Income and net gains from social security during the life course

Results from a TRAIL (Transitions of Income during the Life course) analysis

Rob Waaijers and Marcel Lever[1]

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[1] CPB Netherlands Bureau for Economic Policy Analysis; email: r.j.waaijers@cpb.nl and m.h.c.lever@cpb.nl.

Abstract

This report describes the developments of income sources, incomes, and the use and net gains of social security in the Netherlands, during the life course.[2] The analysis is based on TRAIL (Transitions of Income during the Life course), a database of 100,000 life-course income trajectories, derived from panel data on 1.1 million individuals over the 1999–2005 period. The most important sources of income during the course of life of people between the ages of 15 and 64 were found to consist of 37 years of wages or profits, 5 years of social security benefits (related to unemployment, disability or social assistance), and over 2 years of early retirement benefits. Furthermore, people would generally be nearly 5 years without any personal income. For on average 1 year, there would be no income due to emigration or death. As many people in the Netherlands have part-time work, the amount of time spent working (with income from wages or profits) measured in full-time years would be much less, namely 29 years. Of the indigenous population and the share of western immigrants, measured in full-time years, men work (35 years) much more than women (23 years), and the native population and western immigrants together on average (29 years) much more than non-western immigrants (20 years).

The income inequality between these groups for one year exceeds the inequality in the average annual income measured over the course of people's lives. This applies especially to the average income for the two highest income deciles compared with the two lowest. For any particular year, incomes may be zero or even negative, for example due to study or business losses, or very high, for example due to profits from business, bonuses or severance pay. Usually, these losses or gains are countered in other years, in which the income is higher or lower; therefore, differences over the course of life, on average, are smaller.

The differences in labour participation and income affect the net gains from social security. Within the social security system, for unemployment, disability and social assistance, on average there is a transfer from men to women, from the native population and western immigrants to non-western immigrants, and from high-educated to low-educated people. For Dutch state pensions, on balance, there is a transfer from men to women as well as from high-educated to low-educated people. The use of social security benefits by people before the age of 65 is rather concentrated.
The 10% with the highest level of use is responsible for 39% of the expenditure on social security, whereas 22% of the population during the course of their lives up to the age of 65 does not apply for unemployment, disability or social assistance benefits, at all.

JEL codes: D31,I31,H53,H55.

Key words: Social insurance, Welfare accounts, Life time income distribution, Income inequality, Current income.

[2] First published as 'Inkomen en netto profijt van sociale zekerheid gedurende de levensloop Uitkomsten van een TRAIL (Transities van Inkomens tijdens de Levensloop) analyse', CPB Achtergronddocument 7, 2013, www.cpb.nl.

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Foreword

Many studies have been done into the subjects of income, labour participation and the use and net gains of social security, but only a few from the perspective of the human life course.
From a policy perspective, however, it would be important to know if people have a low income for longer or shorter periods of time and whether, on average, the same people keep applying for social security benefits or if this group changes all the time. This study facilitates this need for knowledge from the perspective of the life course.
Timelines on income sources, incomes and the use of social security benefits on an individual level over a longer time horizon were not available and needed to be constructed. This construction, which resulted in the TRAIL database, was no sinecure. To do justice to the large degree of heterogeneity among life courses, having a source data set on a great number of individual people and observations, consecutive in time, is vital. During the search for individuals with the most similar socioeconomic life courses and while managing the huge data sets, the programming in SAS was seriously restricted by the hardware's limited memory capacity. In addition, other, urgent requests from policymakers sometimes also delayed the progress of this study.

Many people have contributed in the course of this research. Netherlands Statistics (Els Hoogteijling and others) helped choosing data sources and were extremely helpful in making data available to us.
Miriam Gielen (CPB) contributed to calculations of net incomes and premium and tax payments, and the CPB IT department fully cooperated in areas of calculation capacity, data management and graphic imaging of the results.
Furthermore, meetings by members of the feedback group, from the Dutch Ministries of Economic Affairs (EZ), Finance (FIN), and Social Affairs and Employment (SZW), and participants in a discussion seminar held at the CPB Netherlands Bureau for Economic Policy Analysis, have yielded many useful comments. Finally, we thank Martin Hansen of Danmarks Statistik for his extensive explanation on a similar study conducted for Denmark in which he participated in the past.

Coen Teulings
Director

1 Introduction

Policy discussions on possible reform of the social security system regularly include proposals for eligibility criteria for benefit entitlement to make this entitlement dependent on the number of years in employment or on the number of years benefits have been received. With respect to discussions on increasing the Dutch State Pension (*Algemene Ouderdoms Wet* (AOW)) age, proposals have been done to exempt employees with a long employment history from this increase. Facts on employment levels and numbers of benefit recipients according to age, gender, educational level and country of origin are evident from published statistics.[3] However, insight is lacking into the numbers of employment years and the degree to which social security is used over the life course, as well as into the concentration of these among certain people or groups of people. The aim of this study has been to fill this gap.

A data set was constructed to provide an impression of:

- the development in income and income composition over the course of people's lives;
- the benefits received, premiums paid and the net gains of social security;
- income inequality over the life course, compared to those that take place within one year[4].

This report describes the outcome of an analysis of the resulting data set, TRAIL (Transitions of Income during the Life course). Shown is how the impacts of demographic changes, such as population ageing, on for instance State Pension (AOW) premiums, can be analysed via comparative static analysis. The study does not include endogenous behaviour, such as would be included in a dynamic micro-simulation model[5]

Section 2 describes the approach of the research and the data used. Section 3 presents the results for income sources over the life course for the 15 to 64 age period. The development and composition of income over the life course is analysed in Section 4, and Section 5 describes the benefits received, premiums paid and the net gains from social security.

[3] In this study the term native population also includes western immigrants.
[4] Recent foreign studies show that income inequalities over the life course are smaller than those in a given year; see Bowlus and Robin (2012), Aaberge and Mogstad (2012) and Baldini (2001).
[5] See the classification of micro-simulation models in G. Dekkers et al. (2009), 'What are the consequences of the AWG projections for the adequacy of social security pensions?', Enepri research report 65, www.enepri.org.

2 Life-course construction

2.1 Data sources

At the request of CPB, Netherlands Statistics (CBS) created a panel data set (CBSP9905) containing data from multiple sources (Table 2.1). The variable 'educational level', derived from the Dutch Labour Force Survey (EBB), was not available for the entire Dutch population of 15 years and older; other variables, however, were available. On the assumption that educational levels of adults do not change much over time, multiple EBBs can be utilised. When combined over the space of ten years, the EBB results include data on around 1.1 million people. Inflow or outflow for the resulting panel only occurs in cases of births, deaths or emigration.

Table 2.1 Sources of CBSP 1999-2005

Source	Period	Type of data	Coverage	Variables
Social Statistical Data set (SSB)	1999–2005	Panel data, Administrative	Entire population	Income sources Incomes Duration of employment Duration of income
Municipal Personal Records Database (GBA)	1999–2005	Panel data, Administrative	Entire population	Age Sex Ethnicity Household situation
Labour Force Survey (EBB)	1996–2005	Cross-section	Sample survey	Educational level
Higher Education Central Registration (CRIHO)	1983–2007	Panel data, Administrative	All students in higher education	Application higher education

Duration of income, expressed in number of weeks per year, provides the length of the period over which the income has been obtained. For employees, the part-time factors of their employment (or various employments together) are also known. In combination with the duration of their employment in weeks per year this results in a part-time factor on an annual basis. For the self-employed, the duration of income is unknown; the data only show whether the number of hours worked were sufficient (requiring a minimum of 1225 hours per year) for them to qualify for self-employment tax deductions.

2.2 Life-course construction

Coupling data on comparable individuals to form synthetic life courses

In order to achieve an accurate image of the life course, the ideal data set would include information on income and income sources over the life course, from the current situation regarding, for example, labour participation by women, educational level of the labour force, and on the tax and social security systems. However, such an ideal data set does not exist; at best, it can only be approximated. For a best fit to the current situation, observational data, preferably, should cover recent, shorter periods. And for an accurate depiction of income development and income sources over the life course, data would preferably cover a longer period of time. Thus, because of these opposite interests, compromise is inevitable. For this research, income development and composition for individual people were constructed on the basis of panel data over a period of seven years (1999–2005).

There are various methods for constructing a certain development over an entire life course based on panel data from a limited period. One method would be to estimate, on the basis of available data, a Markov matrix of possible transitions between various circumstances (e.g. income sources) and, subsequently, simulate life courses stochastically. This method, for example, was used in a study by SEOR (part of the Erasmus School of Economics) on the use of social regulation, on the basis of panel data over the 1989–2000 period.[6]
This approach seemed less suitable for this study, the focus of which was not only on the development of income sources, but also on income over the life course. Even under a relatively coarse classification according to income categories, the defined number of different circumstances (income sources times income categories) would be substantial, causing the number of estimated parameters in the matrix of transition chances to become very large and the estimations to become very uncertain.

For this study, the development of income composition and income was constructed by combining income data on various, more or less comparable people, in various phases of their lives. This method has been applied before, by Bovenberg, Hansen and Sørensen (2006).[7] The approach is very similar to the 'nearest neighbour resampling principle', as applied by Wong (2012).[8] One of its advantages is that it enables the distinction of many circumstances, such as income level. To achieve a high level of reality for the constructed life courses, it is important that individuals for whom data are combined are highly comparable.

Coupled individuals have comparable characteristics

In their research, Sørensen, Hansen and Bovenberg distributed same-age individuals over 60 groups on the basis of gender, three educational levels and deciles on available income. Subsequently, income data on individuals who belonged to the same group but would be of different birth years were coupled together. Coupling partners were chosen in such a way that their projected available incomes would largely match. Coupling on the basis of projected rather that actual income was chosen to eliminate any effects of temporary fluctuations in income. Actual income levels of these coupling partners, however, would not vary by too much anyway, as they would belong to the same income decile. The available income would be determined on the basis of an OLS regression for 53 different socioeconomic characteristics, such as household composition, educational level, income source and ethnic background.

For this report, we have categorised all same-age individuals according to:

- gender;
- four educational levels (i.e. VMBO (preparatory secondary vocational education and below); Havo (higher general secondary education)/VWO (pre-university education)/MBO (intermediate secondary vocational education); HBO (higher vocational education); and WO (university education));
- seven main sources of income (wage, profit, unemployment (WW) benefit, disability (AO) benefit, social assistance, pensions, no personal income);
- three income categories (tertiles);
- five household positions (child, living alone, single parent, couple, couple with children);
- two types of origin (indigenous or western immigrant and non-western immigrant).

For non-western immigrants, we distinguished between only two educational levels, four income sources and three household positions, to reduce the chance of having to exclude individuals because coupling partners could not be found. The native population and western immigrants were distributed over 840 groups and non-western immigrants over 144 groups, totalling 988 groups.

Thus, we coupled data on employees to other employees and on unemployed to other unemployed, and so on. The use of the socioeconomic position (income source) in the coupling process – a new element compared with the study by

[6] J. de Koning, H. Kroes and A. van der Steen (2006), 'Patterns of employment and use of social regulations' (in Dutch) (Patronen van werk en gebuik van sociale regelingen), by assignment of the Ministry of SZW, SEOR, working document 362, Ministry of SZW, The Hague. The panel data set (IPO) used was based on the 1989–2000 period and included 75,000 people. To estimate the chances of transition, a multinomial logistic regression model was used with 3 discrete (gender, ethnicity (2 categories), education (2 categories)) and 2 continual regressors (age and duration of current situation (employment or benefit recipient)). The simulation on the basis of estimated transitional chances led to satisfactory results about the duration of the various situations, but also to an underestimation of the repeated frequencies, in particular for the unemployment (WW) benefit.

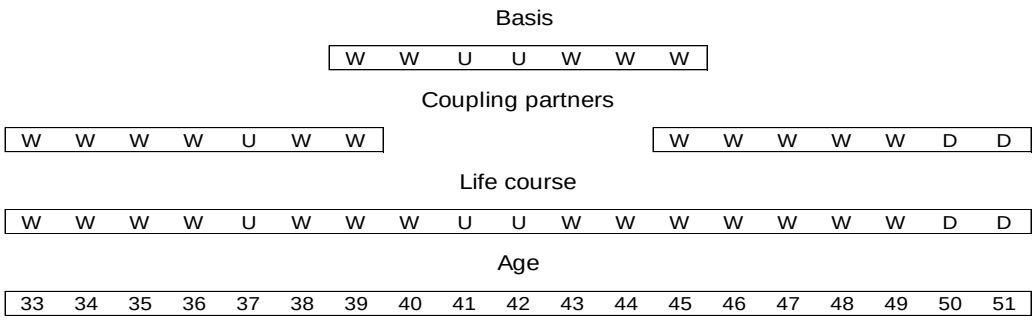
[7] Bovenberg, A.L., M.I. Hansen and P.B. Sørensen (2006), 'Individual savings account and the life cycle approach to social insurance', EPRU Working Paper Series 2006-3, University of Copenhagen, Denmark, www.econ.ku.dk/epru.

[8] A. Wong (2012), Describing, explaining and predicting health care expenditures with statistical methods, PhD thesis, Tilburg University.

Bovenberg, Hansen and Sørensen – is important for two reasons. In the first place, the income source is an important determinant of income level, and in the second place, this study has been aimed to provide a data set that would be useful to research the consequences of possible changes in social security. The criterion of coupling partners having to have the same source of income in the coupling year, reduces the possible distortion of the cumulative duration of income sources, during the life course, caused by the coupling.

Development of income composition and income was constructed for individuals who would be between the ages of 39 and 44 in 1999. Those who were 39 years old in 1999, would be 45 at the end of the observational period, in 2005. The series for the 33–38 age period was supplemented with data on individuals who were 39 in 2005, and for the 46–51 age period with data on individuals who were 45 years of age in 1999.[9] The coupling partners, at the time of coupling, thus shared the characteristics of age, gender, educational level, main source of income, income category, household position and country of origin. The coupling of income sources over the life course is illustrated in Figure 2.1. The characteristics of gender, educational level (after completion of studies) and country of origin were assumed to remain unchanged over the life course. Age, obviously, increases each year. The characteristics of income source and household position could change regularly over the seven-year observational periods. The series was expanded in analogue fashion by coupling to both the left and right.

Figure 2.1 Coupling of income sources during the life course



W=wage, U=Unemployment Benefit, D=Disabality Benefit

Coupling of incomes and part-time factors

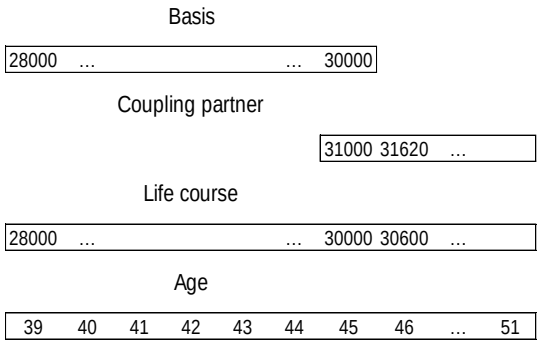
Incomes and part-time factors were coupled according to the following:

- For this study, observed incomes were coupled, rather than projected incomes. Variations between incomes may only be explained in part by observed characteristics. The use of projected instead of observed incomes, thus, would lead to information losses. Moreover, income data used in this study are unlikely to contain a great deal of 'noise', as they were all checked by the tax department. Since the disadvantage of information loss carried more weight than that of possible observational errors, we couple observed, rather than projected incomes.
- Coupling partners were chosen in such a way that individual incomes and durations of income in the coupling year would match as closely as possible. For this purpose, a distance function was defined, which measured the degree of deviation between incomes and durations of income for the potential coupling partners (i,j). The loss function equals: $L=[(y_i-y_j)^2+(w_i-w_j)^2]^{½}$, where y is the weekly income (to scale) and w the number of weeks of income. Within the categories of potential coupling partners (regarding age, gender, education, country of origin, income source, income tertile and household position), for each receptor record the closest donor record was sought.
- All incomes are presented in euros of 2005. Incomes from earlier years have been raised according to increases of the average (contract wage) incomes between the year of observation and 2005. For the analysis of saving, as an alternative for insurance, in Section 5, an additional discounting has been applied with a real interest rate of 2%.

[9] According to trailer transportation, with donor records as ´trucks´ and receptor records as ´trailers´, together forming the ´TRAIL´.

- Differences in income level and duration of employment were eliminated by equalising the levels in the year of coupling and by using only the relative mutations in the life-course construction. For example, an individual from the central cohort would earn 30,000 euros at the age of 45, and the coupling partner would earn 31,000 euros at 45 and 31,620 at 46; which equals an increase in income of 2%. In the coupled life course, the income then increases from 30,000 euros at the age of 45 to 30,600 euros at the age of 46 (see Figure 2.2).

Figure 2.2 Coupling of incomes during the life course



Life courses no reflection of the current population

The resulting life courses are particularly representative of individuals in the central cohorts, namely those who, in 1999, were between the ages of 39 and 44. Younger and older cohorts have different characteristics (educational levels) and other preferences (labour supply). In the coupled life courses, these differences have largely been eliminated. In 2005, women's labour participation and educational levels were much higher than in 1999. The characteristics on 2005 determine for which individuals the data on 1999 would be considered for coupling. Therefore, in the coupled life courses, the educational levels and the labour participation of women over the age of 45 are higher than in the original data set. Cohort effects thus largely have been eliminated; age effects, for instance on labour participation, remain intact. Moreover, in the data set of complete life courses, all age cohorts (including deceased and emigrated people) are of equal size, while in reality they are not. By correcting for cohort effects and equalising the sizes of the age cohorts, average values, such as those of educational level, labour participation and income, over the coupled life courses will not equal the averages over the Dutch population.

Labour participation and claims on social security may not be fully representative of the current situation, because of policy changes that have been implemented around the end of the observational period. This refers to the measures described below.

- Unemployment benefit (WW): Since January 2004, benefit recipients from the age of 57.5 onwards who stand a fair chance of finding employment have what is called a 'job application obligation'. Unemployment benefits represent a certain percentage of the last-earned wage; since October 2006, during the first two months this is 75% and subsequently goes down to 70%. The maximum duration of the benefit, which used to be 5 years, is now 38 months.
- Disability Benefit (AO): In January 2006, the Work and Income according to Labour Capacity Act (WIA) was introduced. People who are fully and permanently disabled are provided a benefit of 70% of their last-earned wage, under the IVA Regulation (income regulation for the fully disabled). Those partially disabled who use 50% or more of their own earning capacity are entitled to a benefit of 70% of the last-earned wage over their percentage of disability, under the Return to Work Scheme for the Partially Disabled (WGA); people who use less than 50% of their own earning capacity or are unemployed receive a benefit over their percentage of disability of 70% of the minimum wage level, based on the Minimum Wage and Minimum Holiday Allowance Act (WML). The WGA gap possibly is being bridged in part by supplementary insurance. In July 2007, the benefits for the fully disabled under WAO/WIA/Wajong[10] were increased from 70% to 75%.
- Social assistance: In January 2004, the Work and Social Assistance Act (WWB) was introduced. This Act also provides a financial incentive to municipalities to reduce their number of inhabitants on social assistance.

[10] WAO = Disablement Benefits Act; Wajong = Disablement Assistance Act for Handicapped Young Persons.

- Since 2006, early retirement benefit (VUT) and pre-pension payments have been reduced and the average pre-pension age has increased.

Results of coupling

In cases where there were more receptor records than potential donor records, a repeated use of donor records was applied. In the large majority of cases donor records would need to be used between one and three times. In order to prevent the construction too many of more or less the same life courses, causing diminished representation of the Dutch population, donor records were not used more than seven times. When a particular donor record would have been used the maximum number of times, it would be blocked, to prevent it from being coupled again.
Because of the large number of characteristics to be matched, sometimes coupling partners were not found. This would happen in particular in cases of rare characteristics (e.g. a very high age) or combinations of characteristics (e.g. a disability benefit recipient with a university education). Incomplete life courses would occur when at a certain time no donor record would be available or when potential donor records already had been used the maximum number of times. In those cases, such life courses could no longer be expanded to older of younger ages. From the age of 65, the differences between donors with similar coupling characteristics are very few (supplementary pensions were calculated on the basis of employment history, and incomes largely consisting of State Pensions and supplementary pensions –the main sources of income – are not subject to change). The restriction of allowing only 7 couplings was sufficient for 93% of the final data set. To prevent unnecessary discarding of records and to obtain additional life courses with long lifespans, for incomplete life courses for those of 65 years and over, some of the previously coupled records were reused (on average, the number of couplings would be 2.9).

The CBSP9905 data set contains data on 1.1 million people, 120,170 of which in 1999 were aged 39 to 44. For 112,466 people in this age group in 1999, all data are available; they form the basis for the construction of the life courses. For 12% of the cases, no life courses could be completed for the 15 to 64 age group as for them no suitable coupling partners could be found. Consequently, the coupling resulted in 98,555 complete life courses for the ages 15 to 64.[11] For research into the claims on unemployment (WW), disability (AO) and social assistance, life courses must cover the entire life-course period from 15 to 64. For research into the degree of income redistribution by government, life courses must run up to the time of death or emigration. The coupling resulted in 95.817 complete life courses up to and including emigration or death.

The question arose whether, because of selective discards during the coupling process, the life-course characteristics would deviate from the original data. Table 2.2 presents the characteristics of people in the central cohorts of the 39 to 44 age group for the source data, the usable part of the source data (complete and consistent), and the entire life courses for the 15 to 64 age group. The comparison concerns the characteristics of gender, country of origin, educational level, household position and main source of income. The characteristics of the constructed life courses for the 15 to 64 age group were found to be reasonably concordant with the original source data. For the construction of synthetic life courses, discards were slightly higher than average for women, non-western immigrants, those with a higher education, couples without children, singles, single parents and the unemployed. Slightly lower than average were the discards for men, native population and western immigrants, those with a secondary education, couples with children and employees.

[11] All processing concerning the advance clean up and incidental estimation of data, followed by life course construction, were programmed in SAS version 9.1.3 service pack 4 (with the IML matrix module), using a desktop PC with an Intel E8600 CPU processor and a solid-state drive (SSD), in addition to a file server for data storage. The previously described searches for the right coupling partners and the size of the data made high demands on memory management (data arrangement and processing order) due to capacity constraints.

Table 2.2 Characteristics of 39-to-44-year-olds in source data as well as in full life courses of 15-to-64-year-olds

	Share (in %) (unweighted)							
	Gender		Origin		Education			
	Male	Female	Native[a]	Immigrant[a]	Lower	Secondary	HBO	WO
Source data	49.2	50.8	93.8	6.2	32.6	41.8	17.2	8.3
Usable	50.6	49.4	94.2	5.8	32.0	42.2	17.6	8.2
Life courses	53.7	46.3	95.7	4.3	32.8	43.9	16.6	6.7

	Household position					
	Couple without children	Couple with children	Single	Single parent	Child	Deceased / emigrated
Source data	14.8	67.7	9.9	4.6	1.9	1.0
Usable	15.0	68.1	10.1	4.7	2.0	0.1
Life courses	13.7	71.4	8.9	4.0	1.7	0.2

	Income source							
	Employee	Self-employed	WW	AO	Social assistance	Pension	No personal income	Deceased/ emigration
Source data	74.2	7.2	2.6	3.0	2.1	0.5	9.5	1.0
Usable	76.0	7.4	2.6	3.1	2.1	0.5	8.1	0.1
Life courses	76.6	7.0	1.9	3.0	1.8	0.4	9.1	0.2

(a) Native includes western immigrants; Immigrant includes non-western immigrants only. For non-western immigrants, certain categories were added together: couples with children were added to couples without children; single parents were added to singles; HBO and WO educations were added to Secondary Education; the Self-employed were added to the Employed; and AO and Social assistance to unemployment benefits.

The representativeness of life courses improved by weighting (Table 2.3), using the method of linear limited weighting, see Waaijers (2006)[12]. The weighting factors correct for unequal probability sampling in the sample survey for lesser responses by certain groups in the Dutch Labour Force Survey (EBB) and for discards during the construction of the synthetic life courses.[13]

[12] R.J. Waaijers, 2006, 'Re-weighting procedure for the IPO-based micro-simulation model' (Herwegingsprocedure bij het op IPO gebaseerde microsimulatiemodel (in Dutch)), CPB Memorandum 146, CPB, Netherlands Bureau for Economic Policy Analysis, The Hague.
[13] Re-weighting was done for source-data characteristics of the 39 to 44 age group of 2005. Because of the short-term nature of unemployment (WW) benefits, re-weighting according to the WW levels of 2005 also was done for the other age categories.

Table 2.3 Characteristics of 39-to-44-year-olds in full life courses for 15-to-99-year-olds, after re-weighing on the basis of the situation in 2005

	Share in % (weighted)								
	Sex		Origin	Education					
	Male	Female		Lower	Non-Lower	Secondary	HBO	WO	
Native	50.4	49.6	89.1	25.3	74.7	45.4	18.3	11.0	
Immigrant	52.8	47.2	10.9	36.0	64.0				
Total	50.7	49.3	100.0	26.5	73.5				
	Household position								
	Couple	Couple without children	Couple with children	Single (parent)	Single	Single parent	Child	Deceased/ emigration	
Native	78.9	13.6	65.3	18.3	13.0	5.3	2.3	0.6	
Immigrant	67.0			29.0			3.5	0.5	
Total	77.5			19.5			2.4	0.6	
	Incomesource								
	Labour	Employee	Self-employed	Benefit	WW	AO	Social assistance	Pension	No personal income
Native	82.9	74.6	8.3	8.2	1.9	4.1	2.2	0.4	7.9
Immigrant	59.8			28.2				0.1	11.5
Total	80.3			10.5				0.4	8.3

a) Non-lower is the total of the educational levels Secondary, HBO and WO; Couple is the total of Couple with and without children; Single (parent) is the total of single people and single parents; Labour is the total of Employee and Self-employed; and Benefit is the total of WW, AO and Social assistance. The category Deceased/emigrated has been left out for the socioeconomic position; for the household position, the data for this category are shown.

Validation

The use of income in the coupling process contributed to the comparability of the partners for which certain parts of their life courses were combined, because wage levels also reflect the influence of invisible characteristics, such as ambition, social skills, command of the Dutch language, and the amount of work experience. Life courses for individuals with a wage level that is relatively high/low in relation to their age, gender, education and country of origin, thus were expanded by a life-course part of someone with the same characteristics. Using income in the coupling year meant that differences between people with more and with less successful careers were maintained. Earlier research, for example, has shown that claims on social security at a young age increase the chance of similar claims at an older age. It is likely that long-term or frequent use of social security benefits has a negative effect on human capital and on the negotiating position of prospective employees in their search for employment. A wage that is relatively high or low compared to the average level for someone with a certain education, gender, age and country of origin, therefore, provides information on their employability and the likelihood of their future use of social security benefits. By including wage levels in the coupling process, the connection between earlier and later benefit claims is expected to be maintained, despite the fact that this does not play an explicit role in the coupling process.

The method used meant that when benefits were received for more than seven years this could only have been the result of the coupling of various individuals, such as described earlier (the CBSP9905 data set covers the 1999–2005 period).

Some of the benefits received for seven years or less were also based on information from coupled individuals. The percentages of such 'virtual' durations varied per benefit category: 10% of unemployment (WW) benefits; 30% of disability (AO) and social assistance; and 25% of combined WW+AO+social assistance.
As couplings did not take into consideration any earlier benefit claims during the life course ('path dependency' of benefits), the presented frequency of 'repeated benefits' may have been biased. However, comparisons with panel data that cover a longer period of time, such a the IPO 1989–2000, show that these differences are limited.[14]

Within the seven-year period, the comparison between these 'virtual' durations and the actual timespans led to the following results. The difference in the average frequency of virtual durations compared with the actual timespans in the source data set for WW, AO and social assistance and the total of these benefits amounted to around 2% (Table 2.4).[15] The virtual benefit durations, on average, would be slightly shorter than those in the source data set. When cumulated (including the repeated benefit claims), the differences in benefit duration for the virtual ones compared to those in the source data set were -2%, -4.2%, 5.0% and -1.6%, respectively (weighted according to background characteristics -2.4%, -5.7%, 9.6%, and -2.7%). In particular for the benefits in total, the differences thus were slight. The standard deviations of the virtual durations differed from those of the source data set by -5%, -8.6% -1.5% and -4.9%, respectively (weighted -5.5% -9%, -0.3% and -5.2%). As this concerned measurement within a seven-year period, these results would only provide a limited indication for longer term benefits (e.g. disability (AO) and social assistance), but in general the loss in variation seems only small.

The table also includes the average interim time span between two successively received benefits. Here, differences between virtual and integrally observed interim time spans also are not large, although larger than between benefit durations.[16] By coupling records with high and low income growth, 'averaging' of income growth could occur, resulting in a less varied growth than in reality (loss of heterogeneity). Therefore, a comparison was made between the distribution of income quotients of the seventh and first year of the seven-year period, both for virtual incomes and for source incomes. The standard deviation of the income ratios of integral segments was 1.2314 and of the virtual segments this was 1.2346, therefore there is no indication of a loss of heterogeneity (difference in variety of income growth) during the construction of the life-course time span.

The use of the coupling methodology does not appear to have led to any large bias in the reported results.[17] This applies particularly to group averages. Imprecisions may be slightly larger for averages of individual characteristics (net recipients and payers, benefit shares self-financed and those financed by others and how these compare to individual wages). Applying the method to a CBSP that would cover a larger number of years (e.g. 1999–2010) could be an improvement, in this respect.

[14] The SEOR study (J. de Koning et al., 2006), based on the IPO panel data over 12 years, provides the following percentages for repeated benefit claims: 45% for WW (TRAIL 43%), 18% for AO (TRAIL 23%), 33% for social assistance (TRAIL 23%), 49% for WW+AO+social assistance+early retirement (VUT) benefits (TRAIL excl. VUT 54%). The TRAIL database coupling charactaristics include gender, educational level, income source and household position. In as far as repeated benefit claims were not determined by these characteristics, those of income level and duration (which were also used in the coupling) would also be possible factors that determine whether an individual would be likely to repeatedly claim social security benefits.

[15] This refers to the number of years during which a benefit is received, which also includes benefits received during parts of the year. The separate benefits relate to the native population and western immigrants, as no data were available on the non-western immigrants.

[16] The average frequency of the interim time spans was generally lower than that of the benefit durations. When t1, t2 and t3 represent the number of benefit durations with the frequencies 1, 2 and 3, the average frequency for interim time spans would be higher than for benefit durations if $t1*t3-(t2+t3)^2 > 0$. This was found to be the case for disability (AO) benefits. As the number of benefit durations with a repeat of 2 (this is t3) within 7 years was small, the percentage of benefit durations with 1 repeat (t2) would be about equal to the average frequency minus 1; for WW benefits thus this would be around 10%. This more or less equals the percentage of benefits with 1 interim time span.

[17] To obtain more insight into the characteristics of the coupling methodology, a virtual source data set of life courses that includes the path dependency of benefits could be simulated. By cutting this data set into segments such as the CBSP9905, and subsequently constructing complete life courses again through the coupling methodology, such as TRAIL, an analysis could be made of the differences in net gains of social security between the constructed life courses and the, in that case known, complete life courses from the source data set. This would provide insight into a possible bias in the results that were based on TRAIL.

Table 2.4 Comparison over a seven-year period; durations, integral observations and compositions

Integral observations	Unweighted				Weighted			
	WW	AO	Soc.ass.	Total	WW	AO	Soc.ass.	Total
Average cumulative duration (CD) in years	2.06	3.97	3.25	3.45	2.10	4.10	3.21	3.69
Standard deviation of CD	1.40	2.33	2.31	2.29	5.54	9.37	9.34	9.88
Average frequency of benefit	1.10	1.03	1.07	1.09	1.11	1.03	1.08	1.10
Average cumulative interim duration (CID) in years	2.04	1.74	2.01	2.03	2.01	1.74	1.96	2.02
Standard deviation of CID	1.18	0.94	1.15	1.18	4.73	3.62	4.85	5.29
Average frequency of interim duration	1.05	1.06	1.04	1.05	1.04	1.06	1.04	1.04
Compositions	Unweighted				Weighted			
	WW	AO	Soc.ass.	Total	WW	AO	Soc.ass.	Total
Average cumulative duration (CD) in years	2.02	3.80	3.42	3.39	2.05	3.87	3.52	3.56
Standard deviation of CD	1.33	2.13	2.28	2.18	5.23	8.52	9.32	9.38
Average frequency of benefit	1.09	1.03	1.05	1.08	1.09	1.03	1.05	1.08
Average cumulative interim duration (CID) in years	1.81	1.65	1.72	1.82	1.81	1.66	1.74	1.81
Standard deviation of CID	1.05	0.96	0.95	1.05	4.13	3.78	3.98	4.58
Average frequency of interim duration	1.04	1.02	1.02	1.04	1.04	1.02	1.02	1.04

3 Income sources during the life course

3.1 Introduction

This chapter describes the income sources during the life-course phase of ages 15 to 64. The following income sources were distinguished: wage, profit, unemployment (WW) benefit, disability (AO) benefit, social assistance, pension (including state pensions), and no personal income.[18] The measurement of income sources often is evident, but not in all cases. For people who were in full-time employment, received benefits or had no personal income for the entire year, their income source is clearly either wage, benefit or 'no personal income'. For those who had multiple income sources per year, or who worked in part-time employment, income sources would be less unequivocal.
In this study, income sources were determined according to two different methods.

For the first method, we looked at the main source of income over the year. In cases of more than one source of income, the one that provided the highest income was chosen. The only exception to this rule would be people who had also received profit from enterprise – they were categorised as being self-employed, regardless of the level of their other source or sources of income. The main source of income for individuals who had obtained an income during only a short period of the year, for example via a holiday job, was considered to consist of wages. Only people who had not had a regular source of income (from wages, profit, WW, AO, social assistance or pension) during the entire calendar year were categorised under 'no personal income'. The coupling of data on different individuals was also based on their main source of income.

For the second method, we used information on the annual number of weeks of income, the part-time factor per week and income composition. When incomes would only cover part of the year or concerned part-time employment, this method considered the remainder of the year to be without personal income.

These two methods led to slightly varying results, due to the way figures had been rounded off in determining the main source of income during a calendar year.

- The main source of income was categorised under wages or benefits if, during one year, individuals had periods of wage or benefit income combined with periods without personal income; for measurements of employment (annual averages) and social security claims, this would only be counted for part of the year.
- For combinations of half wages, half benefits per year, the main source of income on an annual basis would mostly be categorised as wages, as monthly benefit payments generally would be less than 100% of the monthly wage.

The frequency of wages, therefore, was higher for measurement based on the main source of income than those based on the composition of the annual income and in comparison with the common annual averages of the (net) labour participation concerned. For benefit incomes, errors related to rounding off would partly cancel each other out, as benefits combined with wages would lead to an underestimation of the degree to which benefits would be claimed, and because benefits in combination with a lack of personal income would lead to an overestimation. In addition, it should be noted that income-source frequency here was measured against the entire population of people aged between 15 and 64, and not only concerned those in the labour force (i.e. the employed and those looking for employment).

[18] In this chapter, pensions concern early retirement (including benefits under the Natinal Survivor Benefits Act (ANW)). The group with no personal income also includes people with 'other' incomes (income sources other than wage, profit, WW, AO, social assistance or pension). The majority of tables and graphs in this chapter relate to the native population (including western immigrants), as all subcategories are not always known for non-western immigrants (e.g. the 4 educational categories).

3.2 Main annual source of income

3.2.1 Income sources according to gender

For 76% of native people (including western immigrants) aged between 15 and 64, the main annual source of income would be from wages or profits; see Table 3.1. This may concern a low or short-term income, such as from holiday jobs. In 9% of cases, there is no personal income for the entire year. In another 9% of cases, the main source of income would be from unemployment, disability or social assistance benefits, and for 5% the main source of income would be from pensions or early retirement. The last category also includes early retirement benefits (VUT), survivor benefits (ANW) and annuity. The main income sources of men are more often related to wages or profits than those of women; women receive some form of benefit or have no personal income more often than men.

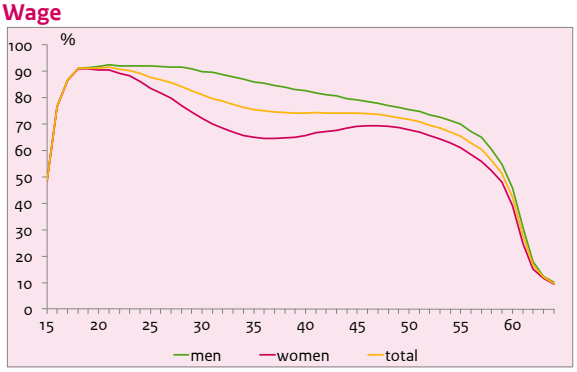
Table 3.1 Main source of income, 15–64 age group, native population according to gender

	Wage	Profitt	WW	AO	Soc.ass.	Pension	No personal income	Emigrated or deceased	Total
	In %								
Men	76	7	2	4	1	5	4	2	100
Women	66	4	2	6	2	5	14	2	100
Total	71	5	2	5	2	5	9	2	100

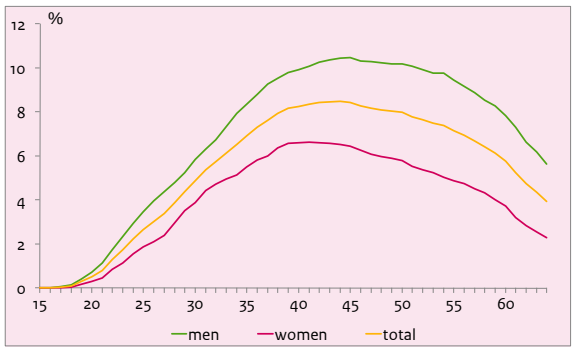
Main income sources according to age and gender are presented in Figure 3.1. Young people between the ages of 15 and 17 mostly were found not to have a personal income. For most of the men from the age of 18 and women from the age of 19 onwards, wage or profit would be the main source of income. The net participation of men increased to 95% for the 26–29 age group and for women the largest net participation would be around the ages of 20 (90%) and 46 (73%). Women around the age of 35, relatively often, had no personal income or were unemployment (WW) or social assistance recipients. Between the ages of 55 and 65, the share of people with wage or profit as their main source of income showed a strong decrease, and the share of those with an unemployment (WW), disability (AO) or pension benefit as their main source of income would be relatively large. For people of 63 and 64 years of age, early retirement would be the main source of income in 45% of the cases, and for only 14% this would be wage or profit.

Figure 3.1 Main income source, 15–64 age group, native population according to gender

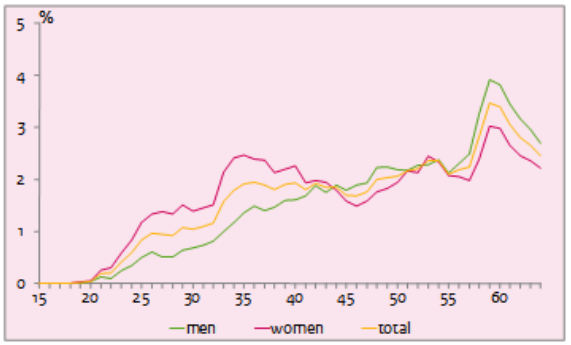
Wage



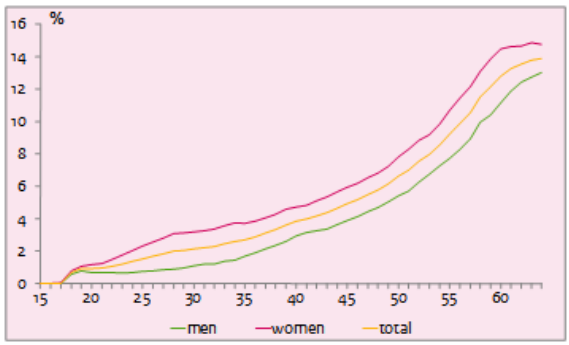
Profit



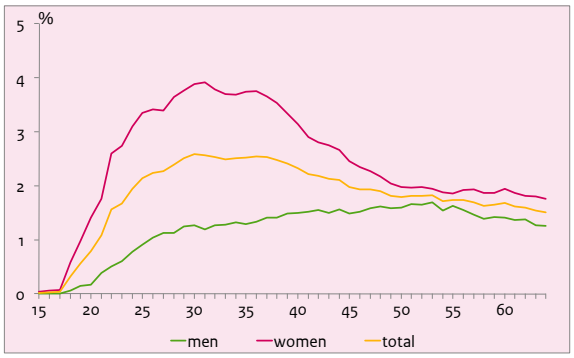
Unemployment benefit



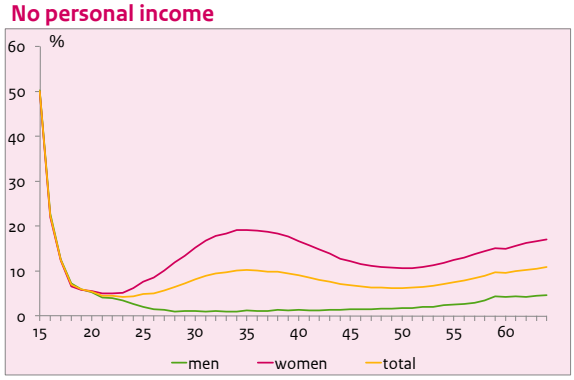
Disability benefit



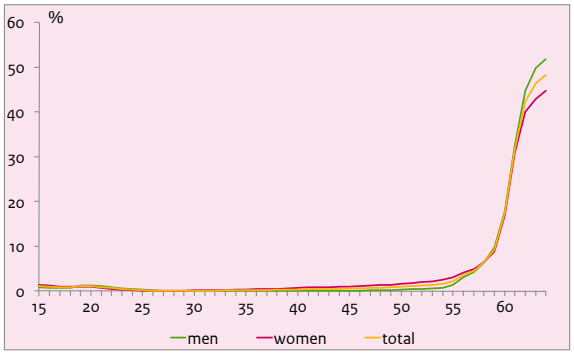
Social assistance



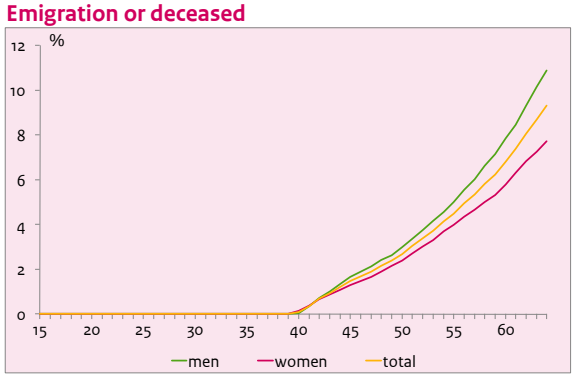
No personal income



Pension



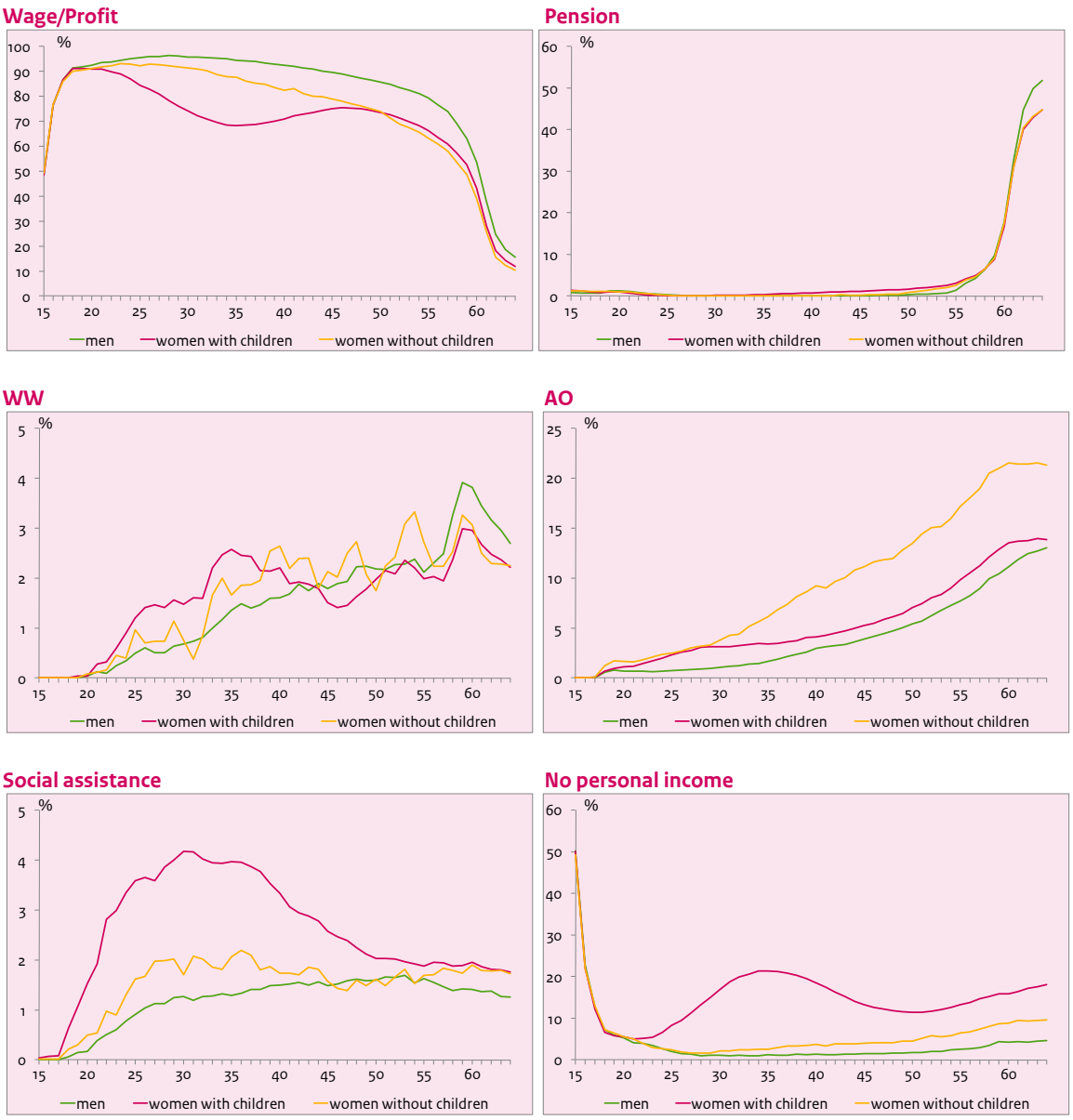
Emigration or deceased



3.2.2 Income sources for women with/without children

Women who have children at any point in their lives, were found to have a lower level of labour participation during the life course, between the ages of 21 and 50, than women who had not had any children. Women with children more often were found to receive a social assistance benefit or have no personal income than women without children. Women without children relatively often were found to receive disability benefits. The distinction between women with and without children could only be made for the native population and western immigrants. For the sake of comparability, male non-western immigrants were also left out of the equation (Figure 3.2).

Figure 3.2 Main source of income, 15–64 age group, native population according to gender and women with/without children



3.2.3 Income sources according to educational level

Lower educated people relatively often were found to receive social security benefits or have no personal income; see Table 3.2 and Figure 3.3. Higher educated people, in contrast, relatively often had wages or profit as their main source of income, and relatively seldom received income from social security or had no personal income. The distinction between the four educational levels was only available for the native population and non-western immigrants.

Table 3.2 Main income source, 15–64 age group, native population according to gender and educational level

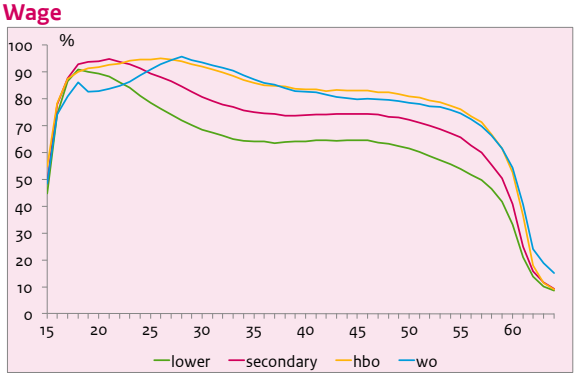
	Wage	Profit	WW	AO	Social assistance	Pension	No personal income	Emigrated or deceased	Total	Distribution
	In %									
Men and women										
Lower	62	4	2	8	4	4	13	2	100	26
Secondary	71	6	2	5	1	5	9	2	100	45
HBO	78	4	1	3	0	5	6	2	100	18
WO	77	7	1	1	0	5	6	2	100	11
Total	71	5	2	5	2	5	9	2	100	100
Men										
Lower	71	6	2	8	3	4	4	3	100	22
Secondary	75	8	2	4	1	5	4	2	100	44
HBO	81	5	1	2	0	5	4	2	100	19
WO	78	7	1	1	0	5	5	2	100	15
Total	76	7	2	4	1	5	4	2	100	100
Women										
Lower	56	3	2	8	6	4	20	2	100	30
Secondary	67	4	2	6	1	5	13	2	100	45
HBO	76	4	1	4	0	5	8	2	100	18
WO	74	7	1	2	0	5	8	2	100	7
Total	66	4	2	6	2	5	14	2	100	100

The mostly short-term periods in which unemployment (WW) benefits were received led to a more irregular pattern than for the other sources of income. The graph, however, does show for higher levels of education, with the increase in age, a slightly decreasing trend.
The raised percentage of young people around the age of 20 on a pension refers to survivor (ANW) benefits, as orphan students would continue to receive their orphan benefits as long as they continue to study, up to the age of 27.[19]

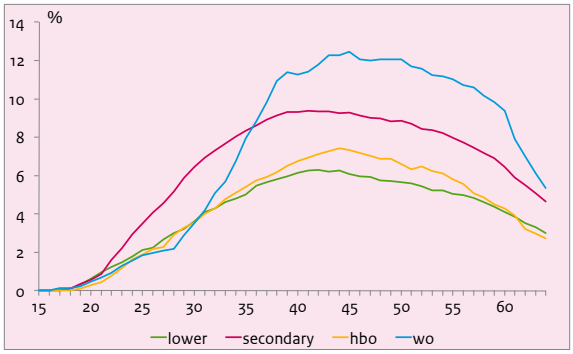
[19] Conform the transitional rights as set in 1996 for the replacement of the previous Dutch Survivor Benefit Act (AWW). As one of the preconditions to this transitional right was having a date of birth of before 1 July 1980, this right no longer applies.

Figure 3.3 Main income source, 15–64 age group, native population according to educational level

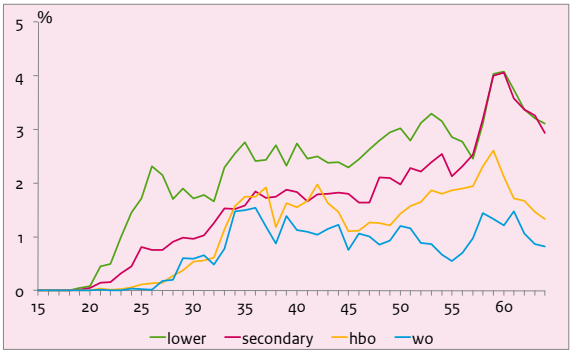
Wage



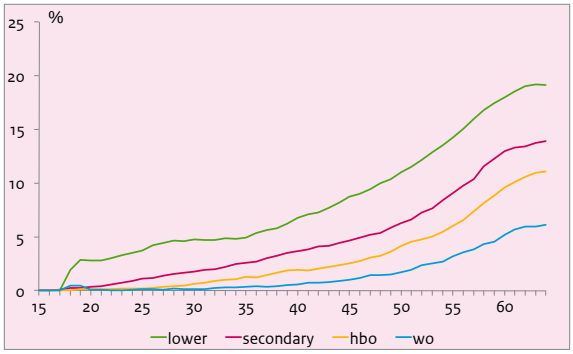
Profit



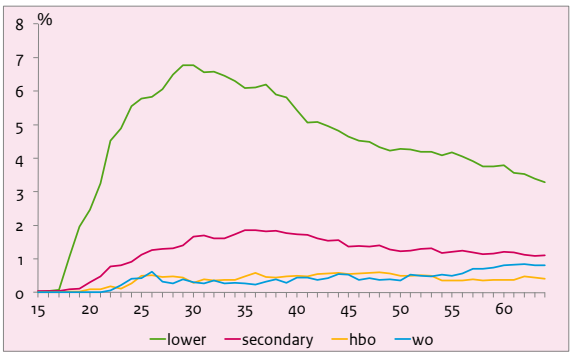
WW



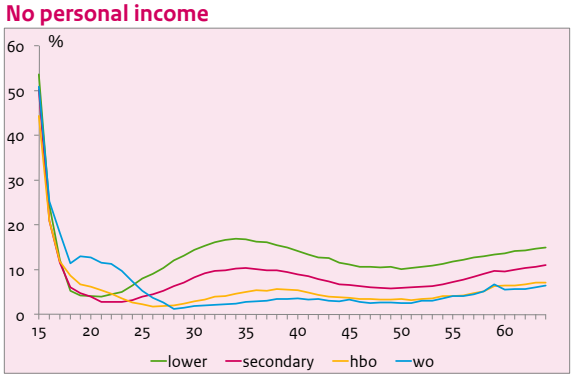
AO



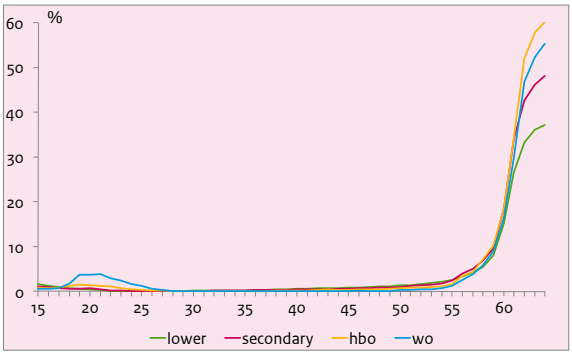
Social assistance



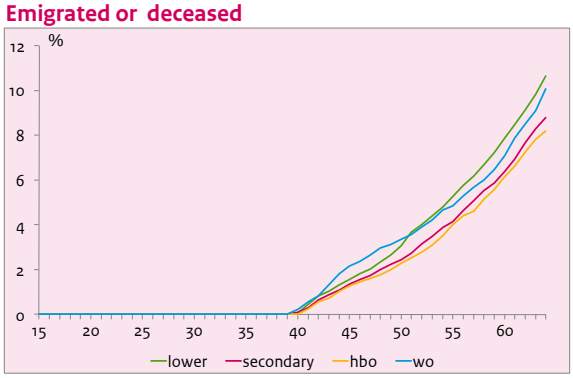
No personal income



Pension



Emigrated or deceased



3.2.4 Income sources according to country of origin

Non-western immigrants of 15 to 64 years of age, compared to the native population and western immigrants, clearly were found to have lower wages or profits as their main source of income. The number of claims on social security benefits (WW, AO or Social assistance) by non-western immigrants was markedly higher. This is similar to the results from earlier research. The study by Boerdam (2003) concluded that, based on a comparable age structure for non-western immigrants and for the entire population, the share of people of 15 to 64 years old who were receiving some form of benefit would be close to 2.5 times higher than for the native population. More recently, CBS (2010) concluded that unemployment percentages among non-western immigrants would be three times higher than among the native population; this, incidentally, concerns people would be looking for work and not necessarily coincided with unemployment (WW) or social assistance benefit claims. For non-western immigrants, various forms of paid employment and social security payments were considered together, to avoid discards during the life-course constructions.

Table 3.3 Main income source according to country of origin

	Wage or profit	WW, AO or Social assistance	Pension	No personal income	Emigrated or deceased	Total
	In %					
Native population	76	8	5	9	2	100
Non-western immigrants	58	24	2	11	5	100

Figure 3.4 Main income source, 15–64 age group, according to country of origin

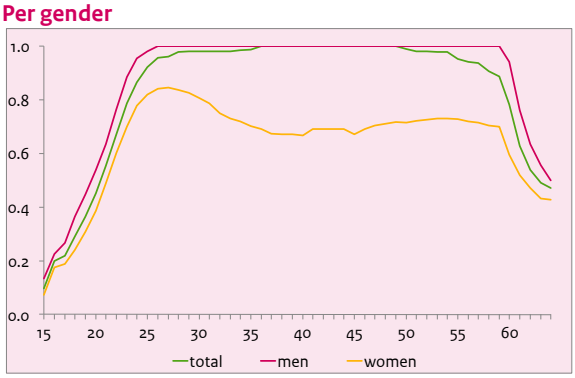
3.2.5 Part-time factors for employees

The median employee in paid employment did have an income from wages for all the weeks of the year, but the numbers of hours worked clearly varied per group. The information on the number of hours worked per week and the annual number of weeks worked may be combined to a weighted annual part-time factor. A weighted annual part-time factor of 1 represents a full-time job of one year, while a factor of 0.5 could represent a full year of part-time work or half a year of full-time work. Figure 3.5 shows the median weighted annual part-time factors during the life course for various groups.

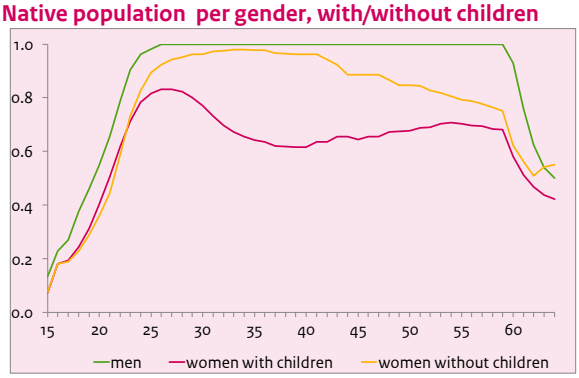
The median male employee was found to have full-time employment, whereas the median woman would work about 4 days a week around the age of 25 and about 3 days a week at the age of 35. For women over the age of 45, when their children would be older, the part-time factor would increase slightly. For the younger age group, non-western immigrants were found to work part-time more often than the native population and western immigrants; however, at older ages this would be the direct opposite. People with HBO and university educations were found to enter into full-time employment at an older age, but as they turn older, especially academics were found to continue in full-time employment for longer.

Figure 3.5 Weighted annual part-time factor over the life course (median)

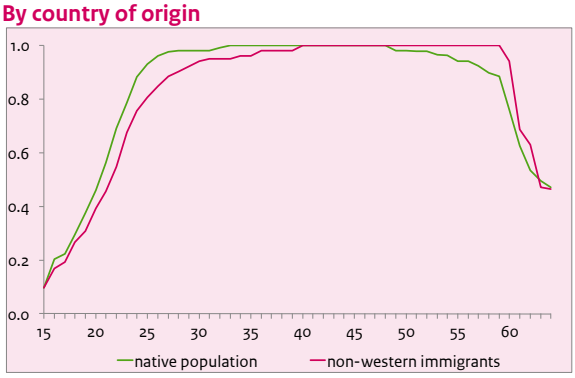
Per gender



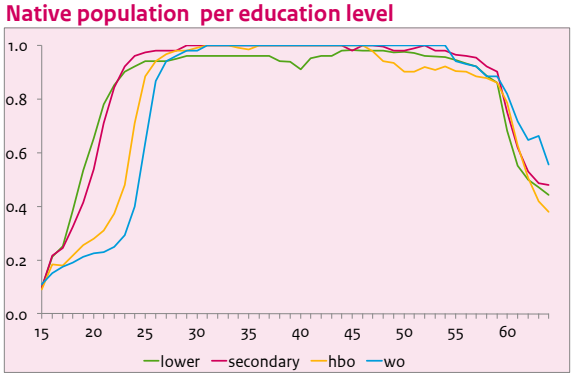
Native population per gender, with/without children



By country of origin



Native population per education level



3.3 Duration of main income sources

3.3.1 Duration of main income sources, according to gender

For the life courses of the 15–64 age group, the main income source of the native population would include an average 38 years of wages or profit and 4 years of unemployment, disability or social assistance (Table 3.4).[20] Early retirement benefits were found to be the main income source for more than 2 years. For nearly 5 years, there would be no personal income; this concerns for example school children, students or housewives. For one year, on average, no income source was found due to emigration or death. Men were found to receive an income in wages or profit for over 41 years, whereas for women this would be close to 35 years. On average, women would have no personal income or receive benefits for longer than men. Relatively few people would enjoy long periods of profit as their main source of income; for men this would be their main income source more often than for women.

The duration of the income source of wages during the life course was found to be shorter if it was not determined as the main source of income but rather was based on the number of full-time years. The measurement of full-time years was done using information on employees' part-time factor. For people with part-time employment or who only work for part of the year, this duration of income source would be shorter and that of no personal income higher. For measurements in full-time years the average number of years in paid employment, cumulated over the life course between 15 and 64 years of age, would be lower and the number of years with no personal income higher. During more than 35 years, wages would be the main source of income, whereas this would be only 26 years when counted as full-time years (Table 3.4). The number of years in paid employment measured in full-time years would be 6 years shorter for men and 12 years shorter for women. The difference between both measurement methods would be smaller for other sources of income.

The results on years worked during the life course are in keeping with data from another source. The number of years in paid employment (wage or profit), depending on the measurement method for part-time employment, would be between 34 and 40 years for men and between 22 and 34 for women. Net participation of 15 to 64 year olds in 2008 implies an average duration of 38 years for men and 29 years for women. Here, Statistics Netherlands uses a minimum of at least 12 hours per week; this is more lenient than that of our full-time measurements and possibly less lenient than our main income source definition. The net participation of men and women of 67% implies 33.5 years of employment. A correction for the ratio between people and employment years (0.88) results in an average number of over 29 full-time employment years. Based on full-time wages and number of years of profits, this results in an average of over 28 years (see Table 3.9).

[20] The average duration of income sources (in years) in Table 3.4 equals the frequencies of the income sources per year (in%) of Table 3.1 times 50 years.

Table 3.4 Average duration of main income sources, 15–64 age group, native population according to gender, with/without children

	Wage	Profit	WW	AO	Social assistance	Pension	No personal income	Emigrated or deceased	Total	Wage in full-time years
	Duration in years									
Men	37.8	3.4	0.8	2.0	0.6	2.3	2.0	1.1	50.0	32.0
Women	32.9	2.0	0.8	3.0	1.2	2.4	6.9	0.8	50.0	21.1
Women										
With children	32.5	2.1	0.8	2.7	1.3	2.4	7.4	0.8	50.0	20.3(a)
Without children	35.8	1.4	0.8	4.7	0.8	2.2	3.1	1.2	50.0	26.5(a)
Total	35.3	2.7	0.8	2.5	0.9	2.4	4.5	1.0	50.0	26.5

(a) The following distributions of educational and full-time years apply for women with and without children:

	Women with children (88%)					Women without children (12%)				
	Lower	Secon-dary	HBO	WO	Total	Lower	Secon-dary	HBO	WO	Total
Education (in %)	31	46	17	6	100	20	44	24	12	100
No. of full-time years	16.4	21.2	23.8	24.0	20.3	23.4	27.3	28.1	25.9	26.5

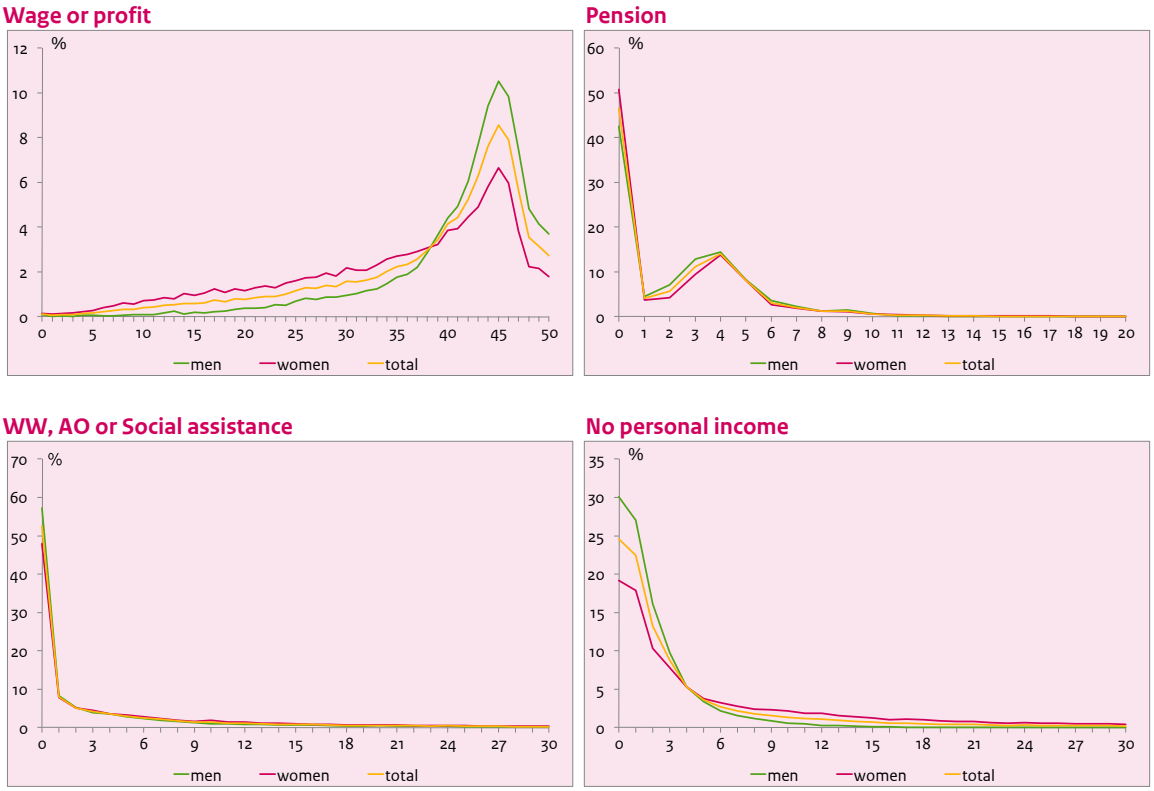
The cumulated duration of the main income source during the life course of 15 to 64 years of age is presented in Figure 3.6 and table 3.5. Wages and/or profits are the main source of income during 30 to 50 years for 87% of men and 66% of women. For women, the duration of wages and/or profits as the main source of income was found to be spread over more years than for men. The peak with a duration of pension payments of around 4 years seems plausible, as many VUT regulations in the observational period of 1999 to 2005 had a retirement or entitlement age of around 60 to 62. Measurements of income sources on average ran to 64½ years; therefore, an average ½ year before the state pension (AOW) age.

Around 55% of the native Dutch population was found not to claim unemployment (WW), disability (AO) or social assistance, or only to such a limited degree that the benefit payments never would become the main source of income during any year. For 23%, one of these benefits was the main source of income during 1 to 5 years, for 22% for more than 5 years (these percentages on all types of benefits together are not provided in Table 3.5). The number of people who received the same benefit for more than 5 years as their main source of income, was 2.5% for unemployment (WW), 14% for disability (AO), and 5% for social assistance.

Table 3.5 Duration of main income sources, native population, 15–64 age group, according to gender

Duration in years	Wage	Profit	WW	AO	Social assistance	Pension	No personal income	Emigrated or deceased
	in %							
Men and women								
0	0.2	80.0	72.7	75.4	89.2	46.6	24.6	90.7
1 t/m 5	0.8	6.7	24.0	10.2	5.8	43.3	53.4	3.1
6 t/m 10	2.7	3.1	3.1	5.4	1.9	8.3	9.7	2.1
11 t/m 15	4.5	2.6	0.1	3.4	1.2	1.1	4.7	1.7
16 t/m 20	5.9	2.2	0.0	2.1	0.7	0.3	2.5	1.2
21 t/m 25	7.0	1.9	0.0	1.4	0.5	0.2	1.7	1.2
26 t/m 30	8.4	1.5	0.0	1.0	0.3	0.1	1.2	0.0
31 t/m 35	10.1	1.1	0.0	0.5	0.2	0.0	1.0	0.0
36 t/m 40	15.0	0.6	0.0	0.3	0.2	0.0	0.7	0.0
41 t/m 45	28.2	0.2	0.0	0.2	0.1	0.0	0.4	0.0
46 t/m 54	17.2	0.0	0.0	0.1	0.0	0.0	0.1	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Men								
0	0.1	76.0	73.4	78.3	92.7	42.5	30.1	89.1
1 t/m 5	0.5	7.8	23.1	9.9	4.1	47.4	61.7	3.8
6 t/m 10	1.5	3.5	3.0	4.6	1.1	9.4	6.4	2.6
11 t/m 15	2.9	2.9	0.1	2.9	0.7	0.6	1.4	1.9
16 t/m 20	4.2	2.8	0.0	1.7	0.5	0.1	0.3	1.3
21 t/m 25	5.3	2.3	0.0	1.1	0.3	0.0	0.1	1.4
26 t/m 30	6.5	2.0	0.0	0.8	0.2	0.0	0.0	0.0
31 t/m 35	8.3	1.5	0.0	0.3	0.2	0.0	0.0	0.0
36 t/m 40	15.2	0.9	0.0	0.2	0.1	0.0	0.0	0.0
41 t/m 45	33.7	0.4	0.0	0.1	0.0	0.0	0.0	0.0
46 t/m 54	21.7	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Women								
0	0.2	84.0	71.6	72.5	85.7	50.8	19.2	92.3
1 t/m 5	1.1	5.6	25.0	10.5	7.5	39.3	45.1	2.4
6 t/m 10	3.9	2.8	3.2	6.2	2.7	7.3	12.9	1.6
11 t/m 15	6.0	2.3	0.2	3.9	1.6	1.5	8.1	1.5
16 t/m 20	7.6	1.7	0.0	2.4	0.9	0.6	4.7	1.1
21 t/m 25	8.7	1.5	0.0	1.7	0.6	0.3	3.3	1.1
26 t/m 30	10.2	1.1	0.0	1.2	0.4	0.2	2.4	0.0
31 t/m 35	11.8	0.6	0.0	0.7	0.2	0.1	2.0	0.0
36 t/m 40	14.9	0.3	0.0	0.5	0.2	0.0	1.5	0.0
41 t/m 45	22.8	0.1	0.0	0.2	0.1	0.0	0.7	0.0
46 t/m 54	12.8	0.0	0.0	0.2	0.0	0.0	0.2	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Figure 3.6 Duration of main income source, 15–64 age group, according to gender



For measurements on the basis of main income source, short-term and low benefit payments that do not form the main source of income, were excluded. In order to obtain insight into these smaller benefit payments, also the frequency was determined for the number of years in which a benefit was received (irrespective of whether this would be the main source of income or not). Table 3.6 provides an overview of benefit durations and number of started benefits during the 15 to 64 year life course. Table 3.7 compares the share of the population that would not claim social security according to both criteria. This table also includes the results from an earlier SEOR study by De Koning et al. (2006).

The share of people who, during the ages of 15 to 64, would not or hardly claim any benefits partly depends on the measurement method. For social assistance, there is relatively little difference between measurements on the basis of main income source or those of whether a certain benefit was or was not received in a given year, as these types of benefits usually are received for longer periods of time. For unemployment (WW) and, to a lesser degree, disability (AO) benefits, the picture clearly changes when short-term and low benefit payments are also included. The group that would not have received any unemployment (WW) benefit, now appeared substantially smaller than for measurements on the basis of main income source. Disability (AO) benefits generally are also long-term benefits, but often in combination with other sources of income (from employment or an unemployment benefit).

The share of the population that did not or hardly claim any unemployment (WW) or disability (AO) benefits, according to the study by De Koning et al. (2006, Table 3.1), would be lower than according to CPB data based on main income sources, but higher than CPB data based on any benefit received during the calendar year (Table 3.7). The share that would not claim any social assistance benefit of other benefit, according to SEOR, was clearly lower than according to the CPB data. The differences between the results may be explained, at least in part, by the fact that social security claims in the observational period (1989–2000) was much higher than in ours (1999–2005), and because SEOR also included early retirement and sickness benefit claims, whereas CPB data did not. Furthermore, the SEOR results on WW and total benefits only were based on simulation for the entire life course (results for AO and social assistance are based on IPO data over the 1989–2000 period). In addition, SEOR also includes non-western immigrants, whereas in this table CPB does not (except for the total).

Table 3.6 Duration of benefit payments (including short-term benefits), according to the number of started benefit payments

Number of started payments	Number of years in which benefit payments were received, according to the number of started payments Weighted, in % of the population												
	0	1	2	3	4	5	6	7	8	9	10	>=11	Total
WW	Native population												
0	42.2												42.2
1		15.2	7.4	3.4	2.4	1.7	1.3	0.7	0.4	0.2	0.1	0.1	32.7
2			3.6	3.3	2.6	1.9	1.5	1.2	0.9	0.5	0.3	0.5	16.3
>=3				0.7	1.1	1.1	1.1	1.0	0.9	0.8	0.6	1.6	8.8
Totaal	42.2	15.2	11.0	7.4	6.1	4.7	3.9	2.8	2.1	1.5	1.0	2.1	100
AO	Native population												
0	55.6												55.6
1		4.3	4.3	3	2.6	2.4	5.2	1.4	1.0	1.0	0.9	8.3	34.4
2			0.3	0.5	0.5	0.7	0.5	0.7	0.6	0.5	0.4	3.7	8.5
>=3					0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.9	1.5
Totaal	55.6	4.3	4.7	3.5	3.2	3.1	5.8	2.1	1.7	1.6	1.5	12.9	100
Social assistance	Native population												
0	81.7												81.7
1		5.1	2.8	1.2	0.8	0.5	0.5	0.3	0.2	0.3	0.2	2.0	14.0
2			0.3	0.4	0.3	0.3	0.2	0.2	0.2	0.1	0.1	1.2	3.4
>=3						0.1						0.6	0.9
Totaal	81.7	5.1	3.1	1.7	1.1	0.9	0.7	0.5	0.5	0.5	0.4	3.8	100
Total	Entire population												
0	22.0												22.0
1		9.1	5.3	2.7	2.0	1.7	2.7	1.2	0.8	0.6	0.6	6.4	33.2
2			2.2	2.5	2.1	1.9	1.6	2	1.4	1.1	1.1	8.6	24.5
>=3				0.5	0.9	1.0	1.0	1.0	1.2	1.3	1.1	12.5	20.4
Totaal	22.0	9.1	7.5	5.6	5	4.6	5.4	4.1	3.4	3.0	2.7	27.5	100

Table 3.7 Percentage of people who don not claim social security during their life course

	Main income source (CPB, Table 3.5) In % of the population	Year in which benefit was received (CPB, Table 3.6)	SEOR (Table 3.1)
Unemployment benefit (WW)	72.7	42.2	57 to 64
Disability benefit (AO)	75.4	55.6	69 to 71
Social assistance	89.2	81.7	52 to 54
Total (incl. non-w.immigr.)	48.8	22.0	10 to 12

The SEOR results for WW and Total (including early retirement and sickness benefits) were derived from simulation; results for disability and social assistance were based on IPO observations during the 1989–2000 period. For unemployment, disability and social assistance, the SEOR data include those on non-western immigrants, while the CPB figures do not.

3.3.2 Duration of main income sources, according to educational level

The average duration of the income sources, cumulated over the life course between 15 and 64 years of age, was found to vary according to educational level (Table 3.8). Higher educated people were found to start working at an older age than lower educated people, but on average would receive benefits for shorter periods of time, such as unemployment (WW), disability (AO) or social assistance benefits. On balance, higher educated men would have wages or profit as their main source of income for slightly more years than lower educated men. Men and women with a lower or secondary education were found to receive unemployment or disability benefits for a relatively long period. Lower educated women, on average, would have no personal income for much longer periods of time than higher educated women. Measurements in full-time years would cause the number of years in which wages were the main source of income to decrease by around 6 years (for men) to 12 years (for women) (compare first and last columns of Table 3.8) and the number of years without personal income to increase by the equal number of years.

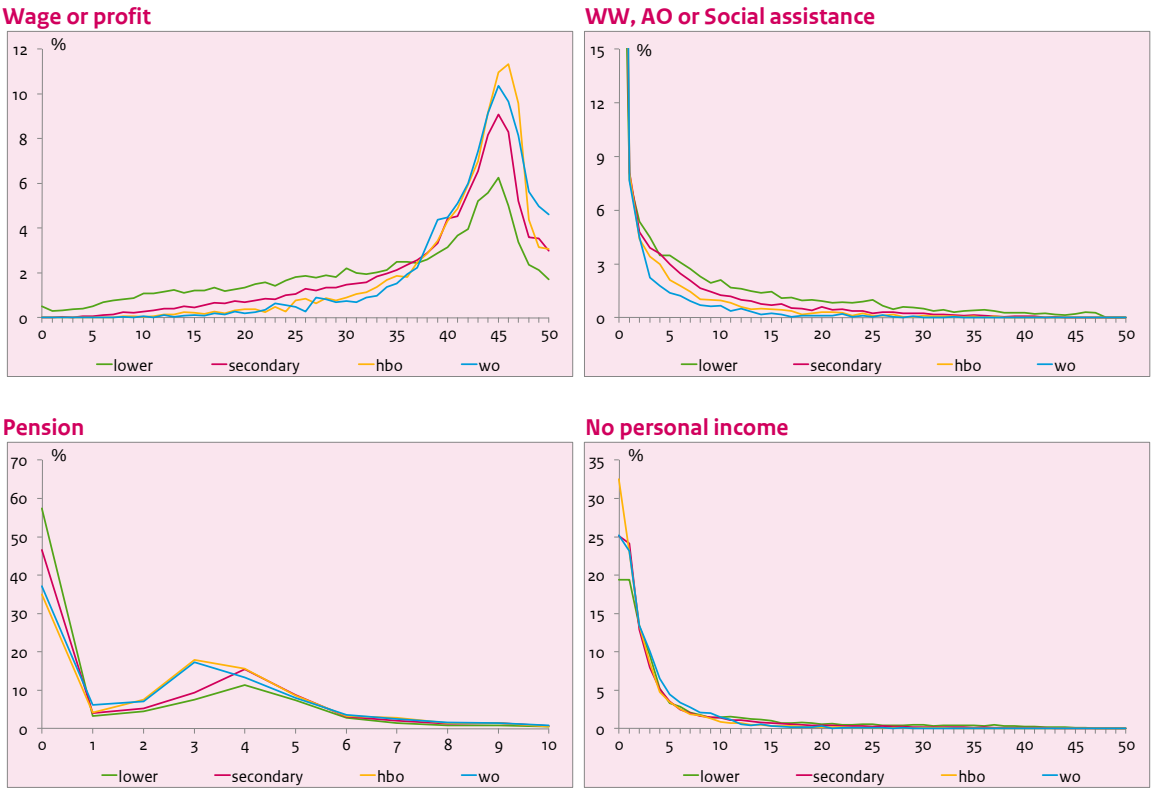
Table 3.8 Average duration of main income sources for the native population, 15–64 age group, according to educational level and gender

	Wage	Profit	WW	AO	Social assist.	Pension	No personal income	Emigrated or deceased	Total	Wages in full-time years
	In years									
Men and women										
VMBO and lower	31.0	2.0	1.1	4.1	2.2	2.0	6.4	1.1	50.0	22.9
Havo/VWO/MBO	35.5	3.1	0.8	2.4	0.6	2.4	4.3	0.9	50.0	27.1
HBO	39.2	2.1	0.6	1.5	0.2	2.7	2.9	0.8	50.0	28.8
WO	38.4	3.6	0.4	0.7	0.2	2.5	3.1	1.1	50.0	28.7
Total	35.3	2.7	0.8	2.5	0.9	2.4	4.5	1.0	50.0	26.5
Men										
VMBO and lower	35.4	2.9	1.1	4.1	1.4	1.9	1.9	1.4	50.0	30.9
Havo/VWO/MBO	37.5	4.1	0.8	1.9	0.5	2.4	1.9	1.0	50.0	32.6
HBO	40.3	2.3	0.7	1.0	0.2	2.7	1.9	0.9	50.0	32.9
WO	39.0	3.6	0.3	0.6	0.2	2.5	2.6	1.2	50.0	30.7
Total	37.8	3.4	0.8	2.0	0.6	2.3	2.0	1.1	50.0	32.0
Women										
VMBO and lower	27.8	1.3	1.1	4.2	2.8	2.1	9.8	0.9	50.0	17.0
Havo/VWO/MBO	33.5	2.2	0.8	2.9	0.7	2.4	6.6	0.8	50.0	21.9
HBO	38.0	2.0	0.5	2.0	0.2	2.7	3.9	0.8	50.0	24.5
WO	37.2	3.4	0.4	1.2	0.2	2.5	4.2	0.9	50.0	24.4
Total	32.9	2.0	0.8	3.0	1.2	2.4	6.9	0.8	50.0	21.1

VMBO = Lower secondary professional education; Havo = Higher general secondary education; VWO = Pre-university secondary education; MBO = Preparatory intermediate vocational education; HBO = Higher vocational education; WO = University education.

Figure 3.7 shows the distribution of durations according to main income source and educational level for the native population. In general, the higher the educational level, the smaller the spread of the number of years per income source.

Figure 3.7 Duration of main income source for the native population, 15–64 age group, according to educational level



3.3.3 Duration of main income sources, according to country of origin

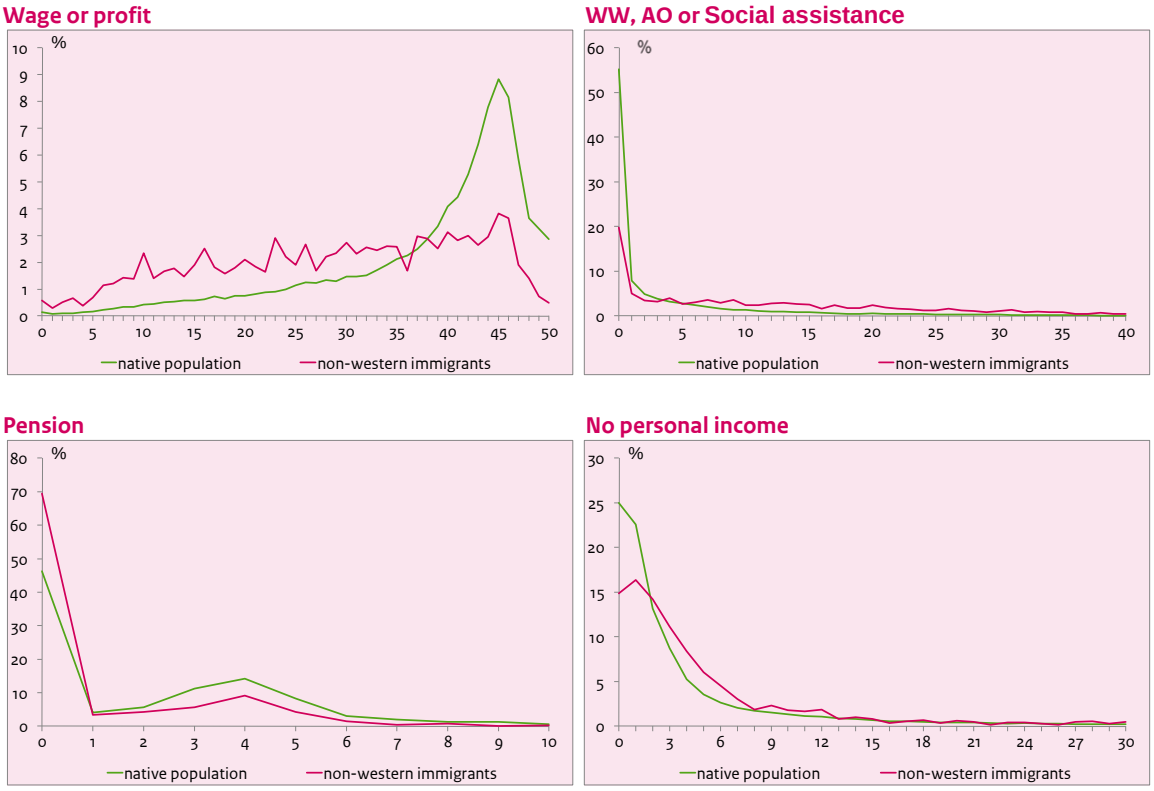
Non-western immigrants, on average, were found to receive a benefit or have no personal income for longer periods of time and have shorter periods with income from paid employment or pension than the native population (including western immigrants). Emigration and death were also found more often among non-western immigrants than among the rest of the population. Lower educated non-western immigrants were found to have an income from paid employment, on average, for 21 years and from benefits for 18 years (not included in Table 3.9).

Table 3.9 Average duration of main income sources, 15–64 age group, according to country of origin

	Wage / profit	Benefit	Pension	No personal income	Emigrated or deceased	Total	Wage / profit in full-time years
	In years						
Native population	38.0	4.2	2.4	4.5	1.0	50.0	29.2
Non-western immigrants	28.8	12.0	1.2	5.7	2.3	50.0	20.3
Total	37.0	5.1	2.2	4.6	1.1	50.0	28.2

For non-western immigrants, the number of years of paid employment, when measured in full-time years, also worked out to around 8 years less than when measured on the basis of main income source. Figure 3.8 shows the frequencies of income duration per income source. Interestingly, the duration of income from paid employment of non-western immigrants would be distributed over a much longer time span.

Figure 3.8 Duration of income per source, 15–64 age group, according to country of origin



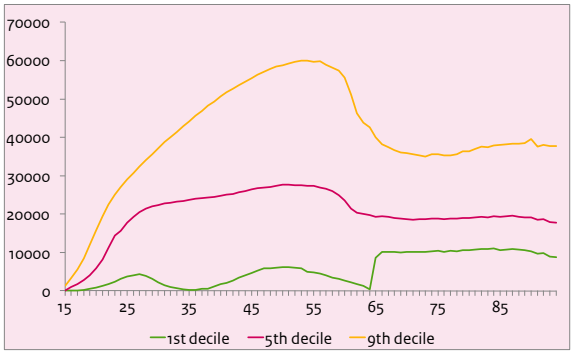
4 Income over the life course

4.1 Total income, according to age, gender, country of origin and educational level

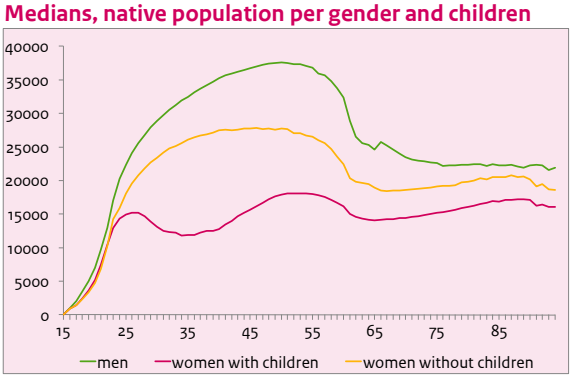
The analysis of income during the life course not only concerns people's adult lives up to the age of 65, but also includes emigration or death. Figure 4.1 provides an impression of the total fiscal income range over the life course. Fiscal income is the income – from wages, profit, unemployment, disability or social assistance benefits, state pensions and early retirement pensions – after subtraction of premiums for supplementary pension and employee insurance related to unemployment and disability. Income in the first decile would be virtually nil, as there was close to no income in any week of the year. Income in the fifth and ninth decile increased up to an age of around 55 to nearly 30,000 and over 60,000 euros, respectively, after which it slightly decreased again. These people did receive an income for more or less all of the year. Around the age of 65, the fiscal income was found to decline, particularly for men and the higher educated, because they stopped working. For women with children, incomes were found to increase after the age of 65, because before they would mostly be employed in part-time jobs and later on often would be eligible to receive survivor benefits. Generally, men were found to have a higher income than women, and women without children had higher incomes than

Figure 4.1 Income over the course of life, in euros, per year

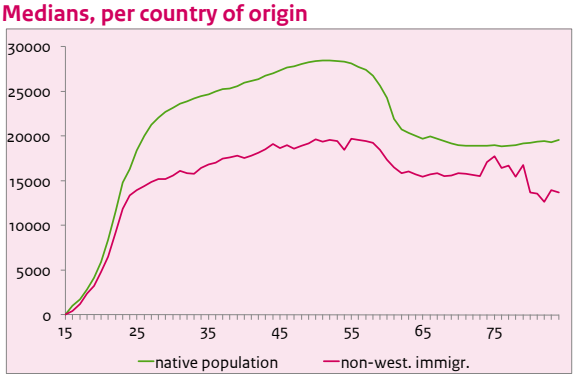
Per income decile



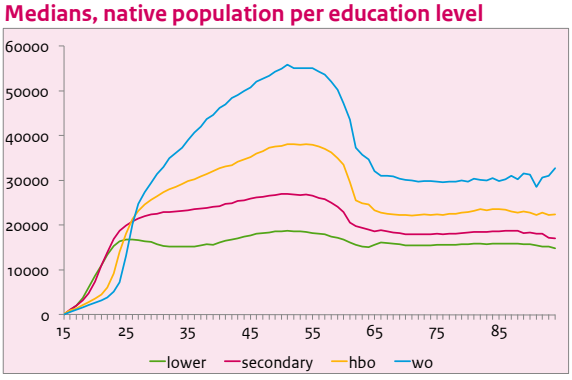
Medians, native population per gender and children



Medians, per country of origin



Medians, native population per education level

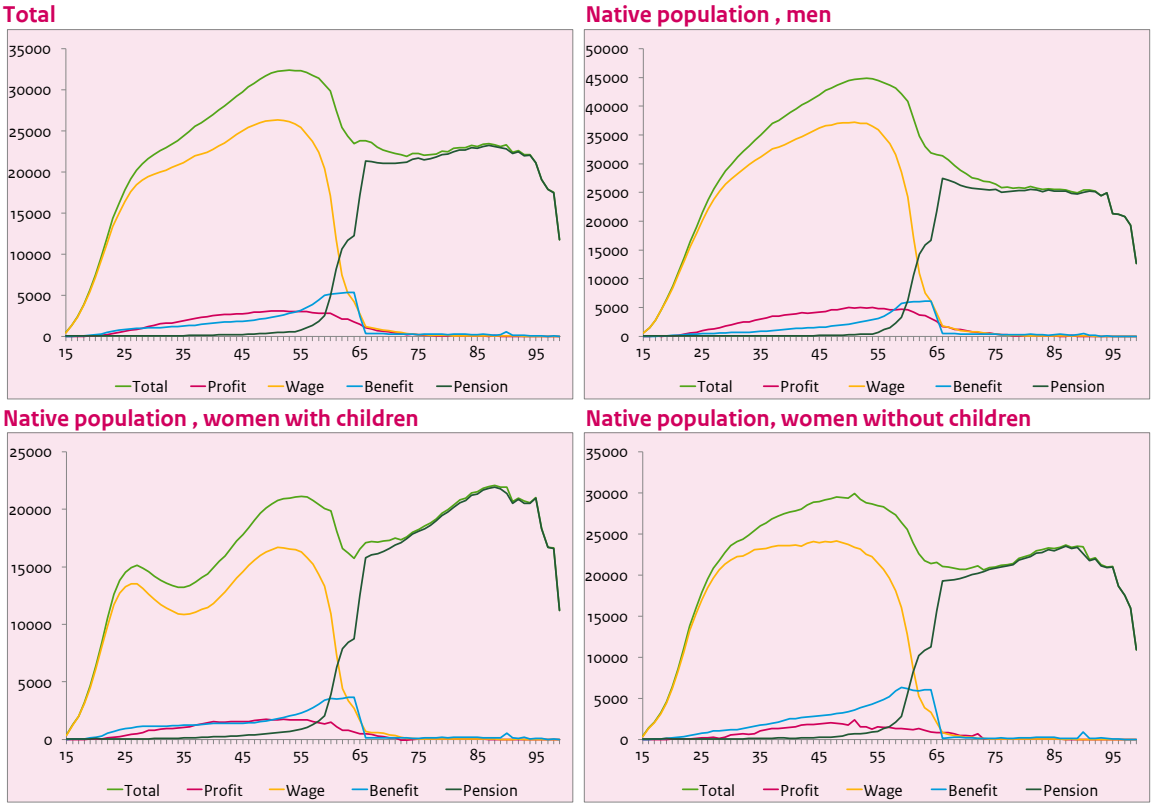


those with children. These differences may be explained, at least in part, by the fact that men would work more than women and women without children would work more than those with children.[21] Non-western immigrants were found, on average, to have a lower income than the native population (including western immigrants)[22]. This is partly explained by the fact that their average educational level was lower and the number of social security claims higher. Between the ages of 15 and 25, people with a lower or secondary education would mostly have a higher income than those with a (future) higher education, because the lower educated work more in those years. Over the age of 25, the higher educated people were found usually to have a higher income.

4.2 Income composition

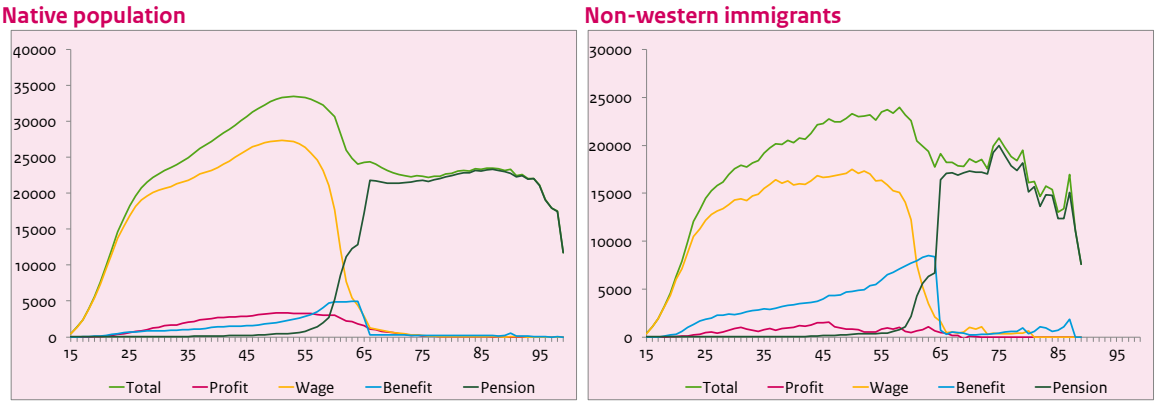
The average income of people up to the age of 55 mostly consisted of income from paid employment; after the age of 65, this would mostly consist of pension payments (including the state pension (AOW)).[23] Between the ages of 55 and 65 is an interim phase in which benefits also were found to have a relatively large share, in addition to wages and pension payments. Profits and benefit payments, on average, would be low, as relatively few people would have an income from these sources (see Figure 4.2).

Figure 4.2 Composition of average income, according to source, native population per gender and with/without children



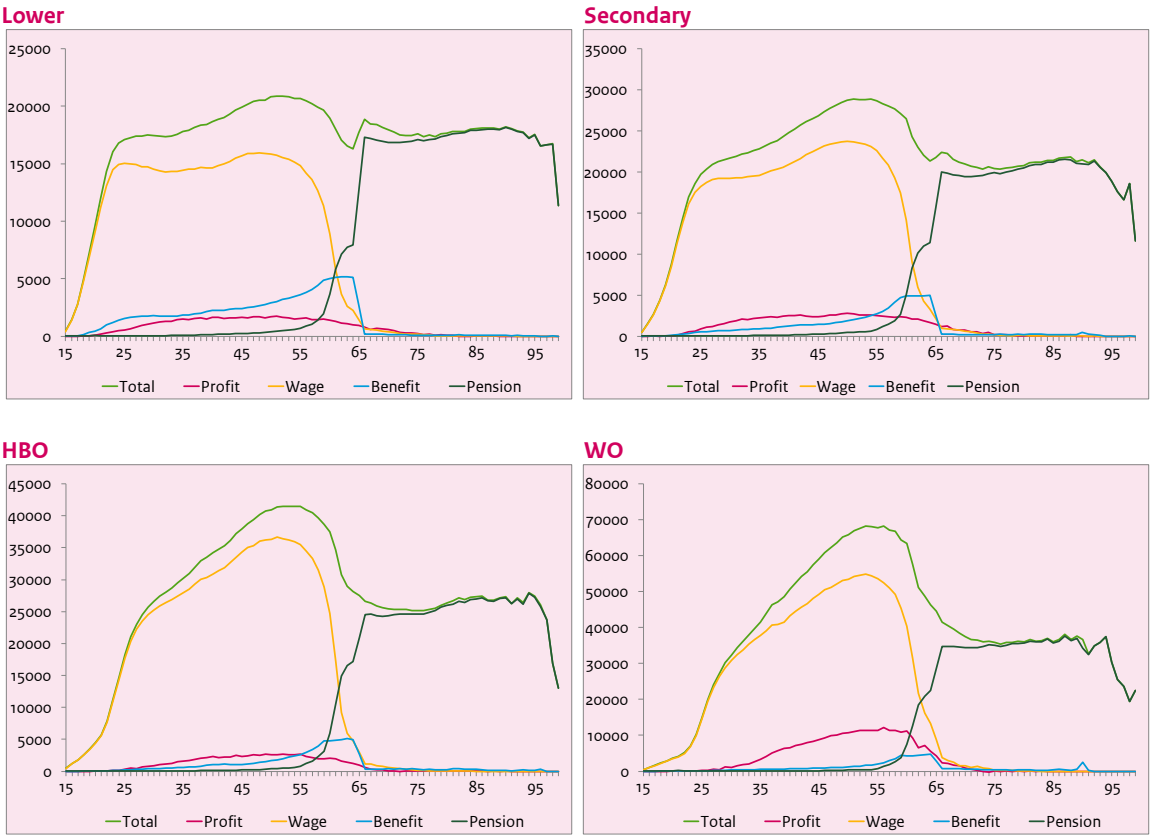
[21] Another part-explanation is the fact that the average educational level of women with children was lower than of women without children, see Table 3.4.
[22] In this study the term native population also includes western immigrants.
[23] The supplementary, labour-related pension was constructed on the basis of the labour history taken from the life course, conform the average-wage system with a cumulative percentage of 2% per labour year. The decline, as presented in the figure, of the average pension at the end of the life course is being caused by the increasing weighting of pensions that are ceased during the year due to people's deaths and thus amount on average to about half of those of the previous year. The increasing line for women's pensions is due to survivor benefits received after the death of their partner (in addition to the higher amount in state pension benefits for single people) and could be derived from the source data.

Figure 4.3 Composition average income, according to source and country of origin



For women with children and lower educated people, the income from the age of 65 onwards would be around the same level or even higher than before. For native men and higher educated people, the fiscal income, on average, would be much lower than before. The difference in net income, however, would likely be much smaller, as from the age of 65 people would no longer be required to pay any state pension (AOW) premiums.[24]

Figure 4.4 Composition average income per source, native population according to educational level



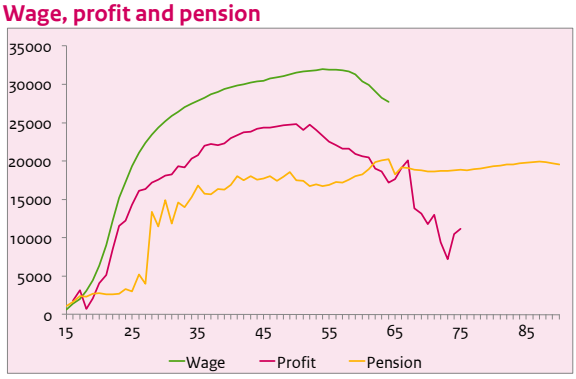
[24] A very small share of non-western immigrants (see the survival curve around the age of 89 in Figure 4.14, lower left) would have a small amount in benefits other than from WW, AO or social assistance.

4.3 Median incomes according to source

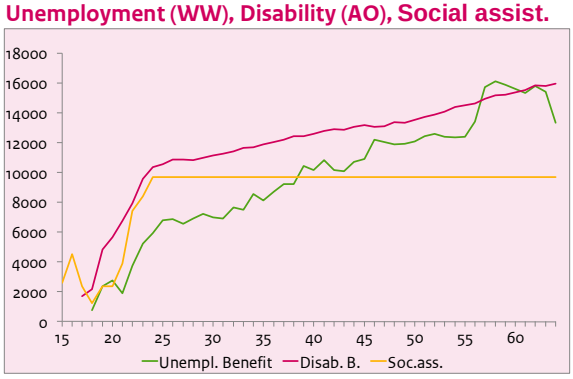
In the average income construction according to income source, profit and benefits feature rarely, as relatively few people were found to have an income from these sources. Wages (before the age of 55) and pensions (after the age of 65) were found often, as relatively many people in this age category would have an income from these sources. Another method would be to determine the median incomes per source of income and to focus only on the people for whom that source is the main source of income. This shows that the median income from wages would be higher than the median profits and median pension (including state pension (AOW)), and that the median benefit payments for disability would be higher than those for unemployment and social assistance.

Figure 4.5 Median incomes according to source, native population

Wage, profit and pension



Unemployment (WW), Disability (AO), Social assist.



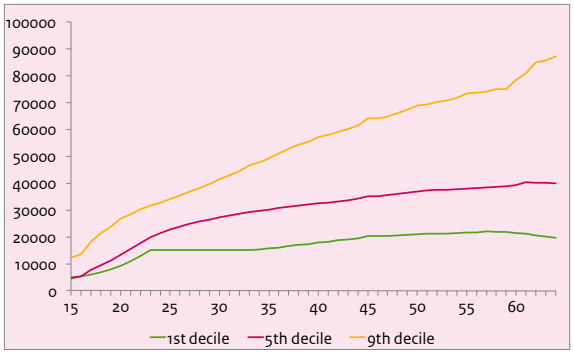
4.4 Employee incomes

The incomes of employees, when calculated to full-time employment, were found to show no or hardly any decline up to the age of 65. The decline in actual income of people of the age of 55 resulted from a decline in the number of hours worked and from an increased claim on social security benefits. For the first decile, the relatively strong increase up to the age of 23 can be explained by the gradual increase in minimum juvenile wage. For people over the age of 23, the income profile for the lower incomes and for lower educated people was rather even, whereas for higher incomes and higher educated people this continued to rise up to high ages.[25]

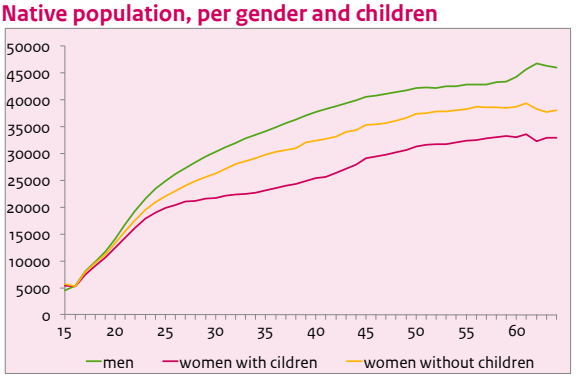
[25] The increase in full-time wages in the 9th decile from the age of 60 may indicate that particularly those in the highest income brackets begin to work part-time.

Figure 4.6 Employee incomes recalculated to full time, over the life course, in euros, per year

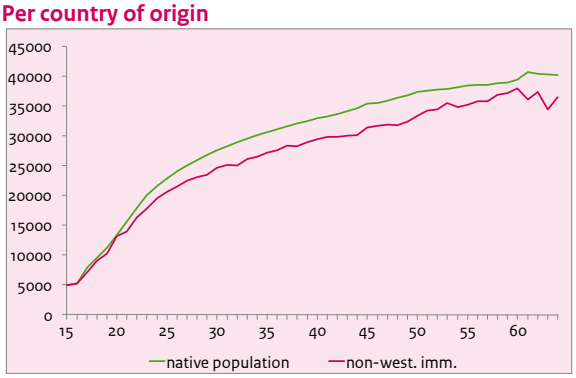
Per income decile



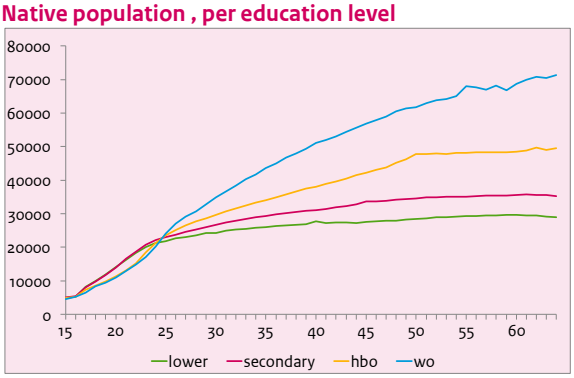
Native population, per gender and children



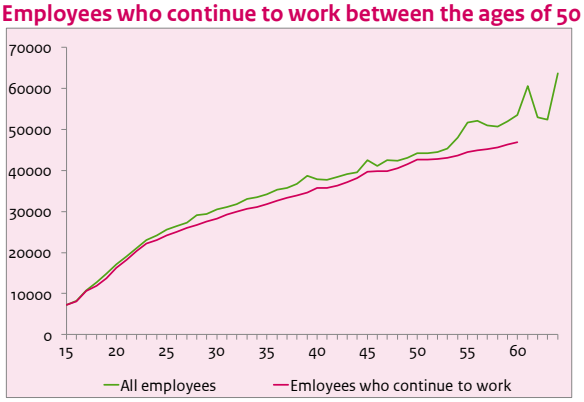
Per country of origin



Native population , per education level



Employees who continue to work between the ages of 50 and 60



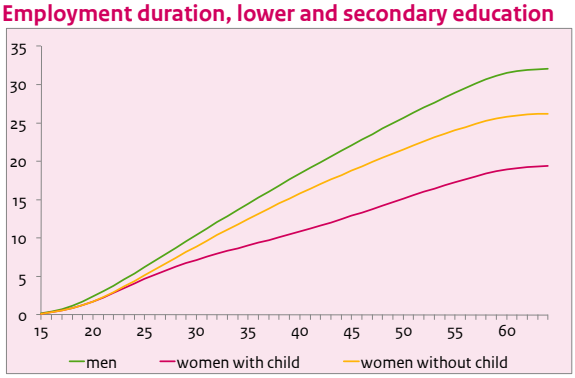
The increase in average wages of older employees could be partly due to selection effects. Higher educated people were found to continue to work for more years than those with lower education, causing the composition of the working population to change. The age–reward profile for older employees becomes less steep if the population composition would be kept at a more constant level by not including people who stop work between the ages of 50 and 60.

4.5 Cumulative duration of employment and cumulative wages

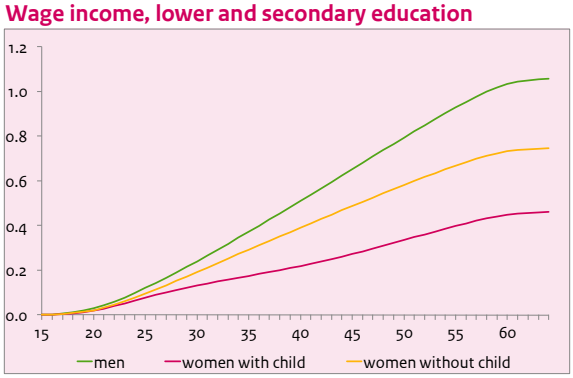
The cumulative duration of employment and cumulative wages during the life course, itemised according to educational level, gender and country of origin, are presented in Figures 4.7a and 4.7b .

Figure 4.7a Average cumulative duration of employment (in full-time years) and cumulative wages (in million euros) for the native population

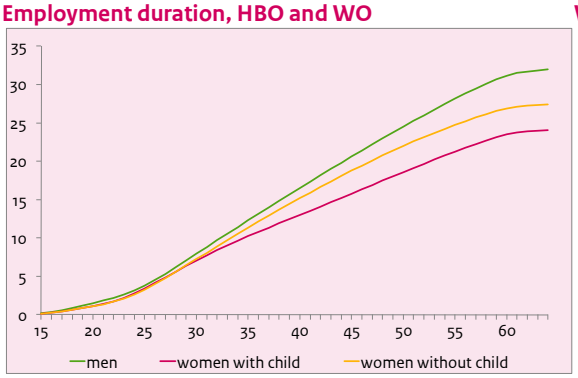
Employment duration, lower and secondary education



Wage income, lower and secondary education



Employment duration, HBO and WO



Wage income, HBO and WO

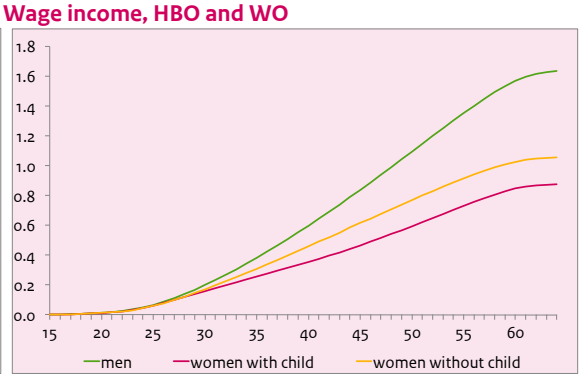
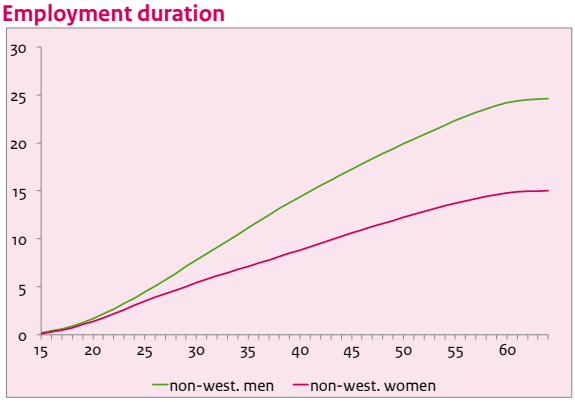


Figure 4.7b Average cumulative duration of employment (in full-time years) and cumulative wages (in million euros) for non-western immigrants

Employment duration



Wage income

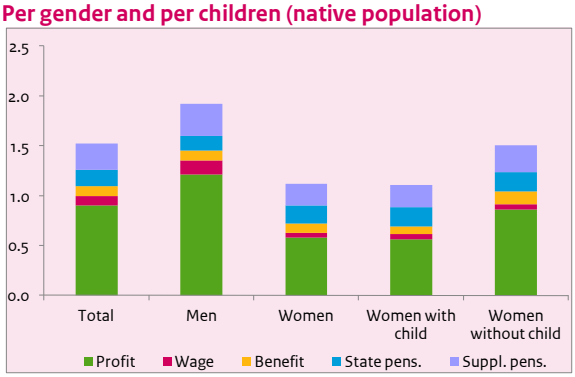
4.6 Income over the life course

The total fiscal income during the life course was calculated at an average 1.5 million euros (2005 income levels). Life-course incomes were found to vary from 1.1 million euros for the lower educated to 2.6 million euros for the higher

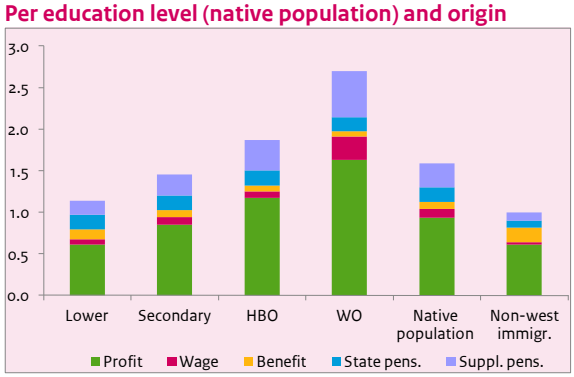
educated; see Figure 4.8.[26] Women were found to receive relatively much income from pensions and state pensions during the life course (0.4 million euros), compared to their income from wages (0.6 million euros). [27] Non-western immigrants were found to receive relatively much income in social security benefits before the age of 65, but relatively little in state pension (AOW). This would be partly due to incomplete AOW build up, but mostly because of the relatively large share of emigration or death among non-western immigrants. Emigration over the age of 65 among non-western immigrants is higher than for the native population and western immigrants. The total AOW over the life course for non-western immigrants is likely to be slightly biased downwards, because state pension (AOW) payments received abroad were not registered.

Figure 4.8 Income of the life course, in million euros

Per gender and per children (native population)



Per education level (native population) and origin

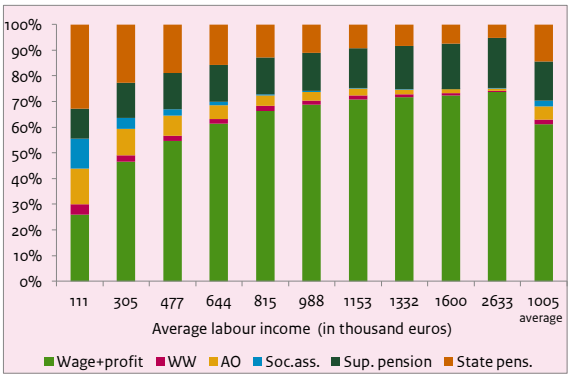


The composition of income over the life course clearly varies between people with low and high incomes from paid employment; see Figure 4.9. People in the lowest decile of labour income were found to receive relatively much income in unemployment (WW), disability (AO), social assistance and state pension (AOW) benefits, whereas those in the highest decile received the least income from such benefits.

[26] The life-course income, unless stated differently, refers to the aggregated income from the age of 15 up to the point of death or emigration.

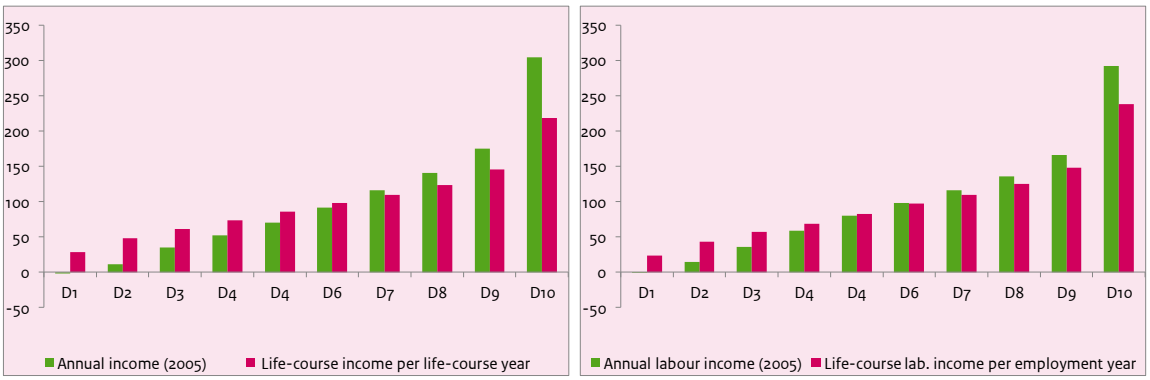
[27] For native women, those with children (VMK, 88% of native women) had 0.3 million euros *less* in wage income and 0.05 million euros *less* in supplementary pension than women without children (VZK). For native men, those with children (MMK, 82% of native men) had 0.3 million euros *more* in wage income and 0.1 million euros *more* in supplementary pension, and 0.04 million euros *less* in benefits than men without children (MZK). This would be due to their higher education (78% had HAVO/VWO/MBO or higher education, versus 72% for MZK), their higher labour participation (7 percentage points) than MZK, and higher wages with steeper wage profiles than MZK. The life-course income was found to be around 2.1 million euros for MMK and 1.6 million euros for MZK. VMK generally would share the household with MMK. The average combined income of MMK+VMK would be 1.59 million euros. This hardly deviates from the average income of MZK+VZK (1.56 million). These characteristics are in keeping with those in recent other studies, see Keizer(2010) who found that MMK, corrected for educational level, age and partner status, would earn 4% to 8% more than MZK (in 2011 a EUR Fellowship was awarded for related research). EUROSTAT (2011) published the labour participation percentages for men and women in the EU according to their number of children.

Figure 4.9 Composition individual life-course income, per decile category of labour income



The inequality between annual incomes was found to be greater than that between average annual incomes over the life course. This applies especially to the two lowest and two highest deciles, see Figure 4.10. The first decile over 2005, on average, had a slightly negative income, the highest decile earned more than three times the average fiscal income (22,300 euros). Over the life course, the first decile, in 2005, had an income of nearly 30% of the average income, and for the highest decile this was over twice the average income per life-course year (23,000 euros). In a given year, incomes may be negative or nil, due to studies or business losses, or in fact be very high due to profits or bonuses or severance pay. In general, these years are countered by other years with opposing income levels, which causes the differences over the life course mostly to be smaller. The Gini coefficient, a measure of income inequality, would be 0.48 for the annual incomes in 2005, and 0.26 for the average life-course incomes per life-course year.[28] It should be noted that the Gini coefficient here has been determined on the individual level; these results cannot directly be compared with those based on the more commonly used data on household level.

Figure 4.10 Income per year and life-course year, according to income decile (average income = 100)

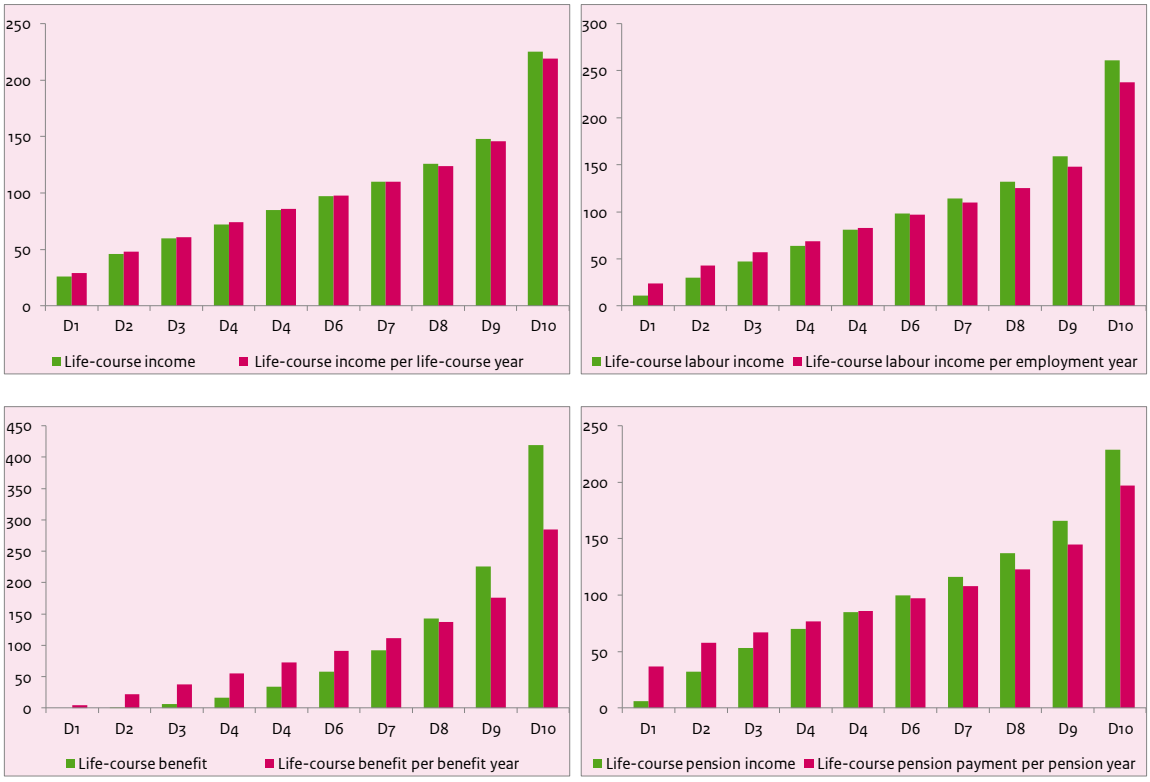


[28] In cases of complete income equality, the Gini coefficient equals 0. In cases of complete income inequality (all income would be concentrated at one member of the population), the coefficient would equal 1. In Figure 4.10, top left, the inequality in life-course incomes is 46% below that of the cross-section income. This is in keeping with results from international research: Aaberge (2012) found 47% for Norway, Bovenberg, Hansen and Sørensen (Bovenberg et al., 2006) found 43% for Denmark, L. Hendricks (2006) found 32% for the United States and M. Baldini (2001) refers to studies with the following percentages: 31% (US, 1974), 34% (Sweden, 1993), 47% (Canada, 1984), 42% (UK, 1985), 36% (Australia, 1993), and 45% (Italy, 2001). For the other incomes in Figure 4.10, the following Gini coefficients apply for the cross-section and life-course income: 0.45 and 0.32 for income from labour; 0.42 and 0.44 for income from benefits, and 0.43 and 0.24 for income from pension benefits.

Figure 4.10 continued

Figure 4.11 shows that the inequality in life-course incomes (both in total and separated in income from labour, benefits or pensions) increases (particularly for benefits and pensions) if they are not corrected for the number of years to which the income applies (years during which this income was the main source of income).[29]

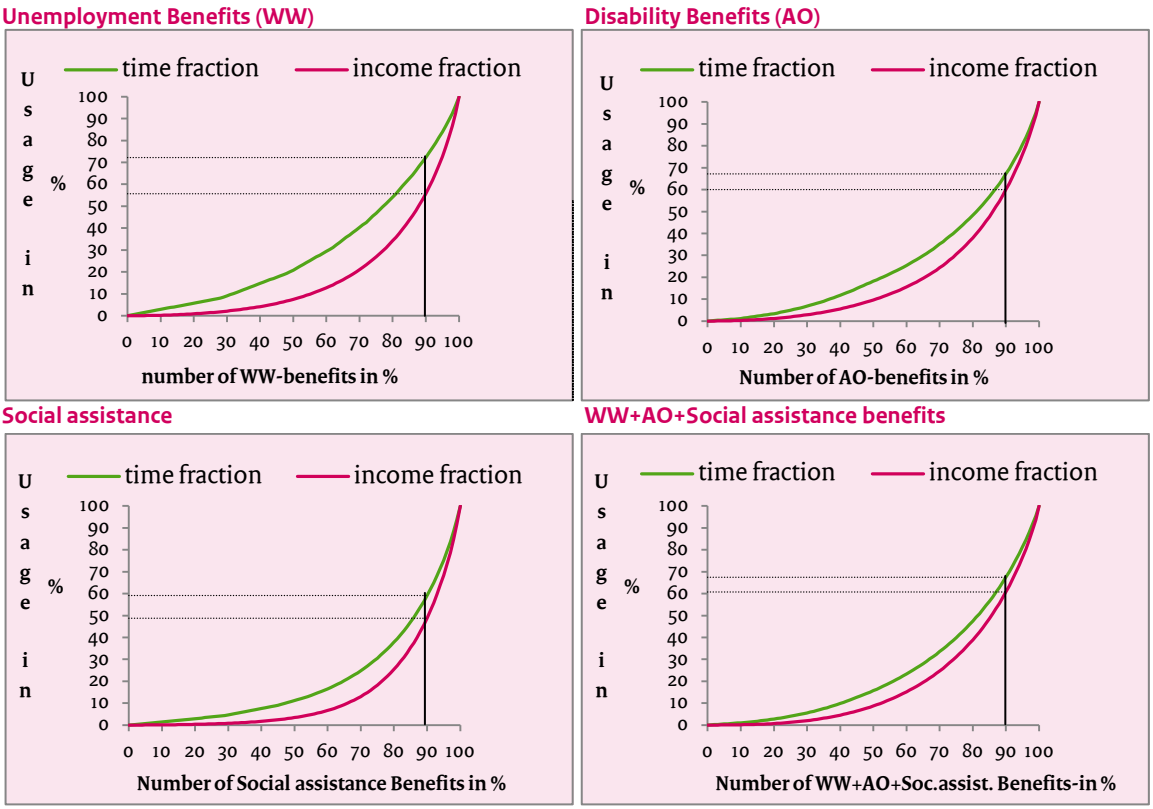
Figure 4.11 Income over the entire life course and average per life-course year, according to income decile (average income = 100)



[29] The following Gini coefficients apply to life-course incomes: 0.27 for the total income (corrected 0.26); 0.38 for income from labour (corrected 0.32); 0.64 for income from benefits (corrected 0.44); and 0.37 for income from pension benefits (corrected 0.24). People with a high income per life year, on average appeared to live longer than those with a low income. This is in keeping with results from other, recent research (Knoops and Van den Brakel, 2010) that showed that lower socioeconomic status often coincides with an unhealthy way of living. Furthermore, people with a high income from labour appeared to work for more years than those with a low income from labour. This is in line with the longer employment duration for higher educated people (see Table 3.8). The number of years in which benefits were received were found to be distributed very unevenly; this unevenness appeared substantially smaller for the total life-course incomes and the life-course incomes from labour or pensions.

The level of concentration in the claims on social security is illustrated using Lorenz curves[30], see Figure 4.12 and Table 4.1.

Figure 4.12 Lorenz curves of the use of Unemployment (WW), Disability (AO) and Social assistance benefits



Results confirm the image from earlier research, by De Koning et al.(2010, SEOR) which showed a relatively small group to be responsible for a substantial part of the claims on social security. Ten per cent of the benefit recipients with the highest claims on benefits have a 33% share in the total benefit duration and a 39% share in total income from benefits relating to WW, AO or social assistance (see the horizontal lines at 67% and 61%). The level of concentration was found to be the greatest for social assistance. For all types of benefits, concentrations according to income were larger than according to duration.

[30] Here, the lorenz curves illustrate which fraction (in percentages) of the total in benefit expenditures is used by a percentage of the lowest benefits presented along the x axis (sorted according to benefit amount, from low to high). The same applies to benefit durations. In case all benefit recipients would receive identical benefit payments, the Lorenz curve would be a straight line, from the lower left corner to the upper right. The greater the downward arch of the line, the higher the level of concentration in a small group of recipients with the highest benefits. Benefit durations were found to be more similar than benefit payments. There appeared to be a strong connection between income and duration (also see Figure 5.10). For WW+AO+social assistance benefits, the following applies: 80% of the 20% highest incomes belong to the 20% with the longest benefit durations (and vice versa for benefit durations related to incomes). The correlation between incomes and duration is 0.85, and according to a regression of income on duration, 71% of the variation in income is explained by benefit duration.

Table 4.1 Use of Unemployment (WW), Disability (AO) and Social assistance by 10% of users with the highest degree of use

	Duration according to CPB(d)	Duration according to SEOR (a)	Income according to CPB(d)	Income according to SEOR(c)
	Share in total in %			
Unemployment Benefit (WW)	27	36 to 38	42	47
Disability Benefit (AO)	33	25	40	30
Social assistance	41	34	51	40
Total (b)	33	30 to 36	39	39

(a) The duration of WW benefits and the total were simulated by the SEOR; duration of AO and Social assistance and income shares were derived from IPO 1989–2000.

(b) SEOR data on totals include Early Retirement and Sickness Benefits.

(c) SEOR income data were based on IPO 1989–2000.

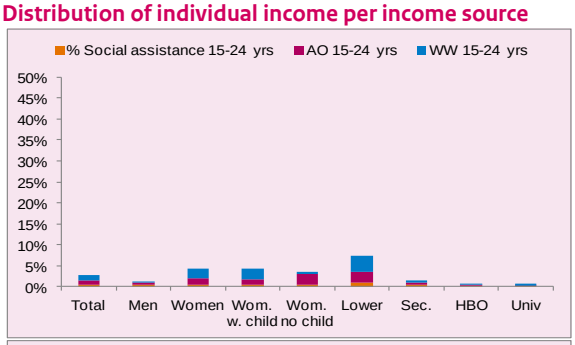
(d) Non-western immigrants are only included in the totals..

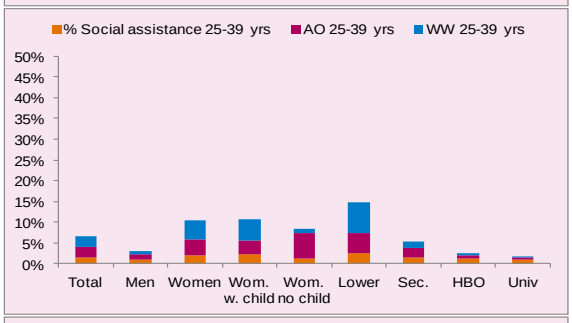
The various income sources are of diverging importance during various periods of the life course. Figure 4.13 shows the average *individual* share of benefits in terms of percentage (and thus of income from labour plus early retirement) in the total income that is obtained over the 15–64 year life course, and subdivided into 4 phases: age 15 to 24, 25 to 39, 40 to 54, and 55 to 64. The right-hand side of the figure shows the share of years without income.

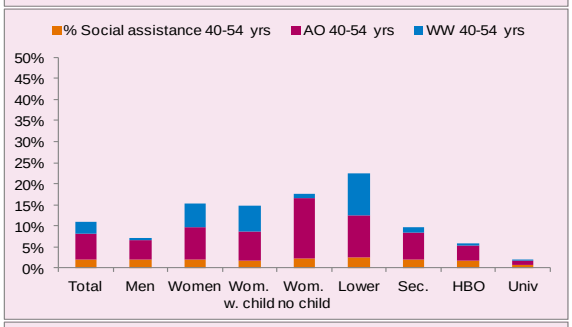
There is a sizeable increase in disability for people over the age of 40. In this phase, the influx of lower educated people into the group of unemployment (WW) benefit recipients is large, after which this decreases and switches to social assistance and disability benefits. The influx into the group of social assistance recipients is relatively small for all years. For women without children, there is a large increase in those on disability benefits in later years. In addition, the differences in the number of benefit claims between secondary and lower educated people decline over time, as do the differences between men and women in this respect.

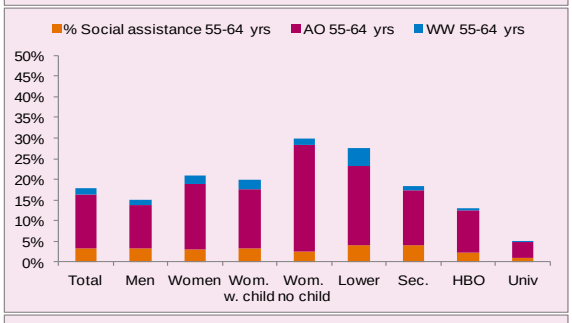
Figure 4.13 Individual distribution according to income sources and years without income during the life course, native population, 15–64 age group

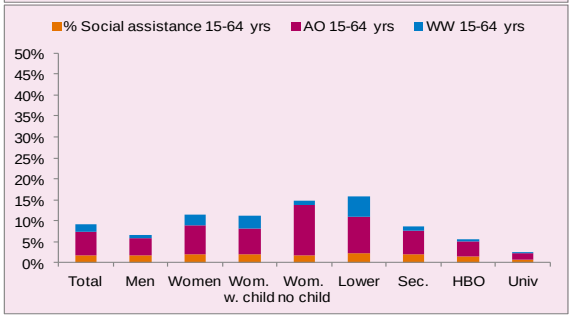
Distribution of individual income per income source



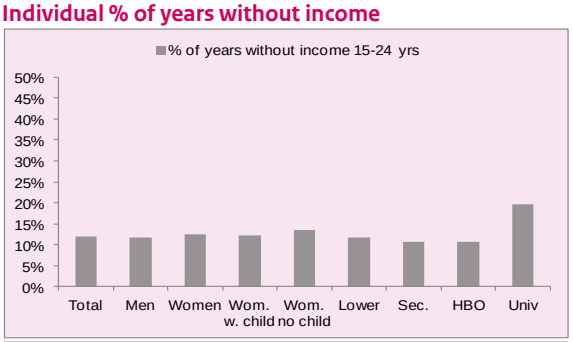


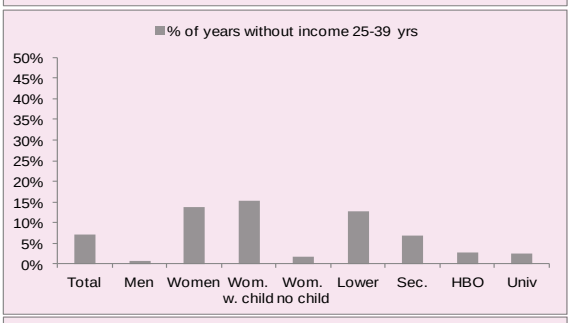


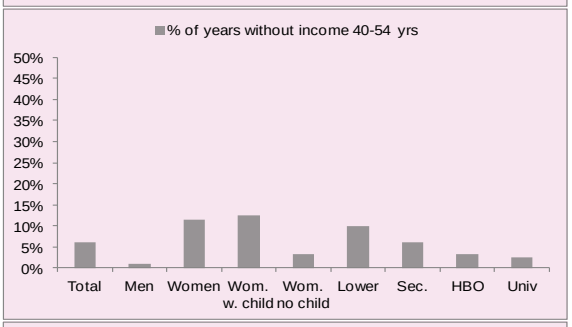


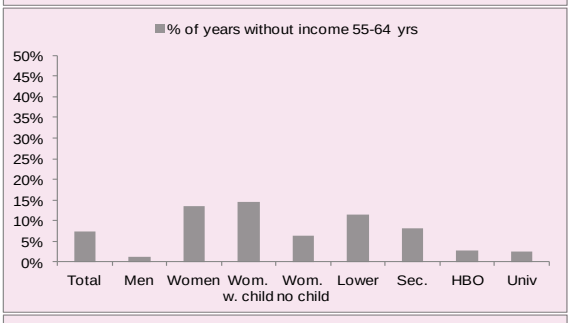


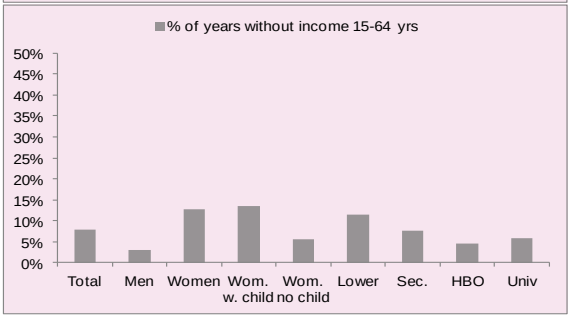
Individual % of years without income











The share of years without personal income were found initially to be more or less the same for all groups; in the age period from 15 to 24 this is the educational phase for higher educated people. Women with children are without a personal income for around 10% to 15% of the time, whereas men nearly always have an income.

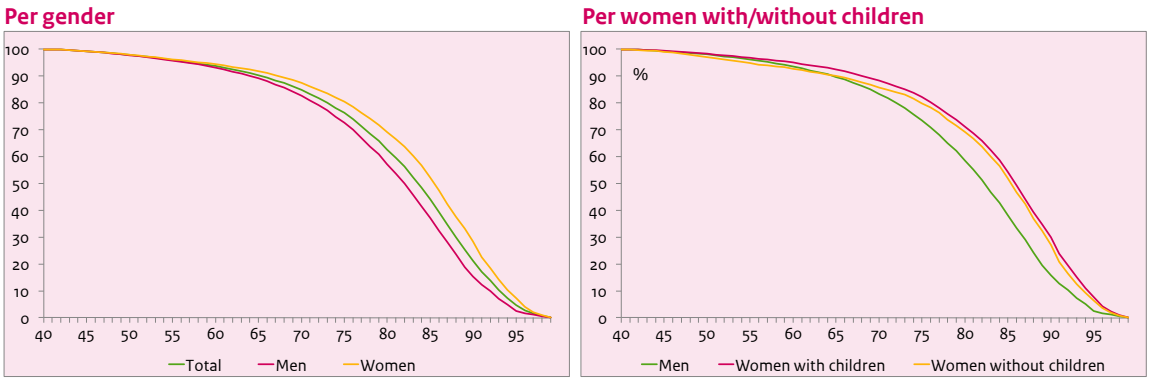
Although, for non-western immigrants, no subdivision according to benefit categories is available, similar patterns could be detected, with the exception of the much higher degree of influx into the group of benefit recipients at an older age. For men, the share of benefits in income was found to increase from around 4% for the age period of 15 to 24, to 35% for the age period of 55 to 64. For women, this is 17% and 66%.[31]

4.7 Survival rates

The share of the population that survives and does not emigrate is depicted in Figure 4.14. The survival curve is shown from the age of 40 onwards, as there were no cases of emigration or death in the age period of 15 to 39, in the constructed life courses. The life courses were constructed from the central cohorts of 39 to 45 years and extended with data on younger (and older) people. Because of this method of construction, there were no life courses that ended before the age of 39.

The figure clearly shows that women, on average, live longer than men. [32] Higher educated people also live longer than lower educated, although this is not clearly visible in this figure, as the lower educated people on average more often would be women and the higher educated more often men. Non-western immigrants, on average, were found to reach a less high age than the native population and western immigrants, although this could partly be explained by the higher incidence of emigration (or remigration) within the first group. During the remaining life course from 46 years onwards, the ratio between emigration/re-migration and death for non-western immigrants is around 21–79, and for the native population this is 3.5–96.5. These data may be less representative, as many of the non-western immigrants who were staying in the Netherlands in the 1999–2005 period would not yet be very old, and therefore there were few deaths within this group. Most of the currently older non-western immigrants came to the Netherlands at a relatively young age, in the 1960s and 1970s. Before these decades, the Netherlands had few 'guest workers', and therefore there are not many immigrants of over the age of 80.

Figure 4.14 Share of the population aged 40 and over that survives and does not emigrate

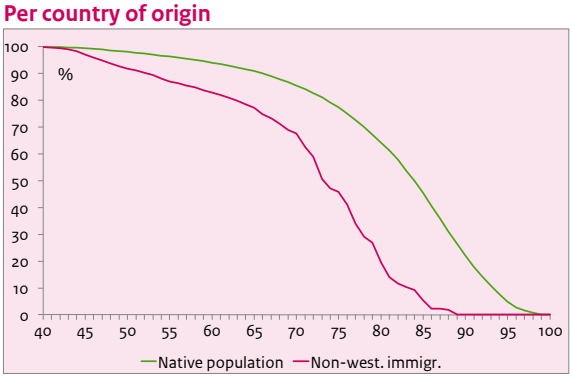


[31] For lower educated non-western immigrants, this is 24% and 67%, for those with a secondary and higher education this is 1% and 38%. 27% of non-western immigrant men were found to have a lower education and for immigrant women this is 46%. Correlations between income shares from various periods were also studied. This only resulted in somewhat more robust correlations (between 50% and 80%) between two consecutive periods for benefits of a longer duration, such as social assistance and disability benefits. This also applies to the periods without personal income. Correlations were found to increase from the age of 40 onwards.

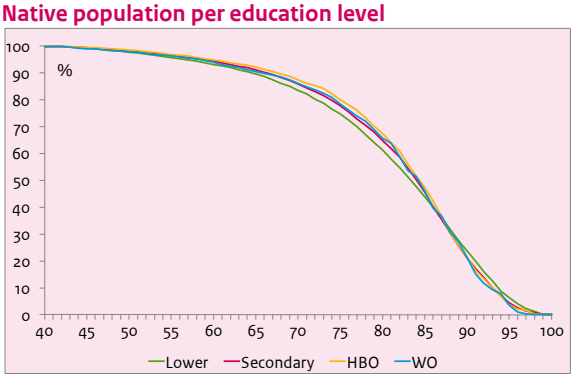
[32] The weighting procedure that was used (see Waaijers, 2006) enables a re-weighting of the data set according to future, longer life courses.

Figure 4.14 continued

Per country of origin



Native population per education level



5 Claim on social security over the life

5.1 Introduction

The number of claims on social security over the life course was found not to be distributed evenly over the population. This chapter describes the determination of which groups (e.g. according to education, gender and country of origin) use the various types of benefits the most or the least. In addition, the relationship between benefits and premium payments was studied, to determine the net recipients and net payers. There are no specific premiums for social assistance. State pension (AOW) premiums are limited to a legal maximum and are not cost-effective, by far. It is assumed that these expenditures, as far as they are not covered by specific premiums, will be financed from income taxes and indirect taxes.

5.2 Benefit payments received over the life course

Benefit payments over the life course amount to around 250,000 euros (see Figure 5.1). The total expenditure on state pension benefit payments (169,000 euros) is far greater than that on unemployment (17,000 euros), disability (48,000 euros) and social assistance (16,000 euros). Higher educated men receive the least in benefits – lower educated women the most. The data in this chapter on educational levels and women with/without children only refer to the native population and western immigrant, because a division into these subgroups was not available for non-western immigrants.

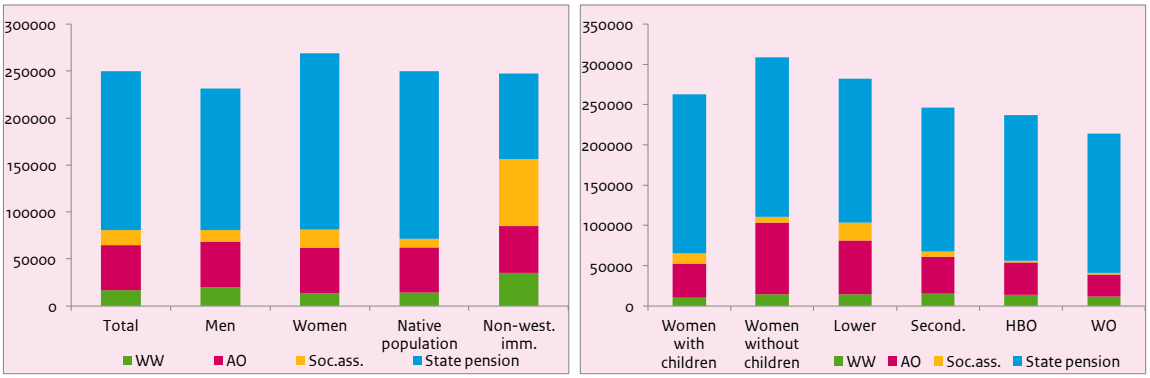
On average, over their life course, men receive more unemployment and disability benefits than women. This can be explained by the fact that men have a greater labour participation than women. Women, on the other hand, on average, receive more social assistance than men. Lower educated people receive markedly more disability or social assistance than the higher educated; total unemployment benefits over the life course hardly vary between educational levels. Non-western immigrants, on average, over the life course, received around 156,000 euros in unemployment (WW), disability (AO) and social assistance, and for the native population and western immigrants this was around 70,000 euros. The difference mostly concerned unemployment and social assistance; and disability benefits varied hardly according to country of origin.[33]

Women, on average, receive substantially more in state pension (AOW) over the life course than men, because they generally live longer. The information on state pensions received by non-western immigrants is biased downwards, due to emigration and re-migration.[34] Benefits received abroad were also not included in the CBSP9905 data set. The lack of observation of course also exists for the native population and western immigrants staying abroad, but is less frequent. Moreover, the average age of death cannot be determined with great accuracy for non-western immigrants, due to the low number of available observations on older non-western immigrants.

[33] In order to determine the cost-effective premiums for the various benefit categories, benefits for non-western immigrants were distributed over unemployment (WW), disability (AO) and social assistance benefits, conform their shares in the source data.

[34] The reported lower state pension (AOW) payments over the life course of non-western immigrants cannot be explained by incomplete AOW build up. The observed pensions received from the age of 65 onwards have been divided into an AOW share and a supplementary pension share, using the statutory AOW amounts for full pension build up, for single people and couples. The actual timespan that non-western immigrants live in the Netherlands between the age of 15 and 65 was not observed. Moreover, the constructed life courses start at the age of 15; this does not fit an incomplete AOW build up.

Figure 5.1 Benefit payments received over the life course, per gender, country of origin and educational level



5.3 Premiums paid over the life course

Premiums and benefit payments related to employee insurances of unemployment and disability are not fully aligned. In the past, premiums would sometimes be less or more cost-effective. Over the long term, premiums are assumed to be cost-effective. Therefore, in order to compare paid premiums and received benefits over the life course, we assumed cost-effective premiums were collected. The basis for the employee insurance premiums is the income over which premiums are due, up to the maximum premium income limit; for WW also a tax exemption applies. For the calculation, a exemption on annual basis was used, such as has been in force since the Financing Social Security Act of 2006; before that time, the exemption was on a daily basis. The calculations did not distinguish between employee and employer premiums. The same basis applies to both types of premiums. In the long term, in particular, it is theoretically irrelevant whether premiums are paid by employers or employees. A shift in premiums after all could be compensated by higher or lower gross wages, causing wage costs for employers and net wages for employees to remain the same.

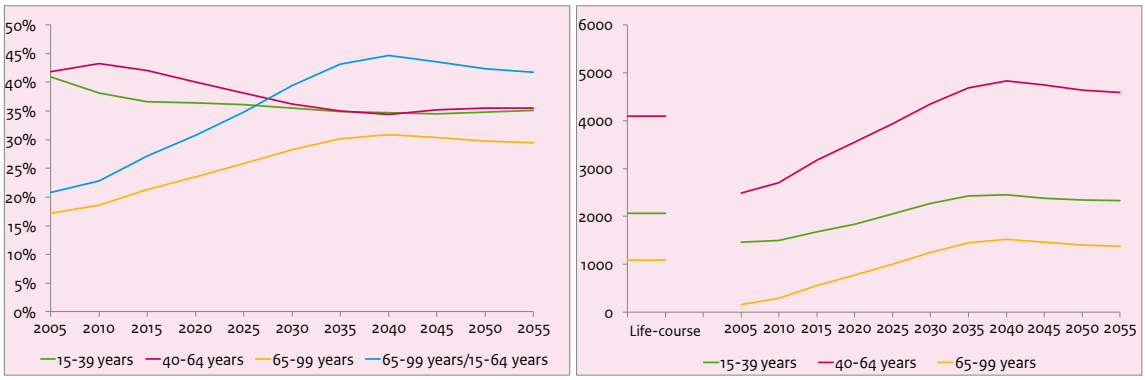
The state pension (AOW) payments partly are paid from AOW premiums of 17.9% of taxable income in the first and second tax bracket. The payable wage tax is reduced by the general tax deduction and possibly labour deduction. The tax deductions, in proportion to their share in the tax rate of the first tax bracket, are deducted from the revenue. The remainder of the AOW expenditures (i.e. AOW payments minus AOW premiums) and the social assistance are financed from a fraction of the general means. The general means, in this study, were set to the sum of wage income taxes and indirect taxes.

Wage tax, similar to AOW premiums, was corrected for the tax deductions. Indirect taxes (VAT, excise, local taxation) were set at 18% of the net income. In reality, consumption is being taxed rather than income, but data on consumption were unavailable. The rate was chosen on the basis of data on consumption and revenue from indirect taxes generated by households. Caminada and De Kam (2007) assume, on the basis of data by Pommer and Jonker (2003), an average pressure on gross income of around 12%. This roughly corresponds with a rate of 16% over the net income. Caminada and De Kam report that pressure from taxation on goods is rather even, compared with gross income, but is higher for the first two income deciles and lower for the highest income decile. When the burden compared to the gross income is recalculated to a burden compared to the net income, the differences would become smaller. Furthermore, the burden on the people with the lowest incomes is also that high because they consume more than their net earnings, while the burden on those with the highest incomes is also low because they consume considerably less than their net earnings. The lowest income decile includes many students, the incomes of which were not fully observed, as information on parental contributions was unavailable. The second income decile includes many pensioners, who perhaps are using some of their earlier collected wealth. As the differences between net incomes and consumption over the life course probably are smaller than in any individual year, the differences in burden over the life course are unlikely to be large.

The cost-effective premiums levied over the base income for unemployment is 5.1% and for disability 6.35%. Social assistance financing requires 4.3% of wage tax revenues and indirect taxes; the remaining financing of state pensions (AOW) requires 22.7%. It must be noted that the current state pension (AOW) expenditure is relatively low, as the current

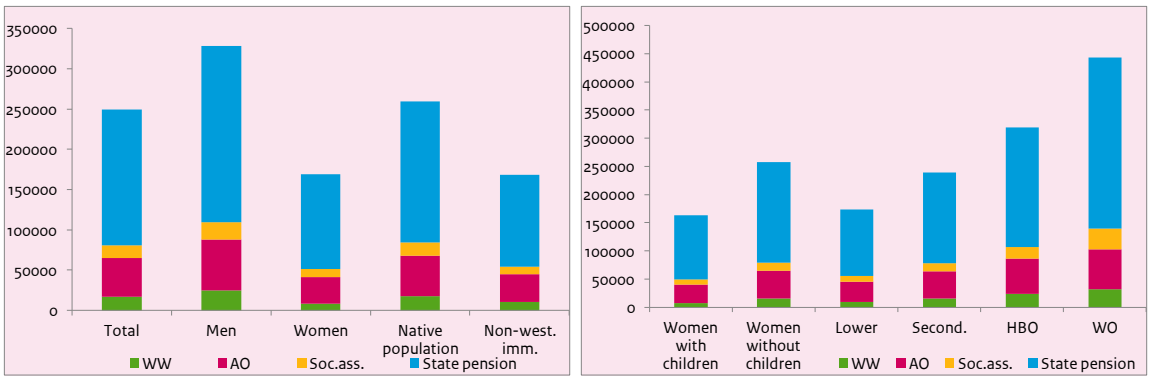
cohorts of people over the age of 65 have been relatively small since they were born. AOW expenditures used in this study are substantially higher because all cohorts are similar in seize at the time of their birth. The pressure from ageing in this study more or less corresponds with the situation projected for the coming decades. Figure 5.2 presents the premium pressure per age category of the life courses in this study, as well as the premium pressure projected for the future at the weighting of the individual life-course age categories, conform the percentages in the left-hand part of the figure.

Figure 5.2 Share of age groups and state-pension premiums, in the 2005–2050 period, at weighted life-course age categories (comparative static analysis)



The average premiums that will be paid over the life course amount to 17,000 euros for unemployment and 48,000 euros for disability, conform the average benefit payments; see Figure 5.3. The average contributions for social assistance amount to 16,000 euros and for AOW to 169,000 euros. On average, men pay more in premiums than women, the higher educated pay more than those that are lower educated, and the native population and western immigrants pay more than non-western immigrants. Lower educated women, on average, pay 29,000 euros, over the life course, for employee insurances; higher educated men pay around 118,000 euros. The lower educated women pay particularly less in premiums for unemployment, as relatively often their annual income does not or hardly exceed the exemption. If all cohorts are of the same size at the time of their birth, over the life course men will pay 219,000 euros in AOW premiums and women 118,000 euros. The total contribution to the financing of WW, AO, social assistance and AOW varies from 103,000 euros for lower educated women to 490,000 for academically educated men.

Figure 5.3 Premiums paid over the life course, according to gender, country of origin and educational level, in euros

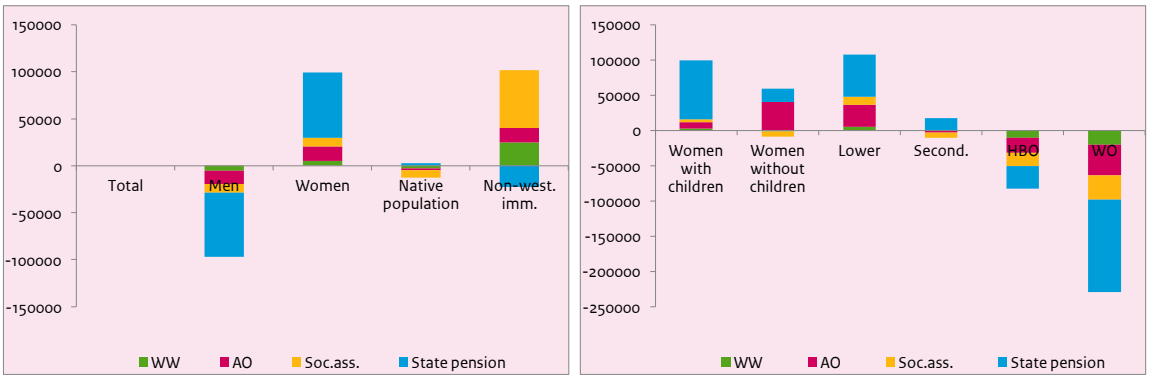


5.4 Benefits minus premiums over the life course

Although premiums and benefit payments on a macro level (at construction) are the same, this is generally not the case for subgroups. On average, lower educated people, women and non-western immigrants receive more in

unemployment, disability and social assistance over their life course than they pay in premiums; the reverse is true for higher educated people (see Figure 5.4).

Figure 5.4 Benefit payments minus premiums over the life course, according to gender, country of origin and educational level, in euros



On average, over the life course, lower educated people, women and non-western immigrants receive more in benefits for unemployment, disability and social assistance benefits than they pay in premiums or attributed taxes, while higher educated people, men and the native population and western immigrants, on average, are net payers (see Figure 5.4). Over the life course, men pay an average of 100,000 euros more for WW, AO, social assistance and AOW than they will receive (see Table 5.1). Women receive an average of 100,000 euros more in benefits than they have contributed to the financing. Women receive relatively much in AOW due to their longevity, but pay relatively little in premiums because of their often part-time employment history.[35] However, as younger cohorts of women work more than the older ones, this difference may become less over the course of time.[36] Academically educated native people contribute around 230,000 euros more than they will receive, whereas lower educated native people will receive around 110,000 euros more than they contribute.[37] Non-western immigrants, who mostly have a low educational level, receive an average amount of 100,000 euros more in WW, AO and social assistance than they contribute.[38] However, non-western immigrants pay more in state pension (AOW) premiums than they will receive, although this result is less reliable. The number of claims on social assistance by non-western immigrants has declined over the past years (see CBS, 2012), and therefore the net gains may also have declined, slightly. On average, the groups of net payers have a higher income and those of net recipients a lower income; see Table 5.2.

[35] The largest difference in gains between men and women (including western immigrants) concerns the state pension (AOW): women have a net gain of 69,000 euros, 51,000 of which (74%) the result of less than average premium payments and 18,000 (26%) of more than average benefit collections; the same percentages are the basis of the net share for men (this also holds after discounting, see Table 5.2). If Δ is the longer life span for group 2 compared to group 1, with U being the AOW benefit payment, P2 the paid premiums of group 2, ΣP the total in paid premiums of both groups and n2 the number of people in group 2, then the net gains Π of group 2 because of the longer life span would be: $\Pi = (1-n2*P2/(\Sigma P-n2*\Delta*U))*\Delta*U$. This is less than $\Delta*U$, as premium payment increase for both groups (group 2 also pays for its own longer life span).

[36] When taking into account the net gains for men with and without children (see footer Table 5.1), the following applies: people with children on average have net gains of 6,000 euros in AOW and a loss of 18,000 euros in WW+AO+social assistance (SA) (i.e. per household of 2 parents, on average, a gain of around 12,000 euros in AOW and a loss of 36,000 euros in WW+AO+SA). People without children, on average, have net losses of 10,000 euros in AOW and net gains of 20,000 euros in WW+AO+SA.

[37] For the native population (incl. west.immigrants), the net loss in AOW for the highest two educational levels, compared to the lower education levels, can fully been attributed to the more than average amounts they pay in premiums; for the sum of WW+AO+SA, the net loss for the higher educated relates for 58% to this higher amount in paid premiums and for 42% to the fewer than average received benefit payments.

[38] For non-western immigrants, 73% of the net gains in WW+AO+SA are due to the more than average received benefit payment and 27% is due to less than average amounts paid in premiums. Standardised according to the educational level of native people, the net gains would be 10% lower. Roodenburg, Euwals and Ter Rele (2003) estimate the discounted value of the net costs of immigration of non-western immigrants at the age of 25 at 43,000 euros, and Van der Geest and Dietvorst (2010) estimate this at 54,800 euros. These results are not directly comparable, as these earlier studies were not limited to social security only, but also included other government expenditures. For non-western immigrants, the discounted value of the net gains, at a discount rate of 2%, amounts to over 12% of wage costs, or 36,000 euros (see Table 5.2. Contributions to the net gains by the benefit payments that deviate from the average (73%) and premiums (27%) remain equal).

Table 5.1 Benefit payments and premiums over the life course, according to gender, country of origin and educational level (in thousand euros)

	WW	AO	Soc.ass.	State Pension	Total
Benefit payments over the life course					
Total	18	48	16	169	251
Men	22	49	13	151	231
Women	15	48	19	187	270
Native population	16	48	9	178	252
Non-west. immigrants	35	50	71	91	248
Women with children[a]	12	42	13	197	264
Women without children	17	88	8	197	309
Lower education[a]	17	66	22	179	284
Secondary education	17	46	6	179	249
HBO	16	40	2	181	239
WO	13	27	2	173	215
Premiums over the life course					
Total	18	48	16	169	251
Men	28	63	22	219	331
Women	9	33	10	118	170
Native population	19	50	17	176	261
Non-west. immigrants	12	34	10	115	171
Women with children	8	33	10	114	164
Women without children	17	49	14	177	258
Lower education	10	36	10	118	174
Secondary education	17	48	14	161	240
HBO	27	62	21	213	322
WO	35	71	37	305	449
Benefits Payments - Premiums					
Total	0	0	0	0	0
Men	-6	-14	-9	-68	-97
Women	6	15	9	70	100
Native population	-3	-2	- 8	3	-9
Non-west. immigrants	23	15	62	-24	77
Women with children	4	9	3	84	100
Women without children	-1	39	-7	20	52
Lower education	7	31	12	60	110
Secondary education	0	-2	-8	18	8
HBO	-11	-22	-18	-32	-84
WO	-22	-44	-34	-133	-233

a) The categories Women with/ without children and the education categories include only the native population and western immigrants,

For native and western immigrant men, the following net gains from WW+AO+Social assistance apply: men with children (MMK): -55, men without children (MZK): 13; net gains State Pension MMK: -78, MZK: -30.

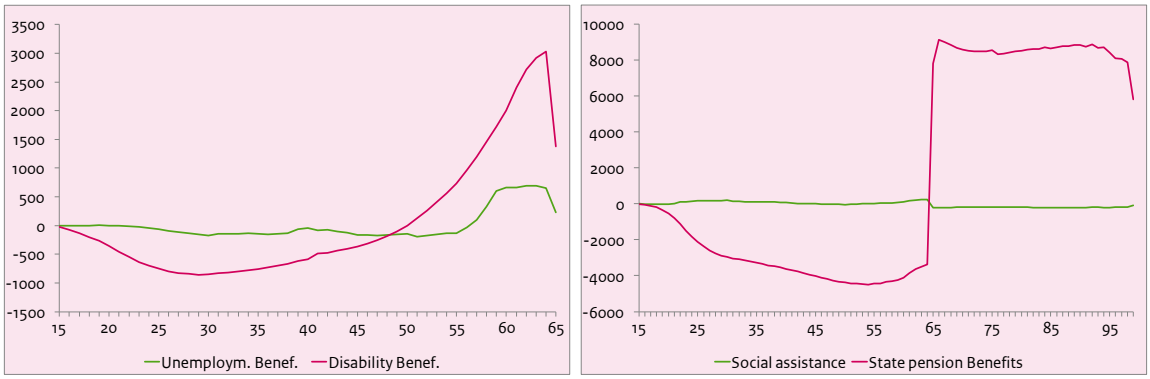
Table 5.2 Premiums, benefit payments and net gains from social security, in % of wage costs

	Total	Men	Women	Nat. wom. w. children	Nat. wom. no children	Native pop.	Non-west. imm.
Wage (in thousand euros)	964	1298	621	603	926	1002	653
Premiums WW,AO,Soc.ass.	8.4	8.4	8.3	8.3	8.6	8.4	8.4
State Pension premiums	17.5	16.8	18.9	18.8	19.2	17.5	17.4
Premiums total	25.9	25.3	27.3	27.1	27.8	25.9	25.8
Paym.WW, AO, Soc.ass.	8.4	6.2	13.1	10.9	12	7.1	24
State Pension payments	17.5	11.6	30.2	32.7	21.3	17.8	14
Payments total	25.9	17.8	43.3	43.6	33.3	24.9	37.9
Net gains in %	0	-7.5	16	16.5	5.5	-1	12.1
Idem, after discounting according to beginning of life course							
Wage (in thousand euros)	424	567	277	269	415	440	292
Premiums WW,AO, Soc.ass.	7.3	7.4	7	6.9	7.3	7.3	7.2
State Pension premiums	8.9	8.7	9.4	9.3	9.7	8.9	9
Premiums total	16.2	16.1	16.4	16.2	17	16.2	16.1
Paym.WW, AO, Soc.ass..	7.3	5.2	11.6	9.6	10.1	6.1	21
State Pension payments	8.9	6.1	15	16.1	10.5	9.1	7.5
Payments total	16.2	11.3	26.5	25.7	20.7	15.2	28.6
Net gains in %	0	-4.8	10.2	9.6	3.7	-1	12.4

	Native population				Including non-west. immigrants	
	Lower	Secondary	HBO	WO	Lower	Non-lower
Wage (in thousand euros)	659	913	1258	1734	612	1091
Premiums WW,AO, Soc.ass.	8.4	8.5	8.5	8	8.4	8.4
State Pension premiums	18	17.6	16.9	17.5	18.3	17.4
Premiums total	26.4	26.2	25.4	25.6	26.7	25.7
Paym.WW, AO, Soc.ass.	15.7	7.4	4.5	2.4	19.4	6.2
State Pension payments	27.1	19.6	14.3	10	27.2	15.5
Payments total	42.8	27	18.8	12.3	46.6	21.7
Net gains in %	16.4	0.8	-6.5	-13.2	20	-4
After discounting according to beginning of life course						
Wage (in thousand euros)	303	409	540	720	283	475
Premiums WW,AO, Soc.ass.	7.1	7.3	7.4	7.2	7.1	7.3
State Pension premiums	9	8.9	8.7	9.2	9.1	8.9
Premiums total	16.1	16.2	16.1	16.4	16.2	16.2
Paym.WW, AO, Soc.ass.	13.6	6.1	3.7	2	16.9	5.2
State Pension payments	13.1	9.8	7.5	5.4	13.2	8
Payments total	26.8	15.9	11.2	7.4	30.1	13.2
Net gains in %	10.6	-0.4	-4.9	-9	13.9	-3

				Result of Benefits and Premiums (%-mutation)		
	Gini	VC	R80/20	Gini	VC	R80/20
Wage (Total income)	0.372 (0.333)	2.69 (2.34)	7.60 (5.82)	-23 (-21)	-23 (-21)	-51 (-44)
idem discounted	0.350 (0.319)	2.51 (2.23)	8.19 (6.77)	-18 (-18)	-18 (-17)	-40(-38)

Figure 5.5 Benefit payments minus premiums over the life course, according to age, in euros, per year



The difference between benefits received and premiums paid changes over the life course; see Figure 5.5. For young people, on average, the amount in premiums paid for unemployment and disability is higher than the amount they will receive in benefit payments. For older people, the opposite is true. For unemployment (WW) this starts at the age of 57, for disability (AO) at 51. For social assistance, the net result is positive (gains) at the age of 65 and subsequenly becomes negative (losses); for state pensions (AOW), the opposite is true.

The effects of the average premiums paid, benefits received and net gains related to social security may also be expressed as the percentage of wage costs (here, addressed as fiscal wage including premium payments for WW and AO). To enable comparison of our results to those from an earlier study by Ter Rele (2007), also the corresponding data including discounting according to zero age have been given; see Table 5.2. For AOW, in particular, premiums and benefit payments were found to substantially lower after discounting, as payments occur late in life and the premiums are lowered correspondingly (thus, over the entire population, the amounts in premiums and benefit payments remain equal). Net gains, after discounting at 2%, vary from -9% for wage costs related to academics, to +11% for lower educated people. The range is smaller than that found by Ter Rele (2007), but that study concerned all government expenditures and not only those on social security.

The bottom 2 rows of table 5.2 show the net effect of taxes and benefit payments on the nominal distribution of wages plus benefit payments and also at discounting (of 2%). Here, three inequality standards were used: GINI (the Gini coefficient), VC (the variation coefficient (standard deviation/average)), and R80/20: the average wage of the upper 2 deciles of the wage distribution divided by the average wage of the lower 2 deciles. The variation coefficient VC was included because this is easier to interpret than the Gini coefficient and because it is also often used according to the literature on income distributions.[39] It should be noted that the mutations of GINI equal those of VC. The ration R80/20 of the average of the top 20% of the wage compared to the average of the lowest 20% was included, as this provides more insight than the GINI into the effect of transfers from high to low incomes (the Gini coefficient is slightly less sensitive to changes in the tails of the distribution and is especially sensitive to changes around the average). Thus, GINI and R80/20 complement each other rather well.[40]

In addition to these effect, also included were those of taxes and benefit on nominal and discounted total incomes excluding the actual benefit payments (i.e. income from labour plus supplementary pensions). Not only is the distribution of the total income less inequal (lower values for Gini coefficients, VC and R80/20), but the effect of social security on income distribution are also smaller (the mutation in Gini coefficient, VC and R80/20 ratio now is around 90% of that of the wages).

[39] For a lognormal distribution of y, GINI = $2\Phi(\sigma/\sqrt{2})-1$, where σ is the standard deviation of log(y) and Φ is the standard normal distribution function. In addition, also: $\sigma^2 = \log(1+vc^2)$, with vc being the variation coefficient of y. See J. Aitchison and J.A.C. Brown (1963), The lognormal distribution, Cambridge University Press.

[40] M. van den Brakel-Hofmans (2007), De ongelijkheid van inkomens in Nederland, Sociaal Economische trends, 3e kwartaal 2007 [*The inequality of incomes in the Netherlands, socioeconomic trends, 3rd quarter 2007*], CBS, The Hague.

The Gini coefficient in Table 5.2, after discounting, and its mutation due to benefits and premium payments, are in keeping with results found earlier by Nelissen (1998).[41] It should be noted that the premium and benefit percentages, except those related to AOW payments, after discounting show reasonable agreement with non-discounted percentages. For AOW, the discounting effect on benefits is far greater than for WW, AO and social assistance, as benefit payments only take place in the last part of the life course.

5.5 Net recipients and net payers over the life course

On an individual level, benefits received and premiums paid are not the same over the life course. If they were, benefit payments could be financed from individually paid premiums.

The net recipients of unemployment (WW), disability (AO) and social assistance, together over one third of the population, receive an average of around 200,000 euros in benefits, 150,000 euros of which are paid by others (see Table 5.3). The share of self-financed benefit payments (SFB) over the life course, for this group, is around a quarter. Net payers, nearly two thirds of the population, pay an average net amount of around 80,000 euros. For the total population, 36% of the total in WW, AO and social assistance is self-financed. Thus, WW, AO and social assistance regulations mostly lead to a redistribution of income between people (inter-personal) and less to a redistribution over their own life courses (intra-personal: for the self-financed share, benefits are not completely financed from the premiums paid in the same year). The small degree of self-financing is also due to the fact that a large share of the population, over the life course, does not or for only very short periods of time receive any of the benefits that they pay premiums for.

The net recipients of state pension (AOW), which is half the population, receive an average of around 229,000 euros in AOW. On average, they pay for about half of this themselves; the other half is paid for by other. For the total population, 68% of AOW payments are self-financed. The AOW, thus, leads to a more limited inter-personal redistribution than the WW, AO or social assistance.

[41] Nelissen (1998), 'Annual versus lifetime income redistribution by social security', Journal of Public Economics 68, p. 246. For cohorts with the birth years of 1930 and 1950, on the basis of dynamic micro-simulation using cross-sectional data, Nelissen found a gross wage Gini coefficient of 0.345 with a mutation of -19% (1930) and 0.30 with a mutation of -10% (1950). Also in line with results found by us are his reported distributions of benefits and premiums over decile categories of the for household composition corrected (equivalent) fiscal life-course incomes: of the benefit payments, around 21% goes to the lowest vintile (our study: 29%) and 17% to the highest (our study: 14%); of the premiums, 9% is paid by the lowest vintile (our study: 8%) and 28% by the highest (our study: 36%). These results were based on a slightly more elaborate package of benefits and premiums (including child benefits and premium for health care (ZFW)) than ours, a dynamic demographic and for household composition corrected income levels (our results do not include such a correction and have a set demographic conform the situation of 2005).

Table 5.3 Benefits and benefit payments minus premiums for Unemployment (WW), Disability (AO), social assistance and State Pension (AOW) Benefits over the life course, according to net recipients and net payers (average amounts)

		Native population		Non-west. Immigr.		Native population		Non-west. Immigr.	
	Total	Men	Women	Men	Women	Men	Women	Men	Women
WW+AO+Social assistance									
Benefit payments net recipients, in thousand euros						Population share in %			
edu=1[a]	204	239	168	245	227	4	7	1	2
edu=2–4	198	221	181	204	196	7	9	2	2
Total	201	228	175	219	213	11	16	4	4
Benefits - premiums, net recipients, in thousand euro (a)									
edu=1	168	177	141	207	211				
edu=2–4	139	138	133	152	156				
Total	151	153	136	171	187				
Benefit payments net payers, in thousand euros						Population share in %			
edu=1	19	28	10	34	11	6	6	0	0
edu=2–4	19	22	13	28	30	28	22	2	1
Total	19	23	12	29	27	34	28	2	1
Benefits - premiums, net recipients, in thousand euros (a)									
edu=1	-50	-75	-27	-55	-18				
edu=2–4	-85	-110	-55	-82	-48				
Total	-78	-104	-49	-78	-44				
State Pensions									
Benefit payments net recipients, in thousand euros						Population share in %			
edu=1	220	232	233	158	136	4	11	1	2
edu=2–4	233	237	239	134	153	9	22	1	1
Total	229	235	237	145	143	13	32	1	3
Benefits - premiums, net recipients, in thousand euro (a)									
edu=1	129	81	158	65	85				
edu=2–4	101	66	119	48	64				
Total	110	71	131	56	76				
Benefit payments net recipients, in thousand euros						Population share in %			
edu=1	73	96	39	50	26	6	2	1	1
edu=2–4	118	136	98	66	62	26	1	4	2
Total	109	129	87	62	52	32	12	5	2
Benefits - premiums, net recipients, in thousand euros (b)									
edu=1	-74	-90	-50	-61	-31				
edu=2–4	-118	-135	-84	-98	-72				
Total	-109	-127	-78	-90	-60				

(a) edu=1: lower education (VMBO and less); edu=2–4: non-lower education

(b) State Pensions (AOW), in addition to AOW premiums, and Social assistance are financed from wage and income taxes and indirect taxes.

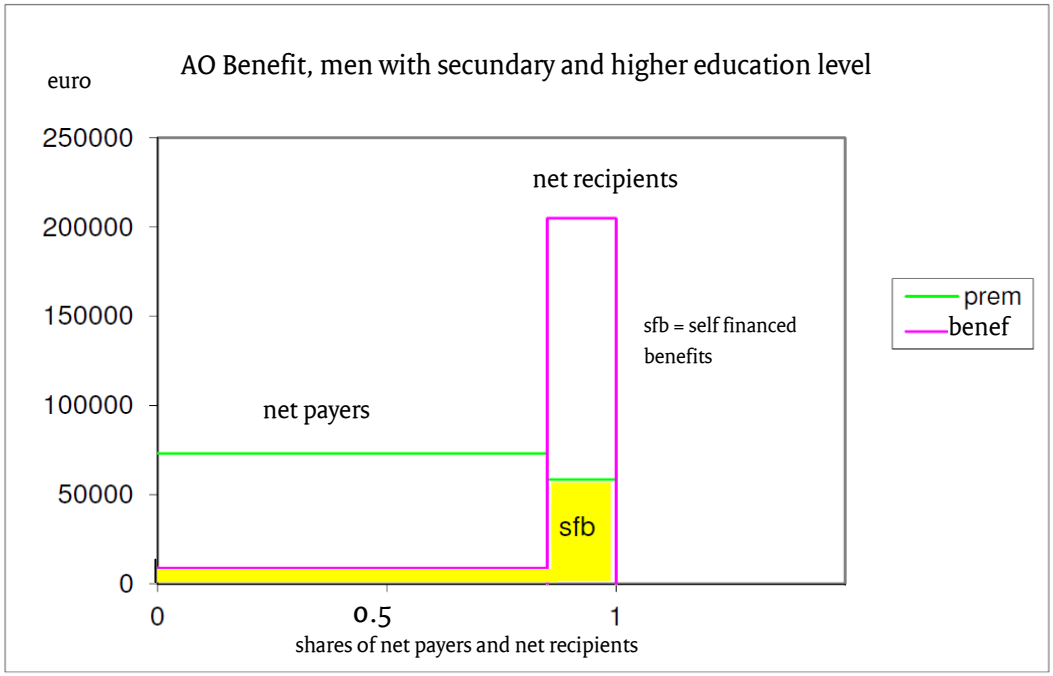
Table 5.4 Incomes, total benefit payments and benefit payments minus premiums over the life course, according to net recipients and net payers (average amounts)

		Native population		Non-west. immigr.		Native population		Non-west. immigr.	
	Total	Men	Women	Men	Women	Men	Women	Men	Women
Net recipients,	Income of employees plus self-employed, in thousand euros					Population share in %			
edu=1	420	720	355	419	169	4	11	1	2
edu=2–4	614	845	555	536	406	7	20	2	2
Total	540	799	483	492	273	12	31	3	4
Benefit payments, net recipients, in thousand euros									
edu=1	343	399	322	356	330				
edu=2–4	328	373	317	300	295				
Total	334	383	319	321	315				
Benefits - premiums, net recipients, in thousand euro									
edu=1	222	204	220	233	264				
edu=2–4	158	148	161	157	170				
Total	182	169	182	186	223				
Net payers,	Income of employees plus self-employed, in thousand euros					Population share in %			
edu=1	1116	1269	686	932	477	6	2	0	0
edu=2–4	1496	1705	1093	1258	969	28	12	2	1
Total	1438	1632	1043	1205	917	33	13	3	1
Benefit payments, net payers, in thousand euros									
edu=1	149	167	95	136	69				
edu=2–4	171	182	157	122	136				
Total	168	180	150	124	129				
Benefits - premiums, net recipients, in thousand euro									
edu=1	-118	-137	-67	-90	-44				
edu=2–4	-189	-223	-119	-176	-106				
Total	-178	-208	-113	-162	-99				

Conform expectations, Table 5.4 shows that net payers over the life course, on average, had substantially higher incomes from paid employment than the net recipients of social security benefits. The net recipients of the total in benefit payments of WW, AO, social assistance and AOW, which is half the population, receive an average of around 330,000 euros, 180,000 of which is paid for by others. For the total population, 64% of WW, AO, social assistance and AOW benefits are self-financed (of which 3/4 is redistributed within the life course, see Table 5.5). This is more or less in line with results from the study by Bovenberg, Hansen and Sørensen (2006, Table 5), who arrived at a self-financing percentage of 74% for a slightly more elaborate package of benefits.[42]

[42] Their study also included payments related to rent subsidies, early retirement (VUT), education and scholarships, child benefits and parental leave. The contributions for these and other benefits have been distributed over a larger share of the population, causing the self-financing percentage to also be higher, also including the share that is both received and paid for within the same years (42%).

Figure 5.6 Benefits payments and premiums Disability (AO) Benefit, net recipients and payers, in euros



The degree to which a socioeconomic group experiences gain from a regulation can be indicated via the balance of paid premiums and received benefits and via the share in self-financed benefits (SFB). The results for these two criteria sometimes appear to oppose each other. A payment surplus for an entire group can coincide with a relatively small share in self-financed benefits, such as is shown in Figure 5.6. Secondary to higher educated native men pay more in premiums (space below the green line) than they receive in disability benefits (space below the pink line). Nevertheless, the share of self-financed benefits is relatively small (yellow space). This is explained by the fact that a large share of this group pays relatively much in premiums while they receive few or no benefit payments; on the other hand, from this same group there is a small share that in fact receives a large share of the benefits – this large share by far exceeds the premiums paid by them.

The degree to which people finance their own social security is illustrated in Figure 5.7, per decile of labour income. The green sections of the bars indicate the degree to which people finance their own social security (SF); the red section indicate which part of the received benefit payments are paid for by others (non-self-financed (NSF)), and the yellow sections represent the degree to which they finance other people's benefits (transferred (TF)). The sum of the red and green sections represents the total in benefit payments, the sum of the yellow and green sections is the total in premiums. The figure shows that those in the lowest deciles of the labour income receive relatively much in benefits financed by others, and that those in the highest deciles pay a relatively large amount in premiums for the social security of others. This image is confirmed by the figures in Table 5.5.

Figure 5.7 Financing and use of social security, per decile category of labour income,Self financed (SF), Non-Self Financed (NSF), Transferred (TF), in thousand euros

By discounting to the beginning of the life course, AOW benefits are reduced to around 1/5 and other benefits to 2/5 of their nominal values (see Table 5.2). When discounted, the development of the total in benefits in Figure 5.7 will thus present an image that is similar to that of other benefits.

Table 5.5 Financing of social security according to decile category, benefit payments minus premiums and self-financed (SF) benefits for net recipients and net payers, in thousand euros

Decile of labour income	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	Average
Average labour income	107	295	464	629	799	972	1140	1322	1591	2630	995
Total benefits											
Benefits-prem. recipients	284	232	191	149	118	95	76	70	62	73	182
SF benefit recipients[a]	52	89	127	166	212	259	308	349	400	519	151
of which in the same year	33	37	41	44	51	61	71	81	95	161	45
Benefits-premium payers	-19	-40	-61	-72	-83	-95	-114	-148	-202	-380	-178
SF benefit payers	7	27	43	71	108	146	177	193	202	204	168
of which in the same year	1	5	9	13	20	27	33	38	43	52	35
no. of recipients in %	9.5	9.0	8.4	7.8	6.2	4.4	2.5	1.1	0.4	0.1	49.4
no. of payers in %	0.6	1.0	1.5	2.2	3.7	5.5	7.5	8.9	9.5	9.9	50.6
State Pensions (AOW)											
Benefits prem. recipients	153	148	134	114	91	71	57	46	38	27	110
SF benefit recipients	42	65	88	113	141	171	199	227	260	300	118
of which in the same year	12	15	17	20	22	24	26	31	37	43	20
Benefits premium payers	-24	-41	-58	-65	-74	-79	-81	-89	-107	-233	-109
SF benefit payers	8	16	24	41	59	82	110	131	154	174	109
of which in the same year	1	1	2	3	6	9	12	17	24	38	17
no. of recipients in %	7.8	7.6	7.4	7.2	6.2	5.3	4.1	2.8	1.2	0.1	49.7
no. of payers in %	2.3	2.4	2.6	2.8	3.8	4.6	5.9	7.2	8.8	9.9	50.3
Unemployment (WW) + Disability (AO) + Social assistance											
Benefits prem. recipients	221	176	149	131	119	101	89	86	85	87	151
SF benefit recipients	11	24	38	52	68	86	104	122	138	163	50
of which in the same year	3	4	6	7	9	11	12	13	15	18	7
Benefits premium payers	-8	-18	-27	-37	-47	-59	-75	-95	-118	-157	-78
SF benefit payers	2	5	8	11	17	23	25	25	24	21	19
of which in the same year	0	1	1	2	3	4	4	5	4	4	3
no. of recipients in %	7.1	6.2	5.4	4.4	3.7	2.9	2.0	1.2	0.8	0.4	34.1
no. of payers in %	3.0	3.8	4.6	5.6	6.3	7.1	8.0	8.8	9.1	9.6	65.9

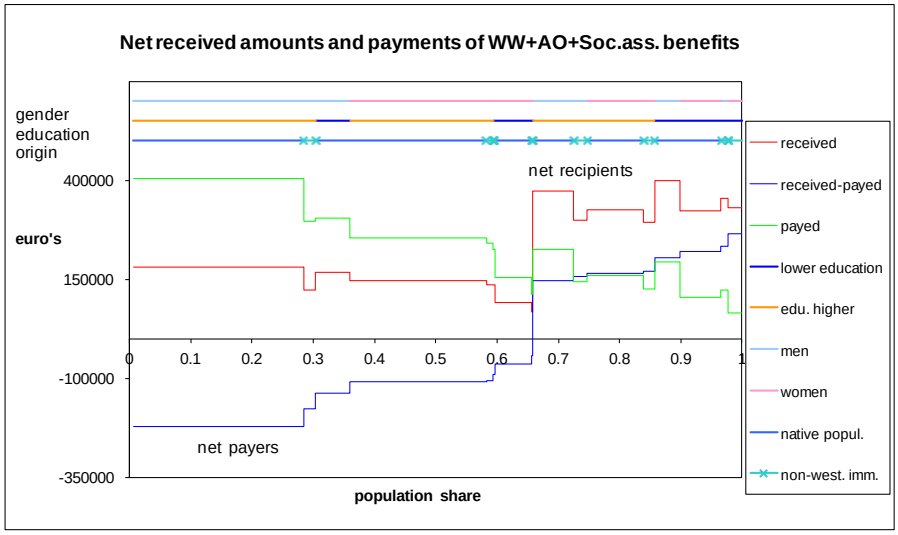
(a) SF benefits are self-financed benefits, partly related to the same years in which the benefits are received.

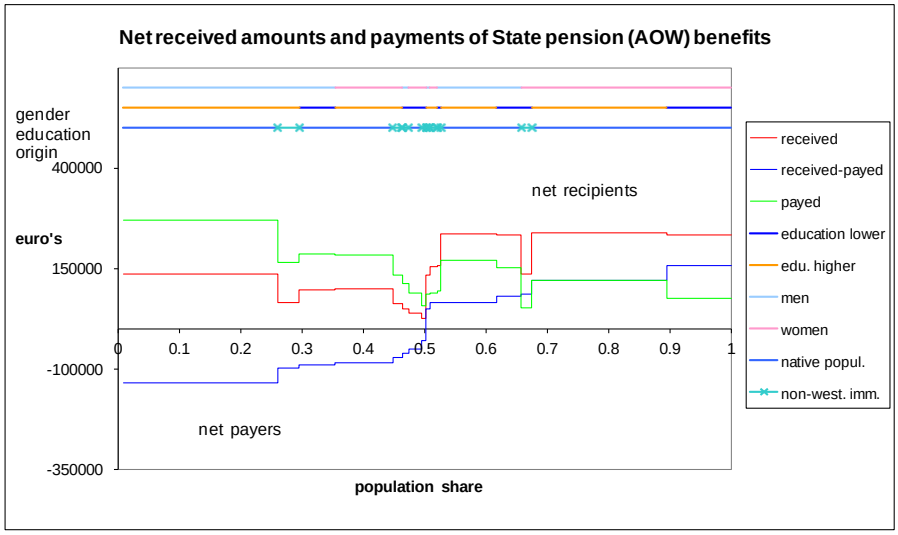
Table 5.5 Financing of social security, according to decile category, in thousand euros (continued)

Decile of labour income	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	Average
Average labour income	107	295	464	629	799	972	1140	1322	1591	2630	995
Unemployment (WW) Benefits (native population)											
Benefits-prem. recipients	13	21	26	33	37	43	47	50	50	49	32
SF benefit recipients[a]	0	1	3	6	11	16	22	28	33	33	10
of which in the same year	0	0	0	0	0	1	1	1	1	1	0
Benefits-premium payers	0	-1	-3	-5	-9	-14	-19	-26	-33	-37	-19
SF benefit payers	0	0	1	1	2	3	3	3	4	4	2
of which in the same year	0	0	0	0	0	0	0	0	0	0	0
no. of recipients in %	4.4	6.1	5.7	4.7	4.1	3.3	2.6	1.8	1.5	1.2	35.4
no. of payers in %	3.7	3.6	4.4	5.5	6.2	6.8	7.7	8.4	8.9	9.4	64.6
Disability (AO) Benefits (native population)											
Benefits-prem. recipients	230	180	156	147	139	114	99	93	93	96	150
SF benefit recipients[a]	7	17	27	36	45	55	64	73	79	82	39
of which in the same year	1	2	2	4	4	6	7	7	7	7	4
Benefits-premium payers	-6	-15	-23	-30	-37	-45	-53	-63	-73	-79	-47
SF benefit payers	0	1	3	4	6	8	10	10	8	5	6
of which in the same year	0	0	0	1	1	1	2	2	1	1	1
no. of recipients in %	3.1	3.8	3.2	2.9	2.8	2.5	1.9	1.3	1.0	0.7	23.1
no. of payers in %	5.0	6.0	6.8	7.2	7.5	7.6	8.5	8.9	9.4	9.9	76.9
Social assistance (native population)											
Benefits-prem. recipients	128	82	67	48	36	31	29	39	26	34	79
SF benefit recipients[a]	4	6	7	9	11	13	16	21	27	51	7
of which in the same year	1	1	1	1	1	1	1	1	1	3	1
Benefits-premium payers	-4	-5	-7	-8	-10	-12	-15	-18	-25	-53	-17
SF benefit payers	0	0	0	0	0	0	0	0	0	0	0
of which in the same year	0	0	0	0	0	0	0	0	0	0	0
no. of recipients in %	2.8	2.4	1.9	1.4	0.9	0.4	0.2	0.1	0.0	0.0	10.2
no. of payers in %	5.3	7.3	8.2	8.8	9.3	9.7	10.1	10.1	10.4	10.5	89.8

(a) The share of recipients and payers of unemployment (WW), disability (AO) and Social assistance per decile does not fully add up to 10 percentage points, as the division in deciles is based on the entire population and the data on these particular benefits by themselves only concern the native population and western immigrants. These population groups are underrepresented in the lowest deciles and overrepresented in the highest deciles.

Figure 5.8 Benefits and premiums over the life course, according to gender, country of origin and educ. level





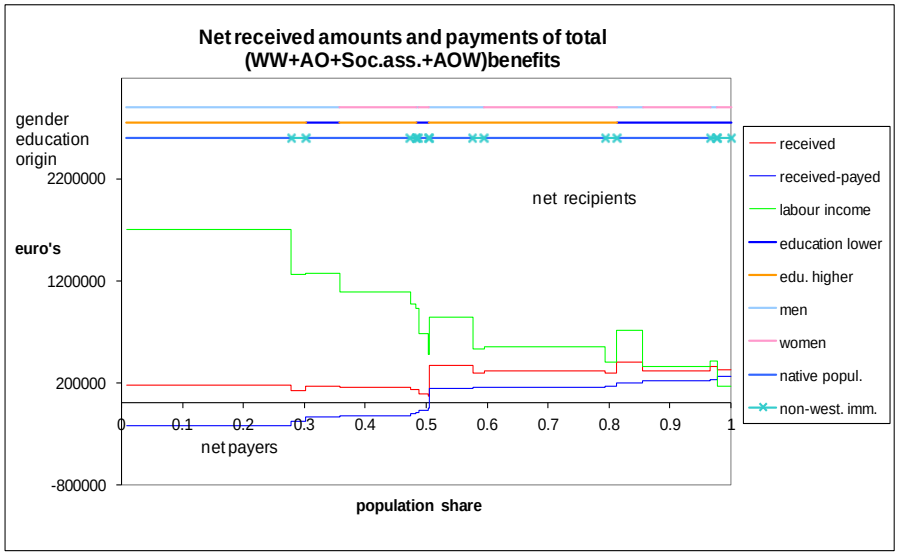
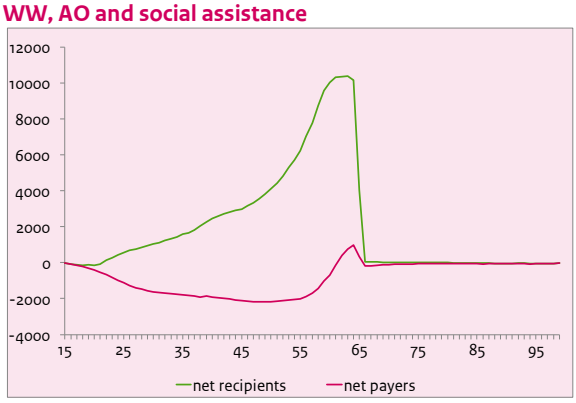


Figure 5.8 shows the benefit payments minus premiums, ordered according to level (blue line), for net recipients and net payers. The size of the groups is shown along the horizontal axis; the benefits received, premiums paid and the difference between these for the various groups are shows along the vertical axis. The coulors of the lines at the top of the graphs indicate gender, education and country of origin (native population+western immigrants, non-western immigrants). The last of the graphs also shows the relationship with labour income (green line in *this* graph). From the graphs can be deduced that the largest net payers (left part of the blue line, according to the horizontal axis around 28% of the population) belong to the native population and western immigrants, and that they are higher educated as well as male (see indicator lines at the top of the graph). The three indicator lines determine how premiums, benefits and net gains are distributed among the population: relatively many lower educated people, women and non-western immigrants (and their combinations) belong to the group of largest net recipients (right part of the blue line, from 0.8 on the horizontal axis, or around 20% of the population). These lines also indicate that net recipients and net payers can be found in all groups of the population.

The difference between the average amounts in benefits received and premiums paid, over the life course, as depicted in Figure 5.5, could also be determined for net recipients and net payers, separately. The results of this are shown in Figure 5.9.

Figure 5.9 Benefits minus premiums, according to age, net recipients and payers, in euros

WW, AO and social assistance



State pensions

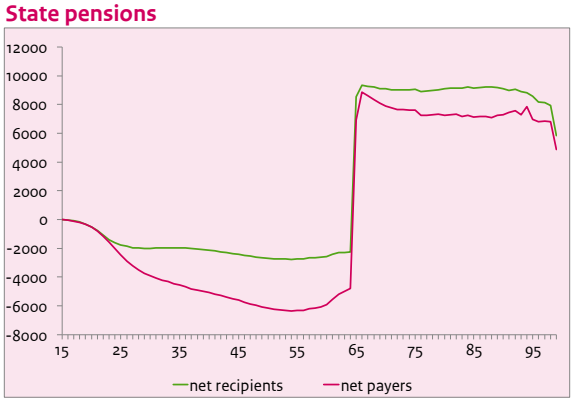


Table 5.6 Average macro and individual self-financed benefit percentages for benefit recipients

	For benefit deciles 1 to 10 (all benefits)								For deciles 1 to 8							
	WW1	WWT	WAB1	WABT	AOW1	AOWT	UIT1	UITT	WW1	WWT	WAB1	WABT	AOW1	AOWT	UIT1	UITT
Macro	25	**34**	25	**36**	52	**68**	45	**64**	32	**51**	47	**67**	56	**75**	54	**77**
weighting	88	100	86	100	67	100	66	100	72	100	62	100	57	100	51	100
Micro	27	**56**	36	**71**	53	**74**	49	**74**	30	**64**	50	**83**	56	**79**	53	**80**
weighting	60	100	46	100	56	100	51	100	50	100	32	100	48	100	42	100

WAB = Unemployment(WW)+Disability(AO)+social assistance; AOW = State Pensions; UIT = WW +AO+social assistance+AOW;
1=netto-recipients; T=Total; percentage of self-financing of net payers is 100.
Results for all benefits within each category are shown in bold.

Up to this point, self-financing averages and percentages were related to benefit totals for population *groups* (e.g. according to gender or decile category of labour income). This is required to enable a comparison with results from other studies (e.g. Bovenberg, Hansen and Sørensen (2006); Ter Rele (2007)). This would be a 'macro' approach. In addition, a 'micro' approach is also important, which uses the averages of the *individual* self-financing percentages.

Table 5.6 shows the macro and micro self-financing percentages (SFB) for the total in benefits and the first eight deciles per benefit category. Macro is the self-financing percentage of the total in WW, AO, social assistance and AOW of 64% (top row under 'UITT'). For micro, this percentage is 74% (third row under 'UITT' on the left). The table provides both percentages, for net recipients as well as for the total of benefit recipients (the self-financing percentage of net payers is 100%), with their weighting (in %). The difference between macro and micro is that, for micro, only *people* are weighted (a benefit with a small degree of self-financing carries the same weight as one that is largely self-financed), while, for macro, the height of the *benefit payments* is weighted.

The self-financing of the total in unemployment (WW), disability (AO) and social assistance amount to an average of macro 36% and micro 71%.[43] The low self-financing percentage of the group of benefit recipients as a whole is partly covered by the net paying benefit recipients, but especially by the large group of net payers who only pay premiums and do not receive any benefits themselves (not included in Table 5.6). Measured according to the amounts of the financing sources (in macro terms) can be said that WW, AO and social assistance leads to a redistribution of funds between people (inter-personal) and only to a limited degree to self-financing. For the self-financed share, redistribution largely takes place over the life course (intra-personal).[44] Differences between macro and micro are much smaller for state pensions (AOW) and thus for the total in benefits (due to the magnitude of AOW benefits).

If the 20% highest benefit payments (deciles 9 and 10), with a relatively small degree of self-financing, are left out, then particularly the macro self-financing percentages (weighted according to amounts) become substantially higher (right part of Table 5.6). The average self-financing also increases on a micro level: 2/3 of unemployment (WW) benefits are thus self-financed, for the other benefits this is around 80%. These effect both result from the larger shares of net payers (with 100% self-financing) and the greater self-financing by net recipients. The large degree of self-financing in the past has been the reason to consider a possible form of 'WW savings' – according to this form, a large share of benefit payments would be financed from individual savings.

Before we elaborate on this form in the following section, the individual benefits are analysed in further detail, such as the relationship with labour income. Above, the emphasis is on redistribution of the net gains of social security between population groups (as in Figure 5.7), for which discounting was less determinable for the results. However, from an *individual* savings perspective, such discounting IS important. Therefore, below we assumed discounted figures on incomes and premiums (which is also stated in Figures 5.10, 5.11 and 5.12, and in Tables 5.7 and 5.8).[45]

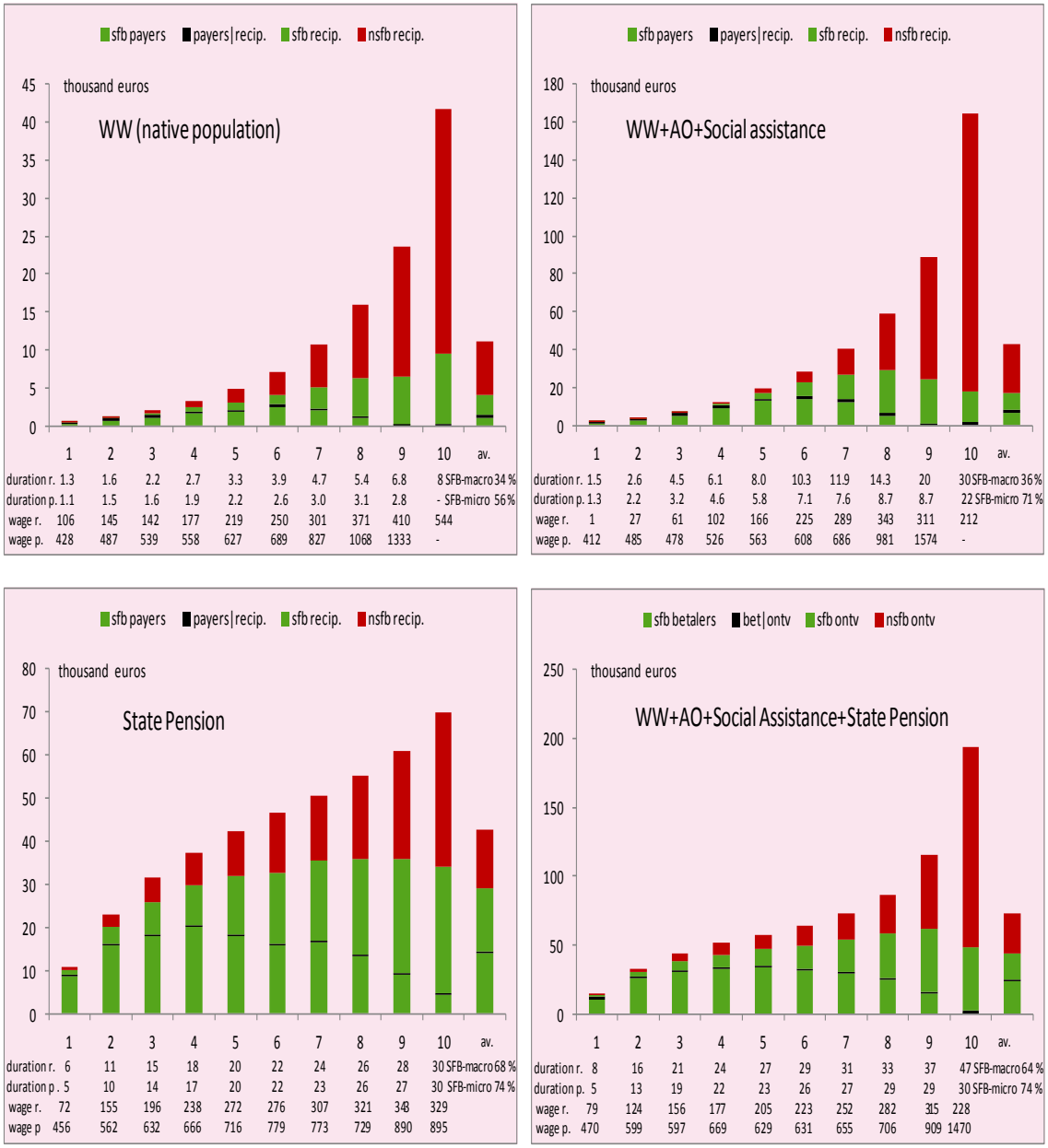
The average benefits per *benefit* decile appeared unevenly distributed; see Figure 5.10. A large share of the population was found to receive few benefits; particularly with respect to WW, AO and social assistance, and a small share received many. The image presented in Figure 5.10 corresponds with the Lorenz curves in Figure 4.12. Net recipients and net payers both receive the same amount in benefits within a certain decile category. The ratio between *numbers* of recipients and payers corresponds with the ratio between bar lengths above and under the dividing line. The SFB shares are indicated in green and the non-SFB shares in red; for net payers, 100% is self-financed (lower part of the bar), while for net recipients, (upper part of the bar) the SFB percentage corresponds with the ratio between the green coloured part and the total bar

[43] SFB macro works out much lower than SFB micro, because often the highest benefit *amounts* (used in macro weighting) have the smallest degree of self-financing. This causes SFB percentages for net recipients macro to be lower, while it also gives a greater weight in the total SFB percentage than for micro. This applies especially to social assistance (SA) benefits and to a lesser degree also to WW and AO. Furthermore, for macro, the weighting of net paying benefit recipients with a relatively small benefit payment is much smaller than on an individual level (micro). In an equation: SFB micro = 1/N Σ(sfb/u), with N number of benefit recipients and Σ(sfb/u) the sum of the individual shares of self-financing. This means that: SFB micro total= N_1/N SFB $micro_1$ + N_2/N SFB $micro_2$, with category 1=net recipient and 2=net payer. SFB macro = $\Sigma sfb/\Sigma u = \Sigma\, q_i\,(sfb/u)_i$ with $q_i = u_i/\Sigma u$. If $q_i \approx 1/N$ (all benefits being about equal) then SFB micro = SFB macro. To both micro and macro applies: SFB $micro_2$ = 100%. SFB macro *population* equals SFB macro benefit recipient population. SFB micro population: not defined. SFB macro and SFB micro, discounted, differ only marginally from those on nominal basis.

[44] Premiums that are payed for individual benefits (SFB) partly takes place in the years in which people receive a benefit (sfb_{yr}). The quotient of *average* sfb_{yr} divided by a*verage* SFB comes to 0% for WW, 12% for AO, 0% for SA, 16% for AOW, and 25% for WW+AO+SA+AOW (see Table 5.5 last column, average SF in the same year / average SF). These quotients enable comparison with the study by Sørensen, Hansen and Bovenberg. The following percentages apply to the average of the *individual quotients* (successively for recipients, payers and the total): for WW 1, 13, 6; for AO 3, 24, 13; for SA 2, 13, 6; for WW+AO+SA 5, 32, 4; for AOW 8, 15, 11; and for WW+AO+SA+AOW 13, 24, 18. The following median percentages apply to the individual quotients: for WW 0, 4, 0; for AO 1, 16, 4; for SA 2, 6, 2; for WW+AO+SA 3, 22, 3; for AOW 7, 12, 9; and for WW+AO+SA+AOW 12, 20, 25.

[45] The discounted results in Table 5.2 on the redistribution of net gains are similar to their nominal equivalents. They were included to enable comparisons with other studies (see Section 5.4).

Figure 5.10 Benefits according to finance source (discounted), wages (discounted) and benefit duration, for net payers and net recipients, per benefit decile category



length above the dividing line. The most right bar (with the abbreviation 'av.' beneath it) represents the averages per benefit category. This bar includes the degree of self-financing, both the average per person (micro) and the average per benefit (macro).[46] This figure shows that people with the highest benefit payments over the life course only finance this themselves to a very limited degree.

[46] Within a decile, benefits are more or less similar, thus: SFB micro ≈ SFB macro. In addition, benefit durations (number of years in which an amount in benefits is received) and wages are indicated for net payers (indicated as p.) and net recipients (indicated as r.) among benefit recipients. The share of 20% highest benefits in the benefit total for the entire population amounts to the following percentages: 65% for WW, 63% for WW+AO+social assistance, 32% for AOW and 50% for the total in benefits. This can be calculated on the basis of: (benefits 9th decile + benefits 10th decile)/(10 x average benefit). Analogous for the share of the 10% highest benefits. This corresponds with the shares of the highest 10% benefits, as depicted by the Lorenz curve (see Section 4.6).

Table 5.2 shows the percentages of net gains, determined on the basis of the quotient of the *average* gains and the *average* wage costs per group, whereas Table 5.7 provides an indication of the distributions of the *individual* net gains *quotas* (discounted value net gains/discounted value wage costs per individual).[47] As net gains are now divided by the individual wage, a weighting takes place of the individual net amounts in gains with a reciprocal of the individual wage, so that for example the average individual net gains percentages for men and women no longer have to sum to zero.[48] The table shows the net gains percentages for net recipients and net payers, separately, because the distribution for net recipients (usually on low wages) is much more uneven than for net payers. For net recipients, both the median and the upper decile limit (the 90th percentile) are given, and for net payers only the median is shown. For all benefits, the medians for net payers are relatively low: around 7% of the individual wage is being transferred. For net recipients, the percentages that they receive in benefit payments, on balance, are much higher: 50% receive a percentage for WW+AO+ social assistance that is higher than 17%, and 10% receive a percentage that is higher than 156% of the individual wage (see the Total column). The mentioned gains percentages for AOW come to 9% and 52% and for all benefits together to 20% and 156%. For lower educated people (including especially non-western immigrants), percentages roughly are twice as high (30% and 288% for WW+AO+ social assistance, 36% to 327% for all benefits together; see the 'Lower' column).

[47] As was concluded earlier (see footer 43), the quotient of 2 averages may deviate considerably from the average of the quotients (known as the 'fallacy of averages'). From probability calculus it is known that if x and y are distributions with the expectation (average) $E_x=\mu_x$ and $E_y=\mu_y$ and standard deviations σ_x and σ_y and correlation coefficient ρ, then by approximation this is: $E(y/x) = E_y/E_x * (1+(\sigma_x/\mu_x)^2 - \rho * \sigma_x/\mu_x * \sigma_y/\mu_y)$. The term between brackets represents the correction factor. This is conditional to the expectation and the variation of y/x being finite, and that σ_x/μ_x is small (say <= 1/3). See W.R. van Zwet (1961), Kansverdelingen van quotiënten van stochastische grootheden, CWI report S 287/ 61, Centrum voor Wiskunde en Informatica (the former Mathematisch Centrum), Amsterdam. The distribution of individual (net gains)/wage costs is very uneven for net recipients, especially due to low wages (including outliers) that have a large impact on the average (moreover, ρ, i.e. the correlation between net gains and wages, is negative for them, causing the correction factor to increase even more). Therefore, we preferred the presentation of medians and P90 instead of averages.

[48] As the folowwing example of the combinations (net gains; income) shows: man(-100; 100000), man(10; 100), woman (100,1000) and woman (-10; 1000) provides an average gain of 0, but an average gains percentage of (-0.1+10+10-1)/4 = 4.7%.

Table 5.7 Individual net gains–wage ratio, in terms of percentage; medians and P90 of payers and recipients, discounted

		Total	Men	Women	Native women with child.	Native women no child.	Native popul.	Non-w. imm.
Unemployment (WW) benefits								
Net recipients:	Wage (W)*	316	449	223	212	320	316	
	Ben. - prem. (B-P)*	12	15	9	9	12	12	
	(B-P)/W : P50- P90	3-11	3-10	3-13	3-13	3-11	3-11	
	% of population	29	12	17	15	2	29	
Net payers.:	Wage (W)*	503	643	331	311	463	505	
	Ben. - prem. (B-P)*	-7	-10	-4	-3	-7	-7	
	(B-P)/W : P50- P90	-1	-2	-1	-1	-1	-1	
	% of population	61	34	27	23	4	61	
Unemployment (WW) + disability (AO) + social assistance								
Net recipients:	Wage (W)*	260	349	205	202	348	280	181
	Ben. - prem. (B-P)*	59	60	59	51	74	56	71
	(B-P)/W : P50- P90	17-156	12-87	20-226	20-226	13-139	13-124	45-458
	% of population	34	13	21	14	2	27	7
Net payers.:	Wage (W)*	517	659	325	305	494	520	465
	Ben. - prem. (B-P)*	-30	-39	-18	-17	-26	-31	-23
	(B-P)/W : P50- P90	-6	-7	-6	-6	-6	-6	-5
	% of population	66	37	29	25	3	63	3

		Native population				Incl. Non-west. immigrants	
		Lower	Secondary	HBO	WO	Lower	Non-lower
Unemployment (WW) benefits							
Net recipients:	Wage (W)*	242	320	426	510	242	357
	Ben. - prem. (B-P)*	10	12	14	14	10	12
	(B-P)/W : P50- P90	3-14	3-11	2-10	2-9	3-14	3-10
	% of population	11	15	4	2	11	21
Net payers.:	Wage (W)*	360	455	573	760	360	540
	Ben. - prem. (B-P)*	-4	-6	-9	-11	-4	-8
	(B-P)/W : P50- P90	-1	-1	-2	-2	-1	-1
	% of population	14	30	14	10	14	54
Unemployment (WW) + disability (AO) + social assistance							
Net recipients:	Wage (W)*	230	285	373	463	202	304
	Ben. - prem. (B-P)*	63	54	50	34	69	52
	(B-P)/W : P50- P90	20-188	11-94	8-51	6-34	30-288	11-76
	% of population	11	12	3	1	15	19
Net payers.:	Wage (W)*	386	457	588	778	386	547
	Ben. - prem. (B-P)*	-20	-26	-36	-49	-20	-33
	(B-P)/W : P50- P90	-6	-6	-7	-7	-6	-6
	% of population	12	29	14	9	12	54

* Average discounted value in thousand euros; all results for WW and women with/without children are exclusive non-western immigrants.

Table 5.7 continued

		Total	Men	Women	Native women with child	Native women no child	Native popul.	Non-w. imm.
State Pensions (AOW)								
Net recipients:	Wage (W)*	285	408	234	233	365	297	162
	Ben. - prem. (B-P)*	24	14	28	29	21	25	16
	(B-P)/W : P50- P90	9-52	3-18	13-68	14-64	5-32	8-49	15-109
	% of population	51	14	36	30	3	46	5
Net payers.:	Wage (W)*	581	651	384	379	514	608	359
	Ben. - prem. (B-P)*	-25	-27	-19	-19	-23	-26	-17
	(B-P)/W : P50- P90	-4	-4	-5	-5	-4	-4	-5
	% of population	49	36	14	9	2	44	5
Total Benefits								
Net recipients:	Wage (W)*	235	324	202	201	323	247	170
	Ben. - prem. (B-P)*	58	61	57	51	74	56	74
	(B-P)/W : P50- P90	20-165	13-96	22-187	21-142	13-169	17-124	49-530
	% of population	47	13	35	27	3	40	7
Net payers.:	Wage (W)*	604	670	439	418	542	610	502
	Ben. - prem. (B-P)*	-52	-61	-32	-31	-37	-53	-42
	(B-P)/W : P50- P90	-8	-9	-6	-6	-6	-8	-8
	% of population	53	37	15	12	2	50	3

		Native population				Incl. Non-west. immigr.	
		Lower	Secondary	HBO	WO	Lower	Non-lower
State Pensions (AOW)							
Net recipients:	Wage (W)*	238	304	359	400	218	318
	Ben. - prem. (B-P)*	30	24	20	16	28	22
	(B-P)/W : P50- P90	15-91	8-39	5-23	4-18	17-102	7-34
	% of population	15	23	7	2	17	34
Net payers.:	Wage (W)*	436	540	679	849	401	627
	Ben. - prem. (B-P)*	-19	-22	-27	-42	-17	-27
	(B-P)/W : P50- P90	-4	-4	-4	-5	-5	-4
	% of population	8	18	10	8	10	39
Total Benefits							
Net recipients:	Wage (W)*	212	255	306	309	193	263
	Ben. - prem. (B-P)*	67	50	47	36	73	49
	(B-P)/W : P50- P90	30-227	15-93	11-55	11-65	36-327	14-87
	% of population	15	19	5	1	19	29
Net payers.:	Wage (W)*	500	546	645	804	498	624
	Ben. - prem. (B-P)*	-37	-43	-56	-84	-37	-55
	(B-P)/W : P50- P90	-7	-8	-8	-10	-7	-9
	% of population	8	22	12	9	8	44

* Average discounted value in thousand euros.

Table 5.8 Individual net gains–wage ratio, in terms of percentage; P50 and P90 of payers and recipients, discounted

	Total	Men	Women	Native women with child	no child	Native popul.	Non-w. imm.
(Benefit Premium)/Wage							
Unemploym. benefits (WW)	0 +6	-1 +5	0 +7	0 +8	-1 +6	0 +6	
WW+disability (AO)+welf.ben.	-5 +44	-6 +19	-3 +79	-4 +48	-2 +52	-5 +30	+14 +226
State Pensions (AOW)	0 +28	-2 +5	+7 +51	+8 +51	+1 +16	0 +27	-1 +42
WW+AO+Soc. Ass. +AOW	-1 +72	-7 +23	+10 +123	+10 +98	0 +68	-2 +56	+18 +238

	Native population				Incl. Non-west. immigr.	
	Lower	Secondary	HBO	WO	Lower	Non-lower
(Benefit Premium)/Wage						
Unemploym. benefits (WW)	0 + 9	0 +6	-1 +3	-2 +2	0 +9	-1 +5
WW+disability (AO)+welf.ben.	-1 +88	-5 +24	-6 +9	-7 -1	+2 +143	-5 +18
State Pensions (AOW)	+4 +55	+1 +24	-1 +13	-4 +4	+4 +64	-1 +19
WW+AO+Soc. Ass.+AOW	+9 +137	-1 +45	-6 +18	-9 +1	+14+210	-4 +35

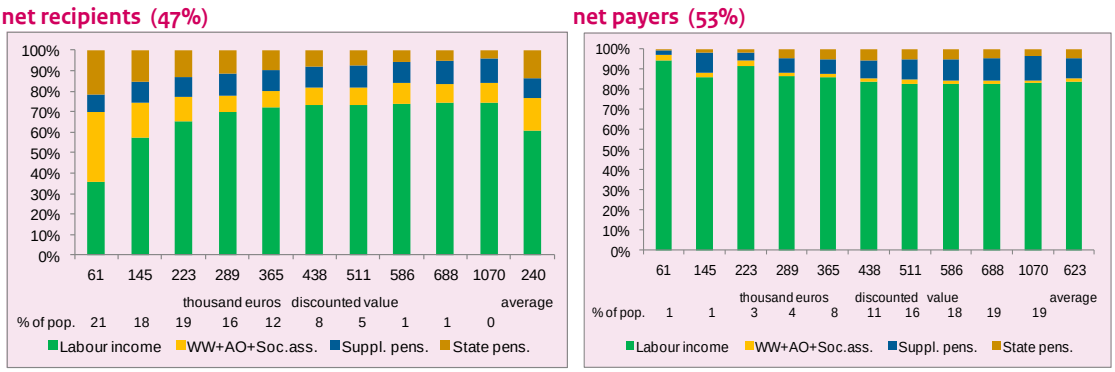
* All results for WW and woman with/without children are exclusive non-western immigrants.

For net recipients and net payers, together, distributions below the median are also very even; therefore, Table 5.8 only shows the medians and P90 (P10 values are: -2% for WW, -8% for WW+AO+social assistance, -7% for AOW and -12% for WW+AO+ social assistance +AOW). Here, median and P90 percentages are much lower than in Table 5.7. Measured according to the median difference, women now contribute 3% less of their wage than men, with respect to WW+AO+ social assistance (median for men is -6%, median for women is -3%), and for the total in benefits including AOW (-7% for men, +10% for women) the differences are much greater. Comparisons between lower educated people (including non-western immigrants) and higher educated people show similar median differences. Measured according to *median* differences of table 5.8, the percentages are reasonably similar to the differences between percentages, calculated on the basis of *group averages*, in Table 5.2. Average individual percentages (not shown) are likely to deviate substantially from the corresponding average group percentages, as benefit payments mostly are distributed very unevenly to the right, such as the P90 percentages in Table 5.8 indicate (P10 values vary from -2% to -12%).

Figure 5.11 shows the composition of the life-course incomes for net recipients and net payers of the total in benefits (WW+AO+ social assistance +AOW). For net recipients with the lowest income from labour (1st decile), labour incomes only make up 1/3 of the life-course income and benefits make up slightly over half of the life-course income.[49] The average benefit percentage for all net recipients (column 'average', on the far right, left figure) is around 29% (of which 20% non-SF). For net payers, the average labour income is 84%, the benefit income 6% (of which 100% SF) and the supplementary pension 10% of the life-course income.

[49] The remaining part consist of supplementary pension. Per decile, the number of net recipients and net payers have been provided, in percentage of the population (% of pop.).

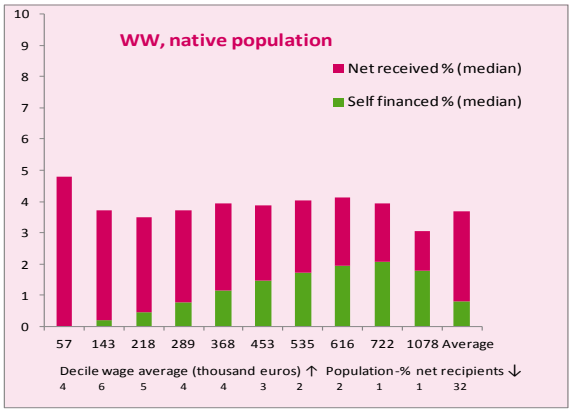
Figure 5.11 Composition of individual life-course incomes for net recipients and net payers of all benefits, per decile of the labour income, discounted

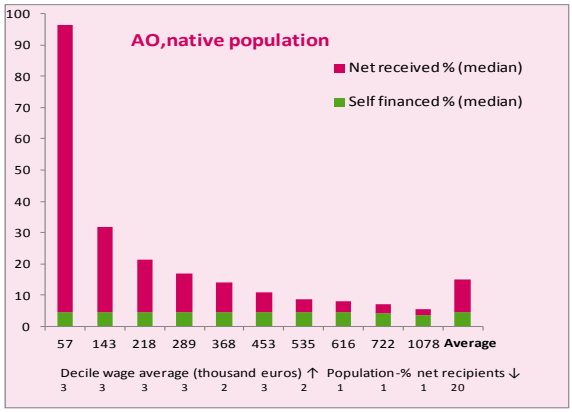


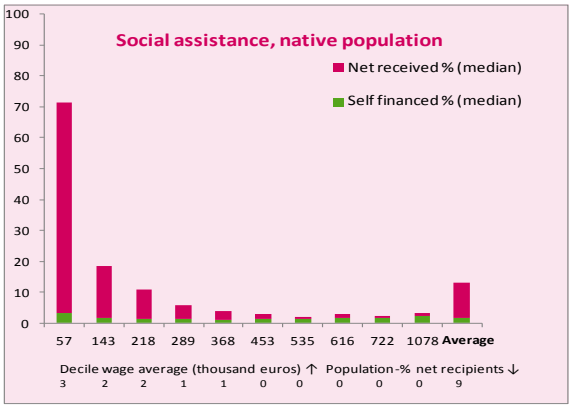
Benefits received by *net recipients* are shown in Figure 5.12 as a percentage of the individual wage (all amounts discounted), categorised according to wage decile within the population. Per decile category, the average discounted wage is given, and below that the number of net recipients per category (in percentage of the population). The bars show the benefits received, compared to the wages received over the life course. In the lowest two wage deciles, nearly everyone is a net recipient, see the figure for WW+AO+ social assistance +AOW .[50] For this group, the non-self-financed benefits come to a total of 25% to 125%, while the self-financed benefits amount to around 15% to 20% of the wages over the life course. For all net recipients in the summed calculation of WW+AO+ social assistance+AOW (related to 48% of the population), close to half of their benefit payments are self-financed (corresponding to around 20% of their wage, see last column in the figure). For WW, the non-self-financed part of the benefit is much less unevenly divided over the wage deciles than is the case for the other benefits, while the opposite is true for the self-financed part. To enable comparison with the AOW, finance sources are also shown for the net recipients of labour-related supplementary pensions. This group is slightly larger than that of net recipients of state pensions (AOW) (55% versus 51%), but the non-self-financed part here is much lower (around 2% of the wage versus 10% for AOW net recipients).

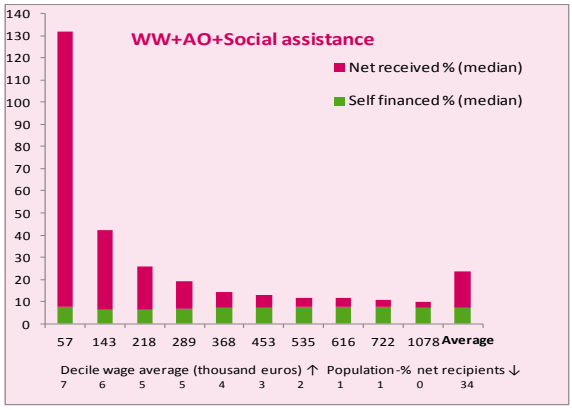
[50] The benefit percentages are given as a percentage of the individual wage. Median percentages relate to the benefit percentages of the group of net recipients with an individual wage within the wage decile category. For the sake of image clarity, the Y axis is not the same in all places.

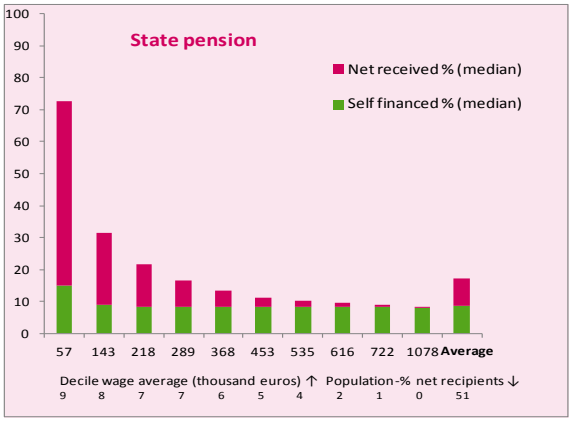
Figure 5.12 Financing as percentage of individual wage, for median *net recipients* per wage category, discounted

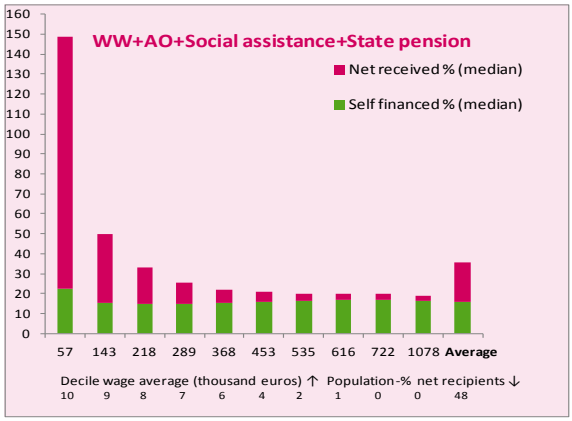


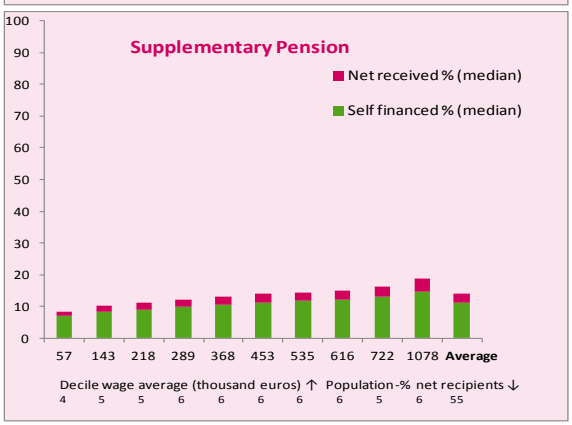


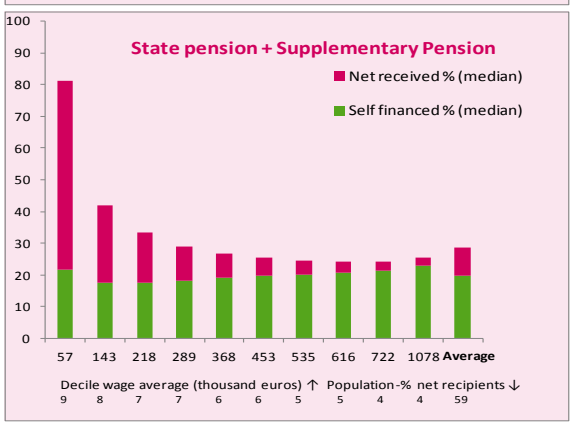












5.6 Implementation of a savings variant for social security

5.6.1 Net gains at savings WW and savings WW+AO+social assistance benefit

As was established in the previous section, the balance of savings and payments ('financing balance') in relation to wages was found to be very negative for net benefit recipients with a wage that would rank among the lowest 20% (first two deciles of the wage distribution). This applies to all benefit categories, except that of the unemployment (WW) benefit. Therefore, a form of 'savings' WW, a subject of discussion in recent literature (see Jongen and Van Vuuren, 2009), could possibly also be implemented for the lowest wage deciles.
The present life-course data set was used to determine what the consequences of such a savings form would be – apart from possible behavioural effects – for net recipients and net payers of WW benefits, and what the effects would be of a broader implementation, also including other benefits, such as for disability and social assistance.

For implementation of a savings system that does not allow a negative balance, a substantially higher premium would be needed than currently is being paid for WW, to finance a comparable benefit payment. After all, the required amount in savings at the end of people's careers would have to amount to two annual salaries in order to finance a period of nearly three years of 70% of someone's normal wage. Many people, in hindsight, would have saved much more than they ever needed and perhaps be tempted to use part of their savings for early retirement.
In case a negative savings balance would be allowed, the premium could be less high – for example, of today's WW premium level. At the age of 65, the balance could be assessed: negative balances could be remitted and financed from a taxation ('savings tax') levied over the wages of *both* net recipients and net payers (as net recipients also would pay this tax, they would pay a higher WW premium than is currently the case). A positive savings balance, however, could then be paid out to the person involved (the current net disadvantage for payers, which is the result of financing the shortages for net recipients, would thus largely be solved as it would be replaced by a relatively low tax rate).[51]

Figure 5.13 shows the effects on the net gains of benefits.[52]

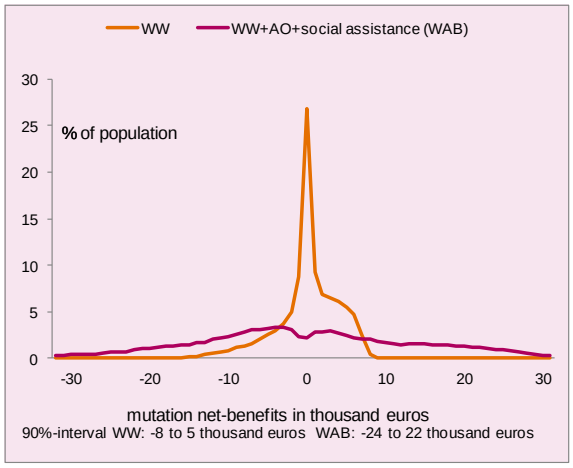
For the unemployment (WW) benefit, these vary from around 8,000 euros less to 5,000 euros more in gains (90% interval). In case of the broader system that also includes disability (AO) and social assistance, the interval increases: from 24,000 euros less to 22,000 euros more in gains. Notable is the large percentage of the population for whom implementation of the savings WW would hardly have any effect (amounts have been rounded at 1000 euros). This partly would be caused by the WW premium exemption.

In addition to these effects, there are also those calculated, in terms of net gains mutations, as percentages of *individual* wages. The figure on the right shows that mutations concentrate around two peaks in the distribution: for WW around 0% and 0.7% (90% interval: -1.4% to 0.8%) and for WW+AO+ social assistance around -4.2% (40%) and 2.8% (35%).

[51] The savings WW relates only to the native population and western immigrants. A 'savings AOW' has not been considered, as situations that leave a 'balance payable' (after death) seem rather complicated.
[52] The 'double peak' of the distributions relates to the two populations of net recipients (with negative gains mutations) and net payers (with positive gains mutations); see Table 5.9 for the averages. The back taxes that are payable are assumed to be levied on the same base as were the premiums. Premiums for WW and AO are calculated over the 'social insurance wage' (with a exemption for WW that amounted to 15,080 euros in 2005) and after discounting come to 5.2% and 5.1%, respectively. Social assistance premiums are 5.0% of the general means (wage tax and indirect tax). The back taxes under implementation of a savings variant for WW only, would come to 3.6%. If such as savings variant were to be implemented for WW, AO and social assistance benefits together, then the back taxes for WW and AO would be 2.6% and 3.3%, respectively, over the 'social insurance wage' (with an exemption for WW similar to the current one) and 3.7% over the general means. Here, all premiums and back taxes are based on having a balanced account of discounted benefits.

Figure 5.13 Net benefit *mutations* for savings variants of unemployment (WW) and unemployment (WW)+disability (AO)+social assistance

In thousand euros, discounted



In % of individual wage

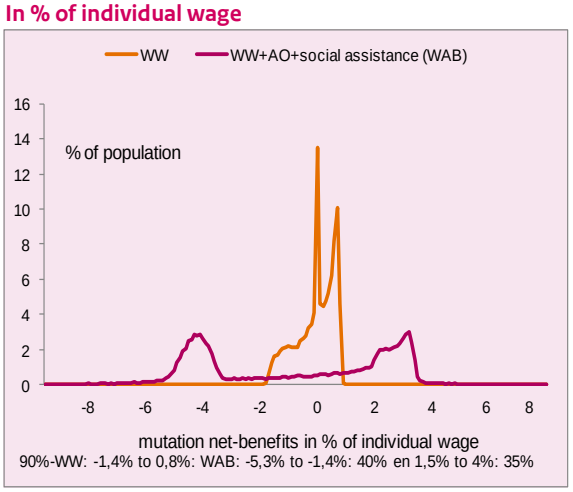


Table 5.9 shows how gains mutations have been distributed over the various population groups under implementation of a 'savings WW' and a 'savings WAB' (WAB = WW+AO+ social assistance).

Net recipients of WW would loose around 3,000 euros – the most for higher educated men (taxes will be levied in retrospect according to wage level). Net payers would be slightly better off. This effect is largely caused by the fact that 1/3 of net payers make use of a benefit and therefore would be worse off (column 'Mu nb'). The only people who would gain, to a certain extent, are the net payers who do not receive any benefits (right-hand column 'Zu nb').
For WAB, the effect would be much greater: net recipients would loose an average 12,000 euros and higher educated net recipients even more, with 17,000 to 20,000 euros. Nevertheless, here, net payers would not be better off in equal measures: the group of net payers is twice the size of the group of net recipients and 2/3 of net payers in this case would also be recipients, causing net payers on balance to gain only 2,000 euros. Net payers who do not receive any benefits would gain an average 15,000 euros.

Also, in terms of individual wage, the effects of the implementation of a savings WW would be far more modest than that of a savings WAB. For the savings WW, net recipients would loose around 0.7% and net payers would gain around 0.3%. Implementation of a 'savings WAB' would have sizeable effects for net recipients and would amount to around -4.8% for all population groups. Here, effects also would not be spectacular for net payers: they would be around 1% better off. However, for the net payers who do not receive any benefits, the effects here would be much more substantial: as a percentage of their wage, they would gain an average 2.8%.[53]

The lower half of the table also shows the effects per decile wage category. Under implementation of a savings WW, in the highest decile wage category, net recipients would be an average 13,000 euros worse off (-1.3% of their wage), while net payers would be 4,000 euros better off (0.4% of their wage). The implementation of a savings WAB would mean that net recipients in the ninth decile would loose the most (-5% of their wage) and net payers in the highest decile would gain the most (1.7% of their wage).[54]

[53] To compensate for net gains losses, net recipients would need to work roughly 5% more (an additional 2 years). Higher educated male net payers could work around 2% less (they could stop working three years earlier with a benefit payment of 70% of their average wage).
[54] Net payers on a benefit, over the wage decile categories, show a level U-shaped profile close to the x axis: there are slight increases for the lowest and highest wage deciles (or the lowest decreases) in net gains, and for the profiles in the middle, a slight decrease in net gains is shown. Net payers on a benefit would be worse off if their current net payments would be lower than the back taxes and higher if these would be higher than back taxes. Implementation of a savings WW or savings WAB, would lead for the wage+benefit distribution to the following respective mutations (in terms of percentage) in Gini coefficients, vatiation coefficients, and R80/20 ratios: +0.2%, +0.3% and +0.3% for WW, and +2%, +1.7% and +2.2% for WAB (compare Table 5.2). In both situations, therefore, there is some increase in income inequality.

Table 5.9 Effect savings variant on net gains from benefits

	Total Population			Native women						Total Population						
				with	no	Education				Education		Nat.	Nw Imm.	Mu		Zu
	Total	Men	Wom.	child	child	Lower	Sec.	HBO	Univ.	Lower	Sec.	pop.		no	nb	nb
Mutation net gains in thousand euros (discounted value)																
ΔWW1	-3	-5	-1	-1	-3	-2	-3	-5	-6	-2	-4	-3		-3		
ΔWW2	2	2	1	1	2	1	2	2	3	1	2	2			0	3
ΔWWt	0	0	0	0	0	0	0	1	1	0	0	0		-3	0	3
													pop-%:	35	21	43
ΔWAB1	-12	-16	-9	-9	-14	-10	-13	-17	-20	-9	-14	-13	-9	-12		
ΔWAB2	6	8	3	3	5	2	5	8	13	2	7	6	2		2	15
ΔWABt	0	1	-2	-1	-3	-4	0	3	9	-4	1	0	-6	-12	2	15
													pop-%:	35	42	23
Idem in % of discounted individual wage																
ΔWW1	- 0.7	-1.0	-0.4	-0.4	-0.7	-0.4	-0.7	-1.0	-1.1	-0.4	-0.8	-0.6		-0.6		
ΔWW2	0.3	0 .4	0.2	0.2	0.3	0.2	0.3	0.3	0.4	0.2	0.3	0.3			0.0	0.5
ΔWWt	0.0	0.0	-0.1	-0.1	0.0	-0.1	-0.1	0.0	0.1	-0.1	0.0	0.0		-0.6	0.0	0.5
ΔWAB1	-4.8	-4.6	-4.6	-4.5	-4.8	-4.6	-4.5	-4.7	-4.9	-4.7	-4.5	-4.6	-4.7	-4.6		
ΔWAB2	1.0	1.2	1.0	1.0	0.7	0.7	1.1	1.3	1.5	0.7	1.2	1.1	0.2		0.2	2.8
ΔWABt	-1.0	-0.5	-1.4	-1.1	-2.6	-2.0	-0.6	0.1	0.8	-2.4	-0.4	-0.7	-3.1	-4.6	0.2	2.8

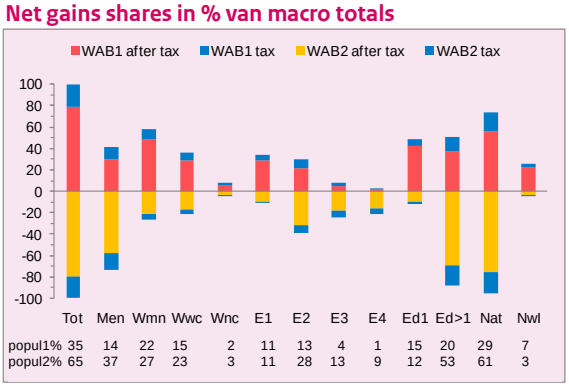
Idem by decile category of wage

Decile	1	2	3	4	5	6	7	8	9	10	Total
Mutation net gains in thousand euros (discounted value)											
ΔWW1	0	0	-1	-1	-3	-5	-7	-9	-11	-13	-3
ΔWW2	0	0	0	0	1	1	1	2	3	4	2
ΔWWt	0	0	0	-1	-1	-1	-1	0	1	3	0
ΔWAB1	-3	-6	-9	-12	-15	-20	-24	-29	-34	-43	-12
ΔWAB2	1	2	2	2	2	2	4	7	11	17	6
ΔWABt	-2	-3	-4	-4	-5	-5	-3	2	8	16	0
Idem in % of discounted individual wage											
ΔWW1	0.0	-0.2	-0.4	-0.5	-0.8	-1.1	-1.3	-1.5	-1.5	-1.3	-0.7
ΔWW2	0 .0	0.1	0.2	0.2	0.2	0.2	0.3	0.4	0.5	0.4	0.3
ΔWWt	0.0	0.0	-0.1	-0.2	-0.2	-0.2	-0.1	0.0	0.2	0.3	0.0
ΔWAB1	-6.2	- 4.6	-4.4	-4.4	-4.5	-4.6	-4.8	-4.9	-5.0	-4.6	-4.8
ΔWAB2	1.1	1.1	0.8	0.8	0.7	0.6	0.7	1.1	1.5	1.7	1.0
ΔWABt	-3.8	-2.3	-2.1	-1.7	-1.5	-1.2	-0.6	0.3	1.1	1.5	-1.0

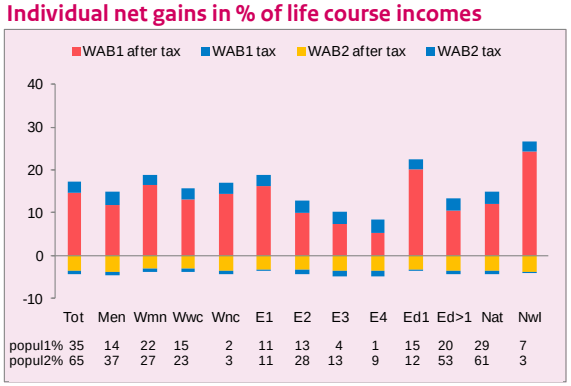
Explanation: 1=net recipient; 2=net payer; T=total; WAB=unempl.benefits (WW)+disability benefits(AO)+welfare benefits; WW is excluding non-west.im.
Mu = with benefit, subdivided in net recipient (no) and net payer (nb); Zu = without benefit.
pop-% = share of the population in percentage; see Table 5.7 for other population percentages

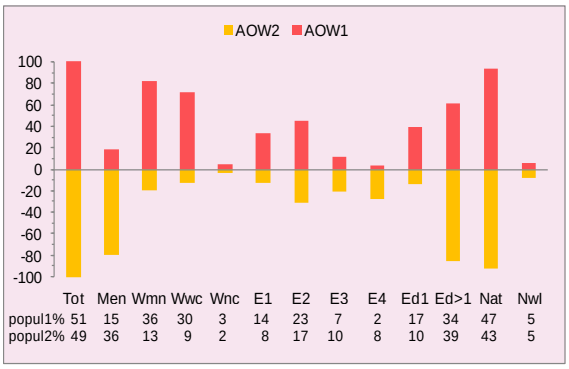
Figure 5.14 Net gains macro and micro before and after savings tax on Unemployment (WW)+disability (AO)+social assistance[49]

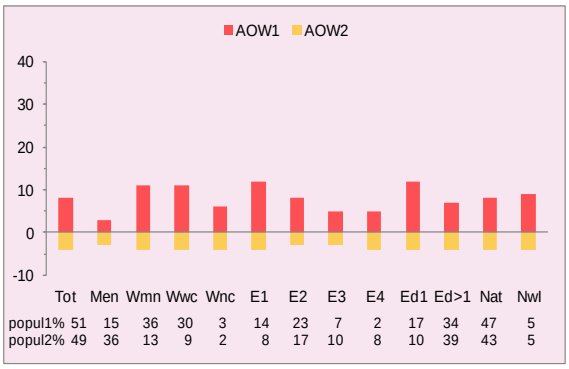
Net gains shares in % van macro totals

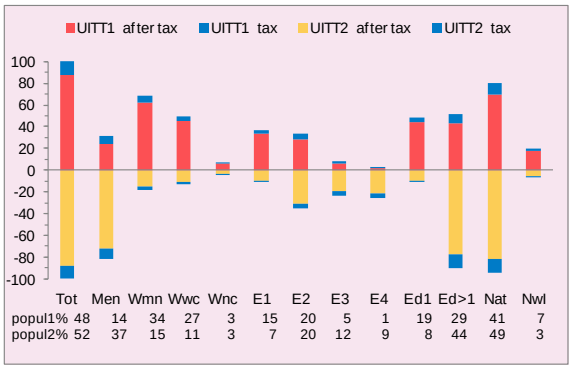


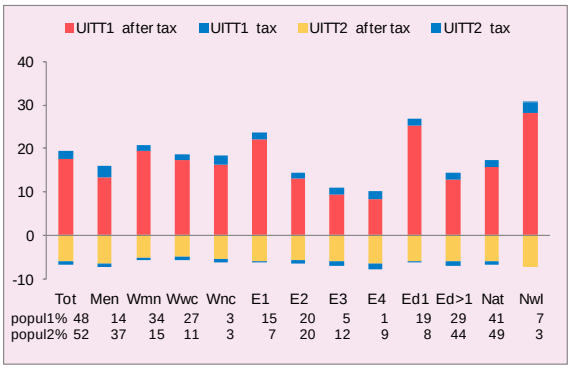
Individual net gains in % of life course incomes











[49]Abbreviations: WAB=WW+AO+social assistance, AOW=State pension, UITT=WAB+AOW , categories: 1=recipients, 2=payers ; popul% = percentage of the population; Tot=total, Wmn=women, Wwc=women with children; Wnc=women without children; E1 to E4= Native population and west. imm. with educational levels 1 to 4 (preparatory secondary vocational education and lower, higher general secondary education/ pre-university education/ intermediate secondary vocational education, higher vocational education, university education, respectively); Ed1 and Ed>1 = educational level 1 and 2 and higher (including non-western immigrants); Nat = native population+western immigrants; Nwl= non-western immigrants.

In order to place net gains and the impact of a savings variant for WAB benefits into perspective, Figure 5.14 shows net gains shares for the various population groups in macro totals of net gains, as well as average individual shares of net gains in life-course incomes per population group. This concerns net gains of summed WW+AO+social assistance, of the state pension (AO) and of WW+AO+social assistance+AOW.

In all bars, the yellow ones represent the transfers from net payers to net recipients (with red bars). The blue parts show the share that disappears after implementation of a savings WAB: the red bars become shorter (fewer gains for net recipients of WAB) as do the yellow ones (less transfer from net payers of WAB).
The AOW diagrams are included to show the distributions of net AOW gains for the various groups, without implementation of the savings variant for state pensions (AOW). The lower diagrams show the net gains for WW+AO+ social assistance +AOW (UITT), including the tax impacts related to the savings WAB. This concerns the original net recipients and net payers of WW+AO+social assistance+AOW, showing how a savings WAB would impact on their net gains (blue ends of the bars).[55] Population shares of net recipients (Category 1) and net payers (Category 2) are given at the bottom of the diagrams, in % (Popul1%, Popul2%; the sum of net recipients and net payers per population group is constant).

The *left*-hand diagrams show the relationship between benefits received and premiums paid (on balance the net gains), on the basis of *macro* totals. For the entire population: sum net amounts received = sum net amounts paid = 100%.
For the WAB, contributions from net paying men amount to 75% of all net contributions (total bar: yellow+blue) and net receiving men receive 40% of all net amounts received; on balance, they contribute around 35%. For women the reverse is true: net paying women contribute 25% and net recipients use 60% of all net amounts received. On balance, native women with and without children, the lower educated (O1, and including lower educated immigrants, Op1) and non-western immigrants receive more than they contribute (upper bar is longer than lower bar). Compared to the population size, it shows that certain groups contribute or receive relatively much: university educated people (O4) make around 10% (Popul1% + Popul2%) of the population, but they are responsible for 24% of all contributions; the lower educated (O1) are 22% of the population and contribute 11%. This is the result of premiums based on wage level. Furthermore, women with children (38% of the population) and non-western immigrants (10% of the population) use a relatively large part of the contribution paid by net payers. In addition to educational level, this is also caused by their level of labour participation.

For state pensions (AOW) the situation is similar, albeit that in certain places the impacts are more severe, because the level of the benefit payment is lifespan-related rather than wage-related. Women benefit, as they generally live longer, and usually have a lower labour participation because of having children. For non-western immigrants, the use of AOW is low, although there may be some distortion of reality here (see Section 5.2). For the total in WW+AO+ social assistance +AOW benefits, the image is similar to that of WAB and AOW (certain impacts become smaller while others increase, as net payers consist of other groups than those for the separate benefits: see the composition of population percentages per group).

The *right*-hand diagrams show that *individual* net gains, in average percentage of life-course income, are more evenly distributed than for the left-hand diagrams. Contributions by net payers are similar for the various benefits and amount to around 5% of the life-course income. The importance of the net gains for net recipients is substantially higher: an average 18% for WAB; 8% for AOW and 20% for the total of these ('Tot' bars). For lower educated people (Op1, including non-western immigrants) and non-western immigrants, total net amounts received come to around 25% to 30% of the life-course income, mostly consisting of net amounts received from WAB (over 20%).

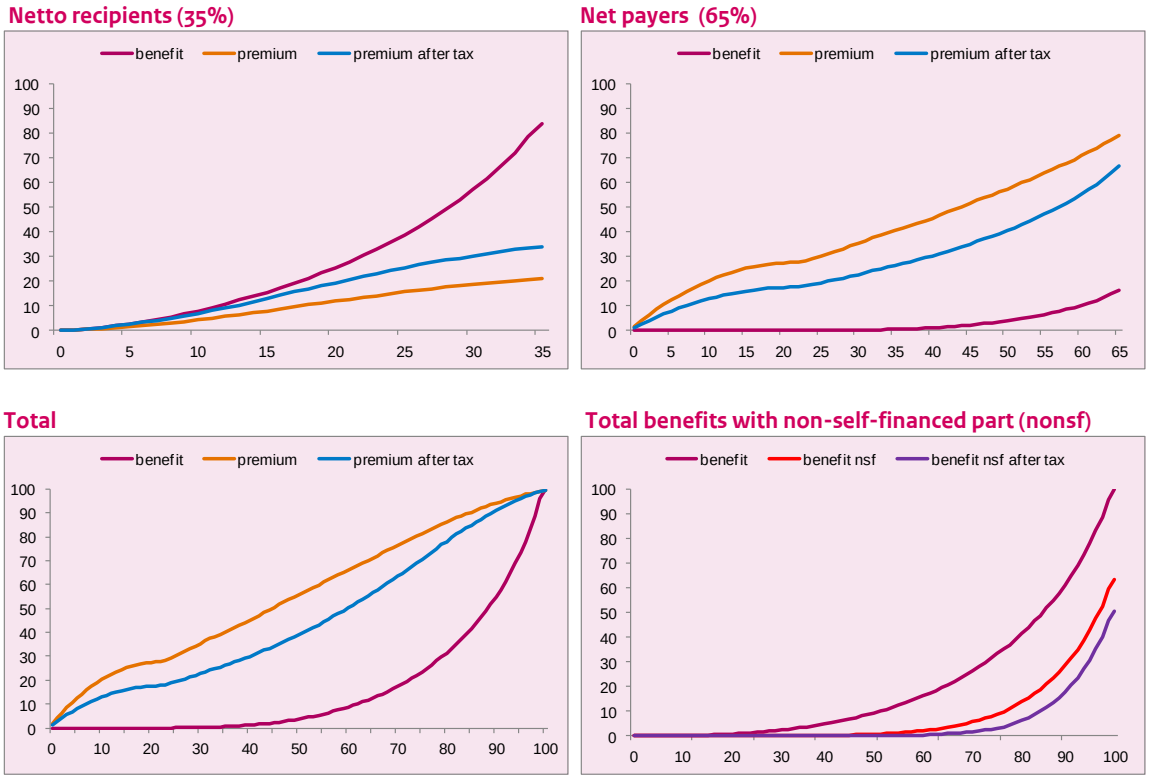
The *blue ends* of the bars indicate the impact of the net gains of implementation of a 'savings WAB'. After taxation and premium rebates to net payers, the non-blue part of the bars remain (net recipients gain less, net payers contribute less = gain more). This, for net paying men, results in 16 percentage points less in contribution (top left diagram). For net receiving men, there is a corresponding percentage in lower income (12 percentage points), which is rather much, compared with their earlier amounts received before taxation (red+blue=39%, top left diagram).
For individual cases, taxation results in 2.7 percentage points lower life-course income for net WAB recipients (35% of the population, upper part of the top right diagram). The net payers of the total in benefits (UITT) have 0.8 percentage points more in income (lower part of bottom right diagram).

Figure 5.15 shows Lorenz curves for before and after savings tax, for the benefit category WW+AO+ social assistance. The population is categorised according to benefit level: first the people who do not receive benefits, with highest premiums first, followed by the rest of the population, according to increasing benefit level. For net payers, the left side of the x axis (23%) concerns net payers without a benefit (up to the 'kink' in the premium curve); up to about 40% the share in total

[55] The net 'UITT' recipients also are part net WAB recipient and part net WAB payer. The same applies to the net 'UITT' payers.

benefits is slight. In the Total diagram, the net recipients dominate when benefits increase by more than premiums are being paid (from 70% onwards).[56]
The impact of the savings tax is clearly visible: in the situation without such a tax only 20% of all premiums are paid by benefit recipients, and with such a tax this would be around 30%. For net payers, the opposite is true: premium payments without such a tax amount to around 80% of all premiums, and with such a tax this would go down to 70%. The bottom right diagram show that without such a tax, 64% of the total in benefit expenditures (on macro level) is non-self-financed. With such a tax this would be 50%.

Figure 5.15 Lorenz curves for unemployment(WW)+disability(AO)+social assistance, premiums before and after savings tax, discounted



5.6.2 Savings system for social security

The social security system reduces income inequality, but weakens the general labour incentive. Social security premiums reduce the net income from labour and benefits reduce income differences between employment and unemployment.

A social security savings system may be more favourable, as the compulsory savings could be regarded as income and not as a collective burden. The incentive to find employment may be stronger if benefits are financed from individual savings instead of from a general fund. A savings system would be most effective for social security regulations for which there is a large degree of redistribution over the life course and a limited degree of redistribution over people.

Benefits related to disability and social assistance are relatively long term. The total amount in benefits received in some cases equals the wage income over the life course, particularly for people with a lower wage income over the course of their lives. This group finances only a small share of the benefits they receive. The group of people who, over the life

[56] The Total diagram in Figure 5.15 shows a slightly concave pattern for the premiums: recipients of the highest benefits and lowest premium payers without benefits pay relatively little in premiums.

course, do not or hardly use any benefits related to disability or social assistance is large. The largest share of the population will reach the state pension (AOW) age. Because of the usually long period over which AOW payments are received, this is rather costly, even when discounted to present value. Therefore, for people in the lowest deciles of wage income over the life course, it seems impossible to save for their AOW, even if a savings system for AOW were to induce additional labour supply. Saving for an old-age pension would be achievable for people with a higher income over the life course, but this is already happening today, in the form of supplementary pensions.

Unemployment (WW) benefits, on average, last far shorter than disability, social assistance or state pension benefits. Therefore, the sum of the WW benefits received over the life course is only a limited share of the life-course wage income, even for people who receive more in benefits than they pay in premiums. From the perspective of affordability, it is therefore understandable that the discussion on the merits of changing the social security system to a savings system particularly focuses on the unemployment (WW) benefit. Results provided in the previous section indicate that a substantial share of people do not become unemployed over the life course. Moreover, particularly lower educated people, with a relatively low life-course income, are WW recipients. The degree of redistribution over people, therefore, would remain rather large.

The analysis earlier in this chapter shows that the negative effect of saving instead of insuring would be that it would lead to more income inequality. On the positive side, however, the incentive for people to find and accept employment would be greater under a savings system than under a system of insurance. However, as behavioural effects were left out of this study, it does not offer any insights into the total impact of saving versus insuring. The new Dutch Cabinet intends to shorten the maximum WW period and to economise on the build up of social assistance pensions. Shortening the maximum WW period and raising the state pension age both will increase the financial incentive for people, when they loose their jobs, to quickly find other employment and to work additional years. The austerity measures may induce some people to start a private saving plan to supplement their social security – if they do not need to use these savings during their working life to supplement an unemployment benefit, this savings amount could then be used as an addition to their supplementary pension.

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