



WOLIWEB FP6-2004-50659

The socio-economic determinants of citizens' work life attitudes, preferences and perceptions, using data from the continuous web-based European Wage Indicator Survey

The Salary Check in the Dutch WageIndicator Websites

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Responsible partner
for this report: Kea Tijdens, AIAS, Univ. of Amsterdam
K.G.Tijdens@uva.nl

Summary: This report details the operation of the crowd-pulling Salary Check in the Dutch WageIndicator website by explaining the screens, the calculation rules and the data used.



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TABLE OF CONTENT

1.	Introduction	1
2.	The Salary Check screens.....	2
3.	The instant calculation of the wages	4
4.	The calculation coefficients	5
5.	Measuring occupations.....	6
6.	Measuring wages	6
7.	Annual wage level adjustments	7
8.	Data derived from the Salary Check.....	8
Appendix:	The variables and wage calculations.....	9

1. INTRODUCTION

Since 2000, www.loonwijzer.nl has proven to be a successful website with information on wages and work-related issues. The Dutch word Loonwijzer can be best translated as Wage Indicator. The website has a crowd-pulling Salary Check that provides reliable information about wages for many occupations. This paper explains the operation of Salary Check in the Dutch WageIndicator website.

The concept of the Wage Indicator websites is owned by the Stichting Loonwijzer (in English Wage Indicator Foundation), Plantage Muidergracht 4, 1018 TV Amsterdam, Netherlands. The Foundation is founded by the largest trade union confederation in the Netherlands, FNV, the country's largest vacancy site Monsterboard, and AIAS, the Amsterdam Institute of Advanced Labour Studies, which is part of the University of Amsterdam. The firm WebWord acts as the director of the Stichting Loonwijzer/ WageIndicator Foundation.

From April 2004 onwards, the Dutch Loonwijzer project is extended to eight European countries, funded from the FP6 program of the European Union. This 3-year project is called WOLIWEB, which stands for WOrkLIfeWEB. Each national WageIndicator website is run by a national team of web managers, researchers, and

others. For information about the websites, see www.wageindicator.org. An email newsletter is published bi-monthly. Subscription is free of charge.

2. THE SALARY CHECK SCREENS

The Salary Check in the Loonwijzer website consists of five subsequent screens. In the first screen the web visitor is asked to choose an occupational group from a list of 14. In the second screen, the visitor can tick an occupation within the chosen group. Altogether a choice can be made out of 167 occupations. A 'Back and forth' option allows for easy searching. In the third screen, seven questions are asked to identify the visitor's profile (see Table 1). The tables show the screen of the PayWizard website, the English counterpart of the Dutch Loonwijzer. The English website is similar to the Dutch website, but its screens are shown as non-Dutch people can better understand the language.¹

Table 1. *Third screen to identify the visitor's profile*

In order to calculate your salary more precisely, the PayWizard needs some additional input.

What is your highest level of education? Make a choice

How many years professional experience do you have? Make a choice

Are you a manager? ☐ no ☐ yes

Are the majority of your colleagues male? ☐ no ☐ yes

Are you a woman with a break in your career? ☐ no ☐ yes

Have you been promoted by your present employer? ☐ no ☐ yes

How large is the workforce in the company? ☐ less than 100 ☐ 100 - 500 ☐ more than 500

[Previous](#) [calculate](#)

Source: Screenshot from www.paywizard.uk

¹ PayWizard will change its Salary Check screens towards the end of 2004, due to the available data.

Fourth, a screen pops up providing information about the gross wage per hour, per week, per 4 weeks, per month and per year for the chosen occupation (see Table 2). For the Dutch Salary Check, these calculations are based on a working week of 38 hours, but the screen allows clicking standard working hours from 36 to 40 and instantly the gross wage is recalculated. For PayWizard, the working hours are set to 40, but it also allows for calculations according to other working hours. PayWizard has an extra option to calculate the wages for three regions in the United Kingdom, reflecting the regional differences in wages.

Table 2. Fourth screen presenting gross wages for the chosen occupation.

People who match your profile earn on average:

per hour(fulltime):	£ 6.17
per week(fulltime):	£ 246,- -
per 4 weeks(fulltime):	£ 987,- -
per month(fulltime):	£ 1061,- -
per year(fulltime):	£ 12838,- -

Calculation is based on a working week of ... hours. You can change these options to match your job.
40

This calculation is related to this region.
London, South East

The outcome does not include:

- Holiday pay
- Bonuses, commission, tip
- Pension contributions
- Tax or national insurance

Calculation based on statistics from WageIndicator.org, OECD, EUROSTAT, WORLD BANK.

[Previous](#)

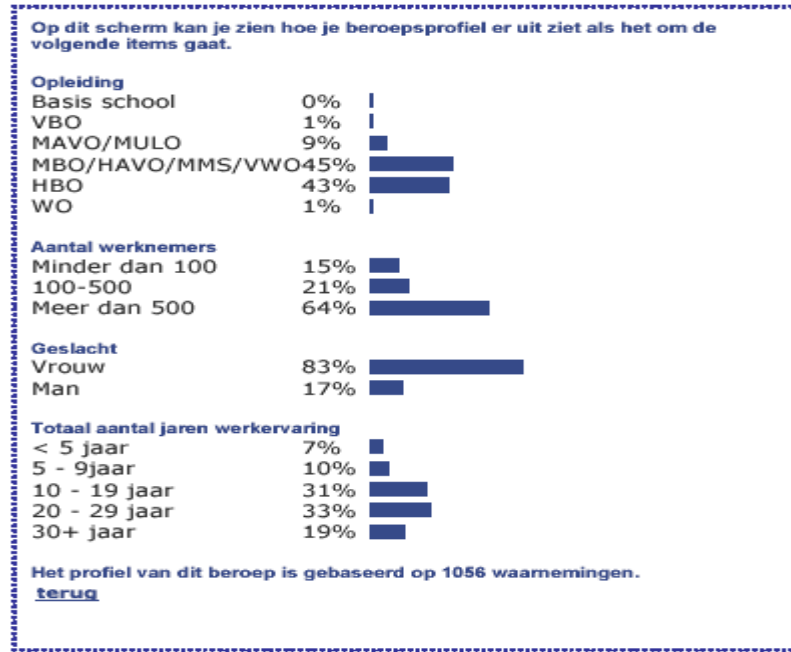
[All about wageindicator](#)

Source: Screenshot from www.paywizard.uk

Until today, the fifth screen is only available in the Dutch website. After the fourth screen, a fifth screen follows presenting other information about the chosen occupation, such as the distribution over educational categories, over firm size

categories, over gender and over years of experience. Moreover, this screen provides information about the number of respondents the data is based on. This particular case holds for 1,056 observations.

Table 3. Fifth screen with information about the occupational profile



Source: Screenshot from www.loonwijzer.nl

3. THE INSTANT CALCULATION OF THE WAGES

The website has a database with calculation coefficients for each occupation in the Salary Check. A constant and seven variables are used for these calculations, notably education, total years of service, supervisory position, predominantly male colleagues, re-entrant women, firm size, and promoted in current firm (see Table 4). *Education* and *years of service* are the typical human capital variables in the wage equations. Education is measured in 6 levels, and experience is measured in years in a range of 1 to 40. *Supervisory position* and *promoted in current firm* are variables reflecting wages according to the pay and grading systems used in most firms. The variable *predominantly male colleagues* is a proxy for inter-industry and inter-occupational wage differentials. Being a *re-entrant woman* reflects an effect of re-entry on wages beyond the effect of less years of service. *Firm size* reflects the commonly found wage differentials across firm sizes, which may reflect that a larger firm has more hierarchical levels and is therefore more likely to have employees in

higher wage groups. These variables are all dichotomous. The characteristics ticked in the third screen are inputs for the calculation rule. For any chosen occupation the Salary Check calculates instantly a gross wage per hour, week and month.

*Table 4. The **salary-rule** for a clerical worker in manufacturing and building.*

EXAMPLE: <salary-rule>

$$1.96570 + \text{__education__} * 0.04153 + \text{__experience__} * 0.03141 \\ + \text{__experience__} * \text{__experience__} * -0.00047 + \text{__supervisoryjob__} * 0.06296 \\ + \text{__coworkersAreMale__} * 0.01313 + \text{__femaleReentrant__} * -0.04532 \\ + \text{__hasBeenPromoted__} * 0.07521 + \text{__lessThan100Empl__} * -0.03669 \\ + \text{__moreThan500Empl__} * 0.08038$$

4. THE CALCULATION COEFFICIENTS

The coefficients and the constant in the calculation rules are derived from regression analyses. A multiple regression analysis shows the effect of the particular independent variable on a wage, taking into account the effects of the remaining independent variables in the analysis. For these analyses, the WageIndicator data have been used. Since 2000, the *WageIndicator Questionnaire* is available on the Dutch Wage Indicator website. This questionnaire contains detailed questions about occupation, wages, and working hours. Section 5 and 6 detail how occupations and wages are measured.

From October 2000 until October 2004, altogether 80,975 visitors with valid observations have completed the questionnaire. In addition, data from separate questionnaires in the printing industry (2001) and in banking and insurance (2000) have been merged with the WageIndicator data for the purpose of the wage calculations. The joined dataset contains only the variables needed for the wage regressions.

The Salary Check is updated once a year. By February 2003, the Salary Check could present wages for 130 occupations. From June 2004 onwards, it does so for 167 occupations. Then, the dataset had altogether 57,732 observations, whereby each observation had valid data on occupational title, wage and all other variables used in the regression analyses.

The Salary Check dataset is used to run wage regressions per occupation, predicting the logarithm of the hourly wages. A wage regression is calculated for any occupation with at least 50 observations. For some occupations, very detailed occupational titles have been grouped into one occupation, for example several categories of nurses have been grouped into one occupation, called 'nurse'. In the dataset, 42,066 observations were identified in one of the 167 occupations.

5. MEASURING OCCUPATIONS

The *WageIndicator Questionnaire* uses a so-called chooser for identifying the respondent's occupation. A chooser is a three-level database, presenting in a first screen a list of aggregated occupational groups up to a maximum of 25 items. Each item presented on this first screen is followed by a second and in some cases a third screen, subsequently listing occupations in greater detail. In doing so, altogether more than 2,000 occupations are listed.

6. MEASURING WAGES

Commonly, gross hourly pay is calculated as gross usual weekly pay divided by usual hours or as gross usual monthly pay divided by usual hours * 4.3. This section addresses how the gross hourly pay in the WageIndicator dataset is calculated. The Appendix presents the variables and the syntax used for the calculation of the hourly wages.

The *WageIndicator Questionnaire* asks for gross and net wages in euros, the payment period, and the number of working hours per week as the basis for the calculation of the gross hourly wage (see Table 5). The respondents are asked to fill in their last gross and net wage, excluding allowances, variable income elements, holiday allowances, expense allowances and overtime bonuses. The reported wages have been converted into hourly rates based on the number of hours a week, the so-called waged hours, and corrected for the payment period. In a small fraction of the data only net wages were reported. In those cases, the gross wages were calculated according to Dutch tax regulations, using household characteristics and household income. The waged hours have been checked against the reported contractual and usual hours, the reported standard working hours in the firm, and whether the respondent holds a full-time or a part-time job.

Table 5. The three questions to measure wages

What was your last wage?
Part-time employees: do not convert your wage to full-time. Numbers only. No currency-signs. Gross wage: before deduction of taxes and social security Net wage: after deduction of taxes, social premiums, and unemployment and health insurance premiums.
Gross wages _ _ _ _ _ .00 Euro
Net wages _ _ _ _ _ .00 Euro
What is the payment period your last wage is based on?
<input type="checkbox"/> 1 month
<input type="checkbox"/> 4 weeks
<input type="checkbox"/> 2 weeks
<input type="checkbox"/> 1 week
<input type="checkbox"/> 1 day
<input type="checkbox"/> 1 hour
<input type="checkbox"/> 2 months
<input type="checkbox"/> 3 months
<input type="checkbox"/> 1 year
<input type="checkbox"/> other
On how many hours a week are these wages based?
1-80 hours

Source: The WageIndicator Questionnaire

7. ANNUAL WAGE LEVEL ADJUSTMENTS

For the 2004 Salary Check, the data in the dataset covers observations from 2000 to 2003. The observed wages for 2000, 2001, and 2002 have been adjusted to the 2003 wage level, thus being deflated and controlled for annual wage rises (Table 6). To do so, the annual average of the indexes of the collectively agreed wages per hour were used, as calculated by Statistics Netherlands (Statline Jan 2004). Although the collectively agreed wages do not cover the full wage increases, its indexes are much faster available than the full wage increase indexes.

Table 6. Annual wage increases

	year	2000	2001	2002	2003
index 2000=100		100	104.4	108.2	111.2
adjustment factor for wages in the Salary Check data		1.112	1.065	1.028	1

Source: Statline, www.cbs.nl, Jan 2004

8. DATA DERIVED FROM THE SALARY CHECK

Many people have asked why the data web visitors tick for the seven questions in the Salary Check is not added to the Wage Indicator dataset. Indeed, some other salary checkers at the Internet do so. The major argument for not following this practice is that web visitors like to play with the Salary Check, answering questions such as 'What would I have earned when I had chosen to become a carpenter instead of a truck driver?', or 'What will I earn when I will occupy a supervisory position in my occupation?'. Information about the visitors' behaviour is known from their emails and from the web statistics showing that they go through the Salary Check several times during one visit. Therefore, it is assumed that data gathered through the Salary Check is not reliable.

The web team has considered using a filter, asking whether the visitors have ticked the questions of the Salary Check for their own occupation and their own situation or for another occupation or situation. The team did not suppose that this procedure would lead to fully reliable data. In addition, it is the web manager's policy to offer quick web tools that are attractive for the visitor, and not to have a hidden agenda of deriving data. Therefore, the data ticked in the Salary Check are not used to derive a dataset. Moreover, in large numbers the visitors are willing to complete the *WageIndicator Questionnaire*. Quite likely, by giving feedback on the major findings by means of the Salary Check, the general public is willing to complete the questionnaire.

APPENDIX: THE VARIABLES AND WAGE CALCULATIONS

Table 7. Variables used for the Salary Check calculations, 2004

Question in the Salary Check	Response categories in Salary Check	Variable in the dataset	Variable label in the dataset
Variable to be explained			
gross hourly wage		wagegrl2	log hourly gross wage in euro at level 2003
Explanatory variables			
education	6 levels	educati3	education in 6 categories
total years of service	1-40 years	yyexperi	experience = yysurvey - yyfstjob AND IF BREAK - (yyreenter - yybreak)
		yyexper2	total years of experience squared
supervisory position	yes/no	supdich	supervisory position
predominantly male colleagues	yes/no	depmale2	most colleagues in similar positions are men (the answer not applicable is regarded 'no')
re-entrant women	yes/no	reentrant	female re-entrants, including late entrants
firm size	< 100 employees	firmsiz4	firm < 100 employees
	> 500 employees 100-500 empl.	firmsiz 5	firm > 500 employees
promoted in current firm	yes/no	JOBPROM2	has been promoted (not applicable is regarded 'no')

*** DETERMINE PAY PERIOD ***.

compute wageper3=wageperi.

format wageper3 (f4).

var lab wageper3 'pay period TO BE USED'.

val lab wageper3 1 'month' 2 '4 weeks' 3 '2 weeks' 4 '1 week' 5 'day' 6 'hour' 7 'year'
9 'other'.

missing val wageper3 (9).

*** DETERMINE WAGED HOURS ***.

compute hrswag1=hrswage.

format hrswag1 (f4).

var lab hrswag1 'waged hours a week used for calcul hourly wages TO BE USED'.

*** CALCULATE HOURLY GROSS WAGE ***.

```

compute wagegrhr=sysmis.
format wagegrhr (f8.2).
var lab wagegrhr 'CALC hourly gross wage in euro'.

do if (hrswag1 ge 1 and wagegro1 ge 1 ).
if (wageper3 eq 1 ) wagegrhr=wagegro1/(4.33*hrswag1).
if (wageper3 eq 2 ) wagegrhr=wagegro1/(4*hrswag1).
if (wageper3 eq 3 ) wagegrhr=wagegro1/(2*hrswag1).
if (wageper3 eq 4 ) wagegrhr=wagegro1/(hrswag1).
if (wageper3 eq 6 ) wagegrhr=wagegro1.
if (wageper3 eq 7 ) wagegrhr=wagegro1/(4.33*hrswag1*12).
end if.

*** CALCULATE LOGARITME OF HOURLY GROSS WAGE ***.
compute wagegrhl = LN(wagegrhr) .
var lab wagegrhl 'CALC log hourly gross wage in euro based on wagegrhr'.

*** CALCULATE MONTHLY GROSS WAGE ***.
compute wagegrmo=(wagegrhr*hrswag1*4.33).
format wagegrmo (f8.2).
var lab wagegrmo 'CALC monthly gross wage in euro'.
if (hrswag1 eq 0 or hrswag1 gt 40) wagegrmo=(wagegrhr*hrscont1*4.33).
if (hrswag1 eq hrscont1 and hrswag1 eq 0 and hrsreal ge 1)
wagegrmo=(wagegrhr*hrsreal*4.33).

*** CALCULATE HOURLY GROSS WAGE AT LEVEL 2003 ***.
compute wageg3hr= wagegrhr.
format wageg3hr (f8.2).
var lab wageg3hr 'CALC hourly gross wage in euro at level 2003'.
if (surveyyyy eq 2000) wageg3hr=wagegrhr *1.112.
if (surveyyyy eq 2001) wageg3hr=wagegrhr *1.065134.
if (surveyyyy eq 2002) wageg3hr=wagegrhr *1.027726.

```
