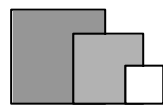


RESEARCH REPORT 0004/A

The ARKO labour-cost model Characteristics and application



SCALES

SCientific AnaLysis of Entrepreneurship and SMEs

drs. G.Th. Elsendoorn

drs. A.H. Nieuwland

July 2000

ISBN: 90-371-0786-9

Price: NLG 20.-

Order number: H0004

This report has been written in the framework of EIM's economic modelling programme SCALES, which is financed by the Netherlands Ministry of Economic Affairs.

EIM / Business & Policy Research employs 170 professionals. EIM provides policy- and practice-oriented socio-economic information on and for all sectors in private enterprise and for policy-makers. EIM is established in Zoetermeer. Besides on the Netherlands, EIM also focuses on the European economy and on other continents. You may contact us for more information about EIM and its services.

Address:	Italiëlaan 33
Mailing address:	P.O. Box 7001 2701 AA Zoetermeer
Telephone:	+ 31 79 341 36 34
Fax:	+ 31 79 341 50 24
Website:	www.eim.nl

The responsibility for the contents of this report lies with EIM.

Quoting of numbers and/or texts as an explanation or support in papers, essays and books is permitted only when the source is clearly mentioned.

No part of this publication may be copied and/or published in any form or by any means, or stored in a retrieval system, without the prior written permission of EIM.

EIM does not accept responsibility for printing errors and/or other imperfections.

Contents

	Summary	5
1	Introduction.....	9
1.1	Background of the model	9
1.2	Objective of the ARKO labour-cost model	10
1.3	Application of the ARKO model	10
1.4	Set-up of report	10
2	Major outline of the ARKO model.....	11
2.1	Labour cost-items and assessment periods	11
2.2	Model characteristics.....	14
2.3	Application and estimation techniques of the model	14
2.3.1	Estimation technique: Adjusted wage bill (A).....	14
2.3.2	Estimation technique: Statutory social-security contributions (B).....	15
2.3.3	Estimation technique: Contractual social-security contributions (C)	16
2.3.4	Other labour-related cost.....	17
2.4	Schematic outline of input data and sources employed.....	17
3	Labour cost in the Nineties	21
3.1	Introduction.....	21
3.2	Labour cost in private enterprise in 1996	21
3.3	Labour cost in 1996, differentiated by size class	22
3.4	Labour cost in the Nineties, differentiated by size class.....	23
	Annexes	
I	Sectors differentiated in the ARKO model	27
II	Key tables: Labour cost in 1992, 1996 and 1999.....	29

Summary

The labour-cost model

As of recent, EIM employs a revised labour-cost model. Amongst others, the revision was spurred by substantial changes materializing over the past years in the field of social-security legislation, as for instance the privatisation of the Sickness Benefits Act and the introduction of the Pemba (Differential Contributions and Competition Disablement Benefits Scheme).

The objective of the ARKO¹ labour-cost model comprises three targets:

1. Outline of the labour-cost structure, differentiated by sector and employee size-class in private enterprise
2. Facilitation of forecasts of anticipated short-term labour-cost trends
3. Assessment of the effects of policy measures affecting statutory employers' social-security contributions on various sectors and employee size-classes.

The ARKO model differentiates the following major items: adjusted wage bill², statutory social-security contributions (employers' contributions to Employee Insurance Schemes and National Insurance Schemes), contractual social-security contributions (pension contributions, sickness-benefits allowance, etc.) and other labour-related cost, such as in-company facilities/fringe benefits and staff training.

Besides, the model distinguishes three size classes differentiated by number of employees, i.e. small enterprises (1-9 employees), medium-sized enterprises (10-99 employees) and large enterprises (100+ employees). The model comprises 17 clusters of enterprise classes in private enterprise. Sectors omitted are agriculture, haulage/transport and 'other service industries' (mainly cleaning services).

Initially, three assessment periods are differentiated when applying the model:

- Basic year: The most recent year covered by a CBS labour-cost survey; the data thereof serve as major input for the model
- Reference year: The year serving as a point of departure for estimates/forecasts ($t=0$)
- Forecast year: The year covered by the forecast ($t=1$).

For approximately 20 labour-cost items differentiated, the input for the basic year is outlined, as well as the sources and estimation techniques employed to switch from the basic year to the reference year and the forecast year, respectively.

¹ The abbreviation ARKO denotes the Dutch term ARbeidsKOsten (labour cost).

² Factually, gross wages minus sickness-benefits allowances, 70% of which are integrated into the statutory and 30% of which are integrated into the contractual social-security contributions.

Level and structure of labour cost in 1999

In 1999, total annual labour cost incurred by employers averaged NLG 75,000 approximately, i.e. NLG 59,000 in small enterprises, NLG 72,000 in medium-sized enterprises and more than NLG 84,000 in large enterprises. Partly, these differences were attributable to sectoral effects. Larger enterprises were comparatively strongly represented in sectors marked by higher wages (e.g. the manufacturing industry), while smaller enterprises were comparatively strongly represented in sectors marked by averagely lower wages (e.g. retailing, hotel & catering). Also within individual sectors, however, labour cost (and gross wages, too) were averagely higher in large than in smaller enterprises.

In 1999, an average 76% of total labour cost were accounted for by the adjusted wage bill, 13.6% by statutory social-security contributions, 7.7% by contractual social-security contributions and 2.7% by other labour-related cost. The employers' wedge averaged 21.3% of labour cost in 1999.

The majority of differences in labour-cost *structure* as regards the sectors and size classes differentiated may be explained by differences in average wages. With rising wages, the share of statutory social-security contributions decreased in terms of percentage owing to remuneration ceilings enforced. Contractual social-security contributions rose, however, mainly because higher wages were accompanied by strongly rising early-retirement scheme and pension contributions. Besides, larger enterprises assumed a higher own risk as regards absenteeism. Therefore, the 'uninsured sickness-benefits allowance' item was higher, while it was partly classified under the contractual social-security contributions. Besides, in terms of percentage, large enterprises incurred more cost in the realms of in-company facilities/fringe benefits and staff training, and other labour-related cost were thus higher. The aggregate result of the above entails that the afore-mentioned employers' wedge was slightly lower (20% on average approximately) for small than for medium-sized and large enterprises (approximately 21 and 22 percent, respectively).

Development of labour cost in the Nineties

Lastly, the labour-cost structure in the three size classes and relevant trends in the Nineties are elaborated while focussing on the employers' wedge and the entirety of statutory and contractual employers' social-security contributions (in addition to gross wages), as reducing labour cost by means of diminishing the wedge was a major policy objective of the Netherlands government in the Nineties.

Estimations based on the ARKO model revealed substantially diverging labour cost-trends in the three size classes, as labour cost rose with increasing enterprise size. This trend was found in practically all enterprise sectors.

Besides to higher gross wage rises in large enterprises, this development was attributable to the fact that the wedge in small and medium-sized enterprises

decreased more vigorously than in large enterprises. This trend mainly materialized in the first half of the Nineties.

The diminishing wedge was accompanied by vigorous intra-wedge shifts. The share of statutory social-security contributions declined strongly, which was also attributable to 1993's Absenteeism Reduction Act and 1996's Privatisation of the Sickness Benefits Act. The effects thereof entailed substantially decreasing absenteeism rates, as well as reduced sickness-benefits insurance contributions. Besides, lower Transfer Surcharges (TS) played a prominent role as regards the declining share of statutory social-security contributions. Owing to substantially declining Transfer Surcharges (TS), this share declined additionally in the second half of the Nineties; notwithstanding the reintroduction of Disablement Act contributions in 1998, the weight thereof was less prominent.

The intra-wedge share of contractual social-security contributions rose in the 1992-1999 span, despite reduced sickness-benefits allowances. This was mainly attributable to rising employers' early-retirement scheme and pension contributions in large enterprises in particular.

1 Introduction

The ARKO model serves as a model employed by EIM to estimate labour-cost trends in private enterprise while particularly emphasizing on size class. A previous version of the model was outlined in 1996.¹ However, changes in the ICT environment, as well as developments in social-security legislation, necessitated a revision of the model.

1.1 Background of the model

In the late Eighties, demand rose to arrive at more accurate labour-cost estimates in the annual EIM estimates of yearly economic trends in small and medium-sized enterprises (SME). Till then, these estimates were of an extremely general nature, and not or hardly differentiated by sector and size class.

In the early Nineties, owing to modified social-security legislation, the objective of the labour-cost model was extended. Rather than merely the forecast itself, the effects of changes in social-security legislation on labour cost in small and medium-sized enterprises gained significance. Several examples thereof are the (after all, temporary) introduction of a franchise (non-contributory rate) in the Compulsory Health Insurance Act in 1995 to stimulate employment in the lower segment of the labour market, and the introduction of the 2-6 weeks qualifying period in the Sickness Benefits Act in the framework of 1993's Absenteeism Reduction Act.

As revisions of social-security and fiscal regimes are continuous processes, several years after the initial modification, further adaptations of the model were required. In 1996, for instance, the Sickness Benefits Act was privatised, while the employers' Disablement Act contributions were (re)introduced in 1998. In 1997, the Organisatiewet Sociale Verzekeringen (Social Security Reorganization Act) was launched, one of its objectives being to stimulate employers' responsibility as regards working conditions, disablement and unemployment, spurring an increasing degree of differential contributions levied per risk category c.q. individual enterprise as regards employers' social-security contributions.

¹ G.Th. Elsendoorn, P.H.J. Verhees, *Loonkostenontwikkeling 1992-1995, een beschrijving van de ramingsmethodiek van de loonkostenontwikkeling naar sector en grootteklasse en de gevolgen van de veranderingen in de sociale zekerheidswetgeving* (Wage-cost development 1992-1995; outline of assessment methodology in respect of wage-cost development differentiated by sector and size class, and impact of changes in social-security legislation) (Zoetermeer, December 1996).

1.2 Objective of the ARKO labour-cost model

The objective of the model comprises three targets:

- Outline of the labour-cost structure, differentiated by sector and size class of enterprises in private enterprise
- Facilitation of forecasts as regards anticipated short-term labour-cost trends
- Identification of effects of policy measures affecting employers' labour cost on various sectors and employee size-classes.

1.3 Application of the ARKO model

The prerequisite nature of the model is justified by the fact that other organizations either do not employ or do not consider the size-class factor when estimating labour cost. While CPB¹ does not employ size class as a separate dimension, CBS² restricts itself to the registry of labour cost in a retrospective way, i.e. once every four years, while results made available are marked by severe delay; besides, the smallest enterprises (with less than 10 employees) are omitted.

1.4 Set-up of report

The underlying report is structured as follows. Chapter 2 provides a major outline of the ARKO model. Chapter 3 provides an in-depth analysis of the labour-cost items differentiated, and of the estimation techniques per labour-cost item. As policy revisions in the Nineties often focussed on (in)direct labour-cost reduction by means of reducing the wedge, chapter 4 summarizes the development of labour cost in the Nineties while emphasizing on the employers' wedge in particular, i.e. on the share in total labour cost of the statutory employers' social-security contributions stipulated by the government, as well as the contractual employers' social-security contributions agreed upon by employers' associations and trade unions.

¹ CPB is the Central Planning Bureau of the Netherlands.

² CBS is the Central Statistical Office of the Netherlands.

2 Major outline of the ARKO model

2.1 Labour cost-items and assessment periods

In the ARKO model, labour cost are divided into more than 20 components, such as employees' wages, statutory contributions and contractual social-security contributions. Cost are expressed per full-time-equivalent (FTE) employee. Conversion to FTE does not entail that a full-time employee serves as the 'standard'. Factually, in the estimates, cost of all employees are divided by the number of FTE, thus resulting in an 'average' image per full-time equivalent.

Initially, three assessment periods are differentiated when applying the model:

- Basic year: The most recent year covered by a CBS labour-cost survey; the data thereof serve as major input for the model
- Reference year: The year serving as point of departure for estimates/forecasts ($t= 0$)
- Forecast year: The year covered by the forecast ($t= 1$).

The SCALES ARKO model differentiates the following major items:

- A. Adjusted wage bill
- B. Statutory social-security contributions
- C. Contractual social-security contributions
- D. Other labour-related cost.

As illustrated below, these items themselves will be subdivided further.

A Adjusted wage bill

The most prominent labour-cost item is 'the adjusted wage bill', a term derived from the gross wages. Generally, this item may be portrayed as wages of employees provided they are not absent due to illness. The – conceivably somewhat artificial term – was adopted owing to the following reasons. Firstly, part of the enterprises drew (partial) insurance to cover the risk of sickness-benefits payments; secondly, an occupational allowance granted during absenteeism due to illness is classified as an extra-statutory expenditure. Therefore, the adjusted wage bill comprises gross wages after deducting the absenteeism share.

Scheme 1 Labour-cost structure (1996-1999)

Elements	Remarks
1 Recurrent annual wages	CBS definition (= excl. irregular payments)
2 Irregular payments	Vacation allowance, end-of-year bonus, tantièmes, etc.
Gross wages employees ((1)+(2))	
Gross earnings social insurance	Gross wages minus employees' share early-retirement scheme/pension contributions and Employee Savings Scheme (Gross earnings social insurance serve as wage definition for many Employee Insurance Schemes)
3 Sickness-benefits allowance by private reinsurance (minus)	Where applicable. Reinsurance not mandatory
4 Uninsured sickness benefits (minus)	70% (the statutory share) of this item shift to (5), 30% (contractual share) to (14)
A Adjusted wage bill ((1)+(2)-(3)-(4))	
5 Statutory sickness-benefits allowance (70%) if not covered by reinsurance	
6 Reinsurance sickness benefits contributions	If enterprise has reinsurance cover
7 Disablement Act contributions (employers' share)	Not applicable from 1987 onward through 31-12-1997
8 Unemployment Act contributions (WE funds) (employers' share)	
9 Reduced-Pay Scheme contributions (WA funds) (employers' share)	
10 Compulsory Health Insurance Act contributions (employers' share)	For employees covered by National Health Service
Total Employee Insurance Schemes ((5) through (10))	
11 Transfer Surcharge (TS)	Effective 1990; substitutes previous National Insurance Schemes (AKW, AAW, AWBZ, AOW) contributions
12 Tax levy on Employee Savings Scheme	Employers' expenditure. Compensation of contribution losses since Employee Savings Scheme is not governed by Gross earnings social insurance
Total National Insurance Schemes ((11)+(12))	
B Total statutory social-security contributions ((5) through (12))	
13 Medical-insurance allowance (employers' share)	For employees paid wages above National Health Service-ceiling or those not covered by National Health Service
14 Contractual mandatory sickness-benefits allowance (30%) if uninsured	See also (4) and (5)
15 Early-retirement scheme/pension contributions (employers' share)	
16 Other contractual social-security contributions	A.o. dismissal allowance, social-funds contributions and travel allowance
C Total contractual social-security contributions ((13) through (16))	
17 Staff training/in-company facilities/fringe benefits	
18 Other social expenditure	
D Total other labour-related cost	
Total labour cost: Adjusted wage bill (A) + statutory (B) + contractual (C) + other (D) social-security contributions	

B Statutory social-security contributions

A major part of the statutory social-security contributions are the employers' contributions to Employee Insurance Schemes. These pertain to the Reduced-Pay Scheme, the Unemployment Act, the National Health Service and the Disablement Act. The latter was reintroduced in 1998 as an employers' expenditure. Employers' contributions to these Employee Insurance Schemes are levied from the Gross earnings social insurance that are derived from the gross wages (see scheme 1).

Besides, the private sickness-benefits insurance and the statutory sickness benefits of 70% are classified as statutory social-security contributions. As regards the first item, this approach was adopted to ensure continuity of the situation prior to the privatisation of the Sickness Benefits Act. Following the privatisation in 1996, employers have to pay (at least 70%) sickness benefits, while insurance is not mandatory since that date. Employers may, however, draw full or partial reinsurance.¹ Any contributions levied substitute the Sickness Benefits Act contributions in the model, and are therefore integrated into the Employee Insurance Schemes. If reinsurance cover is obtained, a 'reimbursed sum' materializes in the event of illness that may be subtracted from the gross wages, while also 'non-insured sickness benefits' are subtracted from gross wages. 70% of the latter are integrated into the Employee Insurance Schemes, since employers have the obligation to pay out 70% of the wages in the event of illness. Sickness-benefits allowances are customarily supplemented up to 100%; this supplement (30%) is classified as contractual social-security contributions. Therefore, in the model, all effects of absenteeism remain visible even after the privatisation of the Sickness Benefits Act (shift from wages to obligations).

Besides Employee Insurance Schemes, statutory social-security contributions comprise employers' contributions to National Insurance Schemes, the Transfer Surcharge (TS) that substituted the previously levied family allowance, the General Disablement Benefits Act allowance, the Exceptional Medical Expenses Act allowance and the widows'/widowers'/orphans' allowance. The TS is levied from the 'Transfer-Surcharge wages'.² In the model, the National Insurance Schemes item is supplemented by the employers' levy on the Employee Savings Scheme. Since the Employee Savings Scheme is not governed by the Gross earnings social insurance and, therefore, generates lower employers' social-security contributions, fiscal compensation is granted.

¹ Many large enterprises assume their own risk as they are not covered by reinsurance.

² For 1999: the Gross earnings social insurance including employers' Compulsory Health Insurance Act contributions/medical-insurance allowance, minus *employees'* Unemployment Act contributions (WE and WA). Besides, in 1996, employees' Sickness Benefits Act and Disablement Act contributions were deducted from the Gross earnings social insurance.

C Contractual social-security contributions

In contrast to Employee Insurance Schemes and the Transfer Surcharge (TS), contractual social-security contributions are not determined by statutory, wage-based contribution levying, but after consultations between employers and employees (employers' associations and trade unions). These pertain to the medical-insurance allowance (for those not covered by the National Health Service), the early-retirement scheme and pension contributions, compensation of the Disablement Act-gap, the accident insurance and contributions to a risk funds. Besides, in the event of non-insurance, 30% of the sickness-benefits allowance are classified as contractual obligations.

D Other labour-related cost

Amongst others, this item entails cost of staff training and in-company facilities/fringe benefits, such as cafeterias/canteens.

2.2 Model characteristics

Rather than being a model, the ARKO model is fundamentally a calculation scheme. The term model often implies a complex of interrelated equations. Although there are cross links in the ARKO model, the model is predominantly a complex of labour-cost items related to 17 (clusters of) enterprise classes and three size classes that are dealt with individually.

2.3 Application and estimation techniques of the model

Hereinafter, the estimation techniques and the sources employed will be narrated for every of the four main clusters of labour-cost items differentiated.

2.3.1 Estimation technique: Adjusted wage bill (A)

As outlined above, the adjusted wage bill is the resultant of the gross wages and the absenteeism share. Gross wages in the basic year (1996, the most recent year covered by a CBS AKO) are derived from CBS's AKO survey. As for 1996's wage-related data on small enterprises omitted, data of CBS's (annual) EWL (Employment & Wages Poll) were used. The absenteeism percentage was subtracted from these data.

Based on CBS data (where available) or CAO (Collective Labour Agreement) information¹ in CPB data (on supplementary wages), estimations were made of wage trends in the various sectors and size classes as regards both the reference year and the forecast year. To serve an estimation of the adjusted wage

¹ EIM developed a model comprising CAO (Collective Labour Agreement) information differentiated per sector and size class (see: G.Th. Elsendoorn en P. Verhees, *Herziening CAO-Informatiesysteem*, Zoetermeer, April 1996).

bill, the (anticipated) absenteeism volume was subtracted while assuming that gross wages will be fully paid in the event of illness.

2.3.2 Estimation technique: Statutory social-security contributions (B)

Statutory social-security contributions mainly consist of the employers' share in Employee Insurance Schemes and National Insurance Schemes. Statutory social-security contributions may be derived from contribution percentages, wage ceilings and (any) franchises (non-contributory rates) granted by legislation (i.e. by individual Acts), combined with employees' wages¹. Wage definitions of relevance are:

- Unemployment Act and Reduced-Pay Scheme contributions: Gross earnings social insurance
- Compulsory Health Insurance Act contributions: Gross earnings social insurance
- National Insurance Schemes: pre-Transfer-Surcharge wages.

If wage ceilings are enforced, mandatory contributions are limited to specific upper wage limits; if franchises (non-contributory rates) are enforced, mandatory contributions will be levied from specific wages onwards only. The contribution part of the relevant wages is termed the levy part. The relationship between this levy part and the entirety of the relevant wages is termed *levy ratio* in the model. The levy ratio governing a *cluster of persons* is defined as the share of the total wage bill subject to contribution levying.

Assessments of employers' contributions to Employee Insurance Schemes and National Insurance Schemes are calculated in the model as follows:

$$\text{Levy ratio} \times \text{contributions percentage} \times \text{relevant wages.}$$

The Transfer Surcharge (TS) may serve as an example here to illustrate the calculation of the *levy ratio*. In 1996, the TS had a wage ceiling, no franchise (non-contributory rate) was granted and the contributions rate amounted to 10%. The 1996 AKO survey reveals that the factual TS yield totalled 8% of the entire wage bill of employees' wages.² It may thus be concluded that 2/10, or 20%, of the total wage bill ranked in the upper wage segments above the wage ceiling. Therefore, the levy ratio of the entirety of employees was 8/10, or 0.80. The AKO database allows for an individual determination of the levy ratio per sector and size class.³

¹ I.e. the so-called employees' Gross earnings social insurance (see scheme 2), or the 'TS (Transfer-Surcharge) wages'.

² The wage definition 'pre-Transfer-Surcharge wages' should be adopted here.

³ Since small enterprises are omitted in the AKO survey, for this size class, 1992's estimations were employed that had been generated for the previous version of the model, as CBS's AKO 1992 database also comprises data on the 10-19 employees enterprise size-class, based on which 1992 data on small enterprises were estimated. As no data on the 10-19 employees size class covering 1996 were made available by CBS, 1992's relationships between small and medium-sized enterprises per sector will be used to estimate 1996 figures.

As regards the basic year, level-based levy-ratio data will thus be identified by now. To assess statutory social-security contributions in the *reference year* and the *forecast year*, calculations will be effected on the basis of an employee database containing data on 37,000 employees. This database will be updated to allow for estimations of the levy ratio per combination of sector and size class in the reference year and the forecast year. Similarly, the levy ratio for the basic year will be assessed on the basis of an individual employee database. The mutation of the levy ratio as calculated on the basis of individual data will be projected at the level of the levy ratio as calculated on the basis of CBS's AKO data.

If such a(n) (up-to-date) database should not be available, an alternative approach may be adopted that will merely be briefly elaborated here. This alternative approach assumes that the *distribution* of individual wages did not change strongly since the basic year. Summarizing, this methodology embraces that the percent change of the wages will be compared to the new wage ceiling and/or franchise (non-contributory rate) in the year covered by the estimation. If the wage ceiling rose by a percentage identical to that of the wages, this would have no impact on the levy ratio. If the wage ceiling lags behind wage trends, a more or less equally lower levy ratio will materialize, and vice versa.¹

Besides Employee Insurance Schemes and National Insurance Schemes, private medical-insurance contributions, too, are part of the statutory social-security contributions. These, together with data on the average own risk assumed by employers will be derived from the ZARA survey for the three assessment periods.²

2.3.3 Estimation technique: Contractual social-security contributions (C)

The majority of data covering the basic year stem from the 1996 CBS AKO survey. Any additional estimations (covering small enterprises omitted) were effected in the same way as those referring to statutory social-security contributions.

The contractual employers' social-security contributions will be estimated in several ways for the reference year and the forecast year. The medical-insurance allowance will be indexed to the rise in private medical-insurance contributions. Till recently, CBS data were employed as a source; these data are not made available anymore, however. The Landelijk Instituut voor Zorgverzekeraars will be adopted as an alternative source.³

¹ An analogous interpretation may be adopted as regards franchises (non-contributory rates).

² An annual panel survey among employers effected by ITS and Astri.

³ I.c. the VEKTIS organization in Zeist.

Data on pension/retirement will mainly be derived from CBS; otherwise, they will be based on the wage-trend index. Estimations of the other contractual social-security contributions will be based on the public-transport index.

The supplementary sickness-benefits allowance will be estimated endogenously.

2.3.4 Other labour-related cost

Other labour-related cost entail cost incurred by employers, comprising staff training, in-company facilities (canteens/cafeterias, etc.), Employee Savings Schemes, etc. Basically, data for the basic year will be derived from CBS's AKO 1996 survey (including additional small-enterprise estimations based on data of CBS's AKO 1992 survey). As regards the reference year, CPB data or CBS data on staff training will be used initially. If these should not be available, estimations will be based on the assumption that developments are in line with wage trends. The latter assumption will often also hold in respect of the forecast year.

2.4 Schematic outline of input data and sources employed

Scheme 2 summarizes the input data required for the ARKO model, the sources employed and the estimation techniques. Cells containing the term 'endogenous estimate' refer to estimations generated by the model.

Scheme 2 Labour-cost structure (1996-1999)

Elements	Source: Basic year	Source: Reference year	Source: Forecast year	Input entity c.q. estimation technique
1 Recurrent annual wages	AKO-CBS 1996 (additional estimations: AKO -CBS 1992)	EWL/CPB/EIM-CAO info system	CPB/conceivably EIM-CAO info system	Wage index matrix
2 Occupational allowance	AKO-CBS 1996 (additional estimations: AKO -CBS 1992)	EWL/CPB/EIM-CAO info system	CPB/conceivably EIM-CAO info system	Wage index matrix
Gross wages employees ((1)+(2))	Endogenous estimate	Endogenous estimate	Endogenous estimate	
Early-retirement scheme/pension contributions (employees' share)	AKO-CBS 1996 (additional estimations: AKO -CBS 1992)	CPB/conceivably wage index	CPB/conceivably wage index	Index matrix
Employee Savings Scheme	AKO-CBS 1996 (additional estimations: AKO -CBS 1992)	EWL	CBS	Index matrix
Gross earnings social insurance	Endogenous estimate	Endogenous estimate	Endogenous estimate	
3 Private reinsurance sickness-benefits allowance (minus)	Endogenous estimate (via absenteeism, combined with (6))	Endogenous estimate (via absenteeism, combined with (6))	Endogenous estimate (via absenteeism, combined with (6))	Absenteeism matrix, own-risk matrix ZARA/CBS = absenteeism percentage - 3
4 Uninsured sickness benefits (minus)	Endogenous estimate	Endogenous estimate	Endogenous estimate	
A Adjusted wage bill ((1)+(2)-(3)-(4))	Endogenous estimate	Endogenous estimate	Endogenous estimate	
5 Statutory sickness-benefits allowance (70%) if uninsured	Endogenous estimate	Endogenous estimate	Endogenous estimate	Derived from absenteeism and insured absenteeism (6)
6 Sickness-benefits insurance contributions	ZARA panel	ZARA panel	Ad hoc	Insurance matrix
7 Disablement Act contributions (employers' share)	Not applicable	Ind. employees database; contributions: social memo	Ind. employees database; contributions: social memo	Levy-ratio matrix, contributions % matrix
8/9 Reduced-Pay Scheme/Unemployment Act contributions qualifying-period funds (employers' share)	AKO-CBS 1996 (additional estimations: AKO -CBS 1992)	Ind. employees database; contributions: social memo	Ind. employees database; contributions: social memo	Levy-ratio matrix, contributions % matrix
10 Compulsory Health Insurance Act contributions (employers' share)	AKO-CBS 1996 (additional estimations: AKO -CBS 1992)	Ind. employees database; contributions: social memo	Ind. employees database; contributions: social memo	Levy-ratio matrix, contribution %
Total Employee Insurance Schemes ((5) through (10))	Endogenous estimate	Endogenous estimate	Endogenous estimate	

Scheme 2 Labour-cost structure (1996-1999) (continued)

Elements	Source: Basic year	Source: Reference year	Source: Forecast year	Input entity c.q. estimation technique
11 Transfer Surcharge (TS)	AKO-CBS 1996 (additional estimations: AKO -CBS 1992)	Ind. employees database	Endogenous estimate	Levy ratio, contributions
12 Tax levy on Employee Savings Scheme	Endogenous estimate	Endogenous estimate	Endogenous estimate	Tax-levy percentage
Total National Insurance Schemes ((11)+(12))	Endogenous estimate	Endogenous estimate	Endogenous estimate	
B Total statutory social-security contributions ((5) through (12))	Endogenous estimate	Endogenous estimate	Endogenous estimate	
13 Medical-insurance allowance (employers' share)	AKO-CBS 1996 (additional estimations: AKO -CBS 1992)	Vektis	Vektis	Index
14 Contractual mandatory sickness-benefits allowance (30%) if uninsured	Endogenous estimate	Endogenous estimate	Endogenous estimate	Derived from absenteeism and uninsured absenteeism (6)
15 Early-retirement scheme/pension contributions (employers' share)	AKO-CBS 1996 (additional estimations: AKO -CBS-1992)	CPB/conceivably wage index	CPB/conceivably wage index	Index matrix
'Disablement Act-gap' insurance (employers' share)	AKO-CBS 1996 (additional estimations: AKO -CBS 1992)	CPB/conceivably endogenous estimate	Endogenous estimate	Index matrix
16 Other contractual social-security contributions	AKO-CBS 1996 (additional estimations: AKO -CBS 1992)	CBS (cost of public transport)	CBS (cost of public transport)	Index
C Total contractual social-security contributions ((13) through (16))	Endogenous estimate	Endogenous estimate	Endogenous estimate	
17 Staff training/in-company facilities/fringe benefits	AKO-CBS 1996 (additional estimations: AKO -CBS 1992)	CBS/conceivably endogenous estimate	CBS/conceivably endogenous estimate	(Conceivably wage) Index
18 Other social expenditure	AKO-CBS 1996 (additional estimations: AKO -CBS 1992)	Endogenous estimate	Endogenous estimate	Wage index
D Total other labour-related cost	Endogenous estimate	Endogenous estimate	Endogenous estimate	
Total labour cost ((A)+(B)+(C)+(D))	Endogenous estimate	Endogenous estimate	Endogenous estimate	

3 Labour cost in the Nineties

3.1 Introduction

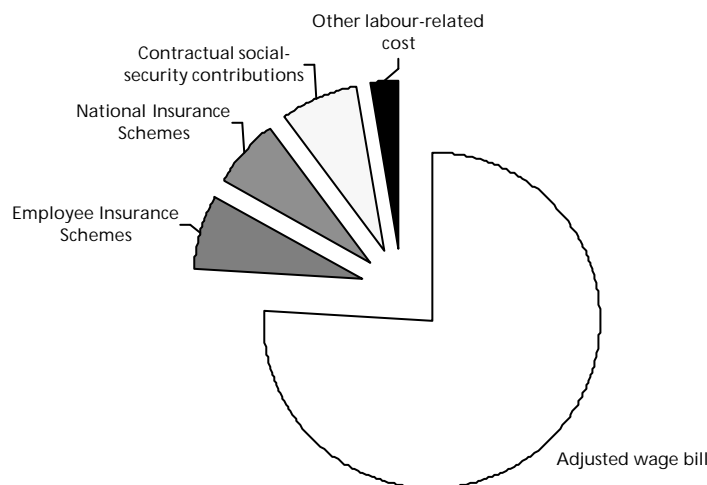
While previous chapters outlined the characteristics and application of the labour-cost model, the underlying chapter presents the results of a labour-cost trend analysis covering the past decade. CBS labour-cost surveys are available for 1992 and 1996, supplemented by estimations for small enterprises and several sectors (among which hotel & catering) omitted. Based on the ARKO model, an estimation of labour cost was made for 1999.

Following a brief elaboration of the labour-cost structure in 1996 in the three size classes differentiated, trends in the Nineties will be outlined while focusing on the employers' wedge, i.e. the entirety of statutory and contractual employers' social-security contributions.

3.2 Labour cost in private enterprise in 1996

Average 1996 labour cost per full-time equivalent employee in private enterprise totalled an estimated NLG 70,000 approximately. Three-quarters thereof pertained to the adjusted wage bill. Statutory social-security contributions amounted to 14% of labour cost approximately, while 6.3 percentage points thereof entailed the employers' share to Employee Insurance Schemes (Unemployment Act, Reduced-Pay Scheme, Sickness Benefits Act, Compulsory Health Insurance Act). Contractual social-security contributions (mainly employees' early-retirement scheme and pension contributions) totalled 7.6% of entire labour cost. The employers' wedge thus amounted to 21.5% in 1996. Chart 1 recapitulates the labour-cost structure.

Chart 1 Labour-cost components in 1996 (%)



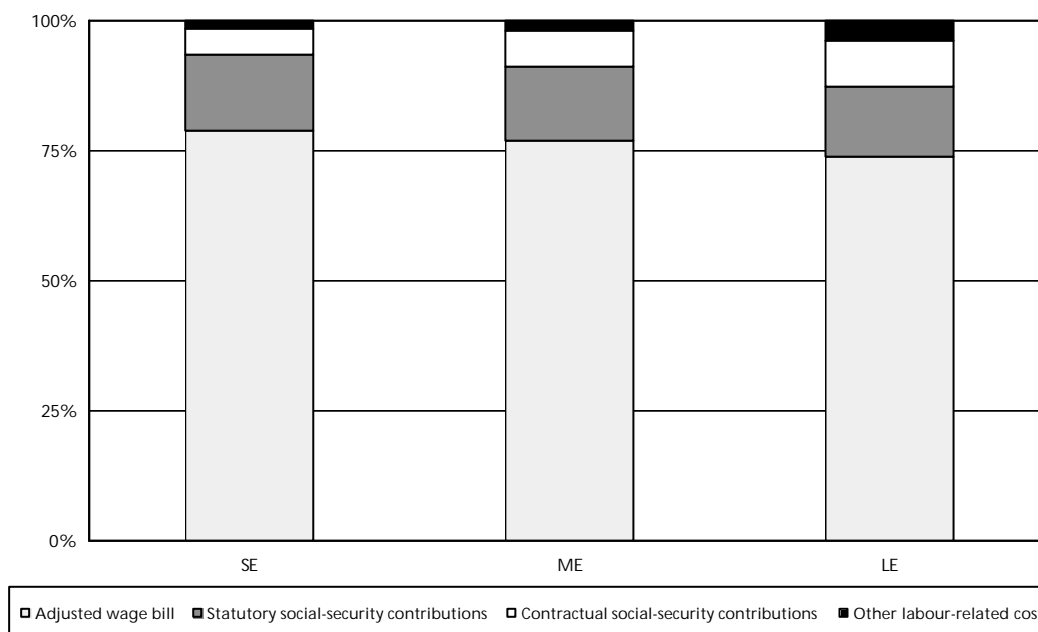
3.3 Labour cost in 1996, differentiated by size class

Labour cost rose with increasing enterprise size. In large enterprises, average labour cost per full-time equivalent exceeded NLG 78,000, while they were about 15% (NLG 66,400) lower in medium-sized enterprises, and more than 30% (NLG 54,500) lower in small enterprises. Covering the years 1992, 1996 and 1999, respectively, annex 2 comprises three tables outlining the level and structure of labour cost differentiated by size class.

Significant differences in labour-cost structure were found as regards the three size classes differentiated. In terms of gross remuneration, slightly smaller differences were found.

Chart 2 recapitulates the labour-cost structure of the three size classes differentiated. One remarkable finding entails that the share of the adjusted wage bill in total labour cost declined with increasing enterprise size, and that the share of the employers' wedge (i.e. the aggregate of the share of statutory and contractual social-security contributions) increased. For small enterprises, a 19.7% wedge of total labour cost was found, for medium-sized enterprises a wedge of 21.2%, and a 22.2% wedge for large enterprises.

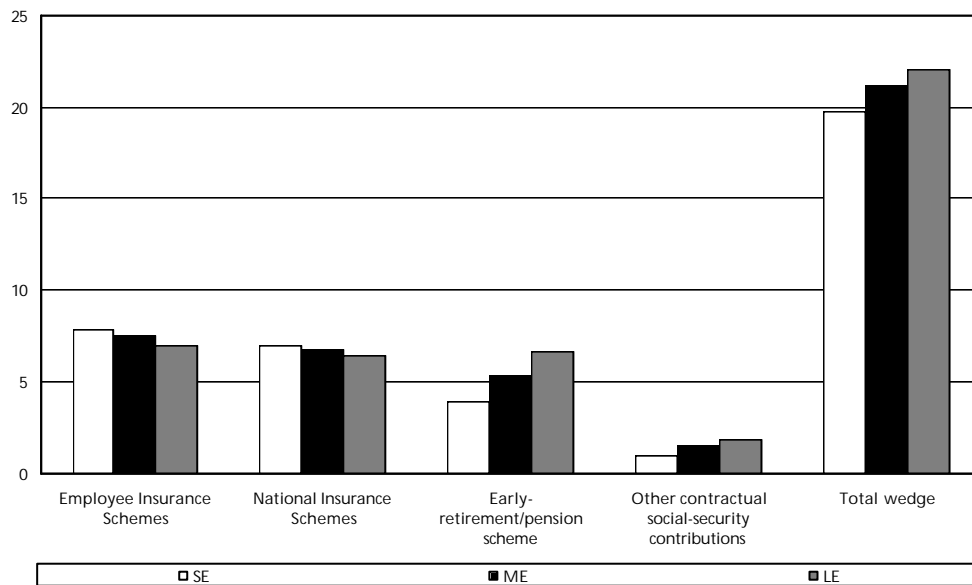
Chart 2 Labour-cost structure, differentiated by size class, 1996 (%)



The nature of the wedge differed strongly as regards enterprise size (see e.g. chart 3). In small enterprises, statutory social-security contributions (Employee Insurance Schemes and National Insurance Schemes) dominated. Particularly the private sickness-benefits allowance reinsurance (small enterprises were found to be reinsured comparatively more often) was of higher importance in small enterprises. Contrastingly, uninsured statutory sickness benefits played a

more dominant role in large enterprises. Besides, owing to averagely lower wages, Compulsory Health Insurance Act contributions and the Transfer Surcharge (TS) consumed higher shares of total labour cost in small enterprises. In terms of volume, contractual social-security contributions were found to be low in the smallest enterprises. With increasing enterprise size, the share of contractual social-security contributions rose, too. The majority of the differences were accounted for by higher early-retirement scheme and pension contributions in large enterprises. This was obvious, since with increasing average wage levels, retirement ceilings (after deducting the OAP (old-age pension) franchise (non-contributory rate)) were higher in absolute as well as relative terms.

Chart 3 Wedge structure by size class, 1996 (percent of labour cost)



3.4 Labour cost in the Nineties, differentiated by size class

Differentiated by size class, table 1 recapitulates the development of the total labour-cost volume for the 1992-1999 period. In the seven-year time span from 1992 onwards, gross wages (the major labour-cost item) rose by 22.5%, entailing an average annual rise by 2.9%. In absolute terms, the entirety of statutory social-security contributions rose by a mere 5.1%, while contractual social-security contributions rose to a higher degree than wages did. These trends spurred major changes in the labour-cost structure.

Table 1 Development of labour-cost components, differentiated by size class, 1992-1999; percent change versus 1992

	SE	ME	LE	Total
Development (%)				
Total labour cost	15.7	19.2	28.5	22.7
- Employees' gross wages	18.7	20.8	26.1	22.5
- Employers' wage bill	20.0	23.0	28.3	24.6
- Total statutory social-security contributions	- 0.6	0.4	11.1	+ 5.1
• Of which Employee Insurance Schemes	71.9	71.3	105.7	87.2
• Of which National Insurance Schemes	- 71.8	- 71.3	- 76.4	- 77.0
- Total contractual social-security contributions	23.9	29.7	47.7	37.4
Development (percentage points)				
Employers' share in labour cost	-2.1	-2.1	-1.1	-1.4
• Of which statutory social-security contributions	-2.5	-2.7	-2.0	- 2.3
• Of which contractual social-security contributions	0.4	0.6	0.9	+ 0.8

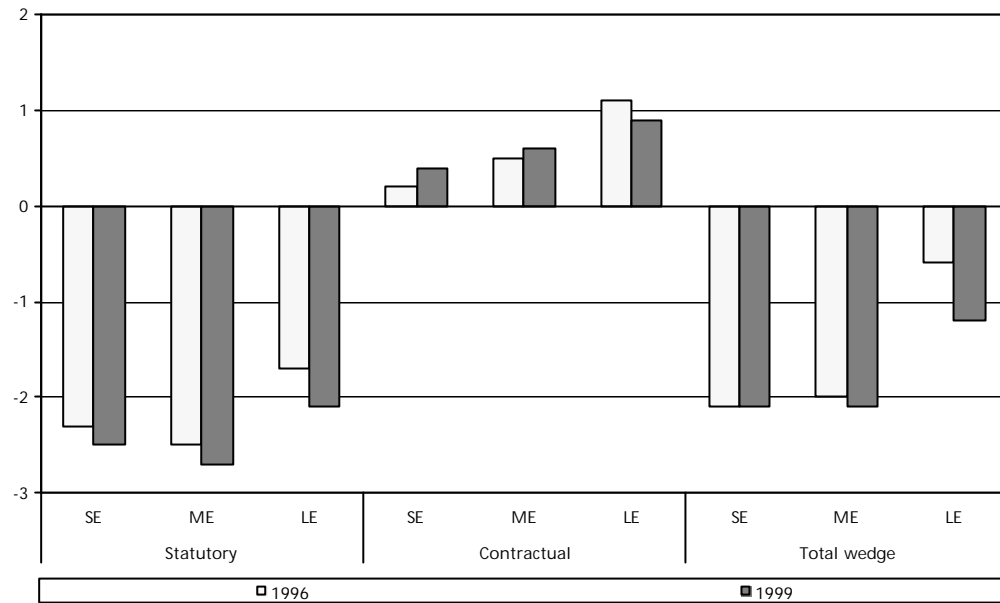
Source: EIM.

In contrast to medium-sized enterprises, and to small enterprises in particular, labour cost rose to a considerably higher degree in large enterprises. This trend was found in practically all sectors (see e.g. table 5 in annex 2). The lion's share of these varying trends was attributable to higher wage hikes in larger enterprises. However, also the mutation of the wedge contributed in this respect. In small and medium-sized enterprises, the wedge decreased to a higher extent than in large enterprises. Since 1992, entire private enterprise faced a wedge reduction by 1.4 percentage points, i.e. 2.1 percentage points in small and medium-sized enterprises, twice as much as in large enterprises (1.1 percentage points).

The wedge reduction materialized in the first half of the Nineties in particular (see e.g. chart 4). Within the wedge, statutory social-security contributions diminished strongly, owing to trends in respect of the Sickness Benefits Act. As for 1993, this materialized in the framework of the Absenteeism Reduction Act by the introduction of the 2-6 weeks qualifying period, depending on enterprise size. In 1996, the Sickness Benefits Act was privatized. The effect of this package of measures was a severe decline of absenteeism in the first half of the Nineties.

Following the privatization, many (particularly large) enterprises did not (fully) insure themselves against the cost of illness. Sickness-benefits contributions were thus considerably lower than those in the framework of the Sickness Benefits Act in 1992. Notwithstanding the cost incurred through statutory sickness benefits (if uninsured), these expenses did not compensate the difference in contributions.

Chart 4 Wedge mutation, 1999 and 1996 versus 1992 (percentage points)



This holds for medium-sized enterprises in particular. Besides, also the Transfer Surcharge (TS) was lower in 1996 than in 1992, though the effects thereof on the three size classes differentiated were practically equally high.

Contrasting to the strong decline of statutory social-security contributions, contractual social-security contributions rose. This rise was limited in small enterprises, but not in medium-sized enterprises and large enterprises in particular. This was attributable to the vigorous rise of early-retirement scheme and pension contributions. In large enterprises, the share of these contributions in total wage cost rose by nearly 50%, i.e. from 4.7% (in 1992) to 6.7% (in 1996).

In the 1996-1999 period, the wedge decreased slightly in small and medium-sized enterprises, and slightly more in large enterprises. As regards statutory social-security contributions, expenditure rose due to the reintroduction of employers' Disablement Act contributions; yet on the other hand, the Transfer Surcharge (TS) decreased drastically. On balance, the share of statutory social-security contributions in total labour cost declined slightly, viz. slightly more in large enterprises than in small and medium-sized enterprises.

Summarizing, the wedge in private enterprise declined by 1.4 percentage points in the 1992-1999 period. The decrease was higher in small and medium-sized than in large enterprises.

The smaller wedge was mainly attributable to the strongly declining (-2.3 percentage points) share of statutory social-security contributions in labour cost in small and medium-sized enterprises in particular. Contrastingly, contractual social-security contributions rose by 0.8 percentage points on average. Here, too, large enterprises faced higher increases than the two other size classes did.

Annex I: Sectors differentiated in the ARKO model

<i>Sector</i>	<i>SBI-1993</i>	<i>Industry</i>
<i>Manufacturing</i>	15/16	Food, beverages & tobacco
	17	Textiles
	18/19	Garments/leather
	20/26	Wood, wood processing, glass, ceramics, cement, lime- and plaster products
	21/22	Paper, printing, publishing
	23-25	Petrochemicals, fibres and yarns, rubber and plastics
	27/28	Primary metals, metal products, excl. equipment and transport means
	29/30	Machinery, equipment, office appliances, computers
	31/32	Consumer electronics, audio, video and telecommunications equipment
	33,36,37	Medical and orthopaedic equipment, precision- and optical instruments, pre-recycling, furniture
	34,35	Manufacture of transport means, cars, bicycles
<i>Construction</i>	45	Construction
<i>Trade</i>	50	Trade, car repair, motorcycle repair, gasoline stations
<i>Repair</i>	51	Wholesaling and trade intermediation (excl. cars and motorcycles)
<i>Retailing</i>	52	Retailing
<i>Hotel & catering</i>	55	Hotel and catering
<i>Banks/insurance</i>	65-67	Finance, insurance, other financial services
<i>Business services</i>	70/71,	Rentals, real estate, temporary-employment agencies
	73-74	IT technology, research, other business services
<i>Sectors omitted</i>		
	1 - 5	Agriculture, forestry, fisheries
	10,11,14	Mining, extraction
	60 - 64	Haulage/transport, postal services and telecommunications
	75 - 99	Public sector, other service industries (a.o. cleaning services)

Annex II: Key tables: Labour cost in 1992, 1996 and 1999

Table 2 Labour-cost structure in private enterprise, differentiated by size class, 1992; percent of total labour cost

	SE	SME	ME	LE
Total labour cost (x NLG 1,000)	51.0	56.7	60.3	65.7
Total gross wages (x NLG 1,000)	40.9	45.2	48.2	52.7
Total labour cost (= 100)	100.0	100.0	100.0	100.0
Percent thereof:				
Gross wages employees	80.1	79.8	79.7	80.2
• Of which recurrent annual wages	72.4	71.3	70.8	70.1
• Occupational allowance	7.0	7.4	7.5	8.9
• Employees' early -retirement scheme/pension contributions	0.8	1.2	1.3	1.2
• Employee Savings Scheme
Minus Sickness Benefits Act allowance	2.4	2.9	3.1	3.4
Minus supplementary sickness-benefits allowance	1.4	1.7	1.8	2.2
A Adjusted wage bill	76.3	75.3	74.8	74.5
Total Employee Insurance Schemes	8.8	8.8	8.8	7.2
• Sickness Benefits Act contributions (employers' share)	5.0	5.1	5.1	4.1
• Disablement Act contributions (employers' share)
• Reduced-Pay Scheme/Unemployment Act contributions (employers' share)	1.0	1.0	1.0	0.9
• Compulsory Health Insurance Act contributions (employers' share)	2.9	2.7	2.7	2.3
Total National Insurance Schemes (TS + tax levy on Employee Savings Scheme)	8.3	8.1	8.0	7.8
B Total Statutory social-security contributions (EIS + NIS)	17.1	16.9	16.8	15.0
C Total Contractual social-security contributions	4.7	5.9	6.4	7.7
• Medical-insurance allowance (employers' share)	0.3	0.3	0.3	0.5
• Supplementary sickness-benefits allowance	1.4	1.7	1.8	2.2
• Early-retirement scheme/pension contributions (employers' share)	2.4	3.2	3.6	4.7
• Other contractual social-security contributions	0.6	0.7	0.7	0.3
D Total other labour-related cost	1.9	2.0	2.0	2.7
Total labour cost ((A)+(B)+(C)+(D))	100.0	100.0	100.0	100.0

Source: EIM.

Table 3 Labour-cost structure in private enterprise, differentiated by size class, 1996; percent of total labour cost

	SE	SME	ME	LE
Total labour cost (x NLG 1,000)	54.5	62.0	66.4	78.1
Total gross wages (x NLG 1,000)	44.7	50.2	53.4	61.2
Total labour cost (= 100)	100.0	100.0	100.0	100.0
Percent thereof:				
Gross wages employees	82.0	81.0	80.4	78.4
• Of which recurrent annual wages	71.6	69.2	68.0	65.5
• Occupational allowance	7.0	7.7	8.1	9.4
• Employees' early-retirement scheme/pension contributions	2.6	3.3	3.6	2.9
• Employee Savings Scheme	0.8	0.8	0.7	0.6
Minus insured sickness-benefits allowance sum	2.0	1.6	1.4	0.4
Minus uninsured sickness benefits allowance	1.1	1.7	2.0	3.8
A Adjusted wage bill	78.9	77.7	77.1	74.1
Total Employee Insurance Schemes	7.8	7.7	7.5	7.0
• Private sickness-benefits reinsurance	2.4	1.9	1.7	0.5
• Disablement Act contributions (employers' share)	Not applicable	Not applicable	Not applicable	Not applicable
• Reduced-Pay Scheme/Unemployment Act contributions (employers' share)	1.7	1.8	1.8	1.6
• National Health Service contributions (employers' share)	2.9	2.8	2.7	2.2
• Uninsured (statutory) sickness-benefits allowance (70%)	0.8	1.2	1.4	2.7
Total National Insurance Schemes (TS + tax levy on Employee Savings Scheme)	7.0	6.8	6.8	6.4
B Total Statutory social-security contributions (EIS + NIS)	14.8	14.5	14.3	13.4
C Total Contractual social-security contributions	4.9	6.2	6.9	8.8
• Medical-insurance allowance (employers' share)	0.3	0.4	0.4	0.7
• Uninsured contractual sickness benefits (30%)	0.3	0.5	0.6	1.2
• Early-retirement scheme/pension contributions (employers' share)	3.9	4.9	5.4	6.7
• Other contractual social-security contributions	0.4	0.4	0.5	0.2
D Total other labour-related cost	1.2	1.6	1.8	3.7
Total labour cost ((A)+(B)+(C)+(D))	100.0	100.0	100.0	100.0

Source: EIM.

Table 4 Labour-cost structure in private enterprise, differentiated by size class, 1999; percent of total labour cost

	SE	SME	ME	LE
Total labour cost (x NLG 1,000)	59.0	67.1	71.9	84.4
Total gross wages (x NLG 1,000)	48.5	54.4	58.0	66.4
Total labour cost (= 100)	100.0	100.0	100.0	100.0
Percent thereof:				
Gross wages employees	82.2	81.2	80.7	78.7
• Of which recurrent annual wages	71.8	69.4	68.3	65.8
• Occupational allowance	7.0	7.8	8.1	9.4
• Employees' early-retirement scheme/pension contributions	2.6	3.3	3.6	2.9
• Employee Savings Scheme	0.8	0.7	0.7	0.6
Minus insured sickness-benefits allowance sum	2.0	1.7	1.5	0.4
Minus uninsured sickness-benefits allowance	1.1	1.7	2.1	3.8
A Adjusted wage bill	79.1	77.8	77.1	74.5
Total Employee Insurance Schemes	13.0	12.8	12.6	11.6
• Private medical reinsurance	2.5	2.0	1.8	0.5
• Disablement Act contribution (employers' share)	5.3	5.2	5.1	4.8
• Reduced-Pay Scheme/Unemployment Act contributions (employers' share)	1.3	1.3	1.2	1.1
• National Health Service contributions (employers' share)	3.2	3.1	3.0	2.5
• Uninsured (statutory) sickness-benefits allowance (70%)	0.7	1.2	1.5	2.7
Total National Insurance Schemes (TS + tax levy on Employee Savings Scheme)	1.6	1.5	1.5	1.4
B Total Statutory social-security contributions (EIS + NIS)	14.6	14.3	14.1	13.0
C Total Contractual social-security contributions	5.1	6.3	7.0	8.6
• Medical-insurance allowance (employers' share)	0.4	0.4	0.5	0.7
• Uninsured contractual sickness benefits (30%)	0.3	0.5	0.6	1.1
• Early-retirement scheme/pension contributions (employers' share)	3.9	4.9	5.4	6.6
• Other contractual social-security contributions	0.5	0.5	0.5	0.2
D Total Other labour-related cost	1.2	1.6	1.8	3.7
Total labour cost ((A)+(B)+(C)+(D))	100.0	100.0	100.0	100.0

Source: EIM.

Table 5 Development of total labour cost, differentiated by sector and size class, 1992-1999; percent change versus 1992

Sector	SBI-93 Code	SE	ME	LE	Total
Food, beverages & tobacco	15, 16	15	20	31	28
Textiles	17	19	22	19	16
Garments	18, 19	16	21	47	29
Wood processing, excl. furniture	20, 26	17	17	31	24
Paper, printing, publishing	21, 22	18	22	26	24
Processing industry, chemicals	23-25	22	25	34	31
Metal and glass	27, 28	11	17	26	20
Equipment and office appliances	29, 30	16	21	24	22
Medical/optical/precision instruments, furniture	33, 36, 37	13	17	38	23
Manufacture of cars, motorcycles, bicycles	34, 35	11	13	25	20
Construction	45	1	7	13	8
Trade, repair, gasoline stations	50	24	32	43	35
Wholesaling and intermediation	51	24	26	25	24
Retailing	52	8	12	17	13
Hotel & catering	55	16	20	22	22
Financial services, insurance, banks	65, 66	37	36	25	28
Rentals, real estate, temporary -employment agencies	67, 70-74	13	12	14	13
Total (weighed by FTE)		16	19	29	23

Source: EIM.

List of Research Reports

The research report series is the successor of both the research paper and the 'researchpublicatie' series. There is a consecutive report numbering followed by /x. For /x there are five options:

- /E: a report of the business unit Strategic Research, written in English;
- /N: like /E, but written in Dutch;
- /F: like /E, but written in French;
- /A: a report of one of the other business units of EIM/Small Business Research and Consultancy;
- /I: a report of the business unit Strategic Research for internal purposes; external availability on request.

- 9301/E The intertemporal stability of the concentration-margins relationship in Dutch and U.S. manufacturing; Yvonne Prince and Roy Thurik
- 9302/E Persistence of profits and competitiveness in Dutch manufacturing; Aad Kleijweg
- 9303/E Small store presence in Japan; Martin A. Carree, Jeroen C.A. Potjes and A. Roy Thurik
- 9304/I Multi-factorial risk analysis and the sensitivity concept; Erik M. Vermeulen, Jaap Spronk and Nico van der Wijst
- 9305/E Do small firms' price-cost margins follow those of large firms? First empirical results; Yvonne Prince and Roy Thurik
- 9306/A Export success of SMEs: an empirical study; Cinzia Mancini and Yvonne Prince
- 9307/N Het aandeel van het midden- en kleinbedrijf in de Nederlandse industrie; Kees Bakker en Roy Thurik
- 9308/E Multi-factorial risk analysis applied to firm evaluation; Erik M. Vermeulen, Jaap Spronk and Nico van der Wijst
- 9309/E Visualizing interfirm comparison; Erik M. Vermeulen, Jaap Spronk and Nico van der Wijst
- 9310/E Industry dynamics and small firm development in the European printing industry (Case Studies of Britain, The Netherlands and Denmark); Michael Kitson, Yvonne Prince and Mette Mönsted
- 9401/E Employment during the business cycle: evidence from Dutch manufacturing; Marcel H.C. Lever and Wilbert H.M. van der Hoeven
- 9402/N De Nederlandse industrie in internationaal perspectief: arbeidsproductiviteit, lonen en concurrentiepositie; Aad Kleijweg en Sjaak Vollebregt
- 9403/E A micro-econometric analysis of interrelated factor demand; René Huijgen, Aad Kleijweg, George van Leeuwen and Kees Zeelenberg

- 9404/E Between economies of scale and entrepreneurship; Roy Thurik
- 9405/F L'évolution structurelle du commerce de gros français; Luuk Klomp et Eugène Rebers
- 9406/I Basisinkomen: een inventarisatie van argumenten; Bob van Dijk
- 9407/E Interfirm performance evaluation under uncertainty, a multi-dimensional frame-work; Jaap Spronk and Erik M. Vermeulen
- 9408/N Indicatoren voor de dynamiek van de Nederlandse economie: een sectorale analyse; Garnt Dijksterhuis, Hendrik-Jan Heeres en Aad Kleijweg
- 9409/E Entry and exit in Dutch manufacturing industries; Aad Kleijweg and Marcel Lever
- 9410/I Labour productivity in Europe: differences in firm-size, countries and industries; Garnt Dijksterhuis
- 9411/N Verslag van de derde mondiale workshop Small Business Economics; Tinbergen Instituut, Rotterdam, 26-27 augustus 1994; M.A. Carree en M.H.C. Lever
- 9412/E Internal and external forces in sectoral wage formation: evidence from the Netherlands; Johan J. Graafland and Marcel H.C. Lever
- 9413/A Selectie van leveranciers: een kwestie van produkt, profijt en partnerschap?; F. Pleijster
- 9414/I Grafische weergave van tabellen; Garnt Dijksterhuis
- 9501/N Over de toepassing van de financieringstheorie in het midden- en kleinbedrijf; Erik M. Vermeulen
- 9502/E Insider power, market power, firm size and wages: evidence from Dutch manufacturing industries; Marcel H.C. Lever and Jolanda M. van Werkhoven
- 9503/E Export performance of SMEs; Yvonne M. Prince
- 9504/E Strategic Niches and Profitability: A First Report; David B. Audretsch, Yvonne M. Prince and A. Roy Thurik
- 9505/A Meer over winkelopstellingstijden; H.J. Gianotten en H.J. Heeres
- 9506/I Interstratos; een onderzoek naar de mogelijkheden van de Interstratos-dataset; Jan de Kok
- 9507/E Union coverage and sectoral wages: evidence from the Netherlands; Marcel H.C. Lever and Wessel A. Marquering
- 9508/N Ontwikkeling van de grootteklassenverdeling in de Nederlandse Industrie; Sjaak Vollebregt
- 9509/E Firm size and employment determination in Dutch manufacturing industries; Marcel H.C. Lever
- 9510/N Entrepreneurship: visies en benaderingen; Bob van Dijk en Roy Thurik
- 9511/A De toegevoegde waarde van de detailhandel; enkele verklarende theorieën tegen de achtergrond van ontwikkelingen in distributiekolom, technologie en externe omgeving; J.T. Nienhuis en H.J. Gianotten

- 9512/N Haalbaarheidsonderzoek MANAGEMENT-model; onderzoek naar de mogelijkheden voor een simulatiemodel van het bedrijfsleven, gebaseerd op gedetailleerde branche- en bedrijfsgegevens; Aad Kleijweg, Sander Wennekens, Ton Kwaak en Nico van der Wijst
- 9513/A Chippen in binnen- en buitenland; De elektronische portemonnee in kaart gebracht; een verkenning van toepassingen, mogelijkheden en consequenties van de chipcard als elektronische portemonnee in binnen- en buitenland; drs. J. Roorda en drs. W.J.P. Vogelesang
- 9601/N Omzetprognoses voor de detailhandel; Pieter Fris, Aad Kleijweg en Jan de Kok
- 9602/N Flexibiliteit in de Nederlandse Industrie; N.J. Reincke
- 9603/E The Decision between Internal and External R&D; David B. Audretsch, Albert J. Menkveld and A. Roy Thurik
- 9604/E Job creation by size class: measurement and empirical investigation; Aad Kleijweg and Henry Nieuwenhuijsen
- 9605/N Het effect van een beursnotering; drs. K.R. Jonkheer
- 9606/N Een Micro-werkgelegenheidsmodel voor de Detailhandel; drs. P. Fris
- 9607/E Demand for and wages of high- and low-skilled labour in the Netherlands; M.H.C. Lever and A.S.R. van der Linden
- 9701/N Arbeidsomstandigheden en bedrijfsgrootte. Een verkenning met de LISREL-methode; drs. L.H.M. Bosch en drs. J.M.P. de Kok
- 9702/E The impact of competition on prices and wages in Dutch manufacturing industries; Marcel H.C. Lever
- 9703/A FAMOS, een financieringsmodel naar grootteklassen; drs. W.H.J. Verhoeven
- 9704/N Banencreatie door MKB en GB; Pieter Fris, Henry Nieuwenhuijsen en Sjaak Vollebregt
- 9705/N Naar een bedrijfstypenmodel van het Nederlandse bedrijfsleven; drs. W.H.M. van der Hoeven, drs. J.M.P. de Kok en drs. A. Kwaak
- 9801/E The Knowledge Society, Entrepreneurship and Unemployment; David B. Audretsch and A. Roy Thurik
- 9802/A Firm Failure and Industrial Dynamics in the Netherlands; David B. Audretsch, Patrick Houweling and A. Roy Thurik
- 9803/E The determinants of employment in Europe, the USA and Japan; André van Stel
- 9804/E PRISMA'98: Policy Research Instrument for Size-aspects in Macroeconomic Analysis; Ton Kwaak
- 9805/N Banencreatie bij het Klein-, Midden- en Grootbedrijf; Henry Nieuwenhuijsen, Ben van der Eijken en Ron van Dijk
- 9806/A Milieumodel; drs. K.L. Bangma
- 9807/A Barriers for hiring personnel; Jacques Niehof
- 9808/A Methodiek kosten en baten Arbowetgeving; drs. K.M.P. Brouwers, dr. B.I. van der Burg, drs. A.F.M. Nijsen en ir. H.C. Visee

- 9809/E Business Ownership and Economic Growth; An Empirical Investigation; Martin Carree, André van Stel, Roy Thurik and Sander Wennekers
- 9810/E The Degree of Collusion in Construction; M.H.C. Lever, H.R. Nieuwenhuijsen and A.J. van Stel
- 9811/E Self-employment in 23 OECD countries; Ralph E. Wildeman, Geert Hofstede, Niels G. Noorderhaven, A. Roy Thurik, Wim H.J. Verhoeven and Alexander R.M. Wennekers
- 9812/E SICLASS: Forecasting the European enterprise sector by industry and size class; Niels Bosma and Ton Kwaak
- 9901/E Scanning the Future of Entrepreneurship; drs. N.S. Bosma, drs. A.R.M. Wennekers and drs. W.S. Zwinkels
- 9902/E Are Small Firms Really Sub-optimal?; Compensating Factor Differentials in Small Dutch Manufacturing Firms; David B. Audretsch, George van Leeuwen, Bert Menkveld and Roy Thurik
- 9903/E FAMOS; A size-class based financial analysis model; W.H.J. Verhoeven and E.A. van Noort
- 9904/E Conduct and Performance in Dutch Manufacturing; An Application of Appelbaum 1982 with a Plausibility-Check; Frank A. Hindriks, Henry R. Nieuwenhuijsen and Adriaan J. van Stel
- 9905/E Non-competitive Rents in Dutch Manufacturing; Conduct and Performance in the New Empirical Industrial Organization; Frank A. Hindriks
- 9906/E A human-resource-based theory of the small firm; Charlotte Koch and Jan de Kok
- 9907/N Van werknemer naar ondernemer; Een hybride of directe start?; ir. H.C. Visee en drs. W.S. Zwinkels
- 9908/E Modelling returns to R&D: an application on size effects; Peter Brouwer and Henry Nieuwenhuijsen
- 9909/E Turbulence and productivity in the Netherlands; Niels Bosma and Henry Nieuwenhuijsen
- 9910/E Start-up capital: Differences between male and female entrepreneurs. 'Does gender matter?'; Ingrid Verheul and Roy Thurik
- 9911/E Modelling Business Ownership in the Netherlands; Niels Bosma, Sander Wennekers, Gerrit de Wit and Wim Zwinkels
- 9912/A Measuring innovative intensity: Scale construction; J.P.J. de Jong
- 9913/A Determinants of firm size; Y. Bernardt and R. Muller
- 0001/E Strategies, uncertainty and performance of small business startups; Marco van Gelderen, Michael Frese and Roy Thurik
- 0002/E Determinants of Successful Entrepreneurship; Niels Bosma, Mirjam van Praag and Gerrit de Wit
- 0003/E Comparative Advantages in Estimating Markups; Frank A. Hindriks, Henry R. Nieuwenhuijsen and Gerrit de Wit