Some evidence suggests that the pace of activity may be slowing, in particular in the services sector. Net exports have fallen surprisingly little in view of sterling's appreciation of some 20% since August last year. However, this is expected to adversely affect exports during the coming year, as profit margins of export-

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Table 1 International key data, 1996-1998

	1996	1997	1998
	annual percentage changes		
GDP VOLUME			
United States	2.8	3¾	2½
Japan	3.5	¾	2
European Union	1.7	2½	2¾
Industrial countries	2.5	2¾	2½
WORLD TRADE VOLUME	6.0	8½	8¼
WORLD TRADE PRICE ($ terms)	–1.5	–7	¾
Manufactures	–3.3	–7½	1
Crude oil (fob)	20.3	–7	–2½
Raw materials, excl. energy	–9.6	1½	1¼
Crude oil price (Brent, level, $/barrel)	20.65	19¼	18¾
Dmark/dollar exchange rate (level)	1.50	1.73	1.73

ers have fallen quite substantially. The monetary and fiscal tightening earlier this year and the unwinding of the impact of windfall spending on consumption, will substantially reduce the rate of output growth next year. Still, domestic demand is expected to remain relatively buoyant. The underlying inflation has risen already to 2¼% at an annual rate. Official interest rates have been increased twice in the third quarter and most recently in November by a further ½%, to contain demand pressures. Lower import prices were reflected in rising profit margins on domestic sales rather than in a lower domestic price level. Up to now, earnings growth has remained broadly flat, despite a considerable tightening of the labor market.

German output has grown during the first three quarters of this year by about 2½ percent at an annual rate. Fluctuations in the quarter-to-quarter rates were due mainly to different numbers of working days. Export-oriented production sectors are doing quite well since summer last year, reflecting improved competitiveness on account of a weaker Deutschemark and falling unit labor costs. Sectors producing for the home market, however, suffer from near-stagnating domestic demand. Modest income growth depresses consumer expenditure; private consumption stabilized in the third quarter. Building activity has been declining continuously for 2½ years, reflecting oversupply as well as public consolidation efforts. Demand for investment goods rose only slightly, although capacity utilization has become rather high. Unemployment is stabilizing. In these circumstances, consumption will contribute only little to output growth in the near future. The recovery will thus remain export-led for the time being.

The economic strengthening in *France* shows a similar profile as in Germany, with a respectable 2½% annual growth rate during 1997. The external sector remained the main source of economic recovery in the first half of this year, benefiting from strong market growth and a favorable exchange rate. Foreign demand is likely to remain dynamic, although the contribution to growth will weaken. Domestic demand, however, is beginning to pick up — first stockbuilding, and in the second half of the year also private consumption. Pessimism has diminished appreciably in recent months. Investors are still hesitant, but some strengthening of investment can be expected, provided that demand prospects remain favorable. Employment growth accelerated since early this year, but labor supply is rather strong; the reduction in unemployment will thus be slow. Inflation is expected to remain subdued, as in the rest of continental Europe.

The upturn in *Italy* is relatively slow, reflecting weaker competitiveness as well as substantial fiscal consolidation efforts. Still the situation has improved. Year-on-year growth may have been close to 2% in the second and third quarters of 1997. Investment in equipment started to recover early in 1997, in particular in the car sector and related industries. Apart from a buoyant demand for cars, consumption remained weak. However, also this component is expected to strengthen next year. Inflation has shown a remarkable slowdown to less than 2%. Just as remarkable is the reduction of the government deficit from 6¾ of GDP in 1996 to a projected 3% this year, even considering the one-off character of a number of the measures taken. ■

Asian crisis

South East Asian equity markets fell sharply in the third quarter of this year, first in Malaysia, Indonesia and Thailand, while Korea followed in November. At the same time, a number of currencies fell sharply (20 to 40%) against the dollar. The origin of the financial turbulence lies in a prolonged period of excessive bank credit growth, the weak financial system and the overvaluation of national currencies. Loss of confidence led to a rush of capital to safe havens abroad and substantial currency depreciations. This will depress growth and import demand of the affected countries, but exports may surge thanks to a dramatic improvement of competitiveness. The outside world will experience slower market growth as well as a loss of market shares. This applies in particular to Japan, as 40% of its exports remain within the region. The US and the EU are less exposed. If the turmoil does not spread over the entire region — at present the main victims are the four tigers and Korea — the impact on other countries than Japan will be rather modest, probably a loss of some tenths of percentage points of economic growth. Japan, being already in a weak position, may have to boost domestic demand to sustain growth, while also supplying capital to the countries under attack. If contagion goes much further, spreading to China and Hong Kong, and perhaps to non-Asian countries like Brazil and Russia, the ultimate effect could be a retreat to safe assets such as bonds and shares of the large industrial countries. This scenario can be avoided by support operations, fiscal and external adjustment and longer-term reform. The first steps to restore confidence have been taken by the IMF, together with the World Bank, the Asian Development Bank, and the governments of the US and Japan.

The Dutch economy: short-term developments*

Abstract

The Dutch economy performs well. Strong domestic demand boosted GDP-growth in 1997 to 3¼%. Next year, Dutch GDP will increase by almost 4%, due to accelerating exports. The CPI accelerated in the course of 1997, partly caused by incidental factors, i.e. higher prices of harvest products. Furthermore, higher import prices were reflected in the CPI, but with a lag. However, next year inflation is expected to decelerate slightly. Profit margins on consumption are not expected to narrow further. Labor costs are expected to increase moderately and, as a consequence, business profitability can improve slightly. Under these circumstances, employment growth in the Netherlands remains substantial (over 2%). The number of unemployed should thus fall from 7½% of the labor force in 1996 to under 6% next year.

Samenvatting

De Nederlandse economie presteert goed. Dankzij een krachtige binnenlandse vraag steeg het BBP-volume in 1997 met 3¼%. Omdat volgend jaar de uitvoergroei zal versnellen, kan het BBP dan toenemen met bijna 4%. Het inflatietempo steeg weliswaar in de loop van 1997, maar dat is deels veroorzaakt door incidenteel hogere prijzen voor oogstproducten. Daarnaast zijn, met enige vertraging, de gestegen invoerprijzen zichtbaar geworden in de CPI. Voor volgend jaar wordt op een afnemend inflatietempo gerekend, waarbij de winstmarges op consumptie niet verder verslechteren. Omdat ook de loonkosten zich gematigd blijven ontwikkelen, kan de winstgevendheid volgend jaar iets verbeteren. De werkgelegenheid groeit onder deze omstandigheden uitbundig met ruim 2% per jaar. Hierdoor kan de werkloosheid verder afnemen van 7½% in 1996 tot onder de 6% van de beroepsbevolking volgend jaar.

Recent developments[1]

In contrast to most other European countries, economic growth in the Netherlands is currently driven by domestic expenditure. Household consumption as well as investment contribute to this growth.

In the first half of 1997, private consumption recorded similar growth as last year, namely 3¼%. Consumption figures for the third quarter suggest that this trend is continuing. Durable consumer goods, such as domestic appliances and clothing, as well as financial and telecommunications services are much in demand. Real disposable household income has risen above all on the back of forceful jobs growth. The favorable labor market conditions have provided a strong underpinning for consumer confidence. This has encouraged households to borrow appreciably more in the first three quarters. This is true for consumer credit as well as mortgage loans. The latter include both remortgaging at lower rates of interest and taking out new second mortgages on the basis of steeply appreciated equity. Given the indicator of consumer willingness-to-buy, households should continue to spend freely in the coming months. This indicator for expenditure on durable goods in particular now stands at a higher level than during the 1989-1990 boom years.

Investment growth rates exceed those of household consumption. Both private residential investment and business investment in plant and machinery were strong in the first half of 1997, according to recent figures published by Statistics Netherlands (CBS). It is true that construction-related investment growth is distorted upwards by the cold spell early last year, but even allowing for this, investment activity is very vibrant indeed. Leading indicators, such as building permits granted and commissions for architects, point to a sustained growth in investment in residential, industrial and commercial buildings during the second half of this year and the early part of next year. Also the increase in investments in machinery— Statistics Netherlands has reported more than 10% growth for the first half year— is distorted upwards, in this case by the completion of a major project in the energy sector. But here the underlying trend is strong as well. Not only foreign suppliers of capital goods benefit from dynamic Dutch demand; the engineering industry's domestic sales are also up, by 8% in value terms over the first three quarters. Leading indicators, such as orders received by the domestic capital-goods industry, point to vigorous growth for the coming months.

Strong domestic demand generates considerable additional imports. Short-term data on foreign trade for the first half of 1997 show that import growth easily outstrips export growth (by around 1½ percentage points). Dutch non-energy goods exports, which increased by over 4% last year, accelerated only fractionally over the first half of this year. Against the background of improving demand, particularly in Europe, and a substantially improved competitive position due to the stronger dollar and pound, exports could have been expected to perform better, even taking account of factors such as the swine-fever epidemic and the Fokker aircraft industry collapse. The recovery of demand in continental Europe is evident from the most cyclically sensitive export category, namely chemical products. The latter category is doing particularly well, and on top of that the terms of trade are improving in this sector. Last year, the prices of energy, the feedstock for the chemical industry, rocketed. At that time, the industry was not able to pass these higher costs on in its output prices because of cyclical weakness. In the meantime, the cyclical situation has improved markedly, and now the industry can pass on these costs. Be-

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cause of an improvement in the terms of trade (see box: "Terms of trade barely affected by exchange-rate fluctuations"), the external trade balance remains unchanged.

The upshot of these demand trends was that Dutch GDP expanded by more than 3% over the first half year. Output figures for the third quarter are already available for some branches. Industrial output increased by 4% over the first three quarters, with both the chemical and engineering industries thriving. Construction output for the first three quarters was up by more than 6%, and also the services sector posted significant growth. Retail trade volume was more than 3½% up over the first three quarters. Commercial services such as temporary-employment agencies, banks and insurance companies performed even better. Against this, however, output contracted sharply by around 10% over the first half year in the agricultural sector and natural-gas production: the former owing to the swine-fever epidemic, the latter owing to the milder winter weather in early 1997 compared with early 1996. Also the production of the medical services sector rose, but by less than GDP.

As in 1996, vigorous economic growth led to the creation of a considerable number of new jobs in the first half of this year. In mid 1997, there were nearly 150,000 more jobs than a year earlier. Expressed in full-time equivalents, this amounts to an increase of around 100,000 labor-years. As in previous years, most of the new jobs have been created in the services sector. Judging from the available labor-market indicators, the outlook for the labor market is favorable (see figure 1). The number of vacancies was sharply up in the second quarter, and temporary employment demand is still rising by around 15%. At the same time, the number of applications for layoffs, a requirement under Dutch law, is falling steadily, and the number of bankruptcies has been reasonably stable for some time now. These indicators suggest that employment will continue to expand at, at least, the current rate for some time to come. This is confirmed by the recent trend in the number of registered unemployed. After a hiccup in the midyear, unemployment has fallen appreciably further since the summer. Over the first three quarters, the jobless total fell by nearly 60,000 persons. Accordingly, also the number of unemployment benefit payments has fallen sharply.

Despite strong employment growth, no clear signs of tension on the labor market can be observed. Only for some specific technical functions, there are indications for shortages of skilled staff looming. Signs of a tightening labor market in the form of wage pressures are also lacking; pay increases have been moderate this year. For 80% of employees collective wage increases averaged 2% in 1997. This is fractionally down on earlier projections, because some recent settlements provided for relatively modest pay increases. However, collective labor agreements covering 30% of employees in the market sector show slightly higher contractual pay increases for 1998 (see box: "Trends in recent collective labor agreements").

Terms of trade barely affected by exchange-rate fluctuations

The Dutch external terms of trade in non-energy goods is expected to improve this year. At first glance this is surprising because a country with a depreciating currency will typically suffer terms-of-trade losses in the short run. This is because a weakening currency quickly pushes up import prices, while exporters exploit the improved short-term competitive position on foreign markets to capture additional market share by not raising export prices in line. Moreover, it takes some time before higher import prices are absorbed in output prices.

The terms of trade improves this year above all because Dutch exporters differ from their rivals in rapidly matching price changes by foreign competitors. In the past, Dutch exporters over the short run followed half of the changes in competitors' prices and followed half of the hikes in domestic costs. Labor costs and the costs of imported raw materials and semi-manufactured goods for industry account for the lion's share of these domestic costs.

Exporters' rapid response to price changes can be attributed to a large extent to the structure of Dutch production. The Netherlands is specialized in agricultural products and semi-manufactured goods which are precisely the markets where price competition dominates. Moreover, a quarter of Dutch exports consists of reexports. In this sector, relatively little value is added per unit of trade, so that the import price largely determines the export price.

These factors imply that exchange-rate fluctuations generate few terms-of-trade effects. The figure below illustrates this: cumulatively the guilder has gained 30% in value since 1980, but the terms of trade have remained virtually stable over this period.

Terms of trade and effective exchange rate, 1981-1996

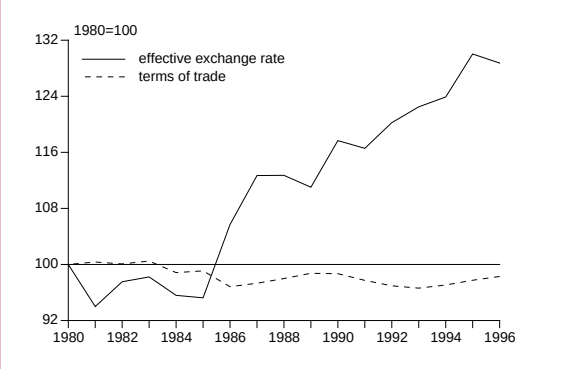
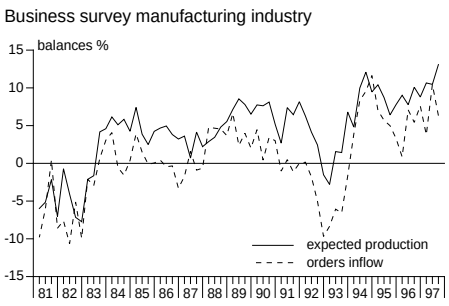
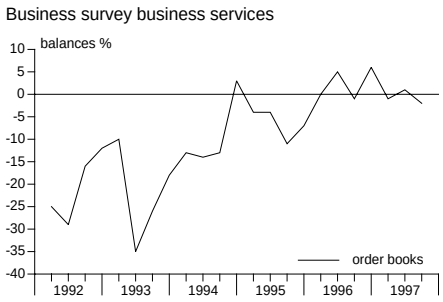
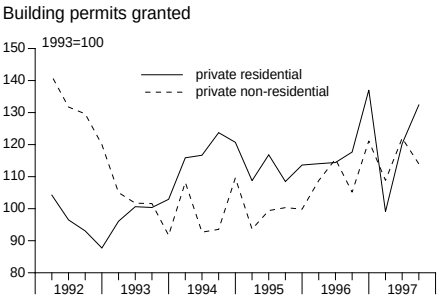
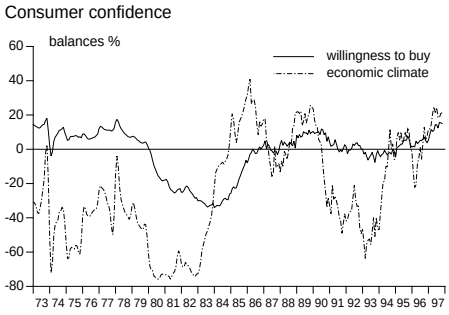


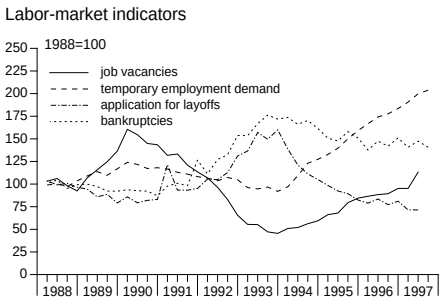
Figure 1 Cyclical indicators











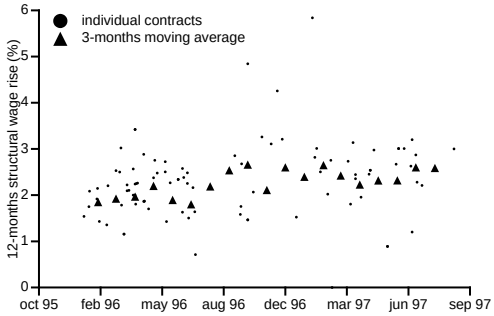
Trends in recent collective labor agreements

To what extent are pay settlements tending upwards? The average annualized pay increase of the concluded collective labor agreements, cited in the section 'recent developments', does not provide the full picture. This is because the pay increases for 1997 are determined to a large extent by contracts concluded in 1996 or earlier, while many agreements negotiated in 1997 will apply over several years. Negotiations are likely to reflect the latest actual outcomes and/or forecasts of the relevant factors. Hence, one way of uncovering the trend in pay settlements is to look at collective labor agreements sorted by the date when the agreement was signed.

To determine the trend in pay settlements from collective labor agreements with different lengths and/or starting dates, a calculation has been made for every agreement of the effective rise in contractual pay within the contract period. In this way an adjustment is made to allow for carry over effects from the period before the collective labor agreement's starting date and for the period after its expiration date. The increase has been rescaled on a one-year period in order to compare the outcomes for agreements with different lengths. The figure below shows the changes in pay rates for all contracts concluded since January 1996, sorted by closing date. Also, the weighted moving three-months averages are shown.

The figure reveals that until roughly September 1996 the effective average contractual pay increase stayed within 2% per year. Subsequently, this figure has risen to around 2½% per year, during the fourth quarter of 1996 and the first half of 1997. Since the third quarter of this year, the effective average contractual pay increase has gone up slightly, in line with a forecast of 3% for the calendar year of 1998.

Effective rise in contractual wages



The consumer price index (CPI) has risen by 2½% in the third quarter. Inflation has thus nudged up on the first half year. The acceleration was evident above all in foodstuffs, among them harvest products. Although import prices rose early this year, on the back of the dollar appreciation, this was reflected in selling prices only in the course of this year. The CPI increase will come out at 2¼% for this year.

Prospects

The CPB leading indicator of economic activity[2] shows that the cyclical upswing will continue over the coming months. Figure 1 shows that this favorable development is broadly based. In particular, international indicators and the consumer willingness-to-buy bolster economic activity. Over the somewhat longer term (to end 1998), the long-leading indicator shows that the growth rate may decelerate somewhat. The key factor in this context is the trend change in the stock markets. The surge in share prices up to the end of July was followed by a correction in early August, which was accentuated in late October. Since then, share prices have been at a lower level. Long-term interest rates have been relatively stable for some time now, hovering around 5½%, while the expansion of the real money supply has slowed somewhat in the course of 1997. Given the average lead of over a year, these financial figures point to a possible deceleration of growth in the second half of 1998. Whether this will happen and to what extent remains to be seen of course. After all, a similar situation occurred in late 1987 when the long leading indicator pointing to a turnaround in 1988; but in the event this did not come about until much later. The same could happen this time.

Next year employment is expected to expand at broadly the same rate as this year (see table 2). This once again puts a solid floor under the development of real disposable household income (which is projected to rise by more than 2%). The consumer's willingness-to-buy makes a sharp downswing in consumption unlikely. Given the size of capital gains[3] over the nearly completed year and the usual time lag of wealth effects in consumption growth, wealth effects are likely to further underpin consumption. Hence, the forecast assumes a 2¾% increase in the volume of private consumption. Such a development implies a fall in the noncontractual savings rate of half a percentage point, which will bring it down to virtually nil.

Business fixed investment will increase by slightly over 5% in 1998, after rising by nearly 8% in 1997. This deceleration of growth is due entirely to falling investments in large energy projects. The growth of cyclically sensitive investments[4] will be high in both years, namely more than 8%. There are ample indications that current and projected business gross fixed investment will substantially expand production capacity. Industrial production will thus rise by around 4½% this year, while the capacity utilization rate is only fractionally up. According to investment surveys, around 34% of all investments made in manufacturing in 1997 were expanding capacity. Also the high level of investment in industrial buildings is traditionally an indication of capacity expansion. The recent increase in the number of

Figure 2 CPB leading indicators of economic activity

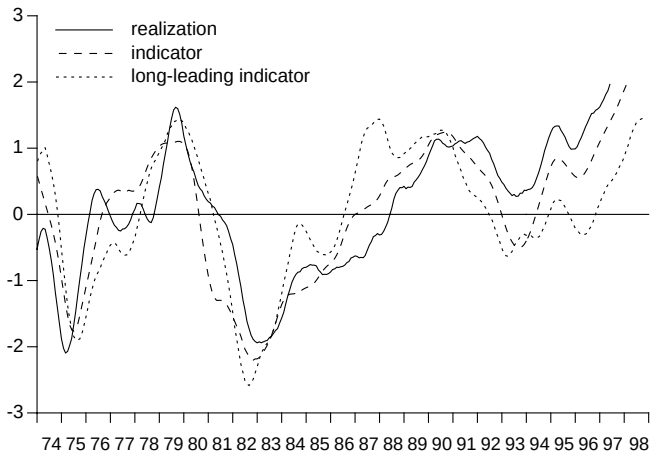


Table 2 Key data for the Dutch economy on a half-yearly basis (volume), 1996-1998

	1996	1997	1998	1996		1997		1998	
				I	II	I	II	I	II
	annual percentage changes[a]								
Private consumption	3	3¼	2¾	3	3	3¼	3¼	2¾	2 ¾
Private residential investment	¼	6	2½	–6	6½	12½	¼	1¾	3
Private nonresidential investment	9¼	7¾	5¼	5	13½	11	4½	4¾	5¾
Exports of goods, excluding energy	4½	6¾	8¾	3	6	6¼	7¼	9	8½
Imports of goods	5¾	7¾	7¼	3	8½	9	6½	7¼	7
GDP	3¼	3¼	3¾	2¾	3¾	3¼	3¼	4	3¾
Employment (persons)	2	2¼	2¼	2	2	2¼	2¼	2¼	2¼
Consumer price index	2	2¼	2¼	2	2¼	2	2½	2¼	2

[a] Percentage changes from the corresponding period of the previous year.

Table 3 Main economic indicators of the Netherlands, 1995-1998

	1995	1996	1997	1998
	annual percentage changes			
International				
Relevant world trade volume	8.5	4.8	6¾	7½
Relevant world trade price (guilders)	– 1.9	1.4	6½	1½
Guilder/dollar exchange rate (level)	1.61	1.69	1.95	1.95
Demand and output (volume)				
Private consumption	1.8	3.0	3¼	2¾
Private residential investment	0.9	0.1	6	2½
Private nonresidential investment	7.6	9.3	7¾	5¼
Exports of goods, excluding energy	8.3	4.4	6¾	8¾
Imports of goods	7.6	5.8	7¾	7¼
GDP	2.3	3.3	3¼	3¾
Labor market				
Employment (persons)	1.6	2.0	2¼	2¼
Unemployment rate (%, level)	8.3	7.6	6¾	5¾
Dependency ratio (%, level)	82.4	80.3	78¼	75¾
Wages and prices				
Contractual wages market sector	1.4	1.7	2¼	3
Compensation per employee market sector	1.6	1.9	3	3
Unit labor costs manufacturing	– 2.0	0.7	–½	–½
Household disposable income (real)	1.8	2.5	2¾	2¼
Consumer price index	2.0	2.1	2¼	2¼
Price competitiveness	– 3.5	1.9	2¾	–½
	levels			
Public sector				
General government financial balance (% GDP[a])	– 4.0	– 2.3	– 1¾	– 1½
Gross debt general government (% GDP[a])	79.1	77.2	72¼	69¾
Taxes and social security contributions (% GDP)	43.6	44.0	43¾	42¾
Miscellaneous				
Current balance (% GDP)	6.2	6.3	6¾	7¼
Labor share in enterprise income (%)	82.7	83.1	81¾	80¾
Long-term interest rate (%)	6.9	6.2	5¾	5¾

[a]Harmonized GDP

building permits granted shows that many construction investments are still in the pipeline for next year. Finally, the sustained moderate trends in labor costs give no reason to expect a higher proportion of efficiency investments.

Exports will join the club of economic growth engines next year, together with domestic expenditure (see table 3). This is due mainly to strong growth in world trade volume (up by 7½%). The international leading indicators leave little doubt about this. Dutch manufacturing exports will exceed this figure, increasing by 8¾%, because exporters have improved their price competitiveness considerably over the last two years, not least owing to the appreciations of the dollar and pound. Export growth could be even stronger were it not for the fact that during this phase of the economic cycle the Dutch export product mix, with its predominance of foodstuffs and semi-manufactured goods, is at a disadvantage.

Unlike in 1997, import growth will lag behind export growth next year. Owing to some easing of demand for durable consumer goods and investments in machinery, final imports will expand relatively moderately. Since imports of raw materials and semi-manufactured goods for industry will remain strong, total import volume growth will come out at 7¼%, which is less than export volume growth. Since the terms of trade will remain broadly unchanged, the surplus on the current account of the balance of payments will widen further from 6¾% to 7¼% of GDP.

GDP growth is projected at 3¾% next year. This seems to be a significant acceleration compared to the growth rate of 3¼% of 1997. However, this year's growth rate will be distorted downwards by a number of one-off factors, of which the swine-fever epidemic is the most important. Adjusted for these factors, growth would have been ½% higher in 1997, which implies that growth is roughly stable in 1998. The growth forecasts for next year will only marginally benefit from the presumed ending of the swine-fever epidemic towards the end of this year, because a restructuring of this sector will exert an almost comparable negative impact on the level of output.

As mentioned above, employment will increase next year by roughly the same amount as this year. The number of persons in work will rise by 2¼%. This corresponds to an increase in labor-years of 2½% in the market sector. Labor productivity in the market sector will rise by 1¾%. Labor supply will expand by far less than the jobs total. Hence, the number of unemployed should fall, for the fourth year running, to 5¾% of the labor force.

Also in the nominal sphere the trends continue to be encouraging. Next year prices will rise broadly in line with this year's figure of 2¼%. Import prices will contribute less to inflation and labor costs a bit more. This reflects a slight acceleration in contractual wage increases to around 3%. The settlements concluded thus far for next year point to a 2¾% increase. Since the labor market is showing some signs of tightening, this figure is likely to nudge upwards in the settlements still to be concluded. The forecast for inflation reflects also some recovery in profit margins. This year, margins narrowed substantially by historical standards. Analysts attribute this to the fiercer competition promoted by the more open international markets. If this continues to depress profit margins, there may be some downward risk in the inflation forecast. Moreover, the introduction of a new Competition Law may reduce inflation.

Public finances fare better than forecasted in September (see CPB Report 1997/3). Tax receipts will exceed the 1997 estimate by 2 to 3 billion guilders (about 0.3% of GDP). Especially tax revenues on business profits over recent years are higher than expected earlier. Moreover, taxes on disbursed profits are considerably higher than expected in

September. Central government expenditure in 1997 is slightly behind the scheme presented in September. The government deficit and, hence, the public debt to GDP ratio decrease faster than projected in September. Therefore, the Netherlands will easily meet the EMU criteria with respect to public finances (see table 3).

Risks and uncertainties

As usual, there are many risks and uncertainties attached to the outlook for the Dutch economy. Most of these originate abroad, such as the uncertainty regarding the dollar exchange rate and possible interest rate hikes. Others stem from domestic sources, such as the risk of larger-than-anticipated wealth effects on consumption growth and, partly connected to that, the risk of overheating.

A major uncertainty at present is the Asian crisis. In the economic outlook for the world economy it has been argued that, as long as the situation does not deteriorate further, the impact of this crisis on regions like Western Europe will be rather modest, probably a loss of some tenths of percentage points of economic growth. For two reasons the impact of the crisis on the Netherlands is probably even smaller than that.

The first one refers to the trade pattern and product mix of the Netherlands. Relative to other European countries, Dutch exports to the South East Asian region are small. Only 3½% of Dutch exports went to that part of the world in 1996. Centrally located in Europe and being a small economy, external trade of the Netherlands is very much focussed on surrounding countries. Also the so-called *competitor weights* of South East Asia for Dutch exporters are relatively small compared to other European exporters. This implies that Dutch exporters do not often meet their Far Eastern counterparts on third markets, once again compared to the competition other Europeans face from South East Asia. This can be attributed, at least partly, to the product mix of Dutch exports vis-à-vis Far Eastern exports. The Netherlands is specialized in foodstuffs and semi-manufactured goods while South East Asia supplies predominantly engineering products, like electronics. Therefore, dramatically improved competitiveness of South East Asian countries probably hurts Dutch exporters less than it does other Europeans. The same product-mix differential implies that also on the domestic market the impact of stiffer Far Eastern competition is felt less in the Netherlands than elsewhere in Europe, particularly in Germany, which is also specialized in engineering products.

The second reason for a relatively smaller impact of the Asian crisis on the Netherlands involves the strong direct investment position of the Dutch in South East Asia, compared to other European countries. Slightly over 5% of the total 1994 stock of outward direct investments is located in South East Asia (see table 4). Only the United Kingdom features more prominently in the Far East (7.2% of total UK investments abroad). This reflects to a large extent the former role of the UK as a colonial power in the region.

Subsidiaries of non-Asian multinationals, that are located in South East Asia and exporting to the rest of the world, can profit fully from improved competitiveness. However, depressed Asian growth will cut into their sales to domestic markets, such as the Thai and Korean markets. On balance, the first effect probably dominates. It should be kept in mind that the crisis in Asia means that GDP of the region will no longer grow by, say, 8%, but that growth is still expected to exceed that of most Western economies. ■

Table 4 Stock of outward direct investments, 1994

	Total Stock	South East Asia[a]
	% GDP	%[b]
The Netherlands	43	5.1
Germany	10	4.8
France	12	2.0
United Kingdom	26	7.2
Switzerland	41	3.8

[a] Including South Asia (India, Pakistan, etc.)

[b] Direct investments located in South East Asia as a percentage of total outward investments by the country of origin.

Source: OECD Foreign Direct Investment Statistics.

Notes

[1]Unless otherwise indicated, growth figures indicate changes compared to the corresponding period of the previous year.

[2]This indicator measures the ratio between actual and trend-based output in the enterprise sector. An ascending line in the figure indicates that growth exceeds the average achieved during the previous business cycle. The peaks and troughs indicate turning points in the business cycle.

[3]Including around 70 billion guilders from increased home equity and around 100 billion guilders from household shareholdings (based on the AEX index at end November).

[4]These are investments in fixed assets by enterprises, excluding investment by the energy sector, dwellings, ships, aircraft and railway rolling stock.

The world economy: medium-term prospects*

Abstract

The United States economy faces uncertainty about the structural growth rate and the equilibrium unemployment rate. The main uncertainty for Japan concerns its ability to restructure its sheltered service sectors and its financial sector. For Europe, the main uncertainties involve EMU and labor market policies. In view of these uncertainties, economic growth in the industrial economies range from 2¾% per year in the favorable scenario to 1¾% per year in the cautious scenario. For Europe these growth rates are 3% and 1¾% respectively.

Samenvatting

Onzekerheden ten aanzien van de economie van de Verenigde Staten hebben betrekking op de structurele groeivoet en het evenwichtige werkloosheidsniveau. De belangrijkste onzekerheid voor Japan betreft het vermogen om de afgeschermde dienstensectoren en de financiële sector te herstructureren. Onzekerheden voor Europa hangen samen met de EMU en het arbeidsmarktbeleid. In het licht van deze onzekerheden varieert de economische groei in de geïndustrialiseerde landen van 2¾% per jaar in het gunstige scenario tot 1¾% per jaar in het behoedzame scenario. Voor Europa zijn deze groeivoeten respectievelijk 3% en 1¾%.

Introduction

Economic prospects for an open economy like the Netherlands are to a large extent determined abroad. An assessment of the medium-term prospect for the world economy is therefore a logical first step in exploring the medium-term prospects for the Dutch economy.[1] Forecasting the world economy over a medium-term horizon, however, is extremely difficult. CPB therefore presents its medium-term prospects for the world economy in the form of two scenario's: a favorable and a cautious scenario.

What is the structural growth rate in the US?

After growing above trend for about six years the US economy faces uncertainty about its structural growth rate. This growth rate is determined by the sum of labor supply growth and structural productivity growth. With an expected growth rate of labor supply of just above 1% per year up to 2002 the US outpace the other industrialized countries. Growth of labor productivity during the 1991-1996 period of about 1.4% per year has been substantially higher than the 1975-1991 average of ¾%. Whether this is the result of an increase of the structural growth rate is still uncertain. The favorable scenario assumes that the structural productivity growth rate has increased to 1¼% per year. The cautious scenario sticks to the traditional estimate of ¾% per year. Also the level of the equilibrium unemployment rate is heavily debated because unemployment has come down to 5% without igniting inflation. The favorable scenario assumes an equilibrium unemployment rate of 4½%, while the cautious scenario sticks to a more traditional level of 6%.

Can Japan recover?

The most important question regarding Japan is to what growth rate it will be able to recover. Although a return to the high growth rates of the eighties is rather unlikely, a recovery from the current situation is not inconceivable. Although demographic changes will reduce the working age population, labor supply might still grow as a result of increasing labor force participation, especially of women. A recovery of productivity requires continuing reform of the manufacturing sector by means of outsourcing of low-value added parts to other South-East Asian countries. Moreover steps have to be taken to upgrade low-productive parts of the sheltered service sectors and to restructure the financial sector. An assessment of the growth potential still results in a growth rate of about 3% per year in the favorable scenario. However, given the gloomy starting position, the actual growth rates of employment and productivity might be much lower.

How much has the structural situation in Europe improved?

The structural situation in Europe has improved considerably in many respects. In particular, profitability of the business sector has improved. Interest rates and inflation rates have converged to low levels. The internal market has been completed further, and government budgets have been restructured. Although the growth of the working-age population in the period up to 2002 is expected to decline to less than a ½% per year, employment growth of 1% per year is still conceivable as a result of higher labor force participation and lower unemployment. In line with productivity growth of 2% per year during the 1986-1990 period, structural productivity growth of Europe is estimated at 2% per year.

The advent of EMU and long-term trends with respect to demography, technology and internationalization require increased flexibility of labor markets. The labor market will increasingly have to bear adjustment to external shocks. During the last decades, however, European labor markets have not been able to adequately deal with cyclical and structural changes. During economic recoveries, insufficient jobs were created to offset the increase in unemployment during periods of economic distress. Indeed, the persistence of unemployment is the most serious economic problem facing Europe.

Consensus exists about the need to pursue broad-based reforms, simultaneously improving a great number of institutions. Social security institutions need to be reformed

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to (re-)activate the unemployed, thereby preventing a long-lasting lockout of these groups from the labor market. In addition, rigidities in product and capital markets should be removed, and human capital accumulation be stimulated.

How will the EMU function?

EMU is without doubt the most important institutional change in the years to come. In May 1998, the European counsel of ministers of finance (ECOFIN) will decide which countries will participate in the third stage of EMU. Most European countries seem to be able to pass the EMU exam. Since the UK and Denmark have stipulated an opt-out, however, a large EMU of 12 countries is rather likely. Many uncertainties surround the actual operation of EMU. How independent will the new European central bank be? Will individual countries be able to respond adequately to country-specific shocks? What are the effects of the euro becoming a major international currency? The potential benefits of EMU are large: the elimination of exchange rates will reduce costs and prices and intensify competition. EMU will firmly root the internal market in the EMU area.

Taking into account the analysis above, two scenarios pose a reasonable lower and upper bound for global economic development.

Cautious scenario: lack of confidence in ECB

Cyclical tensions and rising inflation and interest rates harm economic growth in the US. The Japanese economy suffers from weakening global economic growth, weak internal demand, and a failure with respect to the upgrading of the sheltered service sectors. European economic growth does not persevere. Lack of confidence of financial markets in the euro raises European interest rates and inflationary pressures through downward pressures on the euro-dollar exchange rate. Although unemployment remains high, also wage inflation rises again, indicating that persistence of unemployment remains the dominant feature of European labor markets.

Favorable scenario: successful reform of European labor markets

In the favorable scenario, the US and the UK continue to grow along their structural growth path. In Japan, deregulation of the service sectors boosts productivity growth, while unemployment remains low. Economic performance in Europe enhances the confidence of financial markets in the euro. This raises the euro-dollar exchange rate and allows the ECB to cut European interest rates. High profitability and low interest rates spur business investment, thereby boosting growth of capacity and employment. The economic recovery is not restrained by the labor market, because a more flexible labor market stimulates labor supply. Nevertheless, unemployment in Europe is still 1%-point higher in 2002 than in 1990. ■

Note

[1] See CPB Report 1996/1 for the last report on the medium-term prospects for the Dutch economy.

The Dutch economy: medium-term prospects*

Abstract

In the cautious scenario for the period 1999-2002, growth of Dutch GDP will slow to 2% per year. Yet unemployment will not rise because growth of labor supply will moderate as a result of demographic factors. In the favorable scenario, the economy will continue to show vigorous growth of 3¼% per year and unemployment will fall further. In both scenarios, price rises will remain in bounds, not least owing to fierce international competition.

Samenvatting

De groei van het Nederlandse BBP vertraagt in het behoedzame scenario voor de periode 1999-2002 tot 2% per jaar. Toch loopt de werkloosheid niet op omdat de groei van het arbeidsaanbod in samenhang met de demografische veranderingen vermindert. In het gunstige scenario blijft de economie krachtig groeien met 3¼% per jaar en daalt de werkloosheid. Prijsstijgingen blijven in beide scenario's binnen de perken, onder meer als gevolg van de scherpe internationale concurrentie.

Introduction

The prospects for the Dutch economy for the period 1999-2002 are outlined on the basis of two scenarios, namely the cautious and the favorable scenario. The scenarios indicate the margins within which the Dutch economy is likely to develop during this period under broadly stable conditions (i.e. excluding extreme windfalls or setbacks). The scenario approach has been adopted because of the many uncertainties surrounding medium-term forecasts. The key uncertainties originate in international economic developments. Hence, the differences between the scenarios can be traced primarily to developments in this area. While it makes sense to use the cautious scenario for setting fiscal policy, the favorable scenario can be useful in preparing other policies. This latter scenario reveals the problems and policy tasks that are likely to emerge in case of favorable economic developments. Both scenarios incorporate only known and approved policy measures. Accordingly, no new policies have been provided for.

Two scenarios

The cautious scenario foresees a cyclical downswing. GDP will expand by only 2% per year between 1999 and 2002, which is appreciably lower than during the period 1995-1998 (see Table 5 on page 16). The slowing of economic growth is due mainly to unfavorable international developments. Whereas the volume of relevant world trade is expected to expand by 6½% per year during the period 1995-1998, the cautious scenario projects a figure of only

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4% per year for the coming period. In the favorable scenario for 1999-2002 in contrast, relevant world trade growth will not fall back compared to the previous four-year period, but will even edge upwards to 6¾% per year. This forceful expansion of relevant world trade should push Dutch GDP growth to an average of 3¼% per year.

Domestic expenditure

Private consumption is increasing by 2½% per year during the period 1995-1998. This rather impressive rise can be attributed not only to strong employment growth and positive purchasing power trends, but also to the boost to household wealth provided by higher house prices and share values. In the cautious scenario, private consumption growth will ease to an average of 1¾% per year, owing to lower increases in both employment and purchasing power. In the favorable scenario, more jobs will be created than in the cautious scenario. Also purchasing power will show stronger growth, largely because the tightening of the labor market will accelerate wage growth. In this scenario, private consumption should increase by 2¾% per year.

In the cautious scenario, private residential investment will fall by 1% per year between 1999-2002, compared to an annual rise of 2% during the previous four-year period. The trend change in this type of investment originates mainly in less new households being set up. In the favorable scenario, the trend will not be reversed, but private residential investment will rise by only 1% per year. The greater buoyancy of these investments is due to a steeper rise in household incomes. This will boost the number of new households and stimulate the shift from rented to owner-occupied housing. Higher incomes will boost spending also on home improvements.

Private nonresidential investment is soaring during the period 1995-1998 owing to strong output growth and improved profitability. In the cautious scenario, growth of this type of investment will decline to an average of 2¼% per year, largely because of a decline in output growth. The capacity utilization rate, which will reach high levels in 1998, will nudge downwards in this scenario. In the favorable scenario, investment levels will fall back somewhat compared to the previous four-year period, mainly because profitability will not improve further. Capacity utilization rate will remain broadly unchanged.

International trade

Non-energy goods exports substantially contribute to economic growth during the period 1995-1998. While world trade is thriving, Dutch exporters are able to capture some additional market shares. Whereas export growth during boom years is tempered somewhat by the Dutch specialization pattern (towards commodities that are not sensitive to the business cycle), Dutch exports have become more competitive on price. In the cautious scenario, export growth will moderate to 4% per year, which coincides with the projected expansion of relevant world trade. Exports of agricultural goods will lag behind average export growth. This is due to several factors, including environmental policies (which are having a significant adverse impact on especially the livestock industry) and fierce competition faced by the Dutch horticultural industry. On the positive side, chemicals exports are performing well because this industry has been able to upgrade its export mix in recent years. In the favorable scenario, export growth will remain the same as it was in the period 1995-1998. Indeed, exports will be the main engine of economic growth. Although price competitiveness will not change, exporters still capture some additional market shares. The chemicals sector will perform particularly well also in this scenario. Also re-exports will show strong growth.

Goods imports are increasing rapidly during the period 1995-1998. This holds true for imports of raw materials, of consumer and capital goods, and of goods destined for reexporting. In the cautious scenario, import growth will decline to 3½% per year. Each of the named import components will slowdown. Also in the favorable scenario, import growth will moderate somewhat, but much less than in the cautious scenario.

The external current-account should record a surplus of 7¾% of GDP in 1998. In both the cautious and the favorable scenarios, this surplus will widen to 8½% of GDP in 2002. This will further expand net foreign assets.

Prices

Inflation is low during the period 1995-1998, not least owing to the modest rise in import prices. Import prices are held in check in part because of fierce international competition, which is squeezing margins. Margins are under pressure also at home. The liberalization of international trade and the deregulation of domestic markets play a key role here. In the cautious scenario, the rise in import prices will remain modest. This will hold true also for inflation in the Netherlands. The consumer price index will rise by 1¾% per year in this scenario. In the favorable scenario, prices will rise somewhat faster. The tightening of the labor market in this scenario will contribute to a faster rise in labor costs, which will in turn fuel price rises. However, the moderating influences of fierce international competition and deregulation measures will mitigate price pressures. Under these circumstances, the rise in consumer prices should stay within 2% per year.

Over the short and medium term, the prices of Dutch non-energy goods exports will closely follow those of the competitors. Indeed, the acceleration of export prices in 1997 and 1998 coincides with a similar hike in competitors' prices. In both the cautious and the favorable scenarios, Dutch export prices will continue to rise in line with those of the competitors.

Profitability

Profitability is improving sharply during the period 1995-1998. Over the whole period, the capital share in enterprise income (the complement to the labor share) will rise by 2½

Table 5 Main economic indicators of the Netherlands, 1991-2002

	1991-1994	1995-1998*	1999-2002	
	annual percentage changes		cautious scenario	favorable scenario
INTERNATIONAL				
Volume relevant world trade	3.6	6½	4	6¾
Price relevant world trade	– 1.3	1¾	1¼	1
Guilder/dollar exchange rate (level in end year)	1.82	1.95	2.05	1.85
DEMAND AND OUTPUT (VOLUME)				
Private consumption	2.2	2½	1¾	2¾
Private residential investment	1.6	2	–1	1
Private non-residential investment	– 0.9	6¾	2¼	5
Exports of goods. excluding energy	4.2	7	4	7
Imports of goods	2.7	6¾	3½	6¼
GDP	2.1	3¼	2	3¼
LABOR MARKET				
Employment (persons)	0.9	2	1	1½
Unemployment rate (%, level in end year)	8.7	6	5¾	4¾
Dependency ratio (%, level in end year)	83.2	76	76¼	73¼
WAGES AND PRICES				
Contractual wages market sector	3.2	2¼	2¼	3½
Compensation per employee market sector	3.4	2½	2¾	4¼
Unit labor cost manufacturing	0.9	–1	0	¼
Household disposable income (real)	0.2	¾	½	1½
Consumer price index	2.9	2¼	1¾	2
Price competitiveness	0.2	¼	0	0
	levels in end-year			
PUBLIC SECTOR				
General government financial balance (% GDP)	4.2	1.9	1½	–¼
Gross debt general government (% GDP)	77.9	70	68½	60¾
Taxes and social security contributions (% GDP)	44.7	42½	42	41¾
MISCELLANEOUS				
External current balance (% GDP)	5.4	7¾	8½	8½
Labor share in enterprise income (% GDP)	82.7	80¼	80½	80¼
Long-term interest rate (%)	6.9	5¾	6	5½

*Medium-term projections are based on the 1997-1998 forecasts of last September (see *CPB Report* 1997/3).

percentage points. In the cautious scenario, this surge in business profits will come to an end as the capital share in enterprise income will remain constant in this scenario. The market sector's profit ratio will decline somewhat owing to higher net interest payments by enterprises. In the favorable scenario, the economy will continue to expand apace. Yet the capital share in enterprise income will not develop differently from that in the cautious scenario. This indicator will be the same in 2002 as in 1998. Net interest payments by enterprises will not change in this scenario, so that also profit levels will remain constant at the 1998 level.

Wages and purchasing power

Contractual wages will rise by 2¼% per year in the cautious scenario, which is the same growth as during the period 1995-1998. On the assumption that earnings drift will amount to ½% per year and that employers' social insurance contributions will remain unchanged, compensation per employee in the market sector will increase by 2¾% per year. In the favorable scenario, contractual wages growth will accelerate to 3½% per year and earnings drift to 1% per year. This is due mainly to the tightening of the labor market, which in turn is the outcome of large numbers of jobs being created together with fewer people entering the labor market.

The average earner's purchasing power is rising by ¾% per year during the period 1995-1998. Purchasing power will increase in the cautious scenario by slightly less, namely by ½% per year. Purchasing power in the favorable scenario will be more buoyant, increasing by 1½% per year. Contractual wages will rise faster in this scenario while social insurance contributions will weigh less heavily as unemployment falls.

Labor market

Jobs are being created at a very rapid rate between 1995 and 1998. Over the whole period, around 465,000 people will find work. This figure excludes part-time jobs of less than 12 hours per week. In the cautious scenario, employment growth will slow together with overall economic growth. Since demographic changes will depress growth of labor supply during the scenario period, the unemployment rate will fall fractionally from 6% in 1998 to 5¾% in 2002. In the favorable scenario, sustained strong employ-

ment growth coupled with the projected trend-based reduction in growth of labor supply will cause a definite tightening of the labor market. This tightening accelerates growth of contractual wages, which will in turn restrict employment growth. The tighter labor market will also produce additional growth of labor supply arising from the encouraged worker effect. The labor market supply and demand projections in this scenario yield a reduction in the unemployment rate to 4¾% in 2002.

Public finances

The general government deficit is projected to come out at 1.9% of GDP in 1998. The Netherlands thus easily meets the Maastricht Treaty's fiscal-deficit criterion. During the period 1995-1998, the tax and premium burden falls by 2¼ percentage points to 42½% of GDP. In the cautious scenario, the fiscal deficit will fall slightly further, to 1½% of GDP in 2002. Also the tax and premium burden will shrink fractionally to 42% of GDP in 2002 under the assumption that no new policy initiatives and/or tax cuts will be implemented. In the favorable scenario, the fiscal deficit will fall more sharply than in the cautious scenario. Under these circumstances, a budget surplus of ¼% of GDP will emerge in 2002. Also the tax and premium burden will shrink more sharply in this scenario to 41¾% of GDP in 2002 because the reduction in the unemployment rate will further ease social-security contributions.

Concluding remarks

In preparing policies for the next cabinet period, policymakers will have to bear in mind the major uncertainties that inevitably surround medium-term economic forecasts. The two scenarios outlined here aim to make a number of uncertainties more manageable. It is typically difficult to quickly adapt policy choices to new developments. Accordingly, it is advisable to use, for each particular policy area, the scenario in which the policy task is most pronounced. In particular, if budgetary planning is based on the cautious scenario, the need for interim austerity measures is reduced. At the same time, policymakers will have to prepare for the policy tasks posed by the favorable scenario. In that scenario, potential problems in the labor market, in infrastructure, and in attaining environmental targets will become more serious. ■

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Sectoral developments in the Dutch economy: medium-term prospects*

Abstract

The commercial services sector and manufacturing industry feature relatively strong growth of production in the coming years. Contrary to the past, growth of the manufacturing industry is only slightly lower than that of commercial services. This is caused, among other things, by high profitability and investment levels in manufacturing in 1998. Specialization in higher value-added and in more knowledge-intensive market segments is observed in agriculture, chemical industry, steel industry and transport.

Samenvatting

De commerciële dienstverlening en de industrie vertonen in beide scenario's een relatief sterke produktiegroei. De groei in de industrie wijkt minder af van die in de tertiaire dienstverlening dan in het verleden. De qua winstgevendheid en investeringsniveau gunstige uitgangspositie van de industrie in 1998 is hieraan mede debet. Upgrading vindt plaats in de landbouw, de chemische industrie, de staalindustrie en de transportsector.

Commercial services maintain strong growth

The main sectoral development is the continued increasing importance of commercial services. The share of commercial services in not only overall employment but also the volume of GDP is growing. The rapid growth of commercial services in the last decade is due to a number of factors. First, many new services, often related to information technology, emerged, both for personal and business use. Second, many enterprises concentrated on their core activities because of strong competition, and contracted out support services. Furthermore, the branch of temporary employment agencies boomed in recent years, not only for cyclical reasons but also because of greater demand for a flexible deployment of labor. Finally, intensifying international specialization of manufacturing output raised international trade. This boosted the wholesale trade and transport sector.

For the same reasons, the commercial services sector will be the most dynamic sector also during the period 1999-2002 (see table 6). In the cautious scenario, the volume of production will expand by 2½% per year. Because of the vigorous international economic development, commercial services will grow by 4½% per year in the favorable scenario.

Manufacturing industry will also perform well

In both scenarios, the increase of industrial production will be only slightly less than that in commercial services. To a large extent this is due to high profitability and investment

levels in manufacturing industry in 1998. The capital share in enterprise income indicates a remarkable jump in profitability of manufacturing industry during the period 1993-1998 (see table 7). Dutch manufactures benefited from expanding exports and from wider margins as a result of the appreciation of the dollar and pound. In 1998, profitability will almost reach the high level of the sixties. The upswing in profits strongly impacted investments. However, as a percentage of gross value added, Dutch investments in 1998 are not yet back on the high level of 1989, because industrial enterprises invest heavily abroad as well, for instance to secure a stronger position in attractive growth markets. Furthermore, as many enterprises are already concentrating on their core activities, outsourcing support services will be less important than in the past. This will hamper the growth of business services.

In manufacturing industry, the chemical industry will show the strongest growth. Export sales will soar. Moreover, the chemical industry has been very successful in upgrading processes, not only of basic products but also of special products. Many new products are introduced. Especially the pharmaceutical industry is flourishing. The upgrading processes in the chemical industry is expected to be continued in the scenarios.

The capacity utilization rate of manufacturing is on a high level in 1998. Accordingly, industrial investments need to expand to allow strong growth of production. The sound financial position will allow for this.

Growth in energy, construction and agrosector below average

Strong growth of industrial production will boost energy demand. However, improved energy efficiency will hamper energy consumption. Furthermore, the exports of natural gas will decline. As a result, the production of the energy sector will not expand in the cautious scenario and will grow only slowly in the favorable scenario.

The construction sector will benefit from the recovery of the office market. The malaise in the office market has lasted several years. Combined with expanding investments in manufacturing, this will produce an increase of investments in nonresidential buildings. Also increasing investments in infrastructure will boost the production of the construction industry.

Growth of value added of the agrosector, i.e. agriculture and the food and beverage industry together, is limited by historical standards in both scenarios, owing to production restrictions and environmental measures in several branches. Examples are quotas for fish, milk and sugar. As a result of the outbreak of swine fever this year, a large restructuring program for the pig-rearing branch is planned to start next year. According to this program, the number of pigs should be 23½% lower in 2000 than in 1995 or 1996. Although horticulture is not constrained, this sector will realize only modest growth because of the small rise of demand in the European market. In addition to some expansion of the volume of production, the projected growth of value added is the result of a reduction of inputs.

Table 6 Volume gross value added (factor costs) by branches of industry, 1995-2002

	1995-1998	1999-2002 cautious	favorable
	annual percentage change		
Agrosector[a]	1¾	1¾	3½
Industry[b]	3¾	2¼	4¼
Energy	1¾	0	1½
Construction industry	1¾	¾	2
Commercial services[c]	4½	2½	4½
Medical services	1	1¼	1¼
Enterprises	3¼	2	3½
Market sector[d]	3¾	2¼	4

[a] Agriculture and food and beverage industry.
[b] Metal industry, chemical industry, textile, furniture and building materials industry and paper industry.
[c] Excluding operation of real estate.
[d] Enterprises excluding mining and quarrying, operation of real estate and medical services.

Table 7 Profitability[a] and gross fixed investments[b], 1989-2002

	1989	1993	1998	2002 cautious	favorable
	%				
Profitability					
Market sector	18.5	13.6	19¾	19½	19¾
of which					
- manufacturing	27.3	15.5	31¼	33¼	32
- commercial services	24.5	22.8	24¾	24	24
Gross fixed investments					
Enterprises[c]	18.6	16.8	18¼	18½	19
of which					
- manufacturing	18.0	14.2	16½	17	18½
- commercial services	18.9	16.4	18¼	18½	19

[a] Capital share in enterprise income.
[b] In % of gross value added.
[c] Excluding operation of real estate.

Profitability will remain at a high level

The profitability of the market sector will remain at the high level of 1998 in both scenarios. However, there are some differences between sectors. Profits in manufacturing will increase somewhat, while profits in commercials services will decrease slightly. The relatively small Dutch manufacturing industry, which is highly competitive, will realize large productivity gains combined with strong growth of production. Consequently, profits will improve. The increase in profits will be smaller in the favorable scenario than in the cautious scenario because of higher labor costs in the favorable scenario due to a tight labor market.

Profitability in the commercial services sector will decrease slightly. Fierce competition, partly due to deregulation in some sectors, will keep profit margins of the services sector under pressure. Moreover, compared to other sectors, productivity growth in the services sector is only

modest, while increases in contractual wages are almost the same in all the sectors.

Although the profitability trend in the commercial services sector is not so encouraging as in manufacturing, investments will increase during the period 1999-2002. This is caused, among other things, by deregulation that makes it easier to build superstores. The recovery of the office market, mentioned above, is another important reason.

Labor productivity in commercial services sector

During the past decades, labor productivity growth slowed down in all sectors of the economy. Productivity growth in commercial services is traditionally below average because the scope for technological progress is smaller. However, low productivity growth may be caused partly by underestimating the effect of innovation and higher quality on the volume of production. During the period 1995-1998, productivity in the services sector increases by only 1% a year, a very low pace by historical and international standards. Accordingly, an improved productivity performance of the commercial services sector is of vital importance for the long-run growth potential of the Dutch economy.

There are good reasons to expect that productivity growth in the services sector will be higher in the future. Hence, growth accelerates in the favorable scenario. A first reason is a further liberalization of sheltered markets, such as public transport, telecommunication and retail sales. The resulting stronger competition diminishes X-inefficiencies. Second, there will be more specialization within the services sector itself. Moreover, capital-intensity will rise as a result of increasing application of information and communication technology. Finally, the application of modern management techniques, already used in manufacturing, may help to improve productivity.[1]

Upgrading in the Dutch economy

CPB argued in 1992 that the Dutch economy should transform its specialization in low value-added processing industries, energy and the agro-industrial complex towards higher value-added knowledge-intensive market segments.[2] Such an upgrading process is still desirable for several reasons. First, demand for medium- and high-tech goods and services is stronger. At the same time, countries in Eastern Europe and Asia with lower labor costs specialize in low-tech products. Furthermore, the production of more knowledge-intensive goods and services fits the higher educational level of the Dutch labor force. Finally, upgrading protects the natural environment.

The extent of upgrading in the period 1992-1995 is assessed, using indicators like prices per weight, value added per unit inputs and educational level of employees. Upgrading may take place in different ways and on different levels. It can be caused by relatively strong growth of branches with high value added per unit inputs, the introduction of goods or services with high value added, or the improvement of the efficiency of production processes.The assessment[3] shows that substantial upgrading has occurred in branches in which the Dutch economy is already specialized, i.e. agriculture, chemical industry, steel industry and transport. For instance, the branch in agriculture with the highest value added per unit inputs, i.e. horticulture, features the best track record in terms of growth of production. Furthermore, every branch in agriculture strongly reduced inputs. The observed upgrading process is expected to continue in both scenarios. ■

Notes

[1] See Biema, M. van and B. Greenwald, Managing our way to higher service-sector productivity, *Harvard Business Review*, July-August 1997, pp. 87-95.

[2] CPB, 1992, *The Netherlands in Triplo; A scenario study of the Dutch Economy 1990 - 2015* (only in Dutch: *Nederland in Drievoud; een scenariostudie van de Nederlandse economie*), Sdu Publishers, The Hague.

[3] Detailed results are presented in CPB, 1997, *Economic prospects for the next cabinet period* (only in Dutch: *Economische Verkenning voor de volgende Kabinetsperiode*), Sdu Publishers, The Hague.

NOTE

Unemployment definitions*

Unemployment can be defined in various ways. The OECD publishes standardized unemployment figures according to ILO definitions. This yields a figure of 6.9% for the Netherlands in 1995. In monitoring the Dutch labor market, however, CPB employs a different unemployment concept, resulting in an unemployment rate of 8.3% in 1995.

The main explanation behind the difference between the two figures is that Dutch national sources limit the labor force to jobs of at least 12 hours a week.[1] This reduces the size of the labor force, but has only a small impact on the number of unemployed. On the one hand, people looking for a job of less than 12 hours are excluded from the unemployment figure. On the other hand, people occupying a job of less than 12 hours who are looking for a job of 12 hours or more are included in the unemployment figure. Moreover, the national definition is less strict in defining availability for the labor market, in part because those who already occupy a job (of less than 12 hours) often cannot quit on short notice. Whereas the international definition includes only those people who are prepared to begin working within the next two weeks, the national definition considers some of those who are prepared to start work within the next three months to be available for work. ■

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[1] Another, less important, difference is that CPB uses employment data from the National Accounts, while the OECD relies upon survey data.

Detecting relevant policy issues on competition and regulation

Harold Creusen*

Abstract

CPB recently developed an analytical framework of industrial organization to guide policy analysis. The framework, addressed mainly to policy analysts entrusted with competition policy, industrial and technology policy and regulatory reform in particular markets, aims to detect firm behavior that gives rise to market imperfections. Further, it can point to the potential role for policy in removing these market distortions and improving dynamic welfare. This article applies the framework to the residential building industry.

Samenvatting

Onlangs heeft het CPB een analytisch kader voor industriële organisatie en een leidraad voor beleidsanalyse ontwikkeld. Het kader is vooral bedoeld voor beleidsmakers op het gebied van mededingingsbeleid, industrie- en technologiebeleid en (de)regulering van specifieke markten. Dit kader dient als hulpmiddel bij het opsporen van ondernemingsgedrag dat marktverstoringen teweeg brengt. Bovendien kan het kader aangeven hoe het beleid deze marktverstoringen kan wegnemen en de dynamische welvaart verhogen. Dit artikel past het kader toe op de woningnieuwbouw.

Introduction

The Dutch government has recently taken steps to change the regulatory environment in order to enhance economic efficiency. Grounded in the modern view on the benefits of competition, the government considers free entry and unimpeded competition to be the main source of efficient production and optimal pricing. Therefore, the renewed regulatory framework aims to strengthen competitive forces by removing entry barriers and market distortions. In fact, the Ministry of Economic Affairs has started a campaign to rationalize regulation[1] and to enhance competition in erstwhile state monopolies. Furthermore, in accordance with EU-policy, a new government agency will enforce the new competition law that explicitly prohibits collusion and other anti-competitive business practices.

When policy analysts and policymakers design and implement a new regulatory framework, they may arrive at several questions. For example, how do they detect market distortions that harm economic welfare? What economic issues are at play and which of them are relevant for competition policy, industrial policy or specific regulation? In-depth analytical research of specific markets may provide answers to these typical questions.

CPB designed an analytical framework to guide investigators in analyzing markets, detecting market distortions and formulate policy issues (see Creusen, 1997). The framework explores the complex interactions between competitors, suppliers and customers, exploring firm behavior that determines the (technological) supply conditions of firms and the terms of competition in final markets. It can therefore serve as a guide for selecting the appropriate theories to investigate market distortions caused by inappropriate firm behavior. The comprehensive framework, furthermore, helps to integrate the fragmented nature of industrial organization models that focus only on specific aspects.

This article demonstrates how policy analysts can use the analytical framework to design a policy-relevant research project. In fact, we will follow the steps taken by a policy analyst who employs the framework to investigate the residential building industry. The article is structured according to the three successive steps the analysts need to take in order to formulate a research project. First, the industry structure, including agents and markets, needs to be identified. Subsequently, the scope for firm behavior needs to be assessed. Finally, a list of relevant issues for competition policy, industrial policy and specific regulation needs to be formulated. The article then describes how these preliminary steps can be used to define a research project that will assess whether conditions in the market require policy action and, if so, what the policy options are. It considers the residential building industry as an example to highlight the use of the analytical framework for defining policy-relevant research.

Analyzing the industry structure: the case of residential building

In the first step, the policy analyst has to identify the relevant agents and markets in the industry. He can, for example, describe the industry structure from the vantage point of a typical firm facing suppliers on input markets and competitors and customers on output markets. The typical firm in the residential building industry would be a construction company or contractor involved in residential construction. The analyst will find out that the typical firm faces different groups on various types of markets. He can thus define the industry as a group of firms containing the typical firms and their competitors, suppliers and customers, as represented in figure 1 for the residential building industry.

Figure 1 shows that several types of markets in the industry may be relevant for policy research. The *type* of such a market depends on the type of the typical firms' competitors. The *size* of a relevant market is defined in such a way that the products related to this market are not easily substitutable with products outside the market.

If the policy analyst wants to map the relevant output markets, he may find several relevant types of customers. Some private consumers contract a constructing firm to

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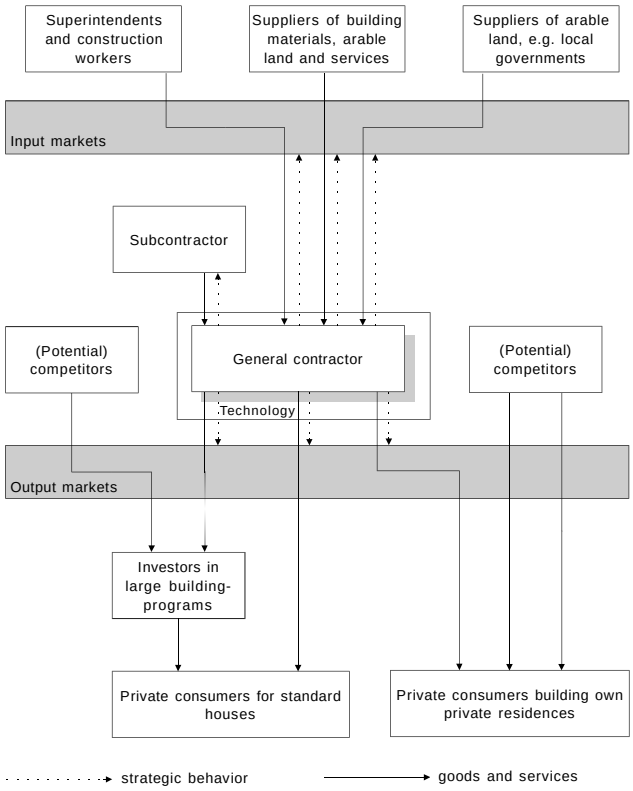
Figure 1: Structure of residential building industry



build their own private residences. Most private consumers, however, buy a new house as a part of collective and/or social house-building program. Finally, business investors and housing societies may contract a (main-) constructor to build houses or apartments for rent.

Focusing on the relevant input markets, the analyst may come up with a range of suppliers of material inputs and labor. In fact, the inputs for constructors range from building materials and arable land, via specific services (civil engineers, architects and project designers) to specific types of labor (such as bricklayers, carpenters etc.). The availability and acquisition of land may require special attention because arable land is a scarce commodity.

When considering the internal organization of constructors, the analyst will find firms with diverse technologies and levels of incorporation. Smaller firms focus on specific orders, or act as specialized subcontractors. Large-scale enterprises often incorporate several stages such as design, construction and completion of houses, and therefore act as the main contractor in large projects.

Detecting market distortions

The next step for the analyst is to consider the constructors' *behavior* on the input- and output markets, and find out whether such behavior may result in market distortions. The checklist as outlined in figures 2a (part I) and 2b (part II) (next page) may be helpful in analyzing (the effects of) firm conduct. The indicator boxes refer to several types of questions. If the answers to these questions correspond to the answers in the checklist, firms improve their supply conditions or act on output markets similar to the types of conduct described in the respective behavior boxes.

The subsections below show how the analyst can use this checklist to detect firm conduct in the residential construction industry that may possibly result in market distortions. In particular, many of the questions in these subsections are similar to the indicator boxes in figures 2a and 2b.

Supply conditions

The conditions under which construction companies can build and deliver new houses depend on the firm's technology, internal organization and relations with intermediate suppliers. The analyst has to answer the following questions to determine which actions constructors may take to improve their supply conditions.

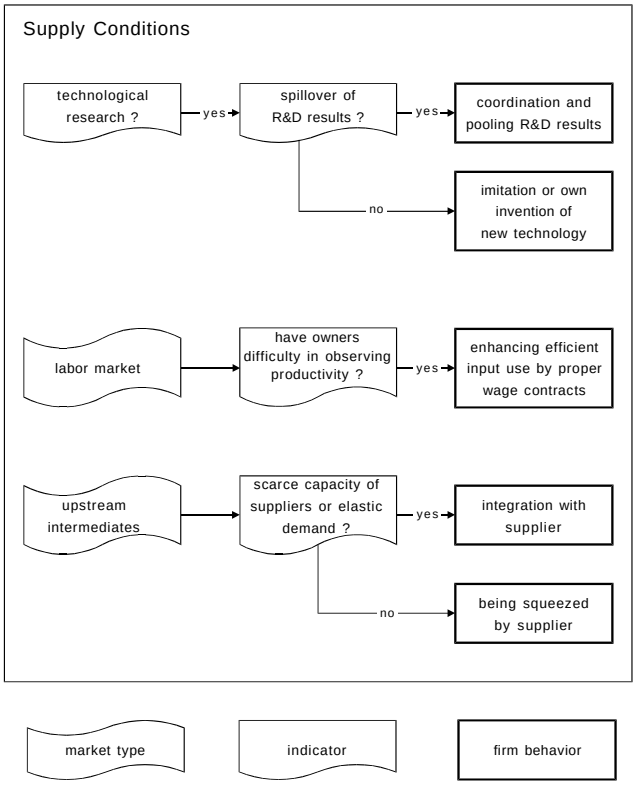
For example, do constructing firms conduct technological research and develop new techniques (e.g. industrialization, prefab construction and advanced scheduling)? Are they able to cooperate with other firms to capture spillover effects from research? By answering these questions, our analyst will find out whether constructors engage in process innovations given current technology, or whether they adopt a new and better technology. Firms that replace their technology can develop their own new techniques. Alternatively, they can cooperate with other firms to create more drastic inventions, or imitate those new techniques that proved to be successful. In fact, they can benefit from cooperation if this allows them to capture spillover effects and avoid duplication. Policymakers may then stimulate reproduction of high-standing techniques and cooperation in research and development, but should take care that cooperation will not result in cartels that force up prices in output markets.

Second, are employers able to adequately monitor the superintendents and construction workers? Do they use specific wage systems[2] to provide incentives to their employees? If constructors cannot monitor employees but can design appropriate wage systems, they can induce construction workers to provide sufficient effort and to use other inputs efficiently.

A similar principal-agent problem occurs in controlling the cost and timing of intermediate delivery. For example, main contractors may use special procurement systems to stimulate subcontractors to deliver their products without

exceeding planned cost or time. Furthermore, employees may capture some of the firm profits through wage bargaining. The analyst should thus consider the bargaining process and find whether potentials for unreasonable rent capturing by employees may exist. Finally, do constructers use scarce intermediate inputs offered by dominant suppliers, or do they find sufficient supply on competitive input markets? Constructors may use indispensable materials or services (such as large scale project-design or civil engineering) that are scarce. In that case, they may try to integrate with a supplier to ensure sufficient supply at moderate prices. If the constructors take no actions, they may pay higher intermediate prices. Construction companies may similarly attempt to build up stocks of scarce arable land. The next section explores the consequences of building up stocks for a firm's competitive position.

Figure 2a Checklist part I: Supply Conditions



Firm behavior related to the supply conditions thus concerns the cost structure of production — i.e. either changing the technology, improving labor efficiency or reducing intermediate input prices. Changes in the cost structure can affect the competitive structure of the output markets. For example, increasing returns to scale or scope of the technology used by the constructors may restrict the "market room" for new competitors.

Market interactions

In addition to enhancing supply conditions, constructors can also strengthen their competitive position through other means. They can, for example, employ specific strategies to act or deal with competitors and customers. These market interactions may affect product quality, prices and/or marketing, or result in alliances between constructors. The policy researcher has thus to analyze the competitive strategies of each constructor in order to depict the market structure in residential building. For that purpose, he can consider the following questions.

First, do constructors use real estate agents as intermediates to obtain orders or sell houses? The analyst will find out that constructers make little use of intermediaries. In fact, they have direct contact with their principals, i.e. private consumers, business investors and housing societies.

Second, do constructors have any potential to differentiate their products and focus on specific orders? Do they use any advertising or marketing to obtain new orders? If constructors focus on building specific types of residences, they can improve customers' valuation. At the same time, however, they will divide the market in firm-specific segments or niches, which may weaken effective competition and increase market prices.

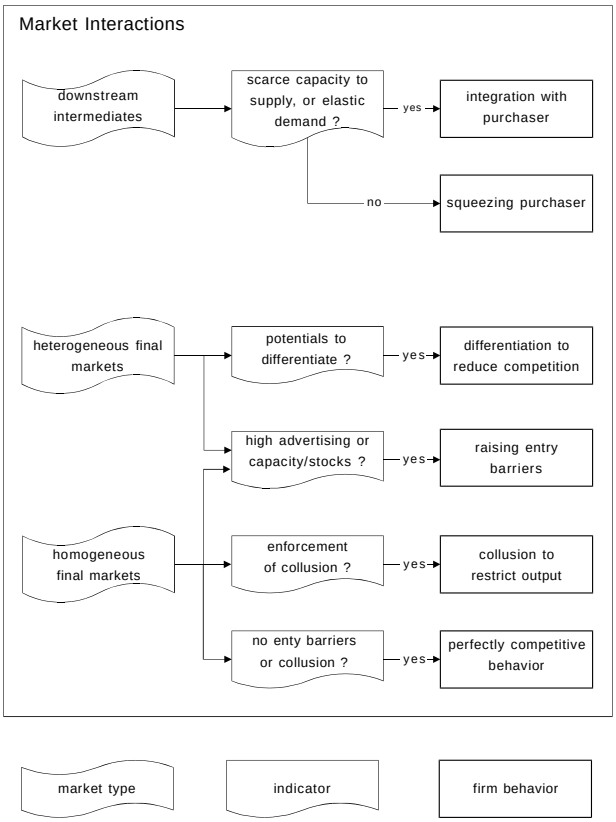
Moreover, (private) customers may have difficulty in observing the quality of delivered work. Constructors may then attempt to build up a good reputation and a high-quality image by using advertising and promotional campaigns. However, excessive advertising can raise barriers for new firms to enter, thereby reducing competition and increasing prices.

Finally, if construction companies cannot differentiate and thus operate in homogeneous segments, they can still use other strategies to raise their profits. For example, do they invest in (sunk) assets such as material inputs and/or do they make alliances to reduce competition? Constructors may strengthen their competitive position and protect themselves against entrants if they can build up capital stocks, (e.g. of arable land). Later entrants then have to pay higher prices for such specific capital. Constructors can also conclude specific agreements to reduce total costs of constructing houses, such as subcontracting. However, such agreements may simultaneously give firms the opportunity to raise market prices of new homes.

Formulating issues for further research

In the third and final step, our analyst has to formulate the relevant policy issues that need further research. The results from this extended research may possibly lead to policy intervention.

Figure 2b Checklist part II: Market Interactions



When formulating relevant issues, the analyst has to distinguish three categories of policy issues focusing on, respectively, competition policy, industrial policy and specific regulation. The first category involves market distortions that reduce competition, increase market prices and thus harm customers' welfare. These issues may possibly point to market distortions that reduce effective competition or raise entry barriers for new firms. They may therefore be relevant for competition policy.

In the case of residential building, the analyst may propose additional research on mutual agreements between constructors, such as subcontracting. For example, he may suggest comparing the prices and production costs of subcontracting consortiums with those of competitive constructors in order to examine whether subcontracting saves building costs or raises market prices. With respect to entry barriers, the analyst may propose further investigation of the assignment of arable land. In particular, to which constructors and under what conditions do local municipals or landowners distribute scarce arable land?

The second category involves issues that induce dynamic growth of total welfare, such as stimulating technological research. In this respect, our analyst would suggest further analysis of ways to stimulate the development and diffusion of new construction techniques and the cooperation in research projects. Supplementary analysis of technical research may explore what extent firms can benefit from technological research and spillover effects. Can constructors reduce building costs if they implement their own innovations or new techniques developed by other firms or noncommercial organizations? If not, can they still benefit from changes in organizational structure?

The relevant issues on product innovation and differentiation are of interest to both competition policy and industrial policy. In fact, increased diversification may improve consumer valuation, but simultaneously reduce competition and raise market prices due to powerful segmentation. Further investigation of product diversification should investigate to what extent constructors build customer-specific houses but at higher prices.

However, general competition policy and/or industrial policy may not be sufficient to handle the policy issues mentioned above. Policy analysts and policy makers have to determine whether the resulting market distortions require additional regulation. If the policy analyst finds that mutual subcontracting and asymmetric information on quality raise market distortions, he might suggest further analysis of the need for specific regulation on procurement systems and quality control. Such regulation may, for example, focus on the delivery terms and payment conditions of subcontracting agreements and contracts with final customers, or on quality standards that aim to remove information asymmetries on quality.

Conclusion

This article outlined a three-step procedure to analyze industries. This analytical framework helps to detect market distortions that can be relevant for policymakers but need further investigation. The first step of the framework is to identify the agents and markets in the industry. The next step is to examine the behavior of the typical firm in the industry. During this step, policy analysts have to consider firms' conduct that determines their supply conditions and cost structure and their interactions with competitors and customers. The final step is to formulate relevant issues for competition policy, industrial policy and regulatory policy. ■

References

Creusen, H.P.W.A., 1997, 'An analytical framework of industrial organization for policy analysis', CPB research memorandum nr. 138.

Notes

[1] I.e. the governmental project 'Marktwerking, Deregulering en Wetgevingskwaliteit'.

[2] Such as wages related to profits or targeted time of delivery.

Economic effects of liberalizing shop opening hours in the Netherlands

Yvonne Bernardt*

Abstract

This article describes the economic effects of liberalizing shop opening hours. CPB analyzed the economic effects in 1995 to contribute to the discussion about liberalizing the restrictive law on shop opening hours in the Netherlands. Shop opening hours were indeed liberalized in 1996. According to the model CPB developed, liberalization would raise employment in the retail sector, while sales volume and prices would change only marginally. The effects for large-scale shops were expected to be more positive than for small shops. This article focuses on the short-run effects and evaluates some of the first experiences from retailers and consumers.

Samenvatting

Dit artikel beschrijft de economische effecten van een liberalisering van de winkelsluitingswet. Het CPB analyseerde deze effecten in 1995, als bijdrage aan de toen gevoerde discussie over het liberaliseren van deze restrictieve wetgeving. In 1996 is de winkelsluitingswet geliberaliseerd. Uit het model dat door het CPB is ontwikkeld volgde dat de werkgelegenheidseffecten in de detailhandel positief zouden zijn, terwijl in omzetvolume en prijzen slechts marginale veranderingen te verwachten waren. Voor grootschalige winkels waren de uitkomsten positiever dan voor kleine winkels. Dit artikel richt zich vooral op de uitkomsten voor de korte termijn en beschrijft de eerste ervaringen van detailhandel en consumenten.

Introduction

The Dutch law on shop opening hours was relaxed in June 1996. This deregulation was one of the first results of Dutch policy aimed at stimulating competition and reducing superfluous regulation. The Dutch rules for opening hours were among the most restrictive in the world, so that the law was an obvious candidate for revision. From Monday through Saturday shops are now allowed to stay open from 6 am. to 10 pm., while Sunday openings remained relatively restricted.[1] Economic arguments played an important role in the discussion about liberalizing shop opening hours. This article discusses the main economic effects of liberalizing the law on shop opening hours. It is based on an earlier CPB study (see CPB, 1995).

The article is structured as follows. First, the structure of the model and the main short-run outcomes are presented. Second, the differences with the medium-term results, as described in CPB (1995), are described. Third, the first outcomes of liberalization are evaluated. Finally, conclusions are presented.

Table 1 Assumptions about short-term increase in opening hours, by shop size

	Small	Medium	Large	All
	extra hours per week			
food	3	4	5½	3½
nonfood	2	4	5	2½
total	2	4	5	2½

Source: CPB, 1995

Model, assumptions and outcomes

A partial equilibrium model was developed to evaluate the economic effects of liberalized shop opening hours. The model uses a detailed description of the retail market in the base year. We distinguished small, medium and large retail companies, three location types (city centers, other urban areas and peripheral areas) and food and nonfood shops (making 18 shop types). For all types, statistics about the average sales volume, costs structure and employment were given or approximated. The assumptions in CPB (1995) were oriented at evaluating medium-term effects (five to ten years after liberalization). To compare the results of the model with the present situation, one and a half years after liberalization, this section presents the assumptions and outcomes that are appropriate for evaluating the short-run effects (i.e. the first five years after liberalization).

The most important exogenous variable of the model is the change in opening hours by retailers. In the short run, average shops were assumed to open two and a half hours per week longer than before liberalization (see Table 1). These assumptions are based on comparing opening hours in other European countries.

After increasing the opening hours per shop type, the model calculates the changes in employment, costs, sales and profits. We now turn to the description of the most important relationships in the model.

Employment

The change in opening hours generates direct employment effects because of the existence of threshold labor — the minimum labor capacity a shop needs to be open (see Nooteboom, 1983). The minimum is one person for small shops. For large-scale food shops, where not only a checkout point but also several service counters have to be open, this minimum can be as high as five persons. Threshold labor implies that longer shopping hours reduce labor productivity. Some substitution can occur, especially in the large shops, when longer opening hours reduce sales during peak-hours, so that the minimum labor requirement can be lower (less service counters open). Small shops do not have this flexibility to reduce threshold labor.

In addition to these effects, changes in sales volume will affect employment. Since large shops tend to feature higher labor productivity than small ones do, and large shops in-

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crease their opening hours (and sales) more, this effect increases labor productivity.

Costs of labor and capital

The model distinguishes three costs categories. The first is related only to sales volume, such as costs of purchases and part of the labor costs. The second cost category is linked to sales volume per hour. These are capacity costs, such as costs of housing, machinery and equipment. The third category are the costs directly related to opening hours, such as threshold labor and a small portion of energy costs.[2]

After an increase in opening hours, the costs that are related to opening hours (predominantly threshold labor) increase. Wages are higher on late hours and Sundays. Labor costs were assumed to increase by less than could be expected given the characteristics of the employees in the base year, because new hours were supposed to often be worked by part-time employees or young people, who earn lower wages. Capacity costs were assumed to be fixed in the short run, while they were related to sales volume per opening hour in the medium run. Furthermore, the distribution of consumers over time is expected to be more uniform after some adjustment period, which reduces capacity utilization and the need for peak capacity. However, since most costs are related to sales volume, opening hours influence only a small part of costs.

Sales volume, prices and profits

Price and sales changes resulting from shifts in costs depend on substitution elasticities between shops and substitution elasticities between retail goods and other consumer goods and services. Based on estimates for substitution between shop types in Bode, Koerts and Thurik (1990), we adopted substitution elasticities of -9 in the food sector and -3 in the nonfood sector. Estimated substitution elasticities of retail demand with other sectors are -0.5 for food and -1 for nonfood (CPB, 1990).

Depending on the market structure, changes in costs can not always be passed on to consumers. Since the retail market is competitive in some segments and less so in others, we assumed a gradual increase in the extent to which costs changes are passed on to consumers. Furthermore, a small autonomous growth of retail sales was assumed because of the larger availability of retail services. Autonomous growth is largest in the food sector, which competes with snack bars and other fast food suppliers. On average, in the short run, the autonomous increase is assumed to be 1% of retail sales (at the expense of other sectors).

Short-run outcomes

The model calculates all effects simultaneously, which resulted in the outcomes presented in Table 2. Total sales volume and prices increase marginally, while profits as a percentage of sales show little change. Employment in retail trade increases 1.8%, which amounts to about 8,000 full time jobs above the base year of the model (1991). Large retailers clearly benefit most. The volume of sales of medium- and large scale retail companies increases but decreases for the small retailers. Employment increases most for large retailers and least for small retailers.

Economic effects in the medium run

CPB (1995) presents outcomes for the medium term, after complete liberalization of shop opening legislation, including Sunday opening. Assumptions differ from the short-term analysis in three respects. Most importantly, opening hours are supposed to increase more. In particular, the increase in opening hours is twice that in the short run; on average shops are open five hours longer every week.

Table 2 Liberalized shop opening hours: results in the short run, by shop size

	Small	Medium	Large	Total
	Changes in %-points in the short run			
Sales				
value	-0.6	1.4	2.4	0.9
volume	-1.3	0.7	1.7	0.2
price	0.7	0.7	0.7	0.7
Profit share	0.0	0.1	0.0	0.0
Employment	0.6	2.1	3.1	1.8

Source: CPB, 1995

Second, the autonomous sales increase can be expected to be somewhat lower than in the short run. In the short run, the longer opening hours are new. People might thus buy more than they would otherwise. Indeed, consumption shifts not only between sectors but also intertemporally so that the consumption quote increases temporarily (because of bringing forward purchases of durable goods, such as furniture). In the medium run, the autonomous increase was assumed to be only 0.5% of sales.

Third, in the medium run capital costs are no longer fixed, but vary with sales volume per opening hour. Also threshold labor is more flexible in the medium run. It takes some time to find the most efficient number of employees for the new opening hours and to adjust the number and type of employees to the new situation. This enhanced flexibility reduces costs.

These modifications yield larger disparities between small and large shops than in the short run. Large shops benefit relatively more. The increase in employment is stronger because of the negative effect of the additional opening hours on labor productivity. The labor productivity's decreasing effect of more threshold labor dominates the labor productivity increase as a consequence of the shift of sales towards large-scale shops. Employment increases by 0.6%-points more than in the short run. Retail employment growth then corresponds to almost 11,000 full time jobs in

Table 3 Responses of retailers and consumers to the new shop opening legislation

	SHOPS	CONSUMERS
MKB (1997)	32% of food shops open occasionally in the evenings. 20% of non-food shops open occasionally in the evenings. 15% of all shops open regularly in the evenings. 5% of all shops open on Sundays.	
IMK/REA (1997)	24% of all shops increased opening hours, 7% open more than 65 hours per week. 4% of shops open more than 4 Sundays per year. the effects are strongest in the food sector (supermarkets).	56% of consumers shop in the evenings; relatively more men and young people than women and elder people, but even 20% of those older than 65 use the evening opening hours.
CBS (1997)	42% of large retailers increased opening hours and 78% of the top-100 companies. 13% of small and medium enterprises open longer and 39% of entrants.	half of all consumers shop in the evenings, and nearly ¼ more than once a week. 2/3 of consumers value the fact that shops are open during the evenings as 'good' or 'very good'. about 28% of consumers shop on Sundays, most of them more than three times a year.

the base year. The medium-run price effect is relatively smaller, reflecting the costs-decreasing effect of labor and capital flexibility and the growing market share of (more efficient) large scale shops (for more details on the outcomes, see CPB, 1995).

First experiences after deregulation

Enough time has passed since deregulation to carefully evaluate some of the first experiences. There have been several inquiries among retailers and consumers, with questions about the actual opening hours and the effects on consumer behavior.

One of the inquiries among retailers (MKB, 1997) shows that supermarkets are now open 70 hours per week on average, 15 hours more than in 1995. The average increase in hours for the total retail sector is much lower.

Table 3 surveys the outcomes of inquiries about the extension of opening hours and consumers' reactions. Large shops responded more strongly than small shops did, especially in the food sector. In the nonfood sector, large-scale stores in sectors such as building materials, garden centers and house-furnishing responded strongly. In the IMK/REA study, 24% of the shops increased their opening time, but this corresponded to 52% of the overall floor space of shops. Opportunities for Sunday opening are not extensively used, except in the centers of a few large cities and some out-of-town locations with large nonfood stores.

Whereas large-scale retailers were projected to gain most, CPB (1995) expected also that new kinds of small-scale shops (e.g. convenience stores) would enter the market. This restructuring has in fact already started. The longer opening hours for shops in gas stations (which are allowed to sell a wider range of products) are extensively used. Moreover, CBS (1997) reveals that newly established shops are exploiting longer opening hours on a relatively large scale.

Consumers clearly appreciate the longer opening hours. Broader availability of retail services is especially advantageous for people combining work and a household. However, also many older people without children at home use the new opening hours. Fewer rush hours in shops and shorter lines for checkout points also benefit consumers. Indeed, the positive effects on consumer welfare are probably the most important benefits of the deregulation.

Conclusions

This article discusses the economic effects of liberalizing shop opening hours. We adopt a partial equilibrium model aimed at investigating the short-term effects for the retail sector. By making some modified assumptions, the model provides insight also in the medium-term effects presented in CPB (1995). For the short run, we find that with an average increase in opening hours of about two and a half hours per shop per week, prices and sales volume increase marginally. The effects for large-scale retailers in the food sector are largest. Employment increases by 1.8% in the short run because of the negative impact of longer opening hours on labor productivity. In the medium run, with an increase in opening hours of five hours per week, employment rises by 2.4%. From the available information about the use of longer opening hours by retailers, it appears that the large-scale food shops are indeed changing their opening hours most. Given the relatively broad use of longer shopping hours, the new legislation appears to be successful already after a year and a half. The longer opening hours put into effect by retailers reflect the demand by a broad group of consumers who clearly appreciate the greater availability of retail services. ■

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Notes

[1] In principle, shops are not allowed to open on Sundays and holidays, but the local government can grant permission for 12 Sundays (or holidays) per year.

How competitive is the Dutch coffee market?

Leon Bettendorf and Frank Verboven*

Abstract

World coffee bean prices have shown large fluctuations during the past years. Consumer prices for roasted coffee, in contrast, have varied considerably less. This article investigates whether the weak relationship between coffee bean and consumer prices can be explained by a lack of competition on the Dutch coffee market.

Samenvatting

Terwijl wereldmarktprijzen voor koffiebonen de laatste jaren sterke fluctuaties vertonen, blijven de wijzigingen in de consumentenprijzen voor koffie beperkt. Dit artikel poogt een verklaring te geven voor deze zwakke relatie tussen koffieboon- en consumentenprijzen. Met name wordt onderzocht of dit te maken heeft met een mogelijk gebrek aan competitie op de Nederlandse koffiemarkt.

Introduction

World coffee bean prices have shown large fluctuations during the past years. Consumer prices for roasted coffee, in contrast, have varied considerably less. Figure 1 illustrates the relationship between coffee bean and consumer prices in the Netherlands. Bean prices dropped at the end of 1992, but consumer prices hardly responded at all. When bean prices more than doubled in the middle of 1994 (due to a frost in Brazil), consumer prices increased by only 50%. Industry observers have offered two alternative explanations for the observed weak relationship between coffee bean and consumer prices (NRC, 29 March 1997). First, coffee beans constitute only a part of the production costs for roasted coffee. Labor costs and packaging costs are other potentially important determinants. Second, coffee roasters may feel constrained to raise their prices by too much due to negative demand responses by consumers. If this is the case, firms may absorb bean price increases by reducing their markups.

This article seeks to carefully evaluate both the cost and the markup explanations for the observed relationship between coffee bean prices and final consumer prices. For that purpose, we estimate a structural model of coffee supply and demand, following recent advances in the growing field of the "New Empirical Industrial Organization" (Bresnahan, 1989). The theoretical framework reveals that the cost explanation may be relevant to the extent that labor and packaging influence the *marginal* cost of producing coffee. The markup explanation may be relevant to the extent that firms recognize their oligopolistic interdependence and behave closer to a cartel rather than the competitive outcome. Our structural parameter estimates enable us to assess the relative importance of both explanations.

Within our structural framework, the strong volatility in bean prices, mainly caused by exogenous weather conditions such as a late frost or enduring drought, provides a unique natural experiment to analyze the coffee roasters' oligopolistic behavior. An analysis of this behavior is relevant because of the widespread suspicion that market power is significant in the food-processing industries. Sutton (1991) provides ample evidence that a small number of firms dominates many foodstuff markets. Furthermore, OECD (1996) reports that the agri-food sector, after the labor market, is the second most exempted, or favorably treated area under competition laws. It therefore argues in favor of enhancing competition in the production and sale of agricultural goods.

Our study employs publicly available monthly data. The Dutch coffee market features one dominating firm, namely Douwe Egberts. This firm roughly accounts for between 60% and 70% of total sales. Many small firms compete in the remaining segment. Imports are relatively small, although increasing.

This article is structured as follows. The next section presents the econometric model based on our prior knowledge of the coffee sector. Next, the empirical results are presented. An extended discussion of the data and results can be found in Bettendorf and Verboven (1997).

The Model

Supply

Coffee supply is determined by the condition that perceived marginal revenue equals the marginal cost of production. Following the New Empirical Industrial Organization (Bresnahan, 1989), this condition can be written in aggregate form in the following flexible way:

$$\frac{p_t}{1+\tau}\left(1 - \frac{\theta}{\varepsilon_t}\right) = mc_t \qquad (1)$$

where mc_t denotes marginal cost in period t. The left-hand side is the firms' perceived marginal revenue and is now explained intuitively. The parameter τ reflects factors that drive a wedge between the consumer price, p_t, and the wholesale price of coffee, $p_t/(1+\tau)$, e.g. due to value-added taxes. Note that all prices are expressed in real terms. Marginal revenue depends also on the price elasticity of market demand $\varepsilon_t = -(\partial Q_t/\partial p_t)(p_t/Q_t)$, where Q_t represents total coffee demand.

The parameter θ captures the degree of oligopolistic interdependence in the industry. If θ equals zero, perceived marginal revenue is equal to the (wholesale) market price,

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and coffee supply is perfectly competitive. If θ equals 1, perceived marginal revenue is equal to the marginal revenue of a monopolist, so that the coffee industry behaves, effectively, like a cartel. In between these two extremes are various models of oligopolistic interdependence. If an estimate of θ between zero and one is found, it is useful to stick to one clear interpretation of θ. In the discussion of the parameter estimates below, we follow the interpretation of $1/\theta$ as the "Cournot-equivalent number of firms." This is the number of firms that is consistent with the data if one believes that the industry behaves according to the symmetric Cournot oligopoly model. For example, an estimate of θ of 0.25 implies that the industry behaves *as if* there are four identical Cournot-competing firms in the industry.

From (1) one can easily compute the Lerner-index, *L*. This index measures market power, and is defined as the percentage markup of producer price over marginal cost:

$$L = \frac{p_t/(1+\tau) - mc_t}{p_t/(1+\tau)} = \frac{\theta}{\varepsilon_t} \qquad (2)$$

According to the Lerner index, market power is strong if there is strong oligopolistic interdependence or if consumers feature inelastic demand.[1]

Expression (1) reveals that bean prices influence consumer prices both directly through their impact on marginal cost, and indirectly through their impact on the price elasticity of demand. Given our research question, we need to specify functional forms for both marginal cost and demand in the coffee market.

Demand

We choose a simple linear form for the demand equation:

$$Q_t = \alpha_0 + \alpha_1 p_t \qquad (3)$$

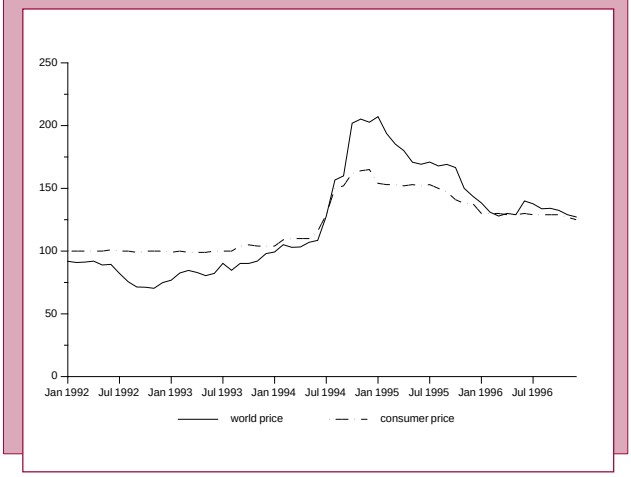
with $\varepsilon_t = -\alpha_1 p_t / Q_t$. The specification is extended with three quarterly season effects.[2] An increase in the coffee price may reduce demand for several reasons. First, consumers may drink less coffee and switch to substitutes. Second, they may use a lower dosage of coffee. Finally, consumers may become more careful (preventing spilling).

Marginal costs

We use prior knowledge of the coffee roasting production process to impose restrictions on the cost function. As discussed, for example, in Sutton (1991), the production process is quite simple. It involves roasting and grinding the coffee beans into the final coffee substance, which is then packaged for consumer use. Coffee beans, packaging and labor are essentially used in fixed proportions. Furthermore, economies of scale in production are extremely limited, making average variable and marginal cost independent of output. These facts yield the following specification for marginal cost:

$$mc_t = \beta_0 + \beta_1 w_t^b \qquad (4)$$

Figure 1 Evolution of coffee prices (1990=100)



where w_t^b is the price of coffee beans. The constant β_0 captures other factor costs, in particular labor and packaging costs. Detailed data on these costs are not available, but they presumably did not vary much over the sample period, as compared to bean costs.[3] A rough rule of thumb in the industry states that — on average—about 60% of total costs are bean costs (*Financieel Dagblad*, 3 May 1997). Given the importance of fixed costs (e.g. advertising), the share of beans in the *marginal* costs may be even somewhat higher. To gain precision of parameter estimates, we fix β_0 by imposing the restriction that other costs have on average been 40% of marginal costs.[4]

The coefficient β_1 can be interpreted as the transformation rate of beans into roasted coffee. According to experts, the production of one kilogram (kg) of roasted coffee requires 1.19 kg of beans. About 20 percent of the raw coffee beans consists of water and evaporates during the roasting process. This number is roughly confirmed by our data: during our complete sample period, the total input volume of coffee beans was 1.2 times the total output of roasted coffee.

The supply side is now completed, after substituting the demand elasticity from (3) and marginal cost given by (4) into the first-order condition (1). The system consisting of this supply equation and demand equation (3) is estimated simultaneously using the generalized method of moments.

Results

The estimation results are presented in Table 1 (see next page). First, the mean value of the implied price elasticity of demand equals 0.2. This is consistent with estimates obtained for the United States and Germany.[5] We can draw a first inference about industry conduct from this robust result. Since marginal costs cannot be negative, condition (1) implies that the conduct parameter cannot exceed the price elasticity, i.e. $\theta \leq \varepsilon_t$. This result holds generally, irrespective of functional forms. It implies that a profit-maximizing cartel ($\theta = 1$) always operates on the elastic part of its demand function. Given our estimated elasticity of 0.2, cartel behavior can thus be rejected. The δ-coefficients reflect seasonal effects: demand is lowest in the first quarter and highest in the final quarter of a year.

Table 1 Coefficient estimates & standard errors

intercept in demand α_0	0.788	(0.046)
price effect on demand α_1	-0.011	(0.003)
second quarter effect δ_2	0.033	(0.016)
third quarter effect δ_3	0.040	(0.019)
fourth quarter effect δ_4	0.098	(0.018)
effect of bean price on marginal cost β_1	1.679	(0.057)
conduct parameter θ	0.031	(0.008)
price elasticity of demand ε	0.211	(0.060)
Lerner-index *L*	0.147	(0.028)

Note: ε and *L* are evaluated at sample mean values

The estimate of β_1 looks quite high compared to the value of 1.2 for the physical rate of transformation of beans into roasted coffee. One explanation is a systematic distribution and transportation margin. The coefficient implies a margin of about 40% of the value of output.

The conduct parameter θ is estimated to be rather small, implying a rejection of the hypothesis of monopoly (θ =1). The hypothesis of perfect competition (θ =0) is rejected as well in favor of oligopolistic interdependence. The industry roughly behaves as if there were around 30 symmetric Cournot-competing firms. Due to the low price elasticity, the Lerner index is relatively high (e.g. compared to the estimate of 0.06 obtained by Roberts (1984) for the US).

These results are used to analyze the price changes observed in 1994. Decomposing the effects of the large increase in bean prices (104%, in real terms) shows why the increase in consumer prices ends up much smaller (45%). First, the rise in bean prices results in a limited increase in marginal costs (57%), due to the assumed average 60% cost share of beans. A second dampening effect on consumer prices stems from a reduction in the markup (-8%), following an increase in the price elasticity. Markup absorption thus occurs, but remains unimportant since θ is not large. Finally, the model is simulated for alternative firm behavior, different from what is actually observed. In the case of a symmetric duopoly (θ =0.5), the mean simulated price would be 145% higher than the observed price, whereas the growth rate in 1994 would be much smaller (12%) because markup absorption would become more important. Under a cartel (or monopoly) outcome (θ =1), these figures are 227% and 7%, respectively.

Conclusion

This paper has analyzed the observed weak relationship between coffee bean prices and consumer prices in the Netherlands. Using a structural model of oligopolistic interaction, we show that the relatively large share of costs other than bean costs is responsible for a substantial part of the observed weak relationship. The remaining part follows from markup absorption, but this is less important since coffee producers behave in a relatively competitive manner. Simulations of the model show that consumer prices would have been much higher and fluctuated even less in response to bean price fluctuations if the industry had behaved according to a Cournot duopoly or a cartel.

We employed publicly available data on the Dutch coffee market. Given the moderate data requirements, we hope that the analysis will stimulate further research to investigate firm behavior and market power in other sectors of the economy.

At the same time, there is room for additional in-depth analysis of firm behavior in the coffee industry, provided that additional data can be obtained. With firm-level data, it would be possible to analyze firm-specific oligopoly behavior. The present analysis reveals interdependent, although rather competitive conduct at the *aggregate* level, but firms may still exert strong *individual* market power. Furthermore, more detailed data would allow us to consider dynamic aspects in the industry. For example, inventory costs, adjustment costs or consumer loyalty may to some extent influence the relationship between coffee bean prices and consumer prices. ■

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Notes

[1] An alternative approach to estimate market power is proposed by Hall and refined by Roeger (see Oliviera Martins et al., 1996 and van Dijk et al., 1996). This analysis is based on the definition of the Solow residual and applied at a sectoral level, for which (annual) data on growth rates of inputs and outputs are available. This technique estimates the Lerner index directly, assuming it is a constant. Our industry-level approach, in contrast, focuses on the two components of a time-varying markup, i.e. a conduct parameter of oligopolistic interdependence and the price elasticity of demand.

[2] Adding the tea price and total expenditures as additional variables yielded insignificant estimates and were dropped.

[3] We did include the wage rate in the food sector, but this variable was insignificant since it did not show much variation in real terms.

[4] Our more detailed working paper shows that this restriction on the constant could not be rejected.

[5] For the U.S., Roberts (1984) reported a price elasticity of 0.25. Feuerstein (1996) estimated a value of 0.18 for Germany.

Competition in communication and information services

Marcel Canoy*

Abstract

The Dutch markets for communication and information services have recently been liberalized. The introduction of competition is accompanied by potential market failures that need to be tackled by the government. This article discusses some general principles of regulation during the transition from a tightly regulated market towards a more liberal regime. It also analyzes some of the economy-wide effects of liberalization.

Samenvatting

De Nederlandse markten voor communicatie en informatiediensten zijn recentelijk geliberaliseerd. De introductie van mededinging gaat gepaard met potentieel marktfalen, waar de overheid een oplossing voor dient te vinden. Dit artikel behandelt enige algemene principes van regelgeving voor de transitie naar een meer liberaal regime. Het analyseert ook een aantal effekten van liberalisering op de economie.

Introduction

This article discusses the main results of a recent study on competition in the Dutch communication and information (C&I) services market (see Bernardt and Canoy, 1997b). The underlying study consists of two parts. First, it overviews the current situation and explores some problems that the government faces when it introduces competition. Second, it seeks to find out why competition in the market for C&I services is important for the economy as a whole. The first part aims to fill a gap in the Dutch literature on competition and regulation in the C&I sector. The second part is more in line with CPB's traditional fields of expertise. Much of CPB's research focuses on how certain policies or developments affect the economy as a whole. The research discussed in this article therefore combines elements of "new markets" for CPB (institutions and competition) with CPB's "old specialties" (economy-wide effects).

This article concentrates on main lessons of the study. For the underpinning of the lessons the reader is referred to the underlying study.

Objectives and tools

Liberalization aims at increasing competition. The markets of C&I services feature two potential obstacles on the path towards more competition. First, market failures, mostly associated with network features, threaten to thwart competition. For instance, if one player owns the most important network, access to that network is likely to become prohibitively expensive if the dominant player is free to determine the price for accessing that network. Second, also in other aspects than network ownership, the former monopolist often dominates the liberalized market and can thus abuse this position to obstruct competition. After the decision to liberalize, the government has to make sure these two obstacles are handled adequately. Adequate handling involves deciding in each circumstance if regulation is called for, and, if so, how to conduct and organize regulation.

The first part of our research aims at providing some tools to the government to handle the problems mentioned above. The description and analysis of the markets of C&I services gives rise to a number of policy questions. We identify the most important of these questions, discuss policy options and assess their economic consequences.

The second part of our study looks further ahead (a dozen years) and further beyond the C&I submarkets. The principal objective is to investigate the effects of liberalization on the economy as a whole. Since everybody watches TV and uses the telephone, competition in C&I services exerts a strong impact on the economy, but where, how and to what extent? In evaluating the effects, we take the level of competition as given. The question therefore is not how to reach competition, but rather what happens to the economy given a particular institutional setting for competition. To give an example, in a favorable economic environment with a competitive C&I market, how does C&I competition affect transaction costs in credit markets? We then vary the settings by considering various scenarios and see what we can learn from this variation in regulations and the environment.

Economic theory does not state unambiguously that deregulation, liberalization and competition enhances welfare under all circumstances for everyone. We describe the general effects that are expected to occur in the optimal situation of competitive C&I markets with a minimum of market failure. Apart from discussing the benefits of competition, we point also at the dangers if liberalization fails.

We discuss three channels through which enhanced C&I competition benefits the economy. The first channel involves the C&I markets themselves: how does more intense competition affect the price/quality mix of products and services? The second channel involves the use of C&I services by downstream industries. Input costs in downstream industries can be reduced by C&I use. In this connection, the C&I sector is rather special because improvements in the price/quality mix of C&I products can reduce transaction costs in many markets. Lower transactions costs may not only allow for substitution away from other inputs, such as inventories, but also improve the functioning of other markets or create markets that otherwise would not exist. The third channel involves another dimension of downstream industries. Improved competition in C&I markets

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may alter also the dynamic structure of the economy. Consumer tastes can be affected by information flows. Production technology may improve more rapidly under the influence of lower costs of innovation brought about by increased accessibility to stocks of knowledge. To become more specific about these general effects, we elaborated on a number of representative case studies.

This study compelled us to make a large number of choices; choices on policy options, on case studies, on ways to fill in the scenarios and on many other things. More often than not, these choices were founded neither on empirical work, nor on modelling outcomes, nor on a clear consensus in the literature. We therefore had to pool together information from various sources. Apart from taking advantage of the literature and experiences from abroad, we gathered information from about 20 interviews with market players and experts. The interviews were valuable, in particular considering the rapidly changing nature of the market, which quickly renders information obsolete. Given the time-span and purpose of our study, an eclectic approach was necessary.

Lessons on competition and regulation

The underlying research discusses a number of specific policy questions, policy options and their pros and cons. This article pools the information together and draws some general lessons on competition and regulation.

Lesson 1: Regulation plays a vital role during the transition period towards a competitive market.

There is fairly broad consensus on the lesson in the Netherlands nowadays. Both market parties and the Parliament support this approach (see Bernardt and Canoy, 1997a). Less consensus exists on the level, organization and time-span of regulation.

The most telling example of Lesson 1 is the regulation of interconnection charges, i.e. the prices of the service that is required to establish the link between different networks in order to guarantee interoperability.[1] PTT-Telecom still occupies a dominant position in the market for fixed-wire telephony, because it is the only operator with a final link to the customers (the so-called local loop). This implies that all other operators depend on PTT's network to serve their customers. Not only the level of the charges, but also its cost base and the long-term credibility of regulation determines whether or not competition in both services and infrastructure will take place. Long-term credibility of interconnection regulation determines, to a certain extent, whether or not investments in infrastructure will be made. Potential investors are not prepared to take risks if they do not have confidence in future regulation. The level and cost base of interconnection charges determine whether competitors have sufficient manoeuvering space to effectively compete in services. In particular in the short and medium term, when there is no alternative local loop available, operators have to pay interconnection charges to the PTT both for outgoing and incoming phone calls, which puts more weight on the appropriateness of the level and cost base of the charges. If local loop competition has materialized (either by a wireless local loop, by TV cables or both), access charges for outgoing calls (so-called originating access) becomes a competitive service, so that the regulator needs to monitor only the charges for incoming calls, which remains a bottleneck facility even in the presence of competing local loops. The interconnection example shows that regulation is essential to boost competition during the transition period, after which regulators can back off if competition has reached more mature stages.

Consider the introduction of various forms of conditional access television. Conditional access can improve the match between supply and demand of TV programs by explicitly linking consumer preferences to supply through subscriptions, instead of implicitly through advertisements. Leaving the coordination of decoder standards to the market suffers from the real risk of coordination failure, which is likely to result in incompatible standards and a delay in the introduction of decoders. Another market failure involves a discontinuity in the penetration rates of decoders. Consumers do not want decoders if that implies that they cannot look at all the channels they like, whereas popular channels do not want to disappear behind a decoder if there is no full penetration of decoders. The potential benefits of conditional access television might be reaped only if the government tackles this coordination problem. Once decoder penetration has been established, the government can step back and monitor the TV market from a distance.

Lesson 2: Regulatory watchdogs should make themselves redundant as quickly as possible.

It seems paradoxical to first plea for additional efforts by the regulator and then to conclude that the regulator should aim for self-liquidation. The logic of the second lesson lies in the ultimate objective of transition regulation, which is deregulation. Regulation should assist the market on its way to a competitive environment. Accordingly, successful regulation implies that markets become competitive as soon as possible, which then removes the need for watchdogs. Think of a football analogy: an optimal referee in a football match has such a good reputation that he does not need to blow his whistle at all. The regulatory watchdog in the U.K., Oftel, has in fact announced that it aims for self-liquidation in 2002.

Regulators should move towards self-liquidation because they can become anti-productive and can obstruct innovation in a dynamic market. In the quickly moving C&I markets, infrastructure tends to converge (i.e. both information and communication services can be transported through various types of infrastructure), new models are quickly outdated and replaced by even newer ones, and services emerge that are hybrid in nature (i.e. combine elements of communication and information). Clearly, such a world does not need regulatory straitjackets. Neverthe-

less, rules and referees are vital during the stage in which market failures can obstruct developments more than regulation does.

Lesson 3: Social and political goals should not be attained through C&I markets. Socially adverse effects created by liberalizing of C&I markets can best be cured directly, rather than by distorting C&I markets.

Social and political goals in C&I markets should be placed in historical context. C&I monopolists used to have a utility role. Nowadays, the utility role is minimal. Liberalizing the C&I market implies that market distorting constraints with a utility flavor should be placed in the museum next to the monopolists. This does not mean that the government should be passive if liberalization creates socially adverse effects. As the following examples illustrate, these effects can better be handled separately.

The utility-flavored constraints occur in fixed-wire telephony, mail and possibly also in the TV market in the future. Society has strong feelings about universal service for telephony, mail and TV. Everybody must be able to watch TV, receive mail and access telephony for a reasonable price. In telephony, low-frequency callers put a burden on other callers by being unprofitable customers. This can become a problem in a competitive market by distorting the market, as prices do not reflect costs. The suggestion to rebalance the tariffs has lead to political objections. However, specific measures aimed at disadvantaged groups seems a superior way of dealing with this problem. In the TV market, a similar story applies to the price of public TV, which does not reflect the underlying costs.

Lessons on economy-wide effects of competition

In analyzing the economy-wide effects, we concentrate on both the opportunities for competition and the dangers of liberalization. Apart from identifying the location and the scale of economy-wide effects, we discuss also the relative importance of policy and the economic environment.

Lesson 4: In the assessment of the impact of C&I competition on the economy, the government's ability to handle market failures in the transition period is often more important than the economic environment.

Normally one would not expect regulation to be more important than the economic environment in a market such as this, because technological developments are typically perceived as a pervasive trend. The key is that regulation has reached a crossroad. Between now and the coming, say, five years, a number of vital choices must be made. If the regulators take a wrong turn, a competitive chaos is looming. The environment always plays a role. No matter how effective one regulates, low growth rates discourage investments and consumer spending. If the regulator takes the right path, the economic environment determines how easy the path will be and how fast one arrives at the competitive goal. The lesson does *not* say that a lot of regulation is called for. Successful regulation is vital, but success is not necessarily associated with heavy government interference.

If, hypothetically, the regulator sets interconnection charges at such a high level that no new entrant can effectively compete in services, and if the long-term credibility of the regulatory watchdog is so doubtful that no entrant dares to invest, the economic environment becomes irrelevant to the question of whether or not competition will take place. The matter is highly complex and so the question is not solved easily. Even well-equipped Oftel did not succeed in realizing effective competition in the U.K. during the first ten years after liberalization.

Lesson 4 can be further illustrated by the case studies included in the second part of the CPB study, notably teleshopping and conditional access TV. Even the 'bad environment' scenario allows substantial scope for teleshopping. The bottleneck for the development of teleshopping lies in C&I policy. Unsuccessful policy creates bottlenecks in the interface and C&I investments that are required, while prices for C&I services are high as well. Although technological developments can be pervasive, diffusion of technology is not.

Lesson 5: Benefits from competition in C&I can be most effectively reaped (and sometimes only be reaped) if competition is complemented by other developments, notably in the organization and production process of firms.

Kremer (1993) demonstrates that production processes often require complementary actions and conditions for these processes to be successful. In a number of articles, Brynjolfsson (http://ccs.mit.edu/erik) showed that this holds in particular for ICT related developments. Our study confirms these insights. Electronic Data Interchange (EDI) is a protocol of data communication that permits businesses to replace paper documents with their electronic equivalent. EDI consists of data transport in standard formats, often in conjunction with up- and downstream trading partners and banks and typically squeezes unnecessary (product) inventory from the supply chain, from manufacturer to end-user. EDI can be a costly failure if employees do not know how to operate the associated machines or management does not want to bear the full consequences of the technology.

We used the example of DAF trucks to illustrate the point. It clearly demonstrated that a full implementation of EDI at all levels, using all complementarities, can yield substantial gains: before the reorganization and implementation of built-to-order production and EDI, DAF was virtually bankrupt. Currently, DAF trucks is a successful company. The benefits do not originate in EDI per se, but rather in the combination of EDI and the modified production process, the organization, and the relationships with the suppliers and customers.

Another example of complementarity involves teleshopping. Some retailer can create the most beautiful virtual shop in the world (in fact, some pretty nice ones al-

ready exist), but lack of support from transport, willing consumers, C&I firms (for the interface), banks (safe and user-friendly payment systems), or user equipment can obstruct the development of teleshopping. The failure to successfully deal with the complementary elements obstructs the development of teleshopping.

A final example of a failure to recognize complementarities was the attempt to introduce a conditional access sports channel in the Netherlands (Sport 7). The required complementarities were the cooperation of the cable operators, the government and the consumers. A new attempt (sports and movies, Canal+) has learned this lesson from the Sport 7 failure and appears to be doing comparatively well.

Lesson 6: The consumer benefits of C&I competition are often not evenly distributed and are manifested in increased leisure, improved quality, widened product range, or better service.

Improved competition in C&I services implies that the services become cheaper, faster, more accessible and more diverse. Liberalization implies also a repositioning of C&I suppliers. In the 'utility times' of the C&I markets, the public good aspects effectively implied that heavy users were sponsored by infrequent users. This applied to both TV and telephony. With C&I goods and services, marginal costs are frequently quite low, while fixed costs are high. Pricing schemes that charge high fixed subscription fees and low usage charges (for example for telephony) enhance economic efficiency, but place a financial burden on customers with low usage. In the television market, where the marginal cost of having an additional viewer watch is zero, conditional access (decoders) can distribute costs more evenly over viewers who pay only for usage. Lesson 3 implies that adverse social effects should be solved separately.

C&I products and services are consumed disproportionately by the wealthy, at least initially. However, prices of improved goods often start out high because producers attempt to price discriminate, i.e. to extract surplus from those with a high willingness to pay. Eventually, prices of goods in a competitive market drop to levels that make the purchase affordable for broader classes of consumers.

Concluding remarks

From the lessons above, the following picture emerges. Regulation plays a crucial role during the transition phase to achieve a competitive market as soon as possible. Regulation can manifest itself in various forms. The most interventionist regulation determines prices (interconnection). Less interfering regulation levels the playing field (mobile telephony) and puts market parties together to push them in the right direction (decoders). The lightest degree of regulation concerns various forms of monitoring, such as monitoring quality of service. The regulatory watchdogs should aim at the lightest possible form of regulation that still manages to achieve the goal, so that the market is only minimally distorted. Nevertheless, in some cases heavy regulation is called for.

Another general aim of regulation is to be time consistent and credible in the long run. Time consistency is important, because the market is dynamic, so that static notions should be avoided or be easily adaptable whenever appropriate. Credibility in the long run is essential to reduce risks for the investors. The regulator thus faces a trade-off between commitment and flexibility.

The future trends point at improvements in quality, widening of product choice, reduction of transaction costs and increased flexibility of producers (which leads to more tailor-made products and services for consumers). On the one hand, markets become more transparent. On the other hand, products become more differentiated so that in general the effect on competitiveness is ambiguous.

In the "bad" world, where regulators have taken wrong turns and the economic environment is unfavorable, high-income groups profit from C&I innovations and low-income groups live similar (but more expensive) lives as in 1997. The biggest danger in such a scenario is that C&I widens the gaps between the two groups. In this world, the C&I markets are chaotic while inefficient entry and exit occurs. The "good" world, where regulators have taken the right path and the economic environment is helpful as well, produces a more balanced picture. Increased competition in C&I services leads to prices that are affordable for most people so that there is a high penetration of new user equipment, such as decoders, mobile phones and so forth. Effective policy backs this up with education for lower income groups.

There are other tasks for the government apart from regulation. *First*, the Competition Authority (NMa) should gradually take over tasks from the regulatory watchdogs. The sooner they can do this, the better regulation has worked. The *second* governmental task involves stimulation. Mass acceptance of new technology is eased if the government gives a good example (e.g. information about all governmental bodies available on Internet) and if education is attuned to the new needs of the information society. The *third* and final government action involves social goals. In particular, the government might want to protect lower income groups to prevent a further widening of the gap between income groups. Other social goals involve specific measures, e.g. for universal service (see Lesson 3). ■

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Notes

[1] Interoperability implies that each user can reach all other users, no matter which network is used.

Competition in health care: A Dutch experiment[1]

Eric Bartelsman and Philip ten Cate*

Abstract

This article briefly summarizes the trade-offs in choosing managed competition as a system for mitigating market failures in health care and for simulating the features of a perfectly competitive market. Not much empirical evidence exists at the systems level, however, to evaluate the trade-offs. This article describes why the Netherlands represents an ideal location for a controlled experiment with managed competition, and how such an experiment can be implemented.

Samenvatting

De afwegingen die spelen bij het kiezen voor gereguleerde mededinging als systeem voor het oplossen van marktfalen in de zorg en voor het nabootsen van aspecten van volledige mededinging worden kort weergegeven. Er bestaat echter weinig inzicht in de empirisch betekenis van deze afruilen. In dit artikel wordt beschreven waarom Nederland een geschikte plek is om te experimenteren met gereguleerde mededinging, en hoe zo'n experiment er uit zou kunnen zien.

Introduction

Health care expenditures have ballooned during the previous decade in most industrialized countries, both in per capita terms, and as a percentage of GDP. A growing expenditure share for health care does not necessarily indicate any underlying economic problem. Increased expenditure shares on software or restaurant meals, for example, do not provide a cause for policy action. There are several indications, however, that current health care outlays do not represent consumer preferences, so that the system may not meet patient needs in the most efficient manner.

In a perfectly competitive market the worries about the growth of health care spending would be unfounded. The market outcomes would be efficient, both statically and dynamically, and production would not suffer from X-inefficiency. However, the conditions necessary for a perfectly competitive market are not met in the health care sector. In a free market, market failures associated with imperfect information would produce inefficient outcomes. Indeed, the health care market in the Netherlands operates with strong government involvement, as it does in most industrialized countries.

More than 80 percent of health care expenditures in the Netherlands are disbursed by the government, which collects much of the needed revenue through sickness fund contributions levied on the payroll.[2] Owing to fiscal pressures, the government attempts to reduce costs and increase non-tax revenue. Cost control has occurred through central budgeting and price control of hospitals and specialists, through direct capacity management, and, to a lesser extent, through reductions in coverage. Non-tax revenue has increased by requiring patient co-insurance. Some effort has been put into improving efficiency by using market mechanisms, but mostly for insurance administration, and less for health care delivery itself. Improving the efficiency of health care delivery may or may not reduce aggregate health expenditures, but, as will be argued, should diminish political concern about escalating costs.

Effects of market failures

The health care market deviates in important ways from a stylized perfectly competitive market. To start, consumer preferences for health care are unlike those for traditional goods. The need for health care is subject to a special form of risk, with infrequent but unpredictable and very costly events. Consumers are unable to use savings to cover the risk because of the uncertain timing of the event, while they are unable to borrow because their state of health makes them bad credit risks. In general, these conditions give rise to a market for pooled savings, or insurance, to ensure accessibility.

Insurance markets, however, will not function efficiently because they are subject to adverse selection or moral hazard. If uniform rates are charged to different risk groups because the insurer cannot observe health risks, individuals who know that they are high risks will choose insurance, while low-risk individuals will not. Rates will thus rise to reflect the higher risk of the insurees, which causes further selection. Adverse selection thus can cause a death-spiral of smaller risk-pools until insurance no longer is offered (see Schut, 1995).

Another problem, risk-selection by insurers, occurs because health care demand is highly skewed across consumers: To illustrate, in one study, only 1 percent of patients accounted for as much as 28 percent of total costs (see Newhouse, 1996). Although only a small portion of the probability of health care needs can be predicted using readily available indicators such as age and gender, screening high-risk individuals can be profitable for competing insurers.

Insurance also suffers from moral hazard on the demand side of the market because insured consumers no longer face a budget constraint when purchasing health care. With complete insurance, consumers will desire any care with positive marginal benefits, regardless of cost. Finally, asymmetric information permeates health markets. Consumers lack information about the need for health care services and thus defer judgment to those with medical training. Accordingly suppliers have the market power to create their own

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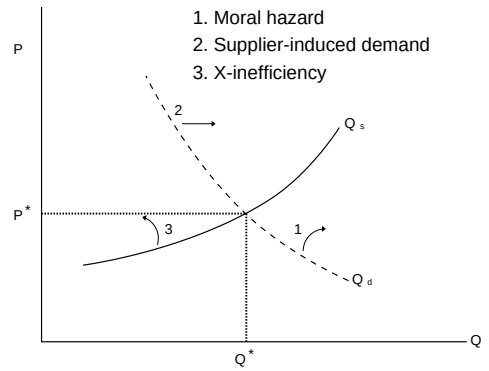
Figure 1



demand, and thus face incentives to provide excessive (or inefficient) care.

Figure 1 shows the market supply and demand curves, Q_s and Q_d, under the assumptions of perfect competition. The supply curve reflects marginal costs, while the demand curve depends, among other factors, on income, age structure, and the health conditions of consumers. At the equilibrium outcomes p* and Q*, social benefits equal social costs, thus producing static efficiency.

In a hypothetical free health care market, however, this equilibrium will not be achieved. Moral hazard on the demand side will shift the demand curve and allow private and social returns to differ. Depending on the type and amount of co-insurance, the demand curve will rotate upwards, and become vertical in the absence of co-insurance, as denoted by effect 1 in figure 1.

The supply curve reflects costs of production. In a free health care market, X-inefficiency shifts the supply curve upwards because more resources are needed to produce output (effect 3). X-inefficiency can exist in health care markets because inefficient providers are not driven out by market forces. This occurs because consumers have difficulty determining the quality of service and only have limited incentives to care about cost. Stronger competition between providers (for example, if the market becomes more transparent because consumers receive comparisons of provider quality) lowers prices and strengthens the incentives for providers to tackle X-inefficiency.

Information asymmetry allows providers to influence the perceived benefits of care. Supplier-induced demand shifts the demand curve, as denoted by effect 2. In essence, supply creates its own demand, and can determine the level of output and the price. Equilibrium output and prices will occur where the demand and supply curves meet. If providers further enjoy market power, or can coordinate their actions, they can choose a price that lies above marginal costs.

A free health care market with insurance also has implications for dynamic efficiency. Because consumers are willing to pay any price for care (they are reimbursed), they will demand use of technology with the highest benefits. Hence, introduction of a technological advance can be profitable, regardless of the cost-benefit ratio of such technology. The net present value of social returns to innovation will thus be lower than the net present value of private returns.

Managed competition

Under managed competition, as developed by Enthoven (1988), economic agents have incentives to behave as if they were in a perfectly competitive environment. Price signals and competitive pressures are designed to bring cost-conscious consumers and capable profit-seeking providers together in an efficient manner. Informational asymmetries, adverse selection and moral hazard are dealt with by imposing some ground rules and creating particular institutions.

A new market party is necessary for managed competition to function properly, the so-called sponsor. The sponsor acts as a purchasing agent for a pool of consumers (for example, all inhabitants of a region), lays the ground rules for competition among insurers and health care providers, supplies consumers with information, and helps prevent risk-selection by insurers.

Health care providers offer potential customers a contract for a specific period with coverage at or above a minimum standard, at a price based on the risk characteristics of the entire risk pool. The providers, called health plans, can exist in different organizational forms. A health plan could resemble a traditional fee-for-service insurance firm, which reimburses customers for purchased services. Alternatively, providers and insurers can integrate and offer prepaid access to care. In such plans, payment to physicians could take various forms, such as salary, capitation (i.e. fixed amount per subscriber per period), or profit sharing. Health plans are free to select or exclude providers. This feature creates incentives for plans to carefully monitor health care delivery, and for providers to adopt efficient care patterns.

Consumers are free to switch between plans periodically. The sponsor collects the premiums and redistributes revenue among plans according to the risk profile of customers choosing that plan. Risk adjustment ensures that plans compete on price, quality, and coverage, rather than through risk-selection. The sponsor provides consumers with information on price, quality and level of coverage of the competing plans. Consumers also need to consider differences in co-insurance schemes when choosing plans. Such co-insurance aids in alleviating moral hazard.

Managed competition, in theory, circumvents the problems described above. X-inefficiency is reduced because health plans will lose market share if their unit costs are high. Even if providers are salaried, the ability of the plan to select and exclude providers increases pressure on providers to provide proper effort.

Figure 1 provides some guidance in evaluating static efficiency under managed competition. The supply curve will be near Qs, owing to the reduction of X-inefficiency. The demand curve may be rotated owing to moral hazard, but

proper co-insurance reduces this problem. However, the problem of supplier-induced demand may now result in a leftward shift of the demand curve. Underprovision can be combated by the sponsor mandating minimum care standards, and by consumers voting with their feet after receiving quality information from the sponsor. Overall, the static supply and demand curve can be brought close to what would prevail under perfect competition.

Health plans also face incentives that move market outcomes towards dynamic efficiency. The plans must make investment and innovation decisions to remain attractive to customers in the future. Failures will be punished by the market. Adoption of new medical technology will be evaluated by the plan not only on benefits, but also on costs. Furthermore, plans have an incentive to invest in maintaining healthy customers.

Trade-offs and pitfalls

Managed care may seem to be a free lunch, but certain trade-offs exist and uncertainties remain. The sponsor faces tasks that may be difficult to implement successfully, in practice; only experience will tell. The sponsor may incur high costs and be only partly effective in ex-ante risk adjustment, which is needed to combat risk-selection by plans. Health plans will attempt to make themselves look unattractive to customers who are costly *within* the categories used for risk-adjustment, and attractive to relatively good risks. The sponsor may have a difficult time providing the necessary price/quality information to the consumer. The sponsor must work with indicators that are medically meaningful yet easy to interpret. Health plans face incentives to score well on the selected indicators. Care must be taken that the incentives derived from the indicators line up with appropriate medical practice.

Another empirical issue involves the effect of various types of co-insurance on the elasticity of demand. A higher percentage co-payment is expected to provide stronger incentives for customers. In addition to the uncertainty regarding the responsiveness of demand to co-insurance, a trade-off may exist between incentives for cost control and access to care, especially for low-income households.

In addition, different types of provider payments influence the net direction of supplier-induced demand. In managed competition, a large portion of the revenue for each health plan is a fixed premium per patient, the remainder coming from co-insurance payments. In general, the the plan is motivated to conserve on treatment in order to lower costs. Of course, quality indicators provided to patients will put some restrictions on this abuse. The method with which providers in a plan get remunerated also plays a role. Primary care physicians receiving capitation payments may attempt to pass patients on to secondary care specialists, physicians paid per item will try to increase provisions, while physicians sharing in plan profits may attempt to reduce the overall cost of care provided. It is also important

Empirical findings

Supplier-induced demand

Wennberg, *et al.* (1982) describe the difficulty in inferring the importance of supplier-induced demand from observed variation in treatment. In particular, physician uncertainty about diagnosis and about treatment outcomes rather than 'rational economic' response to incentives may explain variation in treatment. Managed care may reduce physician uncertainty, by pooling and sharing best-practice information, but may increase pressure on physicians to respond to financial incentives (see Newhouse, 1996). Recently, the legal system in the US has responded to consumer complaints regarding underprovision by capitated managed care plans (see Latham, 1996).

Effects of co-insurance on Moral Hazard

The *magnus opus* on the effects of co-insurance is the RAND Study (Newhouse, 1993). The main finding is that co-payments are an important tool in reducing moral hazard, but that high deductibles may not be needed. Quality of care for the very poor may be adversely affected. Van Vliet and Van de Ven (1983) report how demand in the Netherlands is affected by co-payments.

X-inefficiency

The RAND study also provides data on a small experiment with patients randomly assigned to different types of insurers/providers. Health maintainance organizations (HMOs), a specific form of managed care plan, were able to use significantly fewer resources for comparable health outcomes. Since that study, many differences have been observed among plans by type of ownership and payment schemes. It is difficult to ascertain efficiency with which resources are used (X-inefficiency), as opposed to whether too many resources produce too much output (supplier-induced demand). McKinsey (1996) provides a cross-country comparison of efficiency in care, but a similar study has not been done across providers, by type.

Dynamic efficiency

Although technology is thought to be a major cause of escalation in health care expenditures (see Cutler, 1996), little effort has been spent on the interplay between incentives in health markets and R&D in medical technology. In a review of the topic, Weisbrod (1991) provides some examples of adopting non-cost effective treatment. One example is given of an R&D project (for cochlear implants) that was scrapped after diagnosis-related-group (DRG) pricing was introduced in Medicare. For the Netherlands, a more relevant empirical question is how adoption of technology may vary by plan type.

Policy Experiment

- Mandatory insurance with guaranteed acceptance for all customers not eligible for insurance by sickness funds.
- Health plans vie for customers annually with an offer of coverage at or above a minimum level of coverage for a community rated premium.
- Health plans may select or exclude providers.
- Sponsor provides price/quality information to customers.
- Sponsor distributes ex-ante risk adjustment to plans based on actual customer-mix.
- The sickness funds submit a contract offer for their standard coverage.
- Competition Authority (NMa) oversees competition among insurers and providers.

to understand the role of administrative interventions, such as utilization review, on physician behavior and quality of care. Does such a review lead to an efficient diffusion of best practice, or do the implied restrictions reduce the ability of physicians to act appropriately given the specific circumstances of their patients?

Little empirical evidence exists on the link between types of providers and the rate at which innovations are adopted. Also, changes in the distribution of (variation in) clinical practice following introduction of managed competition have not been studied adequately. Box 1 summarizes what is known empirically about moral hazard, supplier-induced demand, and dynamic inefficiency.

Why in the Netherlands?

Experimentation with the health care system creates the risk that outcomes may worsen for some customers or providers. Such risk must be minimized in order to implement a socially acceptable experiment. The proposal we make places a limit on the downside risk to any consumer. We propose to put in place a system of managed competition for the segment of the Dutch population currently covered by private insurance (see Box 2). Such customers consist of families of wage earners whose earnings exceed the income threshold for inclusion in the sickness fund system. These customers currently can select fee-for-service insurers, who must accept them at or below a maximum premium. Under the proposed experiment, the insurers and other forms of health plans may choose to offer contracts to the customers via the sponsor. Unlike in the present system, the premiums may no longer be risk-rated. Sickness funds will be required to submit an offer as well, which ensures that customers of the experiment have the option to receive the same quality care that is given the majority of the population insured under the sickness funds. Furthermore, sickness funds will receive a market-based benchmark of their ability to provide a competitive price-quality mix.

Such an experiment is relatively easy to implement in the Netherlands, because many of the features required for managed competition are already in place or can be created by transforming existing institutions.Competition among private insurers, and recently also among sickness funds, already exists. The insurers and sickness funds, however, do not have much scope to influence the costs of provision; instead, they mostly compete on administrative efficiency. Recently, sickness funds obtained the right to select or exclude independent practitioners, but in practice all regional providers are included. Integration between insurers and providers is currently prohibited. For the experiment, such alliances will be allowed, and are likely to be formed in various configurations.

The sponsor could be spun-off from the sickness fund council, the oversight organization for sickness fund insurers. This organization has experience not only in regulating insurers, and collecting data on care trajectories, but also in distributing centrally collected sickness fund contributions to the funds based on their customers' health profiles. In addition to implementing ex-ante risk adjustment, the sponsor will have to monitor the plans' risk-selection behavior. In the Netherlands, risk-selection incentives are reduced substantially by a rather extensive mandatory national system (AWBZ) that covers difficult-to-insure items such as dialysis and long-term care.

In the Netherlands, experience already exists with determination of minimum coverage standards, which are a necessary condition for managed competition. Presently, minimum standards are set both for sickness-fund insurance, and for contracts offered by private insurance. After introduction of managed competition, the role of the government can be limited to adjusting the minimum standard to political and economic circumstances.

Finally, two circumstances may ease acceptance of the proposed experiment in the Netherlands at the present time. First, political consensus is relatively easy to reach in the Netherlands because a forum for discussion among interested parties in health care already exists. The budgetary pressures have ensured that all parties already agree that some form of action is required. Second, medical specialists, traditionally the party most opposed to managed competition, are quite unhappy with the current system. Hence, they may be willing to move to a different system. Under the current system, physicians get paid a fixed fee per provision, determined by dividing a global budget with the total number of provisions. As budgets get tighter, physicians are induced to supply more provisions. This, in turn, reduces the price per provision, further reducing income. This system has resulted in the feeling among physicians that they are running faster and faster merely to stay

in place. Also, the link between income and performance under managed competition is likely to be regarded as an improvement by physicians.

Conclusions

This article argued for an experiment with managed competition in health care in the Netherlands.

At present, certain facets of managed competition exist in different countries, but a system that meets all requirements does not exist anywhere. In the US, the market share of HMOs and other forms of managed care providers have increased dramatically in recent years. Yet, the US experience does not provide the right setting to evaluate the system of managed competition. First, adverse selection remains a problem because insurance is not mandatory, nor are insurers required to accept customers. Furthermore, problems related to asymmetric information are not addressed by a sponsor who implements ex-ante risk adjustment and provides customers with price/quality information.

The proposed experiment would provide experience about the pros and cons of managed competition. Participation would be mandatory for those not covered by the sickness funds. At the same time, the risk for the population under the experiment would be limited because standard coverage would remain available. Furthermore, the experiment does not affect socially vulnerable segments of society. Structured monitoring and evaluation of the experiment may lead to well-defined options for restructuring the entire health care system.

First, information on the effects of co-insurance will be obtained. The market will likely provide a wide variety of options: The customer must choose between the level of the premium, on the one hand, and deductibles, co-payments, and out-of-pocket maxima, on the other. Variation in health care usage among customers with different types and levels of co-insurance can aid in evaluating the best way to combat moral hazard.[3]

The market will likely introduce various types of plans, ranging from traditional insurance, to managed care groups, insurance with utilization review, preferred provider schemes and others.[4] The information on price and quality of care collected by the sponsor can be made available to analysts to assess which types of care work well for which types of patients. The experiment also will provide a useful benchmark for the performance and competitiveness of sickness funds.

Finally, information will be generated about health care delivery trajectories for each of the plans. This information can be used to see which organizational forms are able to develop the most efficient methods of care, and which forms are best able to quickly adopt better methods. Already, the Netherlands performs well internationally in research on clinical methods, and hopefully the health plans will stimulate further research in this direction. Because the Netherlands covers such a small area, the reduction in incentives of health plans to use advanced but non-cost effective technology is unlikely to influence the direction of technological change. Unfortunately, the mere existence of such technology still will result in requests from patients for its use, placing continued upward pressure on aggregate health care expenditures in years to come. ■

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Notes

[1] The article builds on earlier publications (CPB, 1997, and Bartelsman and ten Cate, 1997). Many thanks are due to Andre de Jong for providing key insights.

[2] Besides fiscal pressure, the government wants to control payroll-based contributions because they distort labor market decisions.

[3] Researchers must take into account selectivity and endogenous response of providers when measuring the influence of payment schemes on moral hazard. Customers are not allocated to plans randomly, and providers' care choices may vary with the payment scheme and with the profile of the customer base.

[4] See White (1996) for a description of the types of integrated providers in the US.

Assessing the economy-wide effects of deregulation

Ate Nieuwenhuis*

Abstract

This paper discusses the use of macroeconomic models for assessing the economy-wide effects of deregulation. Two of CPB's models, ATHENA and MIMIC, account endogenously for a reduction of the rents accruing to labor following an exogenous negative price shock because the modelling of wages implies *rent sharing*. ATHENA accounts for a reduction of *X-inefficiency* as well. With either model, the usual practice of exogenously shifting both prices, wages and productivity would involve some double-counting.

Samenvatting

Dit artikel bespreekt het gebruik van macromodellen voor de analyse van de macroeconomische gevolgen van deregulering. De twee CPB-modellen ATHENA en MIMIC houden zelf al rekening met een loondaling na een negatieve prijsschok, omdat bij de loonvorming sprake is van *rent sharing*. ATHENA houdt daarnaast ook rekening met verminderde *X-inefficiency*. De gebruikelijke methode om tegelijkertijd aan prijzen, lonen en productiviteit een exogene schok toe te dienen zou dus bij beide modellen tot dubbeltellingen leiden.

Introduction

How should the economy-wide effects of regulatory reform be assessed? Clearly, aggregating the results of a number of partial studies (as, for example, in McKinsey & Company, 1997) will not do because such an approach neglects feedbacks at the macro level. Current macroeconomic models, however, were not built for a structural analysis of competition policy and are in fact ill-suited for this purpose. The usual approach has been to administer plausible *exogenous* shocks, derived from case studies, to a number of *endogenous* variables of the macroeconomic model, which serves as an instrument to account for the interdependencies between these and other variables. By discussing an experiment in two of CPB's macroeconomic models, this paper points out that this approach may involve some serious pitfalls.

The effects of deregulation

Theoretical and empirical research[1]

Predictions of the effects of regulatory reform (or *deregulation* for short) have been based mainly on theoretical and empirical research into the effects of *regulation*. The traditional justification for regulation is that it serves the public interest by correcting for some form of market failure; natural monopoly is the classical example. Empirical research, however, suggests that regulation often creates rather than eliminates inefficiencies (for example, by limiting competition in situations in which markets could work). The failure of the public interest theory of regulation led to the development of the economic theory of regulation by the Chicago economists Stigler, Peltzman and Becker. According to this latter theory, compact, well-organized groups (producers, labor), who tend to benefit from regulation at the expense of broad, diffuse groups (consumers), capture the regulatory process. Moreover, self-interested politicians and regulators use their power over regulated industries to win reelection or to hold on to lucrative jobs.

How will the lack of competition affect firm behavior in regulated industries? First of all, firms may maintain higher prices. Furthermore, the resulting high profit rates may cause managerial slack and blunt the incentives for cost reductions, productivity improvements and innovation. This yields both *X-inefficiency* and *dynamic inefficiency*. Moreover, restrictions on the firms' operations may hamper *static efficiency*. High profit rates may also boost wage claims by workers who want to secure part of the rents (*rent sharing*). Deregulation[2] is likely to alleviate these unfavorable effects by strengthening competitive forces.

Most empirical research involves case studies that employ microeconomic partial-equilibrium models to assess the consequences of specific measures in a particular industry. According to Winston (1993, p. 1268), who provides an overview of research relating to deregulation in the US, empirical studies have focused on comparative static effects rather than dynamic issues because of analytical tractability and data availability; below, these dynamic issues will be neglected as well. These studies typically find that deregulation reduces prices and wages and boosts productivity. The effects on profits and employment differ from case to case as a result of opposing influences.

Economy-wide effects

For several broad packages of deregulation measures, the economy-wide effects have been assessed. Examples are 'Europe '92' (Emerson et al., 1988; CPB, 1989) and the 'Hilmer Reforms' in Australia (Industry Commission, 1995). Furthermore, OECD (1996) explores the macroeconomic effects of regulatory reform in key sectors for a number of countries. However, as noted in the introduction, most existing economy-wide models — whether traditional macroeconomic models or applied general-equilibrium models — are ill-suited for this purpose. Their theoretical base (perfect competition, constant returns to scale, no X-inefficiency) directly conflicts with the assumptions underlying (partial) analyses of (de)regulation; moreover, they typically lack the necessary institutional detail. The usual approach has been to administer *exogenous* shocks to a number of

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endogenous variables of the macroeconomic model on the basis of case studies and use the model merely as an instrument to account for the interdependencies between these and other variables at the macro level. For example, the OECD subjects its model(s) to the following *simultaneous* shocks: *a)* a boost to labor efficiency, *b)* a reduction of aggregate employment, *c)* a lowering of prices, and *d)* a cutback on wages (OECD, 1996, p. 52).

Although this approach for assessing the economy-wide effects of deregulation is superior to simply aggregating the results of a number of partial studies, it cannot be applied mechanically. For a shock that is administered to just one variable — for example, solely to prices — will affect the other variables as well; moreover, different models may respond differently to such a shock, depending on the specification of the behavioral equations. Hence, a thorough knowledge of the model at hand is a prerequisite for judiciously selecting the additional exogenous shocks that must be administered to each of these variables in order to arrive at a correct estimate of the economy-wide effects of deregulation. An experiment with two of CPB's macroeconomic models illustrates this point.

An experiment with ATHENA and MIMIC

Both ATHENA and MIMIC describe the Dutch economy at the macro level, but they do so with a different focus and degree of detail. ATHENA is an empirical multisectoral model distinguishing some fifteen sectors of industry; see CPB (1990); the detailed description of the enterprise sector enables the analysis of measures affecting particular industries. MIMIC is an applied general-equilibrium model focusing on how the tax and social-security system impacts the labor market (see Gelauff and Graafland, 1994); the model involves a fairly disaggregated description of the household sector (some fifteen household types are distinguished) but far less sectoral disaggregation.

In broad outline, the two models have much in common. Many equations are based on the neoclassical theory of profit-maximizing firms and utility-maximizing households. MIMIC deviates from perfect competition on product markets by assuming Bertrand competition; hence, prices follow from marking-up marginal cost. ATHENA is less explicit about market structure, but the way of specifying the price equations is similar (but not identical) to that of MIMIC. Wage formation is similar, too. Both models incorporate a wage curve derived from a bargaining model. Wages exceed the market-clearing level, so that unemployment exists in equilibrium. Importantly, the wage curve accounts for rent sharing, which establishes a link between product market competition and the labor market: Higher markups, due to a lack of competition, raise equilibrium unemployment by increasing wage pressure.

The two models differ in a number of ways. Whereas MIMIC closely adheres to the specifications implied by theory, ATHENA is more empirically orientated and sometimes deviates from standard neoclassical theory. In particular, the specification of the factor-demand equations and price equations differs across the two models. Although these differences seem minor, they appear to be crucial for understanding the differences in the simulation results reported below.

Box 1 Mark-up and equilibrium unemployment rate

Coefficient matrices:

		p_l	p_y	h	p_c	e	mu	p_m	UR
(1)	p_l		a	1	1-a				-b
(2.j)	p_y	1		$-d_{Aj}$		$-d_{Mj}$	1		
(3.j)	h	f	-f			1-f	d_{Mj}.f		
(4)	p_c		g					1-g	

Semi-reduced-form equations for UR:

(5.j) $UR = [\{1 - (1 - a) \,.\, (1 - g) / (1 - d_{Aj} \,.\, f)\} / b] \,.\, mu \ldots$

Note: j = A(THENA), M(IMIC); $d_{AM} = d_{MA} = 0$, $d_{AA} = d_{MM} = 1$; UR: unemployment rate; mu := ln(1 + MU), MU: mark-up; lower case symbols refer to the logarithm of the variable concerned; p_c: consumer price; p_l: wage rate; p_m: import price; p_y: product price; h: labor productivity; e: labor efficiency index.

Box 1 presents the coefficient matrices of simplified equations for wages, prices and labor productivity — written in the general linear form $y = B \cdot y + C \cdot x$ — and the implied (semi-) reduced-form relationships between the markup and the rate of equilibrium unemployment.

Equation (1) is the wage curve, the equilibrium relationship between the wage rate p_l and the unemployment rate UR at given levels of the product price p_y, the consumer price p_c, and labor productivity h. A positive elasticity of wages with respect to p_y implies *rent sharing*: High markups feed into wages through high product prices.

According to (2), the product price p_y follows from marking-up marginal cost, here represented by unit wage cost. With labor-augmenting technological chance, the wage rate must be corrected for autonomous labor efficiency e, as in MIMIC. ATHENA, however, corrects the wage rate for labor productivity h, which includes the effects of factor substitution.

Equation (3), a rewritten labor-demand equation, describes labor productivity h. Cost minimization implies the MIMIC equation (3.M), which features the wage rate relative to marginal cost (i.e. the product price corrected for the markup factor mu). ATHENA omits this correction for the markup factor, as in (3.A). With competitive product markets, the product price equals marginal cost in equilibrium; in that case, the labor-demand equations in both models coincide. As long as the markup is constant, the difference in the specification of labor demand across the two models is not important. In the experiment below, however, the markup is lowered. According to ATHENA, a lower markup raises (labor) productivity through a higher real product wage. We interpret this effect as a reduction of *X-inefficiency*.

The consumer price p_c is a weighted average of the product price p_y and the import price p_m; see (4).

The semi-reduced-form equations (5.A) and (5.M) for the equilibrium unemployment rate reveal an important

Table 1 Price shock of -1% in selected sheltered industries (*Long-term effects)*

	MIMIC	ATHENA		MIMIC	ATHENA
percentage deviation from reference path					
Product price			**Product volume**		
Sheltered sector	–1.1	–1.1	Sheltered sector	1.0	0.2
Exposed sector	–0.3	–0.3	Exposed sector	0.3	0.3
Enterprise sector	–0.6	–0.7	Enterprise sector	0.5	0.2
Investments			**Employment**		
Sheltered sector	-	–0.1	Sheltered sector	0.9	–0.2
Exposed sector	-	0.3	Exposed sector	0.2	0.2
Enterprise sector	0.5	0.1	Enterprise sector	0.6	–0.0
Labor market					
Wage rate	–0.3	–0.4	Unemployment rate[a]	–0.4	0.0

[a] Absolute deviation

difference between MIMIC and ATHENA. In MIMIC, lower markups unambiguously imply lower equilibrium unemployment. In ATHENA, the reduction of unemployment will be smaller (because f > 0) and may even turn into an increase (if f is high).

Simulation results

The simulation results are consistent with the analysis above; see Table 1. A negative price shock of one percent is applied to some sheltered industries in which the scope for deregulation is considerable.[3] One direct effect, through the *rent-sharing* mechanism, is a reduction of wages. This spills over to other industries and feeds back into prices, thus multiplying the exogenous shock. Another direct effect is a boost to demand for the output of the affected industries. For production to meet this demand, resources must be shifted from the rest of the economy, the exposed sector for short, towards the sheltered industries. At a given amount of employed resources, the sheltered sector can expand only if the exposed sector contracts. In MIMIC, however, the equilibrium unemployment rate falls by 0.4%.[4] The employment of additional resources creates room for the whole economy to expand, reversing the negative impact on the exposed sector and reinforcing the positive impact on the sheltered sector. In ATHENA, however, equilibrium unemployment remains constant. Nevertheless, the exposed sector expands also according to ATHENA. Reduced *X-inefficiency* leads to labor shedding by the sheltered sector; the exposed sector absorbs the released resources. This mechanism is not present in MIMIC, due to the absence of *X-inefficiency*.

The MIMIC results accord well with the theoretical analysis of Röger (1995). This paper uses a small general-equilibrium model based on Pissarides to find that a lower markup reduces nominal wages and boosts production, employment, investments and real wages. The ATHENA results are different mainly because of the labor shake-out in the deregulated industries.

Conclusion

This paper has shown that care must be taken in assessing the economy-wide effects of deregulation with the help of some macroeconomic model. Two of CPB's models, ATHENA and MIMIC, respond differently to a fall in prices due to more intense competition following deregulation. Both models account endogenously for a reduction of the rents accruing to labor, because the modelling of wages implies *rent sharing*. Only ATHENA accounts for a reduction of *X-inefficiency* as well through a not strictly neoclassical specification of the factor-demand equations. With either model, the usual practice of simultaneously shifting several endogenous variables of the macroeconomic model, in particular prices, wages and productivity, would involve some double-counting. ■

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Notes

[1]The following paragraphs draw mainly on Joskow and Rose (1989) and Winston (1993).

[2]Deregulation is itself a phenomenon in need of an explanation. As the economic theory of regulation does such a good job in explaining *regulation*, it would seem to be hard pressed for explaining *deregulation*. Nevertheless, Peltzman (1989) argued that this theory can actually help to explain several cases of deregulation.

[3]These industries are: Construction, trade, banking and insurance, and other for-profit services. Not-for-profit services are not hit by a negative price shock.

[4]In addition, labor supply increases slightly (by 0.1%). Labor supply is exogenous in ATHENA.

Competition and welfare

Jan Boone*

Abstract

This article proposes a new definition of competition, emphasizing that competition impacts the way firms interact in an industry. This definition is illustrated with four policy measures, recently proposed by the Dutch government, that affect competition. Finally, the article considers the welfare effects of more intense competition.

Samenvatting

Dit artikel bespreekt een nieuwe definitie van marktwerking, die benadrukt dat marktwerking de manier beinvloedt waarop ondernemingen onderling concureren. Ter illustratie van deze definitie, worden vier recente beleidsvoorstellen besproken die meer marktwerking beogen. Ten slotte worden de welvaarts effecten van meer marktwerking geanalyseerd.

Introduction

Markets are generally believed to be efficient institutions in organizing production and exchange in an economy. One justification for this is based on the notion of competition. Indeed, it is often claimed that 'more competition' makes markets more efficient. The problem, however, is that it is unclear what is meant by 'more competition.'

On the one hand, there is the abstract notion of (perfect) competition, which implies that firms act as price takers. Although this idea has been precisely defined theoretically, it is of little use in practice. In reality, firms do not act as price takers, while it is unclear how competition in this sense can be enhanced. On the other hand, there is a wide variety of policy variables that affect competition; at first glance, however, it is unclear what they have in common.

This paper makes a first attempt to define competition in such a way that one can meaningfully talk about 'more competition.' Subsequently, the impact of four policy instruments on competition are discussed. It is argued that these variables can be used to raise competition in the sense defined in this paper. For instance, increasing the number of taxi permits sold in a city intensifies competition in the taxi market. Alternatively, liberalizing shopping hours in the retail sector increases competition between shops. These examples illustrate that the definition of competition in this paper is a good starting point for analyzing the effects of policy decisions on competition.

Finally, I analyze under which conditions more competition indeed makes markets more efficient in the sense that it raises welfare.

This paper is structured as follows. The next section introduces the specific concept of competition that will be used. Section 3 illustrates this definition with policy variables. Section 4 analyses how a change in intensity of competition affects the market outcome and thereby social welfare. Finally, section 5 concludes.

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Defining competition

Why do we need a new definition of competition? Some readers may argue that market concentration (measured by, for instance, the Herfindahl index or the concentration ratio) is a good way to define competition. More competition then implies less market concentration. From a policy point of view, market concentration suffices as an appropriate measure of competition if the focus is on stimulating entry. If the government removes (regulatory or other) entry barriers, more firms will enter the market, and competition is enhanced. In this case, the rise in competition is reflected in a fall in market concentration.

However, a number of policy variables influence competition without directly affecting entry. For instance, liberalizing shop opening hours clearly increases the intensity of competition between shops by removing (time) constraints on consumers' search behavior. However, it is not aimed at increasing the number of firms in the sector. On the contrary, as argued below, liberalizing shopping hours is likely to raise market concentration. Similarly, abolishing the minimum price in the daily newspaper industry will increase price competition between publishers and hence may drive some less efficient firms out of the market, thereby increasing market concentration.

In these two examples, policy does not affect competition by (directly) changing the number of players in the market but by changing the way players interact. Then, a policy change is said to enhance competition if it induces players to act more aggressively, lowering prices and/or increasing their output levels. If competition is seen from this perspective (as it is in this paper), market concentration is not a good measure of competition since market concentration is determined endogenously by the cost and demand structures in the industry and the way firms interact.

In particular, a policy measure is said to increase the intensity of competition in an industry, if it meets the following conditions (C1)-(C4):[1]

(C1) reduces total industry profits,

(C2) reduces the profit level of the least efficient active firm and increases that of the most efficient firm (the so-called leader) if it is far enough ahead of its opponents,

(C3) increases total industry output and

(C4) reduces the output level of firms that feature much higher costs than the leader.

This definition of competition may look unfamiliar. The idea is that competition is defined in terms of its effects on output and profit patterns. For instance, if all firms in the industry are homogeneous, the definition implies that stronger competition raises total industry output and reduces total industry profits.

The definition incorporates the realistic case in which firms are heterogeneous. In that case, the definition im-

poses restrictions on how more intense competition affects the production allocation of industry-wide output over efficient and inefficient firms and on how it affects the distribution of profits over such firms.

Illustrating more competition

To illustrate the definition provided in the previous section, this section considers the following four policy experiments, which have received much attention in the Dutch policy debate: abolish the minimum price in the daily newspaper market, liberalize shop opening hours, increase the number of taxi permits in a city, and allow workers and firms to select their own pension fund or insurance company.

Minimum price for newspapers

As described by Rekko (1996), the Dutch daily newspaper market is characterized by a cartel dictating (among other things) a minimum price for yearly subscriptions. Competition in this market can be increased by abolishing this minimum price. What would be the effects of such a rise in competition? First, assuming that the minimum price is not above the price that maximizes joint profits, one would expect total industry profits to fall. In other words, abolishing the minimum price satisfies condition (C1). Second, abolishing the minimum price will reduce the profits of the least efficient or least popular newspapers. In fact, protecting these weak newspapers is precisely the justification given by the cartel for its minimum price. Further, the most popular newspaper, de Telegraaf, may profit by using very low prices to attract readers. Such a profit gain can materialize only if the Telegraaf is far more popular and efficient than the other newspapers are. Indeed if all newspapers would be equally efficient and popular, condition (C1) would imply that each firm's profits would be reduced by a rise in competition. Furthermore, abolishing the minimum price will result in more newspapers being sold overall. However, if one of the weaker papers, such as het Parool, is not able to reduce its price in line with the other papers, it may well lose sales after the minimum price has disappeared.

Shopping hours

Allowing shops to be open in the evenings and on Sundays, yields two effects. First, consumers have more time to buy products and hence will spend more money. The size of this effect is controversial. Although some proponents of this measure claimed that this effect would be quite large, no clear evidence exists that this is indeed the case. I focus on the second effect related to competition. Longer shopping hours allow consumers to search longer for the product they desire. For expositional purposes, I'll concentrate on the case in which consumers search for the cheapest product. The liberalization of shopping hours implies that firms have to compete more aggressively on price. Since consumers can spend more time to find the cheapest product, they will visit more shops, and it thus becomes more likely that they will find a cheaper shop. Hence each shop owner has a larger incentive to reduce prices. Consequently, industry profits will be reduced. Furthermore, very efficient shops will find that more consumers will visit them and buy more from them because their efficiency allows them to set low prices. This will increase their profits, if they are far more efficient than their competitors. Not surprisingly, therefore, one of the most efficient supermarket chains, Albert Heyn, favored the liberalization of shopping hours. Conversely, most small shops opposed this measure. Indeed, it is likely to reduce their profits as they lose customers to the more efficient and cheaper supermarket chains. As noted above, the measure has boosted total industry output but it is not clear by how much. The small shops have seen their output levels reduced and most of them do not even use the new possibilities of selling in the evenings or on Sundays. For a more detailed analysis of the economic effects of liberalizing shopping hours, see Bernardt (1997).

Taxi permits

One measure contemplated to intensify competition in the taxi sector, is for the government to sell more taxi permits. This is not necessarily the same as raising the number of firms in the taxi sector, since an existing taxi firm may buy permits to expand its fleet. More taxis driving around imply more competition and hence lower prices and industry profits. In the taxi sector, most firms are more or less equally efficient. There are no massive economies of scale or scope, and taxis are rather homogeneous both in what they offer and in what they cost. Hence, the distribution and allocation effects between firms will be limited. Finally, more taxis and lower prices will raise output, measured as total taxi kilometers travelled per week.

Pension contributions

As described by Eichholtz and Koedijk (1996), firms and employees in most Dutch industries cannot freely select their pension fund or insurance company at which they deposit their pension contributions. One way to enhance competition in the pension branch would be to allow each firm or even each employee to select their preferred pension fund or insurance company. What would be the effects of such a policy change? First, pension funds and insurance companies would compete more on the returns on pension deposits. If one insurance company would be far more efficient than the other firms, it would attract more customers, thereby increasing its output and profits.[2] Conversely, firms and employees that were formerly linked to an inefficient pension fund would leave this fund for a more attractive offer from other funds or insurance companies. For such inefficient pension funds, the policy change would reduce output. Finally, to the extent that the rise in competition raises returns on pension funds, employers and employees might decide to increase their pension contributions, thereby increasing industry output.

Competition and welfare

Consider a market with a number of firms, where each firm produces its own (possibly heterogenous) product and its production process features a per period fixed cost. Why would the actual outcome differ from the social optimum? I focus on five externalities associated with a rise in competition, which may affect social welfare.

First, if the production process features strong economies of scale, there may be excess entry. With strong economies of scale, a social planner prefers a small number of firms, each of which produces at low unit costs. In the actual outcome, too many firms may have entered, each producing at excessively high unit costs. I will call this the *economies of scale* effect. Second, if firms produce differentiated goods, and each firm has its own specific product, there may be too little entry. This will happen if consumers exhibit a strong taste for variety and firms cannot appropriate the entire consumer surplus, because perfect price discrimination is not possible. In this case, entry by a firm is socially desirable but unprofitable. This is coined the *appropriability* effect. Third, if the firms in the observed outcome have monopoly power, it is likely that they produce too little output from a social point of view. This is called the *monopoly power* effect. These first three effects are well known from papers by Dixit and Stiglitz (1977) and Mankiw and Whinston (1986).

The final two effects deal explicitly with the case in which the firms in the market are heterogeneous in their efficiency levels. In particular, if firms are not all equally efficient, there are two additional reasons why the actual outcome may deviate from the social optimum. First, for a given level of total industry output, the social planner would like to allocate production to the most efficient firms in the market. In the actual outcome, therefore, inefficient firms may produce too much from a social point of view. This is called the *allocation* effect. Finally, the *distribution* effect says that total industry profits should be distributed in such a way that the most efficient firms enter the market. This last effect can be found also in Vickers (1996).

To analyze the effects of competition on these externalities, I return to the four policy experiments introduced in the section above. Abolishing the minimum price in the daily newspaper market will reduce total industry profits (see condition (C1)). This will reduce the number of firms that can recover their fixed costs. Hence, abolishing the minimum price may force some newspapers to exit the market. In so far as economies of scale are important in the daily newspaper market, this will enhance welfare. Indeed, a smaller number of firms producing at lower unit costs is cost efficient from a social point of view. However, perhaps more likely, if consumers appreciate the variety in newspapers, the rise in competition may push some newspapers out of the market that are no longer profitable but still socially desirable. In other words, a rise in competition exacerbates the appropriability effect. This is, in fact, the only welfare effect of the five above that argues against a rise in competition. As a rise in competition increases total industry output by (C3), it mitigates the lack of output due to the monopoly power effect. Finally, because of (C2) and (C4), a rise in competition reallocates production away from the least towards the most efficient firms in the market and redistributes profits in the same way. Hence, it becomes more likely that the most efficient firms stay in the market and will produce a large share of the output. This boosts welfare through the allocation and distribution effects.

Similar results hold with respect to the shopping hours, taxi permits and pension contributions examples. A rise in competition can reduce welfare only through the appropriability effect. In so far as the consumers perceive shops, taxis and pension funds as homogeneous and only value the best service at the lowest price, the appropriability effect is absent. In that case, a rise in competition unambiguously raises welfare.

Conclusion

This article has analyzed the relationship between the intensity of competition and welfare. In the policy debate it is often unclear what people mean by competition. Therefore, this article has proposed a precise definition, where intensity of competition is defined in terms of its effects on industry output and profit patterns. Four examples of actual policy measures suggest that a rise in the intensity of competition can reduce welfare only if consumers feature a strong taste for variety. Other effects of intensified competition, such as promoting economies of scale by reducing the number of firms in the industry, increasing total output, and allocating production and distributing profits to the most efficient firms, all work in the direction of enhancing welfare. ■

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Notes

[1] The effect of competition on firms' incentives to improve their products and production technology is missing here. The interested reader is referred to Boone (1997).

[2] Note that one cannot speak of profits for pension funds, since with pension funds, unlike insurance companies, one cannot distinguish customers and shareholders.

How efficient is Dutch electricity generation?

Maurice Dykstra*

Abstract

The main motive behind deregulation is to boost productivity by increasing competition. An analysis of the Dutch electricity generation sector reveals that considerable inefficiencies can exist at the company level despite relatively steady productivity growth stemming from technical change.

Samenvatting

Het belangrijkste motief achter deregulering is het verhogen van de productiviteit door het versterken van marktwerking. Een analyse van de Nederlandse elektriciteitsproductiebedrijven laat zien dat op bedrijfsniveau aanzienlijke inefficiënties kunnen bestaan ondanks relatief gestage produktiviteitstoenamen door technologische veranderingen.

Introduction

Traditional approaches to productivity measurement generally assume that observed output is best practice or frontier output. These approaches therefore cannot distinguish between technical change and changes in efficiency. In a world in which inefficiency exists, productivity growth no longer necessarily coincides with technical change, but is the net effect of changes in efficiency and shifts in the production frontier, the latter being technical change. This distinction is important from a policy perspective; a slowdown in productivity growth due to increased inefficiency implies the need for different policies than a slowdown due to lack of technical change does. Slow growth due to inefficiency may originate, among others, in institutional barriers, managerial slack and absence of competition. Lack of technical change, in contrast, may be caused by too little R&D and institutional barriers to innovation and diffusion. This paper focuses on the Dutch electricity generation sector and is intended as a pilot study for an international comparison of efficiency and productivity in this sector.

Section 2 describes the data. Section 3 presents a standard (non-frontier) approach to productivity measurement. Section 4, the core of the paper, discusses the Malmqvist index, which can be used to measure technical efficiency, and gives some results using this index. Finally, section 5 draws some conclusions and looks ahead to further research.

Data

The data are drawn from the annual reports of the four large scale electricity production companies in the Netherlands for the years 1989-1996. Costs have been broken down into the four so-called KLEM-categories (i.e. capital, labor, energy and materials). Capital costs are the sum of depreciation and opportunity costs. The capital stock is constructed through the perpetual inventory method, i.e. through the accumulation of past investments, assuming a constant depreciation rate over time. The opportunity cost of capital is calculated by multiplying the constructed capital stock with the long-term interest rate. Labor is measured by the number of employees and energy in physical units (Joules). Costs of materials consist of purchases of electricity and materials, services by third parties, and other costs. Output is measured by electricity and heat sales in physical units (Joules).

A non-frontier productivity index

In order to obtain a first impression of total factor productivity growth, it is calculated using the Tornqvist index for the years 1989-1996. Inputs (outputs) have been aggregated by means of this index. This aggregation implies the assumptions of constant returns to scale and neutral technological change (Caves, Christensen, Diewert, 1982). On average, total factor productivity of the power generation sector rose by nearly 1% per year (see Table 1). Productivity increased by shedding labor and employing more energy efficient production plants, which is mirrored in higher capital and lower energy inputs.

Table 1 Productivity of Netherlands electricity producers, 1989-1996

	% per year
Capital input	0.5 %
Labor input	-0.3 %
Energy input	-0.8 %
Materials input	0.4 %
Total inputs	-0.2 %
Output	0.7 %
Total Factor Productivity	0.9 %

The technique used cannot distinguish between technical change and efficiency change. The next section takes the productivity analysis a level deeper by dissecting productivity growth into efficiency change and technical change.

A frontier productivity index

The Malmqvist index is the ratio between technical efficiency measures for a production unit; technical efficiency is calculated at two different points in time relative to two different frontiers. The index can be decomposed so that the change in total factor productivity may be separated into a shift of the frontier (technical change) and a shift relative to the frontier (change in efficiency).

Figure 1 illustrates the construction of the Malmqvist index for a constant-return-to-scale production function. *U* is a production unit observed in two years, *t* and *t+1*. Between these points in time, the frontier has shifted from f_t to f_{t+1}.

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In year *t*, the technical efficiency of unit *U* measured against f_t is OB/OU_t. In year *t+1* the technical efficiency becomes OC/OU_{t+1}.

The Malmqvist productivity index, *M*, can be decomposed into changes in technical efficiency and an index of technical change, as follows:

$$M = MC \times MF. \qquad (1)$$

The first component is an index measuring changes in relative technical efficiency, and shows whether a unit is moving closer to or further away from best practice. The second component is an index of technical change, and shows whether the best practice relative to which a unit is compared is improving, stagnant or deteriorating. The catching-up productivity index for unit *U* between *t* and *t+1* is:

$$MC^{t}_{t+1} = \frac{OC/OU_{t+1}}{OB/OU_t} \qquad (2)$$

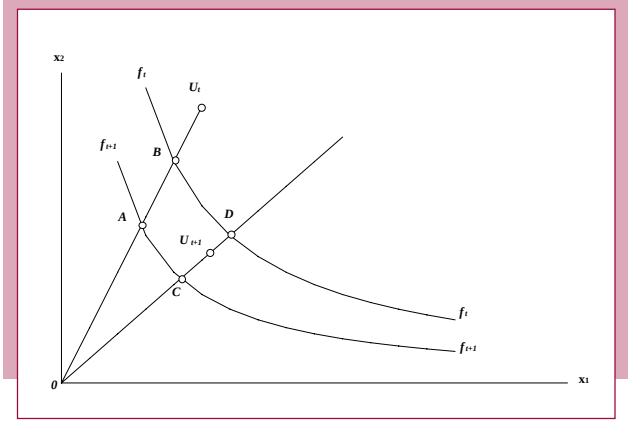
and the shift of the frontier is defined as the geometrical mean of the distance between the frontiers for both observations,

$$MF^{t}_{t+1} = \left[\frac{OB/OU_t}{OA/OU_t} \times \frac{OD/OU_{t+1}}{OC/OU_{t+1}}\right]^{1/2}. \qquad (3)$$

The alternative methods for determining the production frontiers are parametric (econometric) and nonparametric (mathematical programming). We employ the latter method of deterministic nonparametric frontiers or data envelopment. The efficiency of a production unit is measured relative to the efficiency of all the other production units, subject to the restriction that all units are on or below the frontier. The efficient production units are thus an envelope around the entire data set. We employ this method because it can more easily handle multiple inputs and outputs than the traditional production function approach. Moreover, it does not impose a specific functional form on technology, thus minimizing specification error. It also can cope with relatively small samples. The approach is, however, sensitive to measurement error and typically does not allow for statistical inference.

Since the seminal paper by Charnes, Cooper and Rhodes (1978), numerous Data Envelopment Analysis (DEA) models and applications have appeared in the literature. Excellent surveys of this literature on the measurement of productive efficiency can be found in Seiford and Thrall (1990) and Fried, Lovell and Schmidt (1993). Any method for measuring productivity growth requires some assumption that allows productivity improvements to be identified from returns to scale. Parametric methods usually address this problem by requiring that the productivity movements are smooth functions of time. Since the nonparametric DEA method imposes no such smoothness, another assumption is required. We assume constant returns to scale. This assumption seems appropriate in view of the evidence that the size of the companies are all well above the minimum efficient scale and that the difference in size between the smallest and largest companies is relatively small (1:1.5). It is also consistent with the initial aggregation using a Tornqvist index.

Figure 1
Construction of the Malmqvist index



Although constant returns to scale is imposed in each period, each period is allowed to have a completely different constant returns-to-scale technology. Frontiers can even intersect and technical regress is possible. Furthermore technical change is in no way necessarily neutral over time.

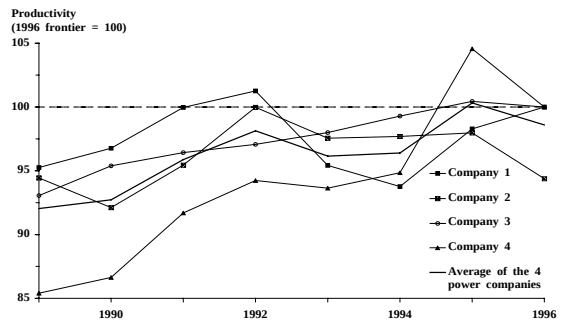
Table 2 shows the scores on the Malmqvist index and its components during the period '89-'96. The shift of the technical frontier as measured by *MF* is relatively small (0.9 % per year), due to technical efficiency being strongly linked to capital and the factor capital having a growth rate of 0.5 % per year. The shifts in the catching-up index *(MC)* at the company level show a more diverse picture. Company 4, starting from a low level of efficiency in 1989, has managed to reach the frontier in 1996. Company 3, in contrast, shows virtually no change. The shift of the technical frontier has been completely offset by an adverse movement relative to the frontier.

Figure 2 shows the development of productivity relative to the 1996 frontier. On average there is a steady increase in productivity. However, at the company level considerable inefficiencies can exist. The technical frontier in a few cases exceeds the 1996 frontier, indicating that technical regress is possible.

Table 2 Annual changes of the Malmqvist productivity index of Netherlands electricity producers, 1989-1996

	catching-up index (*MC*)	frontier index (*MF*)	total index (*M*)
	% per year		
Company 1	0.0%	0.7%	0.7%
Company 2	0.0%	1.0%	1.0%
Company 3	-0.8%	0.8%	0.0%
Company 4	1.4%	0.9%	2.3%
Average of the four power companies	0.2%	0.9%	1.0%

Figure 2 Productivity of Netherlands electricity producers, 1989-1996 (1996 frontier=100)



Conclusions and research implications

The paper focuses on the Dutch electricity generation sector and is intended as a pilot study for an international comparison of efficiency and productivity in this sector. The two total factor productivity measures (i.e. the Tornqvist and Malmqvist indices) yield similar results. The Malmqvist index has as advantage that it can differentiate between technical change and changes in efficiency. Moreover, it can be used even if prices of inputs and outputs are unknown. This is an important advantage when an international comparison of power generators is made.

The validity of the method rests on the assumption that the list of inputs and outputs is complete. In principle, the apparently more efficient units may have employed more unobservable inputs, such as management skills. For power generation, due to the technical nature of the production process, this point seems of minor importance because the labor content for that matter is low. Management skills relating to efficiency will therefore primarily be reflected in the amount of inputs as identified here.

A weakness of the nonparametric approach is its lack of behavioral content. The information that some units are more efficient than others is not very helpful unless we find out why. We can not answer this with the present data. The environment for the companies is virtually identical: there have been no breaks in the regulatory regime during this period; the companies strongly resemble each other in, among other things, degree of vertical integration and scope of business. In an international comparison, these different aspects can serve as distinguishing features for the degree of efficiency. ■

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WORKSHOPS

Assessing infrastructure projects

July 3 and 4, 1997

Ernst van Koesveld and Pim van Santen*

One of the policy goals of the present Dutch Cabinet is to improve the economic (infra)structure of the Netherlands. During the last 25 years, public investment has fallen from nearly 5% of GDP to less than 3% of GDP in 1994. Although the level of public investment in terms of GDP has been rather stable since then, it has risen substantially as a proportion of total public expenditures. Whereas total public expenditures are expected to remain constant in real terms during the present Cabinet period 1994-1998, investments will increase by more than 17½% during that period. This approach is likely to be continued in the coming years.

Together with its yearly budget last September, the government presented a list of feasible investment projects with regard to physical infrastructure, the natural environment, knowledge and technology for the period until 2010. The individual projects add up to at least Dfl. 60 bln, of which Dfl. 18.5 bln has already been assigned. This seems to be a minimum. It excludes, by the way, most of the megaprojects such as an extension of Schiphol Airport and a land reclamation project for a second 'Maasvlakte' near Rotterdam, which the government still has to decide on. If all these projects are agreed upon, the share of public investment in GDP will increase with 1%-point during the first decade of the next century. This is quite an ambitious target because public means are still scarce. Sound economic grounding for new projects is therefore essential.

Conference

Against this background, the Ministry of Transport, Public Works and Water Management initiated a workshop on the economics of public infrastructure. The workshop was organized in close cooperation with the Ministry of Economic Affairs and four research institutes: CPB Netherlands Bureau for Economic Policy Analysis, the Netherlands Economic Institute (NEI), NYFER Forum for Economic Research, and OCFEB Research Centre for Economic Policy. Researchers from various institutes, academia and policy makers exchanged ideas about different methods for evaluating the economic effects of public investments on the level of the macroeconomy, infrastructural programs, and individual projects.

Professor Weisbrod outlined five general approaches for appraising the economic effects of infrastructure. Each of these approaches features its strengths and weaknesses. The most appropriate approach depends on the specific objectives, the scale of the geographic area, and the relevant time horizon.

First of all, the traditional cost-benefit analysis compares savings in direct costs and time with the amount invested.

The second approach is social cost-benefit analysis. It employs the same neoclassical methodology, but goes beyond the traditional approach by including external effects on the natural environment and social welfare.

A third method is to estimate production and cost functions to calculate macroeconomic productivity gains or losses over time. Aschauer is one of the main pioneers of this approach. His finding of a strong, positive correlation between nonmilitary public capital stock and private sector productivity in the United States is often cited as evidence of the importance of public investments for economic growth.

A more elaborate approach is followed in macroeconomic simulations models, which incorporate multiplier effects and regional interactions. They explore the macroeconomic return of (specific) investments in terms of growth and employment. CPB's studies are often associated with this approach. However, in CPB studies on the Betuweline, the High Speed Line, Schiphol Airport and especially the second Maasvlakte show the macroeconomic calculations are only part of a much broader analysis that employs scenarios and incorporates information from other approaches. Accordingly, the technical limitations of CPB's models are easily too strongly emphasized in the discussion.

Finally, infrastructure investments can be viewed from a more strategic point of view, making use of scenario and risk analysis. Weisbrod stressed that risk scenarios are often asymmetric: by not investing, the losses may be higher than the gains. An analogy with the theory of portfolio investments may also emerge: short-term, low-risk projects are to be combined with long-term investment - meaning a higher risk, but often also a higher payoff.

Weisbrod's central message was that no single approach is available that answers all questions. Also studying history and investment programs in other countries may provide important additional insights.

Ambition

The current state of affairs is that each institute selects its own approach, makes its own assumptions and delivers its own results. From a general point of view, this is undesirable for a number of reasons. First of all, it is inefficient. Studies overlap each other in one area, whereas another area is hardly explored. With regard to the latter, not much integrated research is being conducted on, for example, the consequences of the way projects are financed - by raising taxes, lowering expenditures, increasing lending or by private means. The same holds true for the effects on consumer satisfaction. Different studies also employ different

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Workshop 'Economic Effects of Infrastructural Projects'

Introduction: Seen van der Plas (Ministry of Transport, Public Works and Water Management)

Session 1, Effects on a Macro Level: Ad Geelhoed (Ministry of General Affairs), Glen Weisbrod (Economic Development Research Group), Jarig van Sinderen (OCFEB), Stephen Knack (University of Maryland), Eduard Bomhoff (NYFER).

Session 2, Effects on Program Level: Marten van den Bossche (NEI), Rein Bemer (Ministry of Economic Affairs), Peter van den Berg (CPB), Raymond Gradus (OCFEB).

Session 3, Effects on Project Level: Dick Bruinsma (Ministry of Economic Affairs), Carel Eijgenraam (CPB), Leo van der Geest (NYFER), Sjaak Boeckhout (NEI), Jan Oosterhaven (University of Groningen).

Conclusion: Marion Gout (Ministry of Transport, Public Works and Water Management).

basic assumptions so that comparing the outcomes of the different studies is often difficult. If different studies are regarded too much as substitutes, 'argument shopping' and 'institute hopping' may be provoked. This could be attractive for the research institutes in the short run, but it will harm their reputation in the long run. Moreover, the current state of affairs may confuse the public and policy makers, thereby harming the quality of the decision procedure. In this connection, professor Knack cited empirical evidence showing that broad trust in institutions is essential for investment and economic development.

One of the interesting issues for discussion was the relationship between the different approaches. Are they, though often regarded as substitutes, complementary to a large extent? Do they refer to all levels or to distinct levels of aggregation, e.g. at the level of individual projects, government programs or the macroeconomy? Do they also refer to different levels of decision making, that is to say allocation of public means in general, allocation of sector budgets or allocation within budgets? Could one method be used as input for the other or should they be combined in a broad cost-benefit analysis to present an integrated approach? And finally, who is to balance different studies so that politicians can make concrete decisions? Of course, the latter is easier said than done. Indeed, clear-cut answers presume clear-cut questions. In practice, the political and public discussion is often about specific outcomes, and far too less about a broad strategic view.

In this respect, the design of investment programs received special attention at the conference. Van den Bossche (NEI) argued that projects should be clustered according to specific targets (e.g. the accessibility of the main port Rotterdam) instead of the traditional modal approach (road, rail, inland waterways). Within such a package, a process of setting priorities should separate the 'niceties' from the 'necessities.' Politically, this 'package deal' may be attractive, as costs and benefits for particular groups can be traded against each other. Van den Berg (CPB) pointed out that building and construction is not the only answer to capacity problems. Other measures, such as tax policy, road pricing and regulation, can contribute substantially toward meeting accessibility and environmental targets, as shown in CPB's recent long-term scenario study 'The economy and its physical surroundings: policy challenges and instruments, 1995-2020.'

Conclusion

Where do we go from here? Given the positive reactions during the conference and the large number of new projects, a follow-up is desirable. This would be possible along two lines. The first is open discussion, which improves the quality of the debate and promotes cooperation between the economic institutes, thereby exploiting comparative advantages. The second is to stimulate further research. The conference revealed that a number of loose ends remains regarding the appraisal of infrastructure. Tying up the ends will enhance the reputation of both the government and the research institutes involved. Most importantly, tax payers deserve a careful analysis of public investment projects before large sums of their money will be spent on such projects during the next decade. ■

Challenging Neighbours

Rethinking German and Dutch Economic Institutions
September 10 and 11, 1997
Hans Timmer*

"Turn the *Länder* into *Holländer.*" With that pithy policy advise, labor market economist Joop Hartog concluded his presentation at the *Challenging Neighbours* conference in Dusseldorf on 10 and 11 November. The conference was organized on the occasion of the publication of a CPB study of the same name.[1] Hartog's conclusion that German federal states could learn from the example of Dutch labor market reforms, touched upon three key aspects of the conference and the underlying study. First of all, the aim of both the conference and the study was a critical rethinking of German and Dutch economic institutions, including labor market institutions. Secondly, the organizers of the conference and authors of the study explicitly aimed to bridge the gap between academic discussions and actual policy making. The third aspect was about the proper frame of reference for the Dutch economy. Is it Germany as a whole, a single German federal state or another country somewhere in the world?

How successful were the conference and the study in dealing with these three aspects? How much food for rethinking the institutions was actually provided? How solid was the bridge between scholars and policy makers? How relevant were the international comparisons provided?

Food for rethinking

The book *Challenging Neighbours* provides a rich table with food for thinking about institutions. In 600 closely written pages, many areas of the institutional environment are discussed, from social security and labor market institutions, through corporate governance and technology policy, to options for more competition in energy markets and health care. For many inside CPB, including most authors of the study, the study was the first serious confrontation with institutional economics. In that sense it was more thinking than rethinking. It was more a first visit to the institutions than institutions revisited. Both the study and the conference proved that this first visit was not a superficial acquaintance. The book contains many details about existing institutions. Moreover, a comprehensive analytical framework was developed and used in the book for the assessment of these details. In addition to the study providing this overwhelming amount of information, the conference invited many experts to comment on the study and to add their own views (see box, "Scholars in Dusseldorf"). The study easily withstood their scrutiny. Without exception, the scholars praised the study as a good overview of the issues in institutional economics, and it was difficult for them to present new views and new arguments.

Still, the study contains marked characteristics of a first visit. As in one's first visit to a city, the basic attitude is one of curiosity, to absorb available information with an open mind. The selection of information, as recognized in the study itself, is not entirely based on a preconceived plan, but is partly accidental. This might explain the separate chapters on pensions, health care and corporate governance, while e.g. telecommunication, transport, civil service, financial institutions and housing markets are not explored in detail. Unclear selection criteria give the study

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Scholars in Dusseldorf

Luc Soete (Maastricht Economic Research Institute for Innovation and Technology) and Hariolf Grupp (Fraunhofer Institut Systemtechnik und Innovationsforschung) discussed science and technology policy. Soete stressed that new information technology creates new markets and enhances competition. The appropriation and commodification of knowledge becomes feasible and barriers to enter markets are reduced. Grupp, however, stated that new technological options call for society-wide discussions about quality of life and that government should play its role as intermediary between social groups. Günter Knieps (Freiburg University) and Eric van Damme (Tilburg University) discussed competition policy and deregulation. Both argued that welfare gains are to be expected from further deregulation and that both Germany and the Netherlands can learn more from countries like the United Kingdom than from each other. After David Soskice (Wissenschaftszentrum für Socialforschung Berlin) drew attention to the importance of monetary and fiscal policies in addition to wage moderation and labor market institutions, these institutions were discussed by Karl-Heinz Paqué (Magdeburg University) and Joop Hartog (University of Amsterdam). They embraced the Dutch system of collective bargaining, leading to macroeconomic responsibility of both unions and employers organizations. At the same time, they saw the German apprenticeship system as a good example of how to avoid or tackle youth unemployment, although Hartog showed more enthusiasm about this system than Paqué. Norbert Walter (Deutsche Bank AG) and Arnold Boot (University of Amsterdam) were the last speakers on the first day of the conference with their contributions on corporate governance and financing. Although there were some differences in emphasis, both speakers agreed that globalization would force Dutch and German firms to take shareholder value more seriously, while neither economy would go all the way to sole shareholder control.

a somewhat fragmentary character. This could be one of the reasons why many speakers at the conference mentioned that they found the study not easy to read. Even in the very impressive chapter that provides the theoretical framework, selection was not the main objective. Indeed, the combination of many theoretical concepts in one overall framework implies that the framework is not easily accessible.

A solid bridge?

The authors of the study explicitly aimed to bridge the gap between academic research and policy making. Every chapter in the book concludes with policy options. These policy conclusions are well balanced and prudent, in accordance with the general idea behind the analytical framework that it is virtually impossible to define optimal institutions. Every set of institutions has its own pros and cons and different institutions can lead to a similar performance. Therefore, existing institutions are discussed in terms of trade-offs. Taking into account that it is unwise to change institutions frequently, the study recognizes that reforms are needed only if certain thresholds are crossed, if the burden of existing institutions exceeds the benefits, e.g. in the case of changing environments. Nevertheless, the authors were able to draw some concrete lessons for both the Netherlands and Germany. To give some examples of the lessons for the Netherlands:

— improve the administration and monitoring of social benefits;
— make pension schemes more flexible and tailored to individual needs;
— make on-the-job-training diverse enough for workers so that they are willing to co-finance this training;
— Abandon cooption in the supervisory board of enterprises and increase the influence of shareholders;
— Let finance of higher education depend on the outcome of peer reviews;
— ensure independence of competition authorities and avoid intermingling of competition policy with industrial policy;
— make electricity grids independent of electricity producers.

The conference also aimed to link academics and politicians. First of all, the chairman Ruud Lubbers, former Dutch Prime Minister and currently professor at Tilburg University, actively tried to link both worlds. He did not hesitate to add his own views and cite his own experiences frequently. Furthermore, the entire second day of the conference was dedicated to policy discussions, with contributions of the Dutch ministers of Finance and Economic Affairs, the German minister of Economic Affairs and the German under-secretary of Finance (see box, "Politicians in Dusseldorf"). Hence, there were ingredients enough for a successful crossing of the bridge from theory to practice. But how solid was the bridge? At the conference, it still did not seem to be completely reliable. The weakest chain was the empirical evidence, the relation between micro institutions and macro performance. Academics like Eric van Damme stressed that micro institutions should be judged on theoretical grounds rather than macro evidence, since macroeconomic developments depend on many other factors. Nevertheless, politicians tend to use recent macroeconomic performance to elucidate the success of institutional reforms or the need for further reforms. Especially against the background of subtle trade-offs, the lack of empirical evidence leaves too much freedom for academics to insist on their theoretical arguments and for politicians to claim successes. Despite the weakness of this chain, academics and politicians agreed that, in line with current theoretical arguments and the spirit of the age, more competition would be welcome, even though solidarity and coordination would remain important as well.

Politicians in Dusseldorf

Ruud Lubbers, chairing the conference, emphasized that the success of the Dutch polder model is based on trust; the confidence that both employers organizations and trade unions will continue to act cooperatively in future years underlies the rapid increase in employment. Hans Wijers, minister of Economic Affairs in the Netherlands, damped the enthusiasm about the Dutch polder model. For one, the participation rate is still low in the Netherlands. Moreover, to become one of the top economies of northwestern Europe, the Netherlands should implement more market-oriented reforms and introduce more competition in several key areas. In what could have been an election speech, his German colleague Günter Rexrodt advocated Anglo Saxon dynamism combined with social protection. But he underscored that social partners should go beyond protecting their vested interests. For that reason, he praised the moderate policy of Dutch unions. Gerrit Zalm, minister of Finance in the Netherlands and former director of CPB, saw a role for the government in improving transparency and accountability of corporate governance and in reinforcing the role of the shareholder. Jürgen Stark, undersecretary of Finance in Germany, pointed to the necessary further convergence within Europe, also with respect to tax systems and social standards.

International comparisons

Two arguments were given for the comparison between the Netherlands and Germany. First of all, both countries are rather similar. Consequently, comparisons of institutions are not obscured by completely different environments or cultural backgrounds. Secondly, since many institutions are interlinked, one should describe the institutional environment as a whole. By focussing on only two countries, such a holistic approach is much more feasible than trying to analyze many countries at the same time. However, even in the study itself the authors felt the need to deviate from this approach. In almost all chapters, both

countries were compared to other, best-practice countries. Lessons from such a comparison with third countries were included in the unfinished agenda for reform. Also during the conference, many participants questioned the approach that was chosen. Especially in view of globalization tendencies, alternative frameworks for comparison were advocated. First of all, because of the collapse of centrally planned economies and increased international competition, economies and institutions converge rapidly. Therefore, many other countries are becoming interesting examples for the Netherlands. Secondly, globalization, and especially European integration, diminish the relevance of national states. More and more, policies become regional, regional in the sense of a group of national states or regional in the sense of an area within a national state. Following this line of thought, policy in Germany could be decentralized further and, indeed, the Länder could be turned into Holländer or Holland could be turned into one of the Länder. In this connection, one could argue that a next study should focus on the Netherlands and the neighboring German state North Rhine-Westphalia. Such a comparison would be extremely relevant from a policy point of view, because locational competition is fierce in neighboring regions and trade flows are large. At the same time, a more global perspective, looking at rather different economies competing in an integrated world market, could be most interesting from an academic point of view.

The next visit to the city of institutions will undoubtedly be more selective, focussing on a few items of empirical evidence or a few areas for clarification. One of the areas that deserves more attention is the character of technological developments. The study, and especially the contributions during the conference, stressed that new technologies enable a smaller scale of production, easier entry and more competition. What used to be natural monopolies, commonly incorporated in the government sector, can now be split into several competing units. Almost ignored, however, was the growth in mergers in, for example, financial sectors and the aircraft industry. In those sectors, economies of scale seem to induce monopolistic tendencies. These two conflicting tendencies (towards more competition and towards monopoly) would be a good subject for a revisit to the institutions. A single focus would help the reader to maintain a clear sense of direction, which is sometimes difficult in the broad overview provided in the current study. This is one reason for looking forward to additional short visits to the institutions. However, as is often the case when visiting cities, the first visit will remain the most exciting one. ■

Notes

[1] CPB (1997), *Challenging Neighbours, Rethinking German and Dutch Economic Institutions*, Springer-Verlag. For a summary, see Lans Bovenberg, George Gelauff and André de Jong, "Challenging Neighbours, Rethinking German and Dutch economic institutions, *CPB Report* 1997/3, pp. 43-48.

Regulating Dutch tele-competition

12 November 1997

Paul Arnoldus*

Despite rapid technological developments and the introduction of competition, the Dutch telecom sector has retained some characteristics of its public utility past. The former monopolist KPN still owns the basic network; it remains the dominant player in all telecom markets and it needs cross-subsidization to finance non-profitable activities. The government needs a regulation policy that secures the expected large economic benefits a dynamic and efficient telecom sector can provide and that at the same time guarantees access to a minimum level of telecom services for all Dutch consumers. The latest workshop on competition policy (jointly organized by the Dutch Ministry of Economic Affairs and CPB) was devoted to these important policy issues.

Access

Jos Huigen (the Independent Post and Telecom Authority OPTA) addressed the most urgent problem of competition in the telecom sector, namely the access to KPN's network by its competitors. Another full-fledged telecom network will not emerge in the foreseeable future. Although the Dutch cable-TV network has great potential because of its high coverage and large bandwidth, the cable operators hesitate to use their financial means to develop it further. Since splitting up KPN's telecom activities is beyond OPTA's scope of action, strict regulation of KPN's network management is called for.

The general criteria for regulation are simple enough in theory: network access should be transparent and non-discriminatory, and access charges should be cost-based. In practice, though, effective regulation requires thorough and up-to-date knowledge of all technical intricacies. In particular, the regulator should determine the bottlenecks in the net. Huigen identified these to be the "Terminating Access" (TA) facilities, loosely defined as "incoming calls"-facilities: for instance, whenever a new entrant wants access to the final customer, its net has to be linked with KPN's net. All other connections are "Originating Access" (OA): they widen the scope of the consumer, but are not essential for connecting to the final consumer. A complication is that this distinction can be made at different levels of network connections. It is therefore hardly surprising that different countries have opted for different price regulations. Most have in common that the price for TA should equal that of OA.

Hans Maks (Maastricht University) noted that the cost orientation is the weakest point in the outlined regulation strategy, for the regulated firm has a strategic informational advantage about its own cost. *Harold Creusen* (CPB) added that this information asymmetry has dynamic aspects as

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Workshop Regulating Dutch Tele-competition
Chairman: Marcel Canoy (CPB)

Some problems concerning competition in the telecommunication sector
Jos Huigen (the Independent Post and Telecom Authority OPTA)
Discussant: Rob Rosendaal (the Dutch Competition Authority NMa)

Universal Service Obligation
Jos Jansen (CentER, Tilburg University)
Discussant: Jeroen in 't Veld (Ministry of Finance)

The economic effects of competition in communication and information services
Yvonne Bernardt (CPB)
Discussant: Robert Haffner (Ministry of Economic Affairs)

well: because of its technological know-how, the incumbent KPN has an edge in the negotiations about technical specifications and licenses.

The discussant *Rob Rosendaal* (Dutch Competition Authority NMa) surprised many participants with his antagonistic stance towards the sector-specific regulator OPTA. In his view, the general Competition Authority NMa should take the lead in (de)-regulating telecom, on the basis of the general European and Dutch competition laws and the Open Network Provision. OPTA's main task should be the setting of standards and the granting of licenses, all this in accordance with NMa's rulings. More generally, he favored *ex-post* arbitration above extensive *ex-ante* regulation, because the latter is based on the fallacy that the regulator knows better than the market. In the floor discussion, however, most held the view that *ex-post* arbitration in a complex market such as telecom boils down to "locking the stable door after the horse is stolen." One participant sarcastically remarked that the new Dutch Competition Law might enhance competition between regulators, which constitutes a doom scenario for the regulated sector.

Universal Service Obligation

Several contributors pointed out that cross-subsidization is pervasive in the telecom market, because the subscription fee is too low to cover the expenses of the connection. In this way, international calls subsidize national calls and frequent users subsidize low users. This tariff system is inefficient, because it leads to an inefficient use of the national network and sloppy cost management. However, a "rebalancing of tariffs" at the expense of the users' charges for local and regional calls might yield undesirable social effects, when low income users are virtually excluded from telecom services. A Universal Service Obligation (USO) is an often proposed solution to this problem.

Jos Jansen (CentER, Tilburg University) analyzed the general case of USO, and applied it to the particular case of the telecom market. He defines USO as "the obligation to supply against a sound price a minimum level of services of well-defined quality to all consumers who demand so on reasonable terms." This definition deliberately abstracts from a more precise characterization of the services involved, because that is assumed to be a political choice.

First, Jansen discerned three rationales for USO. The first reason is efficiency. USO internalizes network externalities, as the connection of even a low user encourages others to connect as well or to stay connected. However, with telecom's high coverage and low price elasticity, this reason does not seem that relevant. The second rationale is (as noted above) equity. However, the discussant *Jeroen in 't Veld* (Ministry of Finance) noticed that very often this social goal is, if at all, badly defined. Besides, USO is the optimal solution only in some, but not all "second-best" worlds (i.e. cases where imperfect information and distortions elsewhere prevail). In a "first-best" world, income subsidies are the optimal solution. Finally, the incumbent might press for USO itself in its political lobby against liberalization.

Subsequently, Jansen analyzed the latter case in more detail, for the most common case of USO is that of one imposed on a monopolist and financed through cross-subsidization. It is usually argued that in this situation, free entry is inefficient and inconsistent with USO, because entrants, even more inefficient ones, would target only the profitable segments of the market, leaving the incumbent with the obligation to serve the remaining unprofitable ones. However, Jansen stressed that this "*cream skimming*" occurs only if the incumbent sticks to its pre-entry price scheme (or is forced to do so).

"Rebalancing the tariffs" is therefore the proper remedy, but it must be closely monitored in order to prevent "*predatory pricing*" by the former monopolist. As argued by Van Damme (CentER, Tilburg University), the incumbent could temporarily supply its services below cost price and so push the actual entrant off the market and simultaneously scare off potential entrants. This aggressive strategy is feasible if the incumbent has accumulated monopoly profits or expects to recoup the losses later on the re-monopolized market. Moreover, the incumbent has probably covered its initial investment, while the entrant has not. A well-informed regulator is required to assess the threat or even the occurrence of this dynamic phenomenon.

There are, however, more interesting ways of imposing and financing USO than the more traditional one. The "*pay or play*"-version of USO leaves entrants with the choice to provide USO ("play") or to contribute to a so-called USO fund ("pay"); the incumbent is obliged to provide the USO services in order to "create a level playing field." This version of USO enhances competition and curbs the incentive to overstate the costs of USO; more than one USO supplier, though, could lead to duplication of costs. Jansen himself therefore favored auctioning the USO. The lowest bidder should be awarded the USO franchise and it should be paid out of a common USO fund. In spite of the apparent efficiency, this method has pitfalls as well: the incumbent has an informational advantage and collusion between bidders is possible.

The possibility of a USO-auction is incorporated in the new Dutch Telecom Law, in case the regulator deems ac-

tual service to be below the USO-standard. If the bids are unsatisfactory, the USO will be imposed on the incumbent and financed by a levy on all suppliers. This procedure seems feasible: experiences in France and Britain indicate that even generous USOs impose only low costs relative to total turnover; USO might even be desirable for the public image of the provider and for locking in potential clients.

The benefits of competition in C&I services

Yvonne Bernardt presented a CPB study assessing the economic effects of competition in the Communication and Information Services (C&I), of which Telecom is an essential part (see also the article entitled 'Competition in Communication and Information Services' by Marcel Canoy in this issue of *CPB Report*). The method of analysis is a scenario approach, as the changes under study are hard to incorporate in current macroeconomic models.

The study uses two scenarios for the economic background: a favorable and an unfavorable one. The impact of government policy on competition in C&I is framed also in two alternative scenarios, one for effective policy, and one for an unsuccessful competition policy.

The combination of favorable economic developments and successful competition policy is called "*technoforia*;" the combination of the two worst-case scenarios leads to "*infostatics*." This contrast is meant to elucidate the impact of C&I on the economy as a whole. The other two combinations, dubbed "*mixed worlds*," are used to assess the separate influence of policy compared to exogenous developments.

From the scenario analysis and particular case studies, Bernardt made three general inferences, the outlines of which were endorsed by discussant *Robert Haffner* (Ministry of Economic Affairs). First, successful competition in C&I leads to substantial improvements of the price-quality mix, and that the larger the improvement, the less the scope remains for government policy. Second, a more efficient and innovative C&I industry lowers transactions cost all over the economy. The largest long-term savings originate in re-arranging methods of production (e.g. PIN-cards instead of cash payments). Finally, government policy seems to be able to influence the market direction during the transition period. The resulting market size of C&I in the long term, however, depends for the most part on exogenous economic trends. The overall conclusion was that the costs of regulating C&I are rather small compared to the potential benefits, but risks are substantial. ■

Seminars are held on Tuesday afternoons between 1:00p.m. to 2:00p.m. Those outside CPB wishing to participate should call the receptionist (tel. CPB 070-3383380). Papers presented at seminars can be sent on request.

13 January 1998
Willem van Groenendaal (CentER, Tilburg University)
On the assessment of economic risk: factorial design versus Monte Carlo methods
discussant: Carel Eijgenraam (CPB)
The economic feasibility of large investments in infrastructure involves many aspects and thus cannot be modeled as a single optimization problem; instead, the multiple aspects (demand, supply, prices, investment costs) are modeled separately. Because of the wide range of factors that play a role in the analysis, it is important to know which factors exert a large effect on the analysis and which can safely be discarded. This presentation discusses the roles of experimental design and meta-modeling in this analysis.

27 January 1998
Carel Eijgenraam and Sjef Ederveen (CPB)
Economic consequences of restrictive use of Schiphol
discussant: Kees Heineken (Ministry of the Natural Environment)
Which restrictions should be imposed on the airport of Schiphol? This public choice question requires a clear insight into the alternative consequences of policy measures. What are the economic effects of restrictions? Which policy measures achieve the government objective of staying below an upper limit of 44 mln passengers? Is an upper limit of 44 mln passengers useful to achieve the standard for noise pollution? How much traffic can be processed at Schiphol in the different cases?

10 February 1998
Leon Bettendorf (CPB), and
Frank Verboven (UFSIA, University of Antwerpen)
Competition in the Dutch coffee market
discussant: Marcel Canoy (CPB)
World coffee bean prices have shown large fluctuations during past years, whereas consumer prices for roasted coffee have varied considerably less. This paper seeks to explain the weak relationship between coffee bean and consumer prices for roasted coffee. We estimate an aggregate model of oligopolistic interaction. The relatively large share of costs other than bean costs appears to account for most of the weak relationship between bean and roasted coffee prices. The remaining part originates in markup absorption, but is less important since the market is relatively competitive. See also the article entitled, "How competitive is the Dutch coffee market?" in this issue of *CPB Report.*

23 February 1998
Arnold Kusters (CPB)
The short-term macroeconomic forecasting process
discussant: Fré Huizinga (CPB)
The procedures of the forecasting process by the Cyclical Analysis Division are presented on the basis of the time schedule of the Central Economic Plan. This presentation elaborates on the role of the quarterly macroeconomic model FKSEC in short-term forecasting, the inclusion of recent realizations, the leading indicator system, the link with sectoral and foreign data and non-model information. One of the major behavioral equations of the model, exports of non-energy goods (both volume and price), serves as an illustration.

10 March 1998
Coen Teulings (Ministry of Social Affairs and Employment and University of Amsterdam)
Earnings inequality: the influence of changing opportunities and choices
discussant: Pieter Gautier (CPB)
While the employment effects of minimum wages changes are usually reported to be small, direct estimates suggest a much larger degree of substitubility. This paper argues that this paradox is largely due to a bias due to the aggregation of skill types into broad categories. An assignment model is applied where workers have a comparative advantage in complex jobs. The implied pattern of substitubility reveals the sources of the bias. Estimation results for the United States show elasticities of complementarity to be underestimated by up to a factor of five. Simulation results suggests that the reduction of minimum wages during the eighties has significantly contributed to the rise in wage inequality.

25 March 1998
Valentijn van Nieuwenhuijzen (University of Amsterdam and CPB)
Collapsing exchange rates
discussant: Hans Lunsing (CPB)
Several models of collapsing fixed exchange rate regimes have been developed. The first generation of (monetary) collapse models were based on economic fundamentals; second-generation models later formalized the possibility of self-fulfilling speculative attacks on fixed exchange rates. This research develops a first-generation monetary discrete-time model with uncertainty to estimate next-period collapse probabilities of fixed exchange rate regimes. The model is applied to several exchange rate crises and predicts fairly well speculative attacks on pegged exchange rates that occurred in Mexico and the European Monetary System (EMS). The model's results allow formulation of policy guidelines for countries who want to participate in EMU.

7 April 1998
Erik Canton (CPB)
The Dutch Business Cycle; Let's Get Real!
Discussant: Peter Broer (CPB and OCfEB)
Since the seminal work by Kydland, Prescott and Hansen, Real Business Cycle (RBC) theory has become one of the standard approaches in modern macroeconomics. This seminar reviews some of the literature and introduces a basic neoclassical model with real business cycles. Even a simple model is capable of mimicking some salient features of the Dutch business cycle. Such a simple model may not be readily appropriate for serious policy analysis. Canton discusses some interesting extensions to make the model more suitable for policy-oriented research. The basic RBC model may have to be adjusted in order for it to represent the Dutch economy with respect to the labor market, the role of the government, and the importance of exports.

21 April 1998
Eric Bartelsman (CPB and Free University of Amsterdam)
Productivity and specificity in factor inputs
discussant: Nick Draper (CPB)
This paper evaluates the macroeconomic importance of specificity in factor markets by considering the effects of wage moderation in the Netherlands on productivity growth since 1982. The analysis is based on a vintage model of capital with embodied technology. In a traditional vintage model, a decline in wages relative to the cost of capital will delay scrapping and postpone new investment, thus repressing productivity growth. However, in recent models that account for the specific production relationship between capital and labor and the problem associated with appropriability of rents, institutionalized wage moderation will boast new investment and improve productivity. A preliminary analysis using micro-level data of industrial firms does not reject the role of specificity.

Presentation of new MIMIC model for Dutch policymakers

Wednesday March 4, from 14.00 - 17.00 hours

The MIMIC team will present the new MIMIC model, which contains a number of innovations compared to its predecessor, such as an informal economy, endogenous human capital formation and a distinction between short-term and long-term unemployment. The new model simulates the effects of various policy proposals that receive much attention in current policy debates, such as:

* The Earned Income Tax Credit
* Policies targeted at the long-term unemployed
* Across-the-board versus targeted tax reductions
* Tax cuts for employers versus employees

Location is to be announced. If you would like to attend the meeting, please contact Ria van der Hoorn, tel. 070 - 338 3380 or Ruud de Mooij (070-3383364; e-mail:radm@cpb.nl)

Challenging partners

Bart van Ark*

In 1995, the Dutch economic weekly, *ESB*, published an article by van Ewijk and Koedijk which argued that CPB should move from its traditional role of running econometric models to assess the effectiveness of policy proposals towards a greater participation as a "think-tank" in major economic policy debates in the Netherlands (C. van Ewijk and C.G. Koedijk, "Van rekenmeester naar denktank," *ESB*, 31-5-1995, pp. 509-513). With the publication of *Challenging Neighbours: Rethinking German and Dutch Institutions* (CPB, 1997), CPB has convincingly demonstrated its ability to do this. *Challenging Neighbours* is the most extensive documentation of the comparative economic performance of Germany and the Netherlands, viewed from an institutional perspective, since World War II. It provides a rich source of information on a wide range of topics, including social security, pensions, corporate governance, science and technology policy, competition policies, public utilities and health care. Most chapters are structured in a similar way, starting with a theoretical or analytical framework, an analysis and comparison of developments in both countries and concluding with a section on policy options (see *CPB Report* 97/3 for a discussion by the authors).

This study stands out in comparison to some other recent reports on the comparative economic performance of the Netherlands, in particular McKinsey's study, *Boosting Dutch Economic Performance*, and the latest competitiveness test (*Toets op het concurrentievermogen 1997*) of the Dutch Ministry of Economic Affairs. The latter two studies provide empirical information on how the Netherlands performs relative to other countries on a whole range of variables. However, these studies lack an analytical framework that combines all the pictures into a consistent story. Benchmarking is a useful device for firms, but at the macroeconomic level it fails when it does not take into account the offsetting effects of improving on any policy variable. Hence, the McKinsey study and the competitiveness of the Ministry of Economic Affairs are of limited use to policy makers. *Challenging Neighbours*, in contrast, has a clear analytical structure. It starts from identifying market failures that raise coordination issues and require coordination mechanisms to resolve them. The main aim of the study is to visualize the trade-offs one faces in applying the coordination mechanisms.

What can one do with this book of more than 500 densely printed pages? As an academic, I do no hesitate to answer that question. The book is a major contribution to applied institutional economics, and it helps to better understand the relationship between policy and economic performance. It has also a nice accompanying effect, i.e. that it is ideal material for a graduate course on institutional economics, because it is a good case of an in-depth study of two countries. But what about the policy maker, who is looking for clear-cut policy questions and answers? Facing the trade-offs complicates policy making, but it provides a better perspective on how successful certain policy instruments can be to achieve certain policy aims and how the ideal mix looks like.

Regrets?

Are there no regrets at all about this study? One big question that has arisen several times since publication is: why compare Germany and the Netherlands? Without denying the differences, from a global point of view the countries are institutionally quite close. CPB defends its choice by emphasizing the importance of the more subtle differences of the coordination mechanisms. Whereas the German system supplements markets with control, the Dutch system supplements competition with cooperative exchange. Still, many of the trade-offs would have been much clearer if the study had compared countries which were further apart on the various coordination scales. In this respect the McKinsey studies which benchmark each country with the US performance in particular, more clearly show the trade-offs between, for example, economic and social objectives.

Another problem is that, despite the similar structure, the chapters in the book are still somewhat unbalanced. Some chapters are very descriptive which cannot altogether be avoided with institutional economics, but it sometimes obscures the "trade-offs" emphasized so strongly in the beginning of the study. Other chapters do not succeed to link the analysis of the institutions back to economic performance. Admittedly this is not easy to do, but occasionally one gets this feeling: "all right, many differences, but so what …?" A logical next step in CPB's research would be to integrate the institutional framework with measures of economic performance.

With this book CPB has challenged its partners in academics and policy making — exactly what a think tank should do!

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Scanning CPB: A view from the outside

Anton Barten*

The mission of CPB Netherlands Bureau for Economic Policy Analysis is

...to undertake economic forecasts and analyses that are up-to-date, scientifically sound and relevant for policymaking — for the government, parliament, and other interested parties, including political parties and industry.

CPB last year invited a committee of six independent experts[1] to review the current position and activities of the Bureau in the light of this mission statement. The committee was asked to consider both the research activities of CPB as well as its forecasting and policy analysis activities, and then to assess not only the scientific quality of CPB's work but also its relevance for policy making. A self-assessment report[2] written by CPB provided a starting point for the committee's work. This report presents CPB's work in a thematic fashion.

The Review Committee visited CPB from 21 until 25 April 1997. During this week, the Committee met with Bureau staff and with its clients (i.e. representatives of the civil service, independent observers, participants in socioeconomic consultations, representatives of institutes) that cooperate with CPB and politicians.

CPB decided to subject itself to a review in order to help maintain the quality of its work, which is crucial for protecting the Bureau's credibility and independence. CPB deliberately chose to expose itself to a committee of outsiders in the expectation that this committee would come up with helpful suggestions to support CPB's pursuit of quality.

During the talks with the Bureau staff and its clients, we learned that CPB has a unique position in the Dutch political and social-economic system. Our report[3] formulates a number of recommendations that we think might be helpful in maintaining this special position and the vitality of the Bureau. It is the hope of the Committee that this report will serve its purpose and assists CPB in its pursuit of quality.

General observations and recommendations

As both a scientific institute within the government and an institute for applied scientific research, CPB Netherlands Bureau of Economic Policy Analysis is a unique institution. The second reason why CPB is unique is that it has been able to build up a reputation for solidity and independence. It plays an important role in policy preparation and consensus-building in the Netherlands. This is shown, for instance, by its role in the evaluation of the major political parties' election programs.

Fulfilling the tasks that CPB is required to fulfil by law and that it has set for itself at a certain moment is one thing, maintaining vitality is another thing. This is not a simple matter for a civil service institute. CPB has been successful also in this respect. In particular, it has been able to respond to changes in the economic environment. In reaction to the general trends of international integration and globalization, for example, CPB shifted its emphasis toward micro and institutional research. The Committee realizes that CPB's research in this field has been lagging behind research at universities and ministries, but believes that this was almost unavoidable in view of the fact that CPB, because of its position in the Dutch social-economic system, simply cannot afford to act as a pioneer.

In the second place, CPB has invested in opening up to the outside world. Initiatives like peer reviews, the launching of *CPB Report*, and network building are both a sign of this intention and a help to stay up to date. These efforts might be developed more systematically, however, by promotion of greater external mobility of staff, by a further increase of the number of employees who work part-time for other institutes, by the organization of summer schools for outsiders and newcomers, and by encouraging employees to publish research articles in academic journals.

Maintaining its reputation sets high demands upon the organization of the Bureau. The organization should both be flexible and be able to guarantee that research quality standards are met within agreed deadlines. In this sphere, improvements could be achieved. In particular, the Committee stresses the desirability of:

— a more systematic approach to human resource management. Off-the-job-schooling and employee training exist, but are insufficiently used because of inadequate incentives. The appointment of a special human resources manager could be useful. In addition, a systematic and explicit assessment of employees' performance is necessary;

— a further improvement of research management. The initiatives taken by management in this sphere are steps in the right direction provided that they are systematically used. Other suggestions that might be useful are a more systematic use of project managers for projects that involve several departments within the Bureau and for projects that are undertaken together with other institutes, and to invest in a clear formulation of the expected outputs at the start of new projects;

— increasing the number of staff on temporary contracts. This would promote external staff mobility and help maintain quality.

Main observations and recommendations by theme

The world economy

The Committee

— recommends that CPB undertake a comparison of the accuracy of its short-term forecasts with those made by international organizations such as the EU Commission, the OECD and the IMF;

- welcomes the development of WorldScan, which it considers a unique world model with few competitors in its field. It is flexible enough to address a wide range of long-

*Chairman of the committee that reviewed the quality of CPB's work. Prof.dr. Anton Barten is professor emeritus at the University of Leuven.

term issues by generating scenarios of future developments in the world economy. The Committee welcomes CPB's intention to develop a maquette of WorldScan. This would highlight the model's most important mechanisms and make it more transparent to outsiders and clients. It would also make it easier to introduce innovations into the model. CPB should promote greater use of World Scan, both for Dutch and international clients. This should provide additional resources needed to enhance the model further;
— is not convinced that the investment in WEB, a macroeconomic model covering the world economy, is likely to yield sufficient value for money. There are already several similar models available on the market and, although WEB differs from most other macro econometric models in that it aims to integrate business cycle analysis in a structural model of the world economy and that it includes a rather extensive trade block, the Committee is not convinced of the additional value offered by WEB. For that reason, the Committee suggests that the Bureau keep the volume of investment going into WEB at a low level.

Macro- and meso-economic analysis of the domestic economy

The Committee
— is impressed by the way up-to-date econometric methods are used for short-term model building and short-term economic analysis;
— observes that the careful construction of short-term forecasts, using additional information from outside sources, helps to achieve a broad consensus about the forecasts;
— advocates that CPB reconsider its investments in short-term sectoral forecasts;
— advises CPB to continue building the annual model for short and medium-term policy analysis (the so called OFK-model). The annual forecasts made by the model should be interpolated using quarterly indicators to obtain quarterly forecasts. If this turns out to be a satisfactory procedure, there will be no need to build a separate quarterly model for quarterly forecasting purposes;
— believes that CPB should encourage applications of modern methods of macroeconomic theory in order to analyze cyclical and structural developments.

Industrial and institutional economics

The Committee
— recognizes that through personnel additions and shifts of emphasis among long-term staff, CPB is moving aggressively into the domain of microeconomic and institutional economics. The Committee views this as a desirable response to changes in the Dutch economic environment. Much of the progress made thus far has necessarily been of a capability-building character, without sharply focused contributions to specific public policy debates. The research on agricultural markets is one of the exceptions, having already made explicit in-depth contributions using state-of-the-art methodologies;
— recommends that further studies of deregulation, competition policy and economic institutions should emphasize in-depth analyses of specific industries and policy questions;
— International comparisons of industrial policy approaches are valuable, but require deep insight into local institutions that can be achieved intramurally only at high cost. For that reason, the Committee recommends that CPB should build up its ability to work cooperatively with experts in other nations.

Analysis of the welfare state and the labor market

The Committee
— considers the MIMIC model to be an impressive achievement. The empirical basis of some parts of this applied general equilibrium model is to be applauded.
— recommends that more emphasis should be given to the sensitivity of MIMIC to alternative parameter values, especially where there is some uncertainty as to the reliability of the parameter estimates. There should also be an assessment of the ability of the model to track historic episodes and policy reforms before proceeding to make large investments in new extensions to the model;
— believes that the development of the health model and the analysis of education and training are important contributions that should prove relevant for policy making;
— believes that more attention should be given to the role of private pensions and of savings behavior.

Energy, environment, space and transport

The Committee
— observes that CPB has played an important role in energy, environment and transport studies by supplying macro-sectoral inputs to many long-term studies. In this way it has contributed consistency to the analysis of public policy;
— believes that CPB should invest in the development of a cost-benefit analysis methodology that is macro-economically consistent. This methodology should be able to address pricing and investment issues. This investment is necessary to enable the Bureau to maintain its function as an independent assessor of important economic policy actions. ■

Notes

[1] In addition to the chairman, prof.dr. Anton Barten, other members of the committee were: dr. Richard Blundell (IFS, London), prof.dr. Frank den Butter (Vrije Universiteit, Amsterdam), dr. John Martin (OECD, Paris), prof.dr. Frederic Scherer (Harvard University, Cambridge Massachusetts), prof.dr. Stef Proost (University of Leuven). Drs. Edwin Oskam of the Social Economic Council assisted the committee as independent secretary.

[2] 'Scanning CPB: A view from the inside', available on request at CPB.

[3] 'Scanning CPB: A view from the outside', available on request at CPB.

RECENT PUBLICATIONS

WORKING PAPERS

No. 97
Economic aspects of reorganizing the pig-breeding sector
(co-authored with the Agricultural Economics Research Institute; *only in Dutch*)

This paper analyzes recent proposals by the Ministry of Agriculture, Fisheries and Nature Conservation to restructure the pig producing sector. The restructuring plan consists of a reduction of the number of pigs by 25% and the introduction of tradeable pig producing permits.

The consequences of the proposals are evaluated by means of a scenario study. The scenario outcomes show, among other things, that employment in the pig chain will decrease (due to the restructuring measures) by some 13,000 labor years. It shows also that a successful restructuring of the sector is possible only if the pig processing industry succeeds in upgrading its output.

As a general conclusion, the study states that the restructuring measures imply a substantial break with the past. However, in view of the environmental damages caused by the sector and the problems brought on by the outbreak of swine fever, the sector has to be restructured in any case.

RESEARCH MEMORANDA

No 138
An analytical framework of industrial organization for policy analysis
Harold Creusen
(tel: 31-70-3383393; e-mail: hpwac@cpb.nl)

This paper discusses an analytical framework of industrial organization and a guide for policy analysis. It is mainly addressed to policy makers entrusted with competition policy, industrial policy and regulatory reform in particular markets. The analytical framework contains a taxonomy of several IO theories that consider relations between competitors, suppliers and customers on a market. It highlights firm behavior that results from or induce market imperfections. The guide for policy analysis then points to the potential role for policy to remove these market distortions and improve dynamic welfare. See also the article, "Detecting relevant policy issues on competition and regulation" in this issue of *CPB Report*.

PUBLICATIONS ABOUT FORECASTING ACTIVITIES

Macro Economic Outlook 1998
(only in Dutch)
ISBN 90 399 1371 4.
Price: *f* 41,50

In September CPB publishes the *Macro Economic Outlook* (*MEV*), which serves as a guide for the cabinet in the preparations of the budget for the next year by providing the latest economic and budgetary forecasts for that year. Updated with final decisions on government policy, the *MEV* presents a forecast of the Dutch economy for next year. It is published in September simultaneously with the government budget, which is based on these forecasts. Special features in the *MEV* 1998 are an investigation of the possible link between slower productivity growth and the increased employment share of low-paying work, and an analysis of the erosion of the tax base.

Economic outlook for the next cabinet period
(only in Dutch)
ISBN 90 399 1443 5
Price *f* 57,50

This study presents two medium-term scenarios for the period 1999-2002. The scenario approach has been adopted because of the many uncertainties surrounding medium-term forecasts. The *cautious* scenario is advocated as the basis for fiscal policy in the next cabinet period, while the *favorable* scenario can be useful in preparing policies regarding the environment, the labor market and infrastructure.

Special features in this publication are an assessment of the economic development during the current cabinet period, i.e. the years 1995-1998, and an evaluation of the pros and cons of policy measures aimed at improving the labor market prospects of people with lower education levels.

An English summary of the latest medium-term outlook is published in this issue of *CPB Report.*

SPECIAL PUBLICATION

Limits to Schiphol Airport?
(only in Dutch)
ISBN 90 399 1445 1
Price *f* 37,50

Which limits do we set to Schiphol Airport? Answering this political question requires insight into the consequences of

available options. What are the costs of limiting the number of passengers arriving at Schiphol, for the consumer, for the airline industry and for the society at large? Which alternative policy measures can be taken to stay within the noise-criteria and what does this mean for the capacity of the airport?

Together with other specialized research institutes, CPB has worked on answering these questions. The study aims to provide information for the public debate about the future of aviation in the Netherlands.

HOW TO ORDER

The *Macro Economic Outlook*
(only in Dutch: *Macro Economische Verkenning*) is published by and can be ordered at

Sdu Publishers
Postbox 20014
2500 EA The Hague
The Netherlands
Telephone: 31-70-3789880
Telefax: 31-70-3789783

Research Memoranda and Working Papers published after December 1992 can be ordered at

Hageman Verpakkers
Postbox 281
2700 AG Zoetermeer
The Netherlands
Telephone: 31-79-3611188
Telefax: 31-79-3613927
Price: ƒ20

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CPB Library
Postbox 80510
2508 GM The Hague
The Netherlands
Telephone: 31-70-3383425
Telefax: 31-70-3383350

Basic statistics of the Netherlands (1996)

GENERAL

Area (1000 sq. km)	41.5
Population (million)	15.5
Employment (million persons)	6.0
Currency (1996)	1 $ = 1.69 guilders
Currency (November 1996)	1 $ = 1.95 guilders

PUBLIC SECTOR

General government financial balance (% GDP)	–2.3
Taxes and social security contributions (% GDP)	44.0
Gross debt general government (% GDP)	76.6

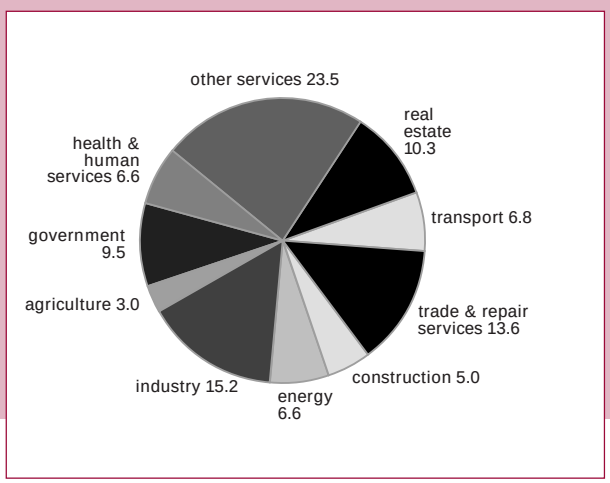
PRODUCTION

GDP (billion guilders)	667.6
GDP per head (thousand guilders)	43.0
Gross fixed investment (% GDP)	19.7
Current balance (% GDP)	6.3

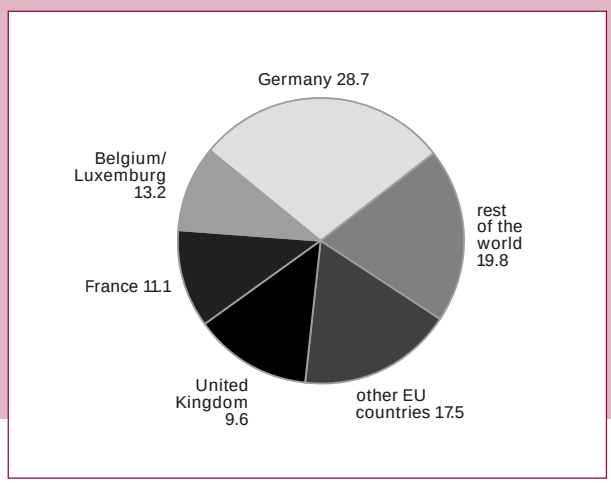
FOREIGN TRADE

	Exports	Imports
Goods (billion guilders)	294.2	267.7
	(% of total)	
Food	23.9	17.3
Energy	8.2	8.9
Chemicals	17.4	12.0
Metals	35.7	42.9
Other	14.8	19.0
Services (billion guilders)	64.1	47.9

Production by branch (% of total GDP)



Exports of goods by destination (% of total)



Appendix A Main economic indicators of the Netherlands, 1985–2002

	1996	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999–2002[a] cautious	1999–2002[a] favorable
	billion guilders	*annual percentage changes*															
DEMAND AND OUTPUT (VOLUME)																	
Private consumption	398.5	2.8	2.6	2.7	0.8	3.5	4.2	3.1	2.5	1.0	2.2	1.8	3.0	3¼	2¾	1¾	2¾
Government consumption	93.7	2.4	3.6	2.6	1.4	1.5	1.6	1.5	1.7	1.5	0.6	0.6	1.2	3	2¾	1	1
Gross fixed investment	131.4	6.8	6.9	0.9	4.5	4.9	1.6	0.2	0.6	–2.8	2.2	5.0	6.1	7	4¼	1¼	3½
Private residential	33.5	–0.7	4.3	1.6	11.3	0.7	–2.5	–5.4	6.4	–0.3	6.2	0.9	0.1	6	2½	–1	1
Private nonresidential	81.7	13.1	10.7	0.4	1.6	7.5	2.3	3.2	–2.2	–4.5	0.0	7.6	9.3	7¾	5¼	2¼	5
Public	16.2	–3.5	–5.3	1.7	5.7	1.7	7.2	–3.5	4.2	0.7	4.4	1.8	3.4	4¼	3½	–¼	–¼
Final domestic demand	623.6	3.5	3.6	2.3	1.7	3.5	3.2	2.2	2.0	0.3	1.9	2.3	3.4	4	3	1½	2¾
Change in stockbuilding	1.4	0.1	0.2	–0.9	0.1	1.1	0.3	–0.3	–0.4	–1.3	1.0	–0.2	0.2	–¼	0	0	0
Total domestic demand	624.9	3.6	3.8	1.4	1.8	4.6	3.4	1.9	1.6	–1.1	3.0	2.0	3.6	3¾	3¼	1½	2¾
Exports of goods and services	358.3	5.1	1.8	4.0	9.0	6.6	5.3	4.7	2.9	1.5	6.7	7.1	4.5	6	7¾	3¾	6¼
Goods (fob)	294.2	5.6	2.1	4.5	9.2	6.3	5.2	4.8	2.6	1.0	7.3	7.9	4.6	6	8¼	4	6¾
Energy	23.8	4.9	–0.4	1.2	–4.8	4.2	–2.3	3.5	1.2	–1.1	–0.1	2.4	6.9	–2	¾	1¼	1¼
Non–energy	270.3	5.7	2.9	5.1	11.0	6.5	5.9	4.9	2.8	1.2	8.0	8.3	4.4	6¾	8¾	4	7
Services	64.1	2.7	0.2	1.8	7.9	8.3	6.3	4.2	4.0	3.8	3.9	3.5	4.4	6	6	3¼	5
Imports of goods and services	315.6	6.3	3.5	4.2	7.6	6.7	4.2	4.1	2.1	–2.1	6.7	7.2	5.3	7½	6¾	3½	6
Goods (cif)	267.7	7.1	3.6	4.6	8.0	6.9	4.7	4.3	1.4	–2.7	8.1	7.6	5.8	7¾	7¼	3½	6¼
Services	47.9	1.4	2.9	1.5	5.4	5.9	1.0	3.3	6.2	1.5	–0.1	5.2	2.6	5½	5¼	2¾	5
GDP	667.6	3.0	2.8	1.4	2.6	4.7	4.1	2.3	2.0	0.8	3.2	2.3	3.3	3¼	3¾	2	3¼
Production enterprises	603.9	3.1	2.8	1.4	2.8	5.1	4.5	2.5	2.1	0.7	3.5	2.6	3.6	3¼	4¼	2	3¼
Labor productivity market sector		0.9	1.2	–0.2	1.9	2.8	2.0	0.8	0.4	–0.1	4.4	1.1	0.5	2¼	1¾	1¼	2¼
LABOR MARKET	*thousands*																
Population	15531	0.5	0.6	0.6	0.6	0.6	0.7	0.8	0.8	0.7	0.6	0.5	0.5	½	½	½	½
Population between 15 and 64 years	10604	1.1	1.0	0.9	0.8	0.6	0.6	0.6	0.6	0.5	0.4	0.3	0.3	¼	½	½	½
Labor force	6471	0.7	1.7	1.8	1.4	1.3	1.5	1.2	1.9	1.0	1.1	1.2	1.2	1¼	1¼	1	1¼
Employment (persons) *	5977	1.9	2.0	1.7	1.4	2.1	2.3	1.7	1.8	–0.1	0.1	1.6	2.0	2¼	2¼	1	1½
Unemployment rate (%) *	494	8.7	8.4	8.4	8.4	7.7	7.0	6.6	6.6	7.7	8.7	8.3	7.6	6¾	5¾	5¾	4¾
Participation rate (%) *		55.6	56.0	56.5	56.8	57.3	57.8	58.2	58.9	59.2	59.6	60.2	60.7	61¼	61¾	63	63¾
Dependency ratio (%) *		83.2	82.8	82.6	82.1	82.5	82.1	81.6	81.3	83.2	83.2	82.4	80.3	78¼	75¾	76¼	73¼
WAGES																	
Contractual wages market sector		1.1	1.2	0.8	0.8	1.4	2.9	3.5	4.3	3.1	1.8	1.4	1.7	2¼	3	2¼	3½
Compensation per employee market sector		1.9	2.9	1.6	1.1	0.8	3.0	4.4	4.1	2.9	2.4	1.6	1.9	3	3	2¾	4¼
Unit labor costs *		1.3	3.2	2.5	–2.3	–2.8	1.5	3.7	4.7	1.7	–6.7	–2.0	0.7	–½	–½	0	0
Household disposable income (real)		2.1	5.7	2.6	2.0	4.6	5.7	1.0	1.0	1.4	2.1	1.8	2.5	2¾	2¼	1¾	3

* see explanation after appendices.

[a] Levels: end–year. Break in series between 1998 and 1999–2002. Medium–term projections 1999–2002 are based on the 1997–1998 forecasts of last September (see CPB Report 1997/3). The 1997–1998 figures presented in this appendix have been updated since then.

Appendix A Main economic indicators of the Netherlands, 1985–2002 (continued)

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999–2002[a] cautious	1999–2002[a] favorable
	annual percentage changes															
PRICES																
Consumer price index	2.3	0.0	–1.0	0.5	1.1	2.5	3.1	3.2	2.6	2.7	2.0	2.1	2¼	2¼	1 ¾	2
Private consumption deflator	2.4	0.3	0.2	0.5	1.2	2.2	3.2	3.1	2.1	2.8	1.5	1.3	2	2¼	1 ¾	2
Export price goods, excluding energy	–0.1	–9.3	–1.6	2.0	4.0	–2.6	–0.6	–1.6	–2.6	0.8	1.6	–0.5	3¾	2	1 ¼	1¼
Import price	0.6	–18.0	–3.1	–0.6	5.2	–1.7	–0.3	–1.9	–2.8	–0.2	0.7	0.5	3½	1¾	1	1¼
GDP deflator	1.8	0.1	–0.7	1.2	1.2	2.3	2.7	2.3	1.9	2.3	1.6	1.3	2½	2¼	1 ½	2
FOREIGN TRADE	*levels, billion guilders*															
Exports of goods (fob)	218.6	185.1	182.4	200.0	223.5	232.3	241.9	241.3	237.1	255.6	279.6	294.2	324.75	357.00	437.25	488.50
Imports of goods(cif)	206.4	175.3	177.8	190.8	214.5	220.7	229.3	228.1	215.5	232.4	251.8	267.7	298.50	325.25	387.75	433.25
Trade balance	12.2	9.8	4.6	9.2	9.0	11.5	12.6	13.2	21.5	23.2	27.8	26.5	26.25	31.75	49.50	55.25
Invisibles. net	4.8	1.4	3.9	4.8	12.2	5.1	1.8	–0.3	3.8	9.3	11.7	15.7	22.25	23.75	23.25	24.50
Current balance	17.0	11.2	8.5	14.0	21.2	16.7	14.4	12.9	25.3	32.6	39.6	42.2	48.50	55.00	72.75	79.75
Current balance (% GDP)	4.0	2.6	1.9	3.1	4.4	3.2	2.6	2.3	4.3	5.3	6.2	6.3	6.75	7.25	8.50	8.50
Terms of trade	0.7	3.5	–5.6	2.7	–1.0	1.7	–1.1	–3.0	0.8	1.5	1.1	–0.4	2.25	–0.25	–1.50	0.75
COMPETITIVE POSITION	*annual percentage changes*															
Price competitiveness *	2.0	–2.3	–4.6	3.4	2.2	–2.0	1.6	–1.6	0.2	1.1	–3.5	1.9	2¾	–½	0	0
Relative unit labour costs *	1.9	–6.6	–4.4	3.4	6.0	–1.0	3.0	–3.9	–1.7	4.6	–1.7	1.1	6	1¼	1	¼
Export performance *	1.2	–2.1	–2.4	4.3	–1.1	2.1	1.8	–1.2	1.0	–1.0	–0.2	–0.3	0	1¼	0	¼
FINANCIAL	*levels*															
Household saving rate (%) *	10.6	12.5	12.0	13.2	13.9	14.9	13.9	12.4	12.8	12.2	12.7	12.4	12	11¾	13 ½	12 ¾
Contractual (%)	11.7	11.0	10.6	10.9	10.6	10.4	11.2	11.0	11.1	10.5	11.1	11.2	11¼	11½	12 ½	12
Non–contractual (%)	–1.1	1.5	1.4	2.4	3.3	4.5	2.7	1.4	1.7	1.6	1.6	1.2	¾	¼	1	¾
Labor share in enterprise income (%) *	88.6	86.3	87.1	84.6	81.5	81.2	82.9	84.8	86.4	82.7	82.7	83.1	81¾	80¾	80 ½	80 ¼
Net rate of return on capital (%) *	5.9	9.2	8.3	9.5	10.9	9.7	9.1	6.9	5.2	8.9	9.6	9.6	10¾	11¾	10 ½	11
Solvency (%) *	40.8	42.7	43.5	43.4	43.6	43.6	42.9	44.0	45.4	45.0	45.7	46.4	47½	47¼	47	47
Short–term interest rate (%) *	6.3	5.6	5.3	4.8	7.3	8.7	9.3	9.4	6.9	5.2	4.4	3.0	3¼	3¾	4	4
Long–term interest rate (%) *	7.3	6.4	6.4	6.4	7.2	8.9	8.7	8.1	6.4	6.9	6.9	6.2	5¾	5¾	6	5 ½
PUBLIC SECTOR	*% GDP*															
General government financial balance [b]*	–3.6	–5.1	–5.9	–4.6	–4.8	–4.7	–2.9	–3.9	–3.2	–4.2	–4.0	–2.3	–1¾	–1½	–1 ½	¼
Central government balance*	–6.2	–5.6	–6.8	–5.7	–5.1	–4.6	–3.7	–3.8	–3.2	–1.9	–2.3	–1.4	–1¾	–2¼	–1 ¾	0
Gross debt general government[b]	71.5	73.5	76.1	79.4	79.4	79.2	79.0	80.0	81.2	77.9	79.1	77.2	72¼	69¾	68 ½	60 ¾
Taxes and social security contributions	45.6	46.1	48.5	48.7	45.6	45.7	47.5	46.5	46.8	44.7	43.6	44.0	43¾	42¾	42	41¾
Taxes	.	.	.	.	.	25.8	27.2	26.4	27.3	26.3	25.6	26.5	26¼	26	25 ¾	25¾
Social security contributions	.	.	.	.	.	19.9	20.3	20.0	19.6	18.4	17.9	17.4	17½	16¾	16 ¼	16

* see explanation after appendices.

[a] Levels: end–year. Break in series between 1998 and 1999–2002. Medium–term projections 1999–2002 are based on the 1997–1998 forecasts of last September (see CPB Report 1997/3). The 1997–1998 figures presented in this appendix have been updated since then.

[b] From 1988 onwards expressed as a percentage of harmonized GDP,

Appendix B1 Growth and inflation of industrial countries, 1985–2002

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999–2002 cautious	1999–2002 favorable
	annual percentage changes															
GROSS DOMESTIC PRODUCT (VOLUME)																
United States	3.2	3.1	2.7	3.7	3.3	1.1	–1.0	3.0	2.5	3.7	2.4	2.8	3¾	2½	1¾	2½
Japan	4.4	2.9	4.2	6.2	4.8	5.1	3.8	1.0	0.3	0.6	1.4	3.5	¾	2	1½	3
European Union	2.5	2.7	2.8	4.2	3.5	2.5	1.0	1.0	–0.5	3.0	2.5	1.7	2½	2¾	1¾	3
Germany *	2.0	2.4	1.5	3.7	3.6	3.2	2.4	2.2	–1.1	2.9	1.9	1.4	2½	3	1¾	3
France	1.9	2.5	2.3	4.5	4.3	2.5	0.8	1.2	–1.3	2.8	2.2	1.5	2¼	3	1½	2¼
United Kingdom	3.5	4.4	4.8	5.0	2.2	0.4	–2.0	–0.5	2.1	4.3	2.7	2.3	3¼	2½	1½	2½
Italy	2.8	2.8	3.1	3.9	2.9	2.2	1.1	0.6	–1.2	2.1	3.0	0.7	1¼	2	1½	2½
Industrial countries	3.2	2.9	3.0	4.3	3.6	2.1	0.5	1.8	1.0	3.0	2.3	2.5	2¾	2¾	1¾	2¾
PRIVATE CONSUMPTION DEFLATOR																
United States	3.6	2.7	3.9	4.2	4.9	5.0	4.0	3.1	2.7	2.3	2.2	2.4	2¼	2½	2	2½
Japan	2.3	0.7	0.5	0.5	2.1	2.6	2.5	1.9	1.2	0.7	–0.5	0.3	1½	1	1¼	1¼
European Union	5.8	3.8	3.6	3.9	5.0	4.8	5.8	4.6	4.1	3.3	3.0	2.6	2	2	1½	1¾
Germany *	1.8	–0.6	0.5	1.3	2.9	2.4	4.8	4.7	4.0	2.9	1.9	1.9	2	2	1¼	1¼
France	5.8	2.7	3.1	2.6	3.4	2.8	3.2	2.4	2.2	2.1	1.7	1.8	1½	1½	1¾	1¾
United Kingdom	5.3	4.0	4.4	5.0	5.9	5.5	7.3	4.7	3.6	2.7	2.5	2.6	2½	2¼	1¾	2
Italy	9.3	6.2	5.3	5.9	6.6	6.2	6.9	5.6	5.4	4.6	5.8	4.4	2¼	2	1¾	2
Industrial countries	4.4	3.0	3.4	3.6	4.5	4.6	4.5	3.4	2.9	2.4	2.1	2.1	2	2	1¾	2

* see explanation to the tables.

Appendix B2 World trade and external data for the Netherlands, 1985–2002

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999–2002[a] cautious	1999–2002[a] favorable
	annual percentage changes															
INTERNATIONAL TRADE																
World trade volume	2.5	3.9	6.3	8.0	7.5	3.9	2.8	4.7	4.6	10.0	10.1	5.9	8½	8¼	5¾	8
Manufactures	4.7	2.8	6.9	9.9	8.4	4.3	3.2	5.4	4.3	10.9	11.1					
World trade price	–1.7	5.1	11.0	5.7	0.9	8.9	–1.2	1.8	–5.0	2.3	7.7	–1.1	–7	¾	–¼	2½
Manufactures	–0.4	16.4	11.9	6.7	–0.4	8.3	0.0	2.7	–4.2	2.3	7.4	–3.1	–7½	1	0	2½
Non–energy raw materials (HWWA)	–10.6	6.2	5.1	22.6	–2.4	–2.1	–10.8	–1.5	–5.6	20.6	12.1	–9.6	1½	1¼	0	3
Crude oil (OECD imports)	–5.2	–47.0	21.7	–18.2	18.8	28.5	–13.5	–4.4	–12.0	–5.0	10.7	21.3	–7	–2½	–3	4¼
Relevant world trade volume *	4.6	5.0	7.5	6.7	7.6	3.8	3.1	3.6	–0.7	8.8	7.8	4.4	6¾	7½	4	6¾
Manufactures	4.9	4.9	8.1	10.1	9.5	4.0	2.5	3.4	–1.1	9.0	8.8					
Relevant world trade price *	1.9	–11.6	–6.2	5.4	6.2	–4.6	0.9	–3.3	–2.8	1.9	–1.1	1.4	6½	1½	1¼	1
Manufactures	3.9	–8.9	–5.1	3.5	5.6	–2.9	2.1	–2.8	–1.8	1.1	–1.6					
IMPORT PRICES																
Goods, total	0.6	–18.0	–3.1	–0.6	5.2	–1.7	–0.3	–1.9	–2.8	–0.2	0.7	0.5	3½	1¾	1	1¼
Consumer goods	2.1	–0.4	–1.4	–1.8	1.8	–0.8	0.9	0.7	–0.8	–1.3	–0.9	–1.8	3¼	2	1¼	1½
Investment goods	1.6	–2.6	1.4	1.4	2.9	–0.7	1.1	–0.4	–1.0	–0.2	–1.6	0.1	2¾	2¼	1¼	1½
Energy	3.9	–55.2	–9.4	–15.8	24.9	5.5	–6.2	–11.8	–8.7	–6.4	–1.3	20.6	6½	–2½	–1½	2¼
Other raw materials & semi–manufactures	–1.3	–9.7	–3.0	2.1	3.6	–3.3	0.0	–1.3	–2.8	0.8	1.8	–1.1	3¼	2¼	1	1
EXCHANGE RATE OF THE GUILDER																
Dollar (level)	3.32	2.45	2.03	1.98	2.12	1.82	1.87	1.76	1.86	1.82	1.61	1.69	1.95	1.95	2.05	1.85
Competitors	–0.3	12.5	7.6	0.0	–1.7	6.9	–1.0	3.5	1.8	1.4	6.6	–1.1	–5	¼	–½	½
Suppliers	–0.3	9.2	5.5	0.0	–1.3	4.9	–0.8	2.8	2.0	0.8	4.9	–1.1	–4¼	0	–¼	¼
UNIT LABOR COSTS COMPETITORS*	3.1	–3.4	–1.9	1.1	3.2	0.5	6.7	0.8	0.0	–2.1	–3.7	1.8	5½	¾	1	¼
LONG–TERM INTEREST RATE																
United States	10.6	7.7	8.4	8.8	8.5	8.6	7.9	7.0	5.9	7.1	6.6	6.4	6¾	6¾	6¾	6¾
Germany *	7.0	6.2	6.2	6.5	6.9	8.7	8.4	7.8	6.4	6.8	6.8	6.2	5¾	5¾	6	5½

* see explanation to the tables.
[a] levels: end–year.

Appendix C1 Volume gross value added (factor costs) by branches of industry, 1988–2002

	1996	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999–2002	
	millions guilders	*annual percentage changes*											cautious	favorable
1. Agriculture, hunting, forestry and fishing	19750	5.2	7.0	10.1	3.2	4.1	1.7	6.0	1.4	1.1	1¾	¼	2	3¼
2. Food, beverage and tobacco industry	18500	0.5	4.7	2.9	4.7	2.0	0.8	6.0	2.8	1.4	1½	2¾	1½	3¾
3. Other industries *	24870	5.9	4.0	2.8	–1.1	–2.8	–1.0	3.3	0.1	1.5	4¼	4	1¾	3
4. Chemical and rubber industry	19190	7.3	4.8	2.8	–2.2	0.3	0.2	9.9	5.8	–0.3	7½	7¼	3½	6
5. Metal industry	36280	1.7	5.3	3.3	0.9	–1.0	–4.3	5.7	4.0	2.3	4¾	5¾	2	4
6. Petroleum industry	3920	3.5	–8.7	16.7	–0.5	2.1	–4.5	11.8	4.3	4.6	4¼	1¼	1½	3¼
7. Mining and quarrying	17700	–11.4	4.4	–0.1	9.0	1.4	1.8	–1.0	0.7	10.5	–7½	¾	–2	–½
8. Public utilities	11190	2.7	0.2	3.0	3.4	1.0	0.4	1.9	3.2	2.9	–1½	4½	2	3½
9. Construction industry	33350	9.7	1.5	1.5	–1.0	–3.1	–2.4	1.1	–1.2	0.9	4½	2½	¾	2
10.Operation of real estate	66590	–0.1	5.4	3.9	2.5	3.4	4.0	2.8	2.2	2.5	2¾	2½	1¾	2½
11.Wholesale and retail trade and repair	80270	3.3	4.4	5.1	4.3	1.4	–2.0	1.9	4.1	3.2	4½	4	2	4¼
12.Transport, storage and communication	48420	3.2	5.5	6.1	7.0	4.5	1.5	4.4	3.7	5.5	6¼	6	4	5½
13.Banking, finance and insurance	32900	1.5	3.9	–1.3	–2.2	0.6	–0.1	1.4	–1.1	6.1	6½	1½	¾	2¾
14.Other commercial services	95590	5.8	8.0	7.4	4.1	3.5	2.8	3.7	5.4	4.5	5	4¾	2¾	4½
15.Medical services	44930	0.4	1.3	2.1	2.5	2.5	1.4	1.5	0.4	1.0	1½	1½	1¼	1¼
17.Correction imputed bank services	–25720	2.8	–1.1	1.3	2.8	–0.3	1.7	–2.0	2.1	4.0	7	–1¼	2¼	3¾
2–6.Manufacturing industry	102760	3.6	4.4	3.3	0.4	–0.5	–1.8	6.1	3.2	1.5	4½	5	2¼	4
2–8.Total industry (excl.construction)	131650	1.3	4.1	2.9	1.8	–0.1	–1.1	4.8	2.9	2.7	2½	4¼	1¾	3½
10–15.Services	368700	2.7	5.0	4.6	3.5	2.7	1.3	2.7	3.1	3.7	4¼	3½	2¼	3¾
1–17.Enterprises *	528690	2.7	5.0	4.4	2.8	1.8	0.4	3.5	2.5	3.0	3¾	3¾	2	3½
Market sector *	399470	4.1	5.3	4.9	2.6	1.5	–0.4	4.1	2.9	3.1	4½	4¼	2¼	4
Including exposed sector *	182120	3.7	4.7	4.9	2.5	1.3	–0.4	5.4	3.1	2.6	4¼	4¾	2½	4¼
Including sheltered sector *	183040	4.1	6.8	5.5	3.3	2.5	0.1	3.3	4.0	4.3	4¾	4¼	2¼	4

* see explanations after appendices

Appendix C2 Total employment by branches of industry, 1988–2002

	1996	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999–2002	
	thousand labor years	*annual percentage changes*											Cautious	Favorable
1. Agriculture, hunting, forestry and fishing	247	0.0	–0.4	0.0	–0.4	0.8	–0.5	–2.2	–2.0	–1.0	–1½	–1 ¼	–1¼	–½
2. Food, beverage and tobacco industry	150	0.0	0.0	0.6	0.0	0.0	–0.4	–3.6	–0.7	–1.7	0	½	–¾	¼
3. Other industries *	242	4.1	3.2	1.5	0.0	–0.4	–1.3	–3.6	–0.7	–2.3	½	1 ¼	–½	0
4. Chemical and rubber industry	102	2.6	1.7	2.5	0.0	–0.8	–2.3	–7.2	–5.3	–3.1	¼	2 ½	¾	1¾
5. Metal industry	341	–1.8	0.5	2.4	–0.8	–1.3	–5.7	–4.7	–0.6	0.3	¾	2 ¾	–¼	¼
6. Petroleum industry	9	–9.1	0.0	0.0	0.0	0.0	–4.0	–1.0	2.1	–4.1	–2	0	0	0
7. Mining and quarrying	9	0.0	0.0	0.0	0.0	0.0	–1.0	–3.0	–7.3	0.0	0	¾	0	0
8. Public utilities	40	0.0	0.0	–2.2	–2.2	0.0	–2.0	–1.4	–1.9	–3.1	–1½	– ¾	0	0
9. Construction industry	413	3.2	1.0	0.8	0.0	–0.3	0.6	–1.0	1.2	2.7	1½	½	–¾	0
10.Operation of real estate	43	2.9	2.8	0.0	2.8	2.7	3.9	4.0	2.2	2.4	½	½	0	½
11.Wholesale and retail trade and repair	997	3.1	3.1	3.9	3.7	2.1	0.3	–0.0	1.7	2.4	3¼	3 ¼	1¾	2¼
12.Transport, storage and communication	367	0.6	1.2	2.3	3.1	2.5	–1.6	–2.1	0.3	2.2	2	2 ¼	1	1½
13.Banking, finance and insurance	190	1.1	1.7	1.6	1.6	–0.5	0.9	–1.0	0.2	1.3	¾	–1	–¾	¼
14.Other commercial services	1147	4.6	5.7	5.6	3.2	2.5	2.2	5.0	7.2	6.7	4¾	4 ½	2	3¼
15.Medical services	527	0.4	0.9	2.3	1.4	3.1	1.2	0.3	1.8	1.0	1½	1 ½	1¼	1¼
2–6.Manufacturing industry	843	0.5	1.3	1.8	–0.3	–0.7	–3.1	–4.5	–1.2	–1.3	¼	1 ¾	–¼	¼
2–8.Total industry (excl.construction)	892	0.5	1.2	1.6	–0.4	–0.7	–3.1	–4.3	–1.3	–1.3	¼	1 ¾	–¼	¼
10–15.Services	3271	2.6	3.1	3.8	2.9	2.3	0.9	1.3	3.3	3.6	3¼	3	1½	2¼
1–15.Enterprises	4823	2.0	2.3	2.8	1.7	1.3	–0.1	–0.2	1.9	2.3	2¼	2 ¼	1	1½
Market sector *	4244	2.2	2.5	2.9	1.8	1.1	–0.3	–0.3	1.9	2.5	2¼	2 ½	1	1¾
Including exposed sector *	1497	0.5	1.0	1.5	0.4	0.2	–2.3	–3.5	–1.0	–0.4	½	1 ¼	0	½
Including sheltered sector *	2333	3.5	4.1	4.5	3.2	2.1	1.2	2.1	4.1	4.4	3¾	3 ½	1¾	2½

* see explanations after appendices

APPENDICES: EXPLANATION

The figures in appendix A correspond with the National Accounts 1995 of Statistics Netherlands (CBS).

Appendix A

Central government balance	Central government surplus (+) or deficit (-), cash basis.
Dependency ratio	Number of recipients of a benefit (unemployment, disability, old-age etc) as a percentage of the working population in full time equivalents.
Employment	³ 12 hours/week
Export performance	Percentage change of Dutch non-energy export volume minus percentage change of relevant world trade volume.
General government financial balance	General government fiscal surplus (+) or deficit (–), EMU definition
Household saving rate	Household savings as a percentage of disposable household income.
Labor share in enterprise income	Enterprises excluding mining and quarrying, operation of real estate, medical and non-commercial services.
Long-term interest rate	10-year government bonds.
Net rate of return on capital	Net profits as a percentage of equity.
Participation rate	Labor force as a percentage of the corresponding population aged between 15 and 64 years.
Price competitiveness	Percentage change of relevant world trade price minus percentage change of Dutch export price (goods excluding energy).
Short-term interest rate	3-months Aibor.
Solvency	Equity as a percentage of debt (liabilities) plus equity.
Unemployment rate	Unemployed labor force as a percentage of the total labor force.
Unit labor costs	Compensation of employees per unit of real value added in manufacturing.

Appendix B

Relevant world trade price	Weighted average of price changes in guilders of non-energy imports of customers countries, with Dutch export shares as weights.
Relevant world trade volume	Weighted average of volume changes of non-energy imports of customers countries, with Dutch export shares as weights.
Unit labor costs competitors	Compensation of employees per unit of real value added in manufacturing of OECD countries; the applied competitor weights indicate the relative importance of competing exporters of industrial products.
Statistical treatment of Germany	In this appendix, data in tables on levels before 1991 are for western Germany only. Data showing annual percentage changes refer to the whole of Germany from 1992 onwards.

Appendix C

Enterprises	Including value added tax.
Exposed sector	Agriculture, hunting, forestry, fishing; manufacturing; public utilities; transport, storage and communication.
Market sector	Enterprises excluding mining and quarrying; operation of real estate; medical services.
Other industries	Textile, wearing and leather industry; wood, furniture and building materials industry; paper, paper products, printing and publishing industry.
Sheltered sector	Wholesale and retail trade and repair; banking, finance and insurance; other commercial services; correction imputed bank services.