How Has the Middle Fared in The Netherlands?
A Tale of Stagnation and Population Shifts

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HOW HAS THE MIDDLE FARED IN THE NETHERLANDS? A TALE OF STAGNATION AND POPULATION SHIFTS[*]

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How have ordinary households fared economically in the Netherlands between 1977 and 2014? Combining tax records with labour force survey information, we show that household incomes have lagged well behind the strong GDP performance, underpinned by an active emphasis on wage moderation to boost exports. Even though incomes have been stagnant across the distribution, there have been important compositional changes. Pensioners have increased in numbers and relative income, and are now a core group of the middle. Wage earners have moved to the upper half of the income distribution, partly due to a strong expansion of the number and average incomes of (part-time) second earners. We pay particular attention to the Great Recession, where we note worrying trends in the employment of younger workers (ages 18 to 45) and the precariousness of jobs.

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1. Introduction

In this chapter we examine how ordinary households have fared in economic terms in the Netherlands between 1977 and 2014. We first show in Section 2 that at the macro level, the Dutch economy has performed well in terms of growth in GDP and employment. Notable features of the Dutch case have been a rapid rise in part-time employment, and an active emphasis on wage moderation to support the export orientation of the economy.

Using administrative micro data on incomes combined with labour force survey information for the last few years, we find a starkly different picture at the micro level for ordinary working households, comparing trends for the middle to the two tails of the distribution. Section 3 presents the core of the argument, focusing on the long-run trends between 1977 and 2014. Incomes appear to have been mostly stagnant for the population as a whole, with mean income lagging well behind economic growth. At the same time, we find only a relatively limited increase in overall income inequality. That pattern of stability, however, masks strong compositional changes. Pensioners have increased in numbers and relative income, and are now a core group of the middle. Wage earners have moved to the upper half of the income distribution. This is due partly to a strong expansion of the number and average incomes of second earners, translating into a much stronger growth in incomes for dual-earner households compared to single earners. Next, section 4 zooms in on the way the Great Recession has affected this long-run evolution. We note worrying trends in the employment of younger workers (ages 18 to 45) and the precariousness of jobs. Section 5 concludes.

2. Trends at the macro level

We start by highlighting macro trends in the economy, population and the labour market, and wage formation. The Dutch economy has a strong orientation to exports. This has been underpinned by a strategy of secular wage moderation for almost the entire 40-year period covered here. Employment has grown significantly in terms of persons employed but barely in terms of households with someone in work. The Netherlands is further characterised by a high prevalence of part-time work by the second earner.

2.1 Economy

Growth in real GDP per capita from the late 1970s has been substantial in the Netherlands (Figure 1), with annual increases of 3% or more in the good years. However, a number of important ups and downs are visible, with notable distributive effects as we will see in Section 3. Two major setbacks were a deep crisis with a contraction of GDP in the early 1980s, and the Great Recession with a trough of a decline of -4.3% in GDP in 2009. Other occurrences of cooling down took place during the 1990s, and in the early 2000s during the dotcom crisis with a decline in GDP per capita. Figure 1 also indicates the changes in net domestic product (NDP) per capita, which excludes depreciation. This will be used in Section 3 to analyse the extent to which economic growth has transmitted to income gains. NDP follows the same pattern as GDP with somewhat stronger volatility – especially in 2009 when NDP fell by 5.5%.[4]

The Dutch economy has a very strong export orientation, if not an obsession: it never experienced a trade deficit between 1977 and 2014, and none of the other countries represented in this volume, including Germany, achieved a trade balance surplus as high in 2014. The export model has been

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[4] Overall, depreciation has increased from 13% to 17% of GDP between 1977 and 2014, and also behaved procyclically.

underpinned by a push towards extreme wage moderation. Export price inflation since 1977 (39%) is far below any of the other countries and Dutch exporting firms have been able to leave their price level almost unchanged since the mid-1980s.[5] Exports of goods and services have increased from 46 per cent to 82 per cent of GDP. Imports also grew significantly, from 44 to 72 per cent, though they lagged export growth.[6]

Figure 1 Annual volume changes in GDP and NDP per capita (%), and level of trade balance (% of GDP)
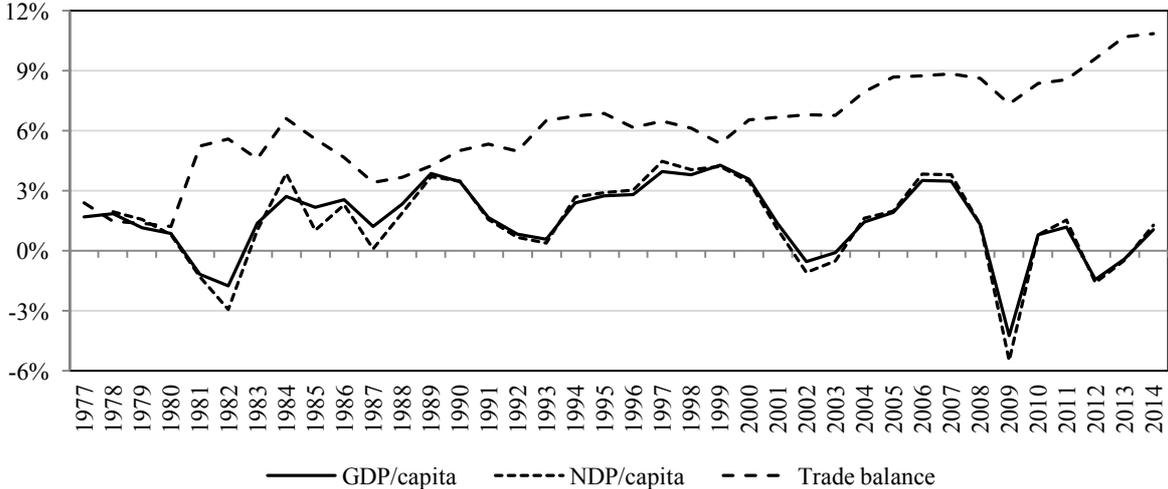
Note: Net Domestic Product (NDP) equals GDP minus depreciation. NDP and GDP are deflated using 2014 GDP prices.
Source: CBS/Statline, National accounts.

2.2 Population and the labour market

A major theme in this chapter is how demographic shifts have affected income growth and inequality. Between 1977 and 2014, the population size has expanded by 22 per cent, whereas the number of households went up by 60 per cent. This was the result of an almost doubling of the share of singles among households (from 20 to 37 per cent) and a decline in the average size of the other households by 13 per cent.

The Netherlands saw massive employment growth at the extensive margin (Figure 2). The personal employment rate rose from 63 per cent of the working-age population in 1977 to 79 per cent in 2008, and has remained roughly stable since. The number of employees grew from 54 per cent of the working-age population to 68 per cent in 2008, followed by a slight decline to 66 per cent in 2014. Important for our chapter is the substantial expansion of women in employment, from 41 per cent to 74 per cent of the working-age female population. Women currently encompass almost half of all employed persons.

The growth in individual employment did not translate into a higher rate of households with one or more members in employment, implying that additional workers became generally part of households already having a worker. The *household* rate of employment, defined as the number of households with at least one worker to the total number of working-age households, stayed more or less constant around 87 per cent. The share of household partners who are both employed among the working-age

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[5] Compare 'Exports of goods and services, deflator, National Accounts basis' (OECD *Economic Outlook* No 100).
[6] Imports and exports move largely in tandem, partly because of the large and increasing role of immediate re-exports of imports which grew from 15 per cent of all exports in 1977 to more than 40 per cent recently.

population grew from 26 per cent in 1992 (the first year of adequate data) to 39 per cent in 2008-2010. Since 2008, about half of all employees have been members of a two-earner household. Conversely, the rate of employment among spouses rose from 40 per cent in 1977 to 65 per cent in 2014.

Figure 2 Employment trends at the extensive and intensive margin
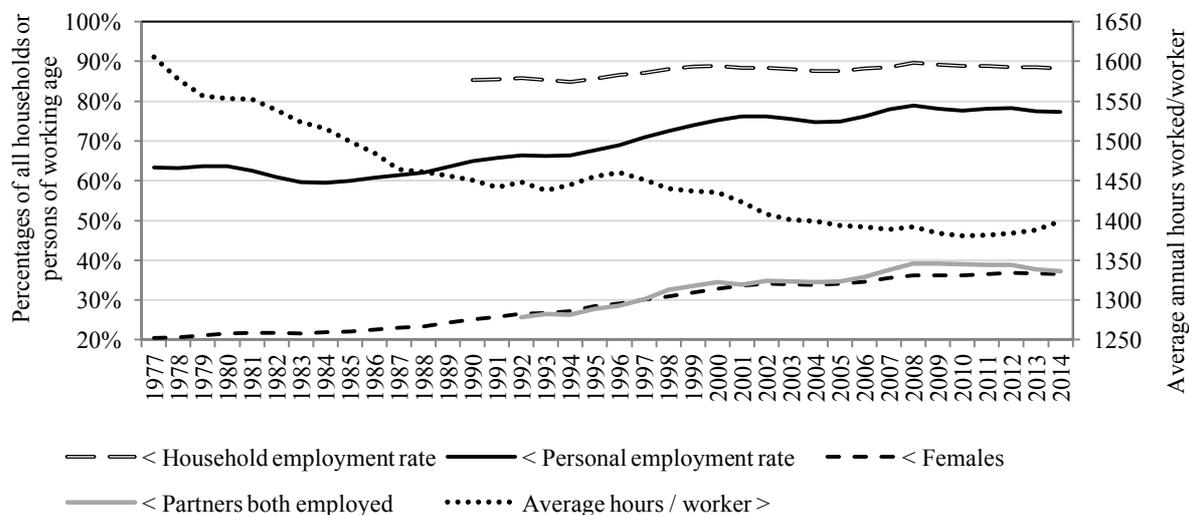
Source: Authors' calculations on CBS/Statline, Labour Accounts, Household and Population statistics.

While employment in the extensive margin went up, the average number of hours worked per worker went down. Most of the employment growth went to part-time jobs (see also OECD, 2016; Causa, 2008), which make up roughly half of all jobs nowadays.[7] This trend, as well as the shortening of full-time hours collectively bargained on the occasion of the Wassenaar Accord in 1982 and in the 1990s, led to a decline in the average annual hours worked per worker from 1600 to 1400 hours. Consequently, the full-time equivalent employment rate has increased by only two percentage points in spite of the strong head-count growth.

As in most countries the number of persons with higher educational attainment has grown strongly; notably, all growth in the personal employment rate for the period 1990-2014 has focused on this category (Salverda and Brals, 2016, Figure 5).[8] The share of flexible contracts among employees grew from 16 per cent in 2003 to 25 per cent in 2014, well above many other countries (Salverda, 2017, Figure 10.A).[9]

2.3 Wage formation

Dutch wage formation has traditionally been characterised by centralised wage bargaining within bipartite and tripartite bodies, complemented with an extensive array of collective labour agreements at industry and company level.[10] In 1969 a statutory minimum wage was introduced, which also became an important determinant of public spending as minimum social benefits and the adjustment of

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[7] CBS defines part-time employment as below 35 hours per week. On that measure the OECD average for EU15 (excluding Netherlands), Australia, Canada, Norway and USA is 24% (OECD LFS Datasets: Usual hours worked by weekly hour bands, and for the USA (also defined as below 35 hours) Full-time part-time employment – national definitions).
[8] For the employed aged 25-64, but below that age very few persons have obtained this level. Unfortunately, data for preceding years are not available.
[9] On Eurostat definitions the increase is from 14% to 21%. CBS applies a slightly broader definition which includes, e.g., permanent contracts with undefined hours.
[10] See Salverda (2017) for a discussion of wage formation institutions in relation to inequality.

benefits over time were indexed to the minimum wage in 1974.[11] In turn, the regular uprating of the minimum wage was linked to the evolution of an index of collectively bargained wages, though government policy has strongly interfered with this on several occasions, with a nominal lowering or prolonged freezes.[12]

Figure 3 Evolution of average contractual and actual hourly wages and adult minimum wage
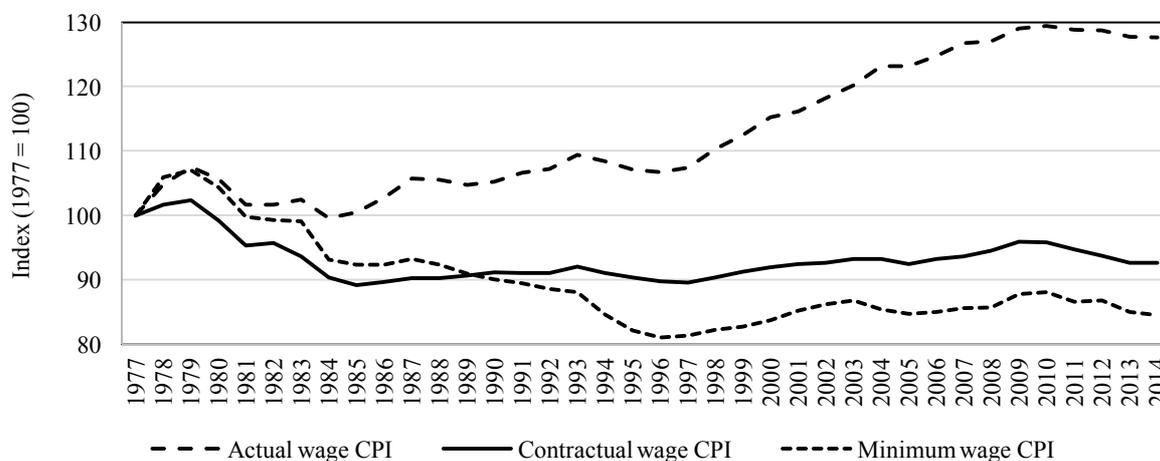
Source: Authors' calculations from CBS/Statline Labour Accounts, National Accounts and Contractual wage statistics; Ministry of Social Affairs and Employment for minimum wage.

The deep depression of the early 1980s was a game changer, which has carved secular wage moderation in collective bargaining in stone. The expansion of the labour force might have contributed to depressing wages. As a result, the purchasing power of collectively negotiated wages has hardly improved over the last 30 years (Figure 3). The real minimum wage decreased by around 25 per cent between the early 1980s and the mid-1990s, and only increased by 3 per cent since. This has contributed to declining wages at the bottom (10th percentile -17% since 1979) and rising wage inequality (90th percentile +10%) while actual hourly wages still increased (median +3%). It went hand-in-hand with a falling share of wages in GDP, which declined from 57 per cent in 1977 to 47 per cent in 2006, followed by a cyclical upturn to 49 per cent currently.[13]

3. The long run 1977–2014: Micro-level analysis

In this section, we analyse what the long-run macro level trends discussed in the previous section have meant for the incomes of individuals and households at the micro level. Section 3.1 shows that living standards, defined as net-equivalized household incomes, stagnated throughout the entire distribution. Section 3.2 distinguishes between six different categories within the entire population. The numbers of wage earners and pensioners have increased substantially, while adults without an own individual income almost disappeared. In particular the number of dual earners went up. These demographic and

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[11] Note that this was meant as a crown to the building up of the system of social security which started with a provisional old-age pension in 1946 and actually helped to lower the Gini coefficient of the Dutch household income distribution from a post-war 0.46 to 0.30, a level long before realised in neighbouring countries (Milanovic, 2016, 79-80, 87).
[12] De Beer et al. (2017) provide an extensive discussion.
[13] This regards total compensation including an increasing share of employer contributions (currently 9 out of the 49% wage share), especially for occupational pensions in recent years. The wage share as a percentage of NDP at consumer prices attains a higher level and it declined from 66% in 1977 to 59% in 2014. In principle, part of the decline might be due to a transfer from wage earning into self-employment. However, the effect seems modest at best. The increase in the share of self-employed between 1977 and 2008 (+2.2 percentage points) coincided with the expansion of wage earning (+9.4 percentage points) while after 2008 the self-employed share remained unchanged and the wage earning share fell by 2 percentage points.

labour market trends have drastically altered the composition of the bottom, middle, and top of the income distribution. However, average incomes of the different categories, including wages, have not kept up with economic growth. With lagging wages, a strategy for income growth for households has been to increase their number of earners – with fiscal incentives, changing norms, and strongly rising female educational attainment (Jaumotte, 2004; Euwals et al., 2011) acting as determinants of rising female labour force participation too. Section 3.3 therefore zooms in on trends and differences for single earners, and main and second earners, and links these to their labour market behaviour.

For studying trends at the micro level, we use tax records, which we can complement from 2003 onwards with matched labour force survey records. Tax records provide the basis of the income statistics micro data (IPO) from Statistics Netherlands (CBS; see Appendix for more detail). The data stretch from 2014 back to 1977 (on a four-year basis between 1977-1989, annually after that). Compared to survey data, the administrative data allow us to track incomes with great precision and across the entire income distribution for around 200,000 individuals per year.[14] However, use of the dataset comes with several disadvantages. First, unfortunately, the IPO data are plagued by a major series break in 1999–2001. As far as possible, we will leave developments between these years out when analysing the changes between 1977 and 2014, unless mentioned otherwise. For levels, we stick to the actual recorded outcomes. Second, the data concern money income and leave out the use that persons and households make of public services, which are paid out of taxation and social contributions. These are relatively large in the Netherlands and may help to explain why net after-tax income is relatively low.[15] Third, only from 2003 onwards, we have additional information derived from matched labour market survey data, including hours worked, type of contract, and educational attainment (see Appendix).

3.1 The evolution of living standards for the entire population

We commence by examining trends in net-equivalized household income, after receiving transfers and paying taxes and social contributions, and corrected for household size and economies of scale.[16] Figure 4 plots trends in the evolution of net-equivalized household income across the ten deciles of the distribution.[17] Incomes have been very stagnant across the board. Leaving out the years 1999-2001 to take the series break into account, we find between 0.4 and 0.5 per cent average annual income growth for the deciles 4 to 10, while the first decile suffered a strong annual decline of -1.0 per cent and the second and third decile barely grew (+0.1% and 0.3%). Though the figure may suggest otherwise, the growth in the tenth decile is not stronger than for the fifth decile. However, the figure also indicates the evolution of the top 1%[18] – note the different scale at the top that enables comparison within the same graph. Though average top 1% income seems to run largely parallel to the rest, its annual growth amounts to 1.1 per cent, twice as fast as for the tenth decile as a whole.

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[14] See for discussions on survey vs. administrative data Atkinson and Brandolini (2001); Atkinson and Piketty (2010), and Atkinson (2015).

[15] Household disposable income was only 45% of GDP in 2014, compared with 50% in Sweden and 74% in the USA (OECD Economic Outlook). The change in the health insurance system (ZVW) introduced in 2006 has added to this. See also DNB (2013). Note that disposable household income adjusted for the consumption of public services still lags GDP growth. Unfortunately, no systematic information is available about the use of public services over the household income distribution.

[16] See the OECD (no year). We use the equivalization factors applied to the data by CBS (1998, 2005). Effectively, these deviate only slightly from those applied by the OECD.

[17] The use of decile averages instead of cut-offs means that trends in the bottom and top deciles outside the reach of the 10th and 90th percentile cut-offs are captured.

[18] This concerns also net-equivalized incomes, contrary to gross incomes in the top-incomes literature.

Figure 4 Deciles of the distribution of personal attributed annual household net-equivalized incomes
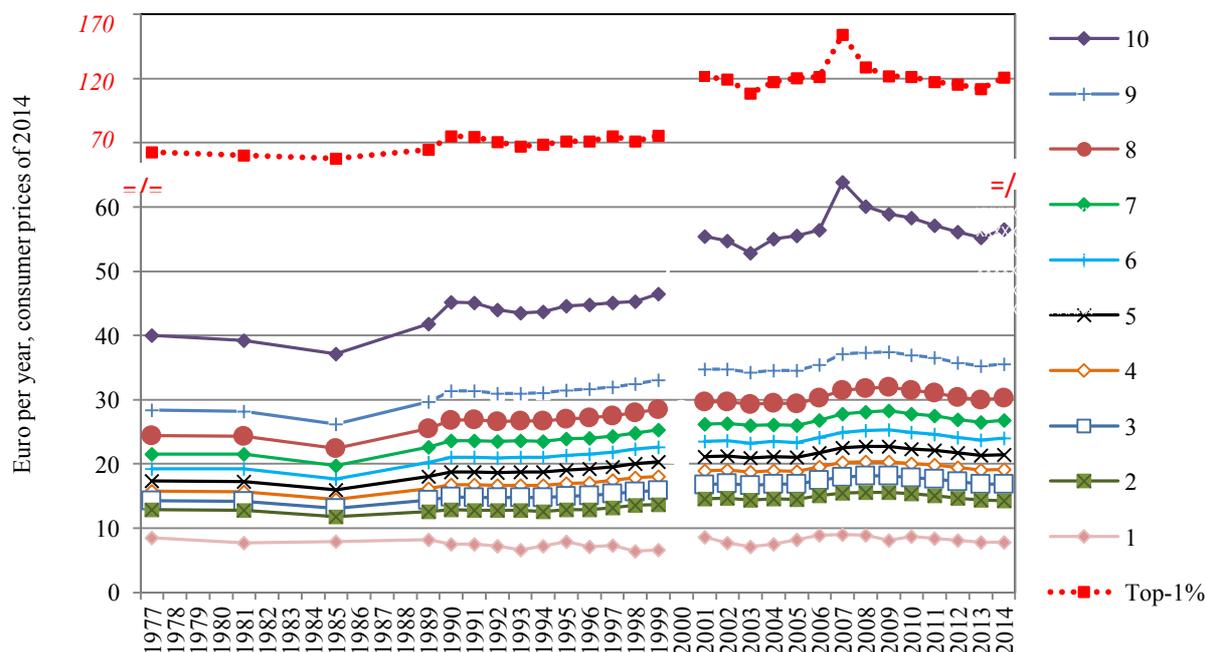
Note: The small peak for the year 2007 is due to a temporary income-tax measure that effectively benefited households with very high incomes and implies some underestimation of top incomes in preceding years. Incomes are deflated using CPI (2014 prices).

Source: Authors' calculations on CBS/IPO microdata.

Growth for the middle was stronger over 1977-1999: 0.3 and 0.5 per cent per year for deciles 2 and 3, and 0.7 to 0.8 per cent for deciles 4-10 than between 2001-2014: -0.1 for decile 2 and +0.1 to 0.2 for deciles 3 to 10; only decile 1 declined strongly up (-1.2 per cent) to 1999 and -0.7 per cent after 2001. After 2001 there was some growth up to the Great Recession but most of it evaporated after that.

As suggested by Figure 4, inequality in net-equivalized household income shows for most of the time a stable pattern (not shown here). The Gini rose from 0.23 to 0.26 between 1977-1999, which is fully due to a rise between 1985-1990, resulting from the effects of the depression wrought by the second oil crisis and the government's response to reduce the minimum wage, civil servants pay, and social benefits. The Gini was essentially stagnant between 2001–2014, with a small increase from 0.27 to 0.28.[19] The level of inequality in net-equivalized household income in the Netherlands is neither particularly low nor high in international comparison.[20]

3.2 Category shifts across the income distribution

In this subsection we dig underneath the overall stability of incomes and inequality, finding large compositional shifts in the population since 1977. These demographic and labour market changes have drastically changed the characteristics of the middle. Furthermore, we show that mean incomes of these groups have lagged well behind economic growth.

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[19] The Gini coefficient's rise over 1977-2014 (11%) may underestimate the trend. For example, the Theil index increases by 21%, and the mean log deviation by 33% (excluding 1999–2001). Still, most of the rise concentrates between 1977 and 1990.
[20] It is very similar to the average for EU15, Norway, USA, Canada, and Australia in 2014 from the OECD's Income Distribution and Poverty dataset.

We slice up the population of individuals in our dataset[21] into six categories in total predicated on their income contributions: four categories with different types of own income and two categories without own income. We note the change in shares across the entire population of each category between 1977 and 2014.

1. *Wage earners*: individuals with most of their income from wages. Between 1977 and 2014, the share of all wage earners went up from 34 to 42 per cent of all individuals. We further distinguish between three categories of wage earners:[22]

    a. *Single earners*: individuals who are the only wage earning adult within a household – their share remained virtually unchanged at around 16 per cent;

    b. *Dual earners (i.e. main and second earners taken together)*: those individuals in a household comprising (at least) two wage earning adults. Within these households we further distinguish between those with the highest wage earnings (*main earner*) and those with the second-highest (*second earners*).[23] The share of dual earners rose from 18 to 26 per cent.

2. *Self-employed*: rising from 3 to 5 per cent;

3. *Benefit dependants*: up from 6 to 11 per cent;

4. *Pensioners*: their share doubled from 9 to 18 per cent.

The two categories without individual income saw a decrease in their absolute and relative size:

1. *Children*: defined here as all persons under the age of 18. They saw a decrease in their share from 30 to 21 per cent of all persons between 1977-2014;

2. *Adults without individual income*: their share dwindled from 19 to 3 per cent; almost all this decrease concerned women.[24]

Figure 5 plots trends in economic growth, and in average individual incomes of the four categories with own income (where by definition zero incomes are excluded). Two findings stand out, which are discussed in turn.

First, price adjustments matter – prices grew faster for consumers than for producers, which is an important factor in explaining why household incomes have not kept pace with economic growth. Measures of economic growth such as net domestic product (NDP)[25] are generally deflated with GDP prices, whereas incomes are commonly deflated using the consumer price index (CPI). The CPI measures changes in prices of goods and services consumed by the typical household, including prices of imported goods, while the GDP deflator refers to the production side and measures the prices of all domestically produced final goods and services (Lequiller & Blades, 2006; see also Feldstein, 2017; Groshen *et al*., 2017; Syverson, 2017). The difference between the NDP deflated by GDP prices and

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[21] Data concern persons characterised by their most important income during the year, which include incomes obtained during part of the year only. As a result, numbers and shares can deviate from those mentioned in section 2 which derive from the labour force survey and add part-year positions together to arrive at full-year averages.

[22] For ease of presentation we leave out the category of third or even higher-ranked earners in a household. Their shares in numbers among the population (3%) and in incomes of all wage earners (3%) are small.

[23] These are not necessarily spouses, though they are defined to not be children (aged under 18).

[24] A maximum of 37 per cent of the decline is due to regulatory change in the mid-1980s when benefit public pension (AOW) entitlements of household partners were individualized rather than paid to the household head. In 1977 300,000 persons without an income were aged 65 and over but hardly any were left in 1990. Between 1981 and 1985 the number of second benefit receivers in a household expands from 400,000 to 800,000. It implies a 400,000 change at the maximum as this will include new cases.

[25] For tracking economic growth, we prefer to use net (NDP) rather than gross domestic product per capita in this comparison, as NDP leaves out the depreciation on capital, which is not considered as individual income in IPO. IPO data for income from enterprise are in accordance with income-tax rules and concern profits after deduction of costs including depreciation.

by CPI reflects the divergence in prices as well as computational differences between these deflators (Bivens & Mishel, 2015; Pessao & Van Reenen, 2013). NDP per capita deflated with CPI increased less than its counterpart deflated by GDP prices, in particular since 2008, opening up a 20 percentage-points gap between the two series in the aggregate increase from 1977 to 2014. This implies that prices that consuming households face rose substantially more since the onset of the crisis than prices for producers, putting a drag on real incomes/living standards (see also Nolan et al., forthcoming).

Moving to the evolution of incomes at the micro level, we can draw a second conclusion: average incomes for all income categories have not kept up with economic growth at all. Mean individual wage income in 2014 is only 4 per cent higher than in 1977 (ignoring 1999-2001). This regards annual wages, which depend not only on pay levels but also on working hours, which have been shortened due to collective negotiations and the rise of part-time employment that we noticed in Section 2. Self-employment incomes showed fierce fluctuations over time, ending in 2014 at a significantly lower level (-27 per cent including 1999-2001, and -46 per cent excluding these years). Average annual benefit incomes have been on a downward trend since 1993. Finally, pensioners saw the highest income gain over time, although still limited, by 12 per cent in total over the full period (ignoring 1999-2001).

Figure 5 Evolution of NDP per capita and average personal annual incomes for different income categories of the population
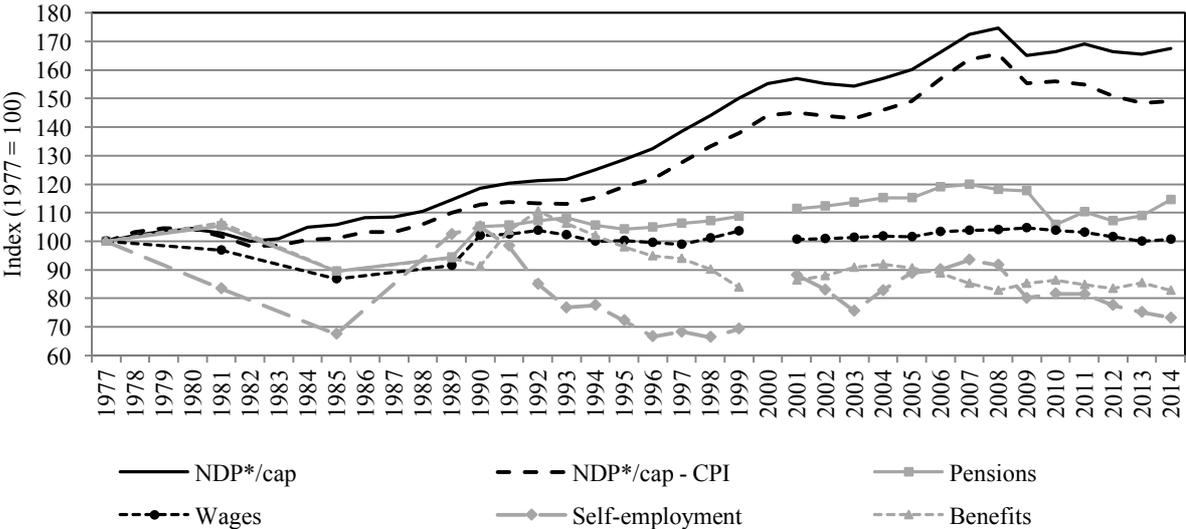
Note: NDP = GDP excluding depreciation. Sources of income excluding zero incomes; wages exclude employer contributions; pensions include the public pension AOW and occupational pensions. All personal incomes are deflated using CPI (2014 prices).
Sources: GDP and depreciation from CBS/Statline; incomes authors' calculations from CBS/IPO.

A major reason why individual incomes have lagged behind is what we noted in Section 2.2: many more individuals now receive a primary income. Individual average annual incomes rose less because of an extremely rapid expansion of female employment that was generally part-time. This strong expansion of national labour supply by almost 50 per cent also promoted market conditions favourable to prolonged wage moderation.[26] Figure 5 points to how important the combination of individual incomes within a household is for studying living standards (e.g., Salverda & Checchi, 2015); a topic that will be discussed in more detail in Section 3.3. A second reason for the lag is the active strategy of secular wage moderation by the government and social partners aimed at boosting exports, which as

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[26] The rise of female employment may also have had effects on the demand for labour.

we saw in Section 2.3 led to a decline of the wage share from 57 per cent of GDP to 49 per cent. A third reason comes from data concerns. Wage incomes might be underestimated in the data before 2000 when pension premiums are excluded, and capital incomes are captured imperfectly as we also discuss in the appendix.

Figure 6 demonstrates how these compositional changes and changes in individual incomes have played out in the overall income distribution between 1977 and 2014. On the horizontal axis, the figure ranks all individuals by the level of their households' net-equivalized incomes, going from the lowest income at the left to the highest at the right. It splits their numbers into 50 equally sized groups each comprising two per cent of all persons, to which we refer as 2-percentiles. On the vertical axis, it shows the change in shares, expressed in percentage points, in each of the 2-percentiles.[27] As we express changes in shares, the changes within each 2-percentile add up to 0. As an example, on the top left, the category of benefit recipients experienced an increase in their share by about 25 percentage points between 1977-2014 in the first 2-percentile of the net-equivalized income distribution, which was counterbalanced by 10 and 15 percentage-point declines for children and the no income category respectively.

Figure 6 Shifts in number of persons for six income categories between 1977-2014 within 2-percentile groups of individuals ranked by their household's net-equivalized income
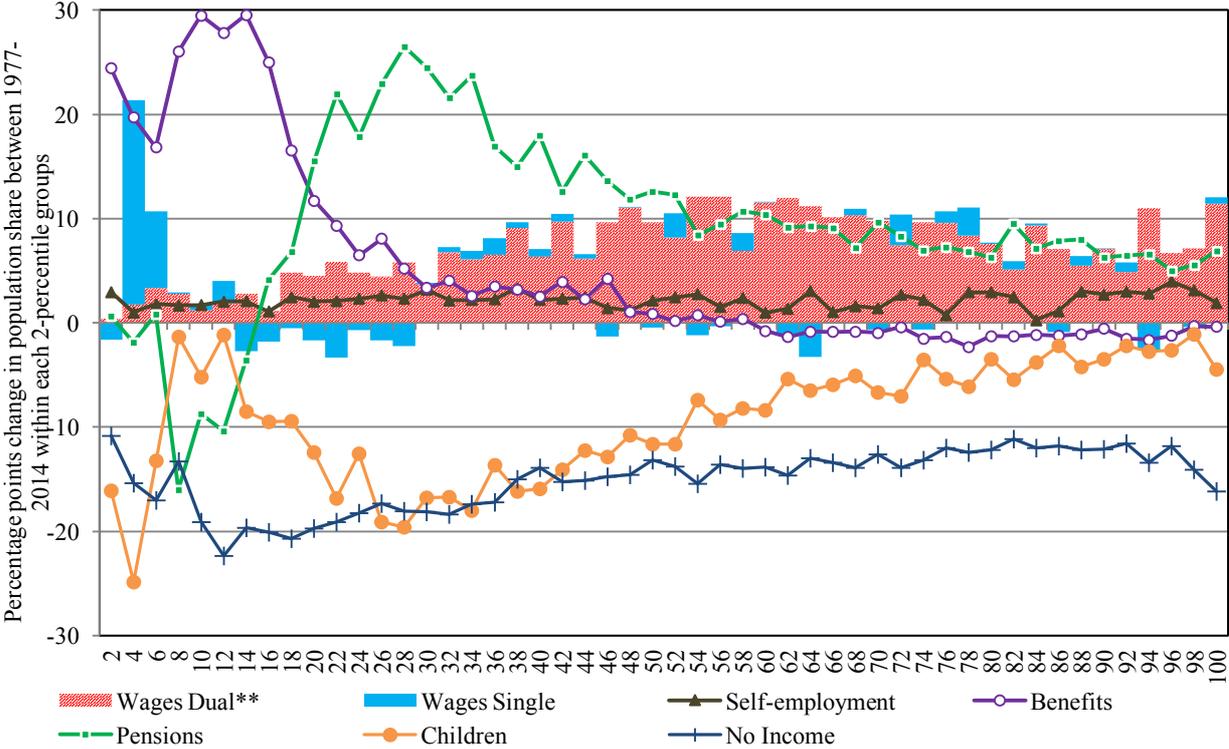
Note: Excluding 1999-2001. The group of dual wages includes third+ earners. Incomes are deflated using CPI (2014 prices). Source: Authors' calculations on CBS/IPO microdata. The shaded areas taken together show the evolution for total wage earners.

We first look at developments for wage earners, which are displayed as the shaded areas for single earners on the one hand and dual earners taken together on the other. As an example, at the 20th percentile, we can see that the share of single earners decreased by 1.7 percentage points, whereas the share of dual earners increased by 4.5 percentage points, implying an increase of 2.8 percentage points

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[27] The graph summarizes the compositional changes over the entire 1977-2014 period by comparing the outcomes for 2014 with those of 1977 in two steps to accommodate for the data break: 1977-1999 and 2001-2014.

in (total) wage earners. Most of the increase in the share of wage earners took place higher up in the distribution. Almost two thirds of the additional earners (63%) are found above the median (located at 50 on the x-axis) and the remainder is divided over 12 per cent for the lowest two deciles and 25 per cent for deciles 3 to 5. As discussed in Section 2.2, essentially all of the increase in wage earners came from dual earners. For single earners, we see a steep rise at the very bottom of the distribution, while in deciles 2 and 3 their share decreased.

The pattern for wage earners contrasts with the patterns for the other categories. The increase in the much smaller category of self-employed is more equally spread over the distribution. Conversely, around 80% of the growth in benefit recipients is concentrated in the lowest quartile. Most of the increase in pensioners took place in the lower middle (deciles 3 and 4: 42%), followed by deciles 5 and 6 (24%) and the rest of the upper half (32%), whereas their number declined in the first decile and grew marginally in the second decile. Children have seen their presence decline particularly in the lowest decile (14% of the total decrease) and the lower middle (49 per cent), where they seem to mirror the rise of pensioners. However, the children's number has remained unchanged at the broad top (deciles 9 and 10), which seems to suggest that having children may have become too costly at low incomes, or more of a luxury (e.g., Kearney & Wilson, 2017). Finally, the number of persons with no income has unambiguously decreased over the entire distribution: 56 per cent of this decline was below the median and the other 44 per cent above it.

Table 1 Composition and incomes of the bottom, middle, and top in 1977 and 2014 in percentages of all individuals per segment

	Population shares						Average annual income					
	Bottom		Middle		Top		Bottom		Middle		Top	
	2014 level	Change 1977-2014	2014 level	Change 1977-2014	2014 level	Change 1977-2014	2014 level	Change 1977-2014	2014 level	Change 1977-2014	2014 level	Change 1977-2014
All earners	23%	*+7 ppt*	48%	*+11 ppt*	55%	*+8 ppt*	10546	*-1.7%*	30564	*+0.1%*	69093	*+0.9%*
Single	17%	*+5 ppt*	14%	*+1 ppt*	9%	*0 ppt*	10345	*--2.1%*	38362	*0.0%*	102773	*+0.6%*
Dual	6%	*+2 ppt*	31%	*+9 ppt*	40%	*+10 ppt*	11466	*-0.2%*	29727	*+0.5%*	68577	*+1.1%*
Main							15575	*-0.6%*	*40154*	*+0.3%*	95979	*+1.1%*
Second							5173	*+0.7%*	18058	*+1.3%*	39281	*+1.1%*
Self-employed	6%	*+2 ppt*	4%	*+2 ppt*	10%	*+3 ppt*	8338	*+0.1%*	24556	*-1.2%*	68928	*-1.6%*
Benefits	34%	*+23 ppt*	6%	*0 ppt*	3%	*-1 ppt*	9209	*-1.4%*	14794	*-0.2%*	18230	*-1.7%*
Pensioners	6%	*-5 ppt*	17%	*+10 ppt*	13%	*+6 ppt*	11605	*-0/4%*	22316	*+0.3%*	54630	*+1.1%*
Children	26%	*-12 ppt*	22%	*-9 ppt*	17%	*-3 ppt*						
No income	5%	*-15 ppt*	3%	*-14 ppt*	2%	*-13 ppt*						

Note: Changes are corrected for the series break 1999-2001; for persons they are in percentage points, for average incomes in average annual per cent Dual earners and all earners include third+ earners. Population shares are within bottom, middle or top respectively; average incomes in Euro per year.
Source: Authors' calculations on CBS/IPO microdata.

These shifts in demographics and relative incomes have markedly changed the composition of the bottom, middle, and top of the distribution, as illustrated in Table 1 by looking at the first, sixth and

tenth decile.[28] In 1977, around a third of the sixth decile/middle was comprised of wage earners, another third were children, close to a fifth did not have an individual income, and less than 10 per cent were pensioners. In 2014, the share of wage earners had increased to almost half, mainly as a result of the virtual disappearance of adults without individual income to 3 per cent. The share of dual earners increased substantially from 20 to 31 per cent, whilst the share of single earners remained virtually unchanged. Pensioners more than doubled their share (17 per cent), moving to middle en masse, whereas the share of children decreased to 22 per cent.

The shift for wage earners is strongly skewed towards the right tail of the distribution. The share of all wage earners increased also at the bottom (+7 ppt) and the top (+8 ppt), but less than in the middle (+11 ppt). Whereas in 1977 the share of single earners was roughly comparable across deciles, it has a clear income gradient in 2014, with their share being substantially higher at the bottom (17 per cent compared to 14 and 9 per cent). Dual earners, on the other hand, are still rare at the bottom (6%), whereas they comprise 40 per cent of all persons of the top decile. For benefit recipients, pensioners, and children we can also see clear patterns of sorting, downward for benefit recipients whose share almost triples in size at the bottom to reach 36 per cent, whereas their share remains small in the middle (6%) and top (3%). Pensioners have clearly moved up the income ladder, decreasing their share at the bottom, while almost tripling their share in the middle and doubling at the top. Last, as we already mentioned, the share of children decreased significantly at the bottom (-12%) and less in the middle (-9 percentage points), whereas their share fell relatively little at the top (-3%). The shares of persons with no own incomes fell to the same extent in all three segments.[29]

Table 1 also shows the evolution of average incomes by type in each of the three segments.[30] Dual-earner averages declined slightly at the bottom (on average -0.2% per year), but increased in the middle (+0.5%) and especially at the top (+1.1%). This is because of the combination of second earners, who made great strides in all three segments (+0.7%, 1.3% and 1.1% respectively) while main earners lost at the bottom (-0.6%), gained little in the middle (+0.3%), and a lot at the top (+1.1%). Incomes of single earners lagged substantially behind those of dual earners. The evolution of wage earning incomes is skewed much more towards the top than their population shares. The share of all wages in total income remained roughly the same, 72-73 per cent, their rising share in the population notwithstanding. Only the pensioners' income share in the total grows, from 11 to 16 per cent.[31]

3.3 The expansion of second wage earners

Our findings so far suggest that increases in employment rates have provided a way to increase incomes when wages were stagnant. Indeed, the previous section revealed that the share of dual earners grew explosively, with the share of single earners stagnating. Moreover, we have seen that the second earner's annual wage is catching up with that of the main earner.
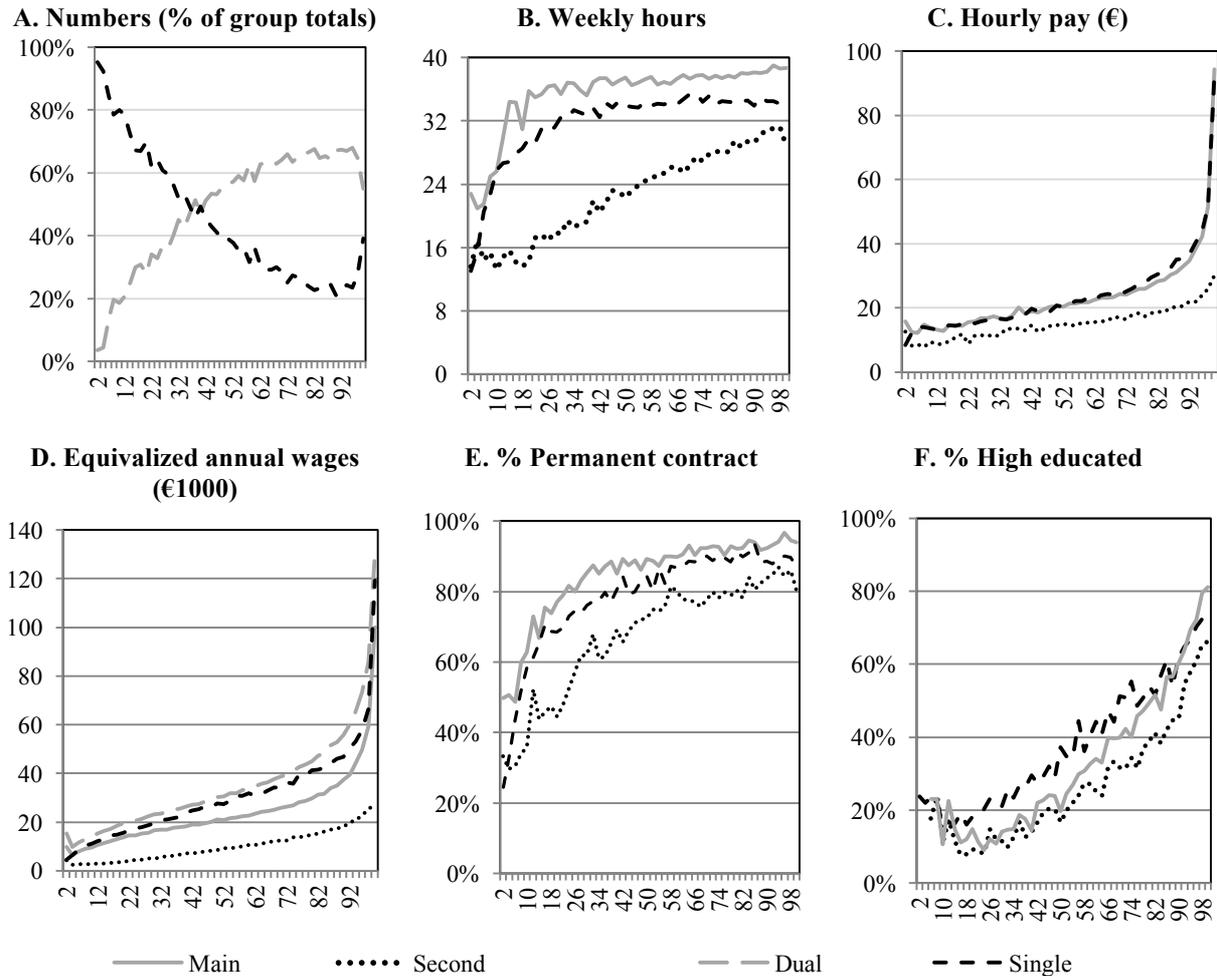
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[28] The sixth decile in this personal distribution is chosen here to indicate the middle as it corresponds with the middle of the household distribution (45th-55th percentile). Households higher up the distribution comprise more persons bringing the median household higher up the personal distribution.

[29] For the top 1%, in comparison to the top decile we find a somewhat smaller share of wage earners (45%), but its growth since 1977 was stronger (+14 ppt) and focused entirely on dual earners. This was compensated by stronger declines for persons without income and children, while the self-employed, benefit recipients and pensioners evolved as shown in the table.

[30] The categories without own individual income (children and those without individual income) are not applicable here. Note that we count the persons' *main* incomes only to characterise their income position and put children's possible own incomes at zero. In this way, we miss the incomes that are secondary to a person's income – an estimated 13% of total own incomes.

[31] As for the top 1%, annual wage growth for single (+1.6%) and main (+1.6%) earners was stronger than in the top decile, while incomes of the self-employed incomes fell more (-2.5%) and those of pensioners grew more (+2.5%).

Figure 7 Single, main and second earners: Distributions of numbers, weekly hours, hourly pay, household size and high educational attainment, 2014

A. Numbers (% of group totals)

B. Weekly hours

C. Hourly pay (€)

D. Equivalized annual wages (€1000)

E. % Permanent contract

F. % High educated

——— Main   •••••• Second   – – Dual   – – – Single

Note: In Panel A main and second earners have half the share of dual earners each
Source: Authors' calculations on CBS/IPO microdata.

Using matched survey data for 2014, we examine in greater detail labour market behaviour of the different wage earners as shown in Figure 7.[32] Overall, it indicates that in order to climb up the ladder of net-equivalized incomes, the extensive and intensive labour market behaviour of the second earner is key. Panel A confirms that the higher the household's net-equivalized income, the higher the frequency of second earners (except for in the top decile). The number of single earners, by contrast, declines all the way up to just below the top decile. Panel B adds weekly hours worked. These rise very quickly for single and main earners to a level between 30 and 40 hours per week over most of the distribution. By contrast, weekly hours for second earners increase monotonically across the distribution to a level still below that of the other two categories. Weekly hours do not increase very steeply (+26%) from 24.3 weekly hours in the middle to 31.6 at the top. Panel C indicates a rising level of second-earner hourly pay. Its income gradient is less strong than for main and single earners, suggesting that the hourly pay of the second earner is relatively less important as a means to boost net-equivalized household income compared to their frequency and working hours.[33] Nonetheless, the gradient among second earners is much steeper than for their hours, rising from € 15.00 per hour in the

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[32] Trends for 2003 and 2008 look rather similar to 2014.
[33] It may point to the possibility that second earners accept lower-level jobs for the ease of combining work with other obligations (see Salverda, 2016, and forthcoming).

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middle to € 24.40 at the top (+63%). Note that hourly pay appears to be *de facto* equal between main earners and single earners, implying that the income brought by the second earner is fully additional in comparison to the single earners.

Panel D shows the equivalized annual wages[34] that take into account the larger household size of dual earners compared to single earners. Dual earners' equivalized wages exceed those of single earners across the distribution but particularly in the top two deciles (where almost one third of dual earners are found). Since 1977 these equivalized wages rose identically for dual and single earners (+26%) in the middle, while at the top dual earners (+58%) far outpaced single earners (+31%). Thus, the income of the second earner accommodates for a larger household in the middle, but higher up the distribution the second earner's income is additional and adds to the inequality of household equivalized incomes.

Panels E adds the important dimensions of contract status and educational attainment. The share of permanent contracts shows very steep gradients up to the middle of the distribution and little difference further to the top. Again, the differences between main and single earners are small and concentrate in the lower middle. Second earners have more often a temporary contract across the board but the differences between the middle (23%) and the top (15%) are relatively small.

Finally, Panel F indicates that the shares of the high educated show the steepest gradients between the middle and the top, for second earners (24% to 60%) and for main earners (29% to 72%); for single earners they evolve more gradually but are still considerable (from 22% at the bottom to 38% to 70%). On average, second earners are less often high educated (33%) than the corresponding main earners (40%) but over the distribution both categories run largely parallel, pointing to the important role of assortative educational mating (see also Bredemeier & Juessen, 2013; Schwartz, 2013; Salverda and Brals, 2016, 2017). Indeed, further results also show an increasing correlation between the annual wages of dual earners, rising from 0.13 in 1977 to 0.36 in 2014. For the shorter period 2003-2014, with more detail available, we also find increases in the correlations for working hours (0.05 to 0.10), and hourly pay (0.21 to 0.29 between 2003 and 2008, and then a decrease to 0.22 in 2014).

To summarise, second earners are found as frequently in the middle of the distribution as they are at the top, but second earners in the middle work fewer hours, are lower paid, have lower educational attainment, and must also make up for the needs of larger households. At the top, main earners on their own are highly comparable to single earners, if not better paid and educated, and here second earners actually provide substantial additional income on top of what may be needed for a larger household.

4. Current trends 2003–2014: Effects of the Great Recession

In this section, we consider briefly whether the Great Recession made a difference to the long-run evolution patterns depicted in Section 3 for the categories relying on market incomes: wage earners and self-employed. We compare the periods before (2003-2008) and after (2008-2014) the onset of the crisis. We show worrying trends in the employment of younger workers (ages 18-45) and in the overall precariousness of jobs.

While the evolution between 2003 and 2008 was in line with long-run trends, a broad change of direction occurred after 2008 (Table 2). Particularly interesting here is the divergence in trends for single and dual earners. Dual earners were the hardest hit group with market incomes in terms of shrinkage in their number, while single earners saw their numbers marginally rise during the crisis, in

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[34] Gross annual wage incomes divided by the square root of household size.

contrast with their long-run lagging behind dual-earner growth. Nevertheless, average annual incomes of dual earners decreased less than those of single earners. Compared to wage earners, we see much more volatile patterns for the self-employed in terms of their numbers and average incomes.[35]

Table 2 Numbers and incomes, a comparison of annual changes over periods

	Total	Total market incomes	All wage earners*	Dual earners	Single earners	Self-employed
Numbers of persons						
1977-14	1.7%	1.2%	1.1%	1.5%	0.6%	2.1%
2003-08	1.2%	1.4%	1.0%	1.1%	0.5%	5.1%
2008-14	0.9%	-0.4%	-0.5%	-1.0%	0.2%	0.1%
Average own annual incomes						
1977-14	-0.1%	0.1%	0.3%	0.7%	-0.2%	-1.6%
2003-08	1.3%	1.2%	0.8%	1.2%	0.2%	4.5%
2008-14	-1.3%	-0.9%	-0.5%	-0.1%	-0.9%	-4.5%

Notes: All wage earners include third+ earners. Changes 1977-2014 corrected for series break of 1999-2001. Source: Authors' calculations on CBS/IPO microdata.

Two particular trends deserve further scrutiny, both depicted in Figure 10. First, the Great Recession has been particularly detrimental to younger workers (aged 18-45) compared to older ones (46+). The two categories grew further apart during the Great Recession, as the number of younger persons in employment declined slightly before 2008 (-1%) but fell precipitously after 2008 (-14%). The number of persons in employment aged 46+ grew fast before 2008 (+21%) and more slowly later (+7%). This partly reflects differential population growth: -8 per cent below the age of 45 and +25% above. One reason why the younger cohort has been disproportionally hit is that the formation of couples and therewith dual earning[36] among them shrunk substantially (-24%, three time faster than their population decline),[37] which is particularly worrying for the future given the importance of pooling incomes.[38] Income trends added to the employment divergence, falling for the younger category by 3.5 per cent annually between 2008 and 2014 and increasing for the older category by 2 per cent. The effects on the distribution of household equivalized incomes are further strengthened by the fact that the older category has smaller households.

A second trend to reckon with for the near future is the rapid shrinking of permanent jobs, defined on the basis of the contract. Between 2003 and 2008, there was very little growth in permanent jobs while temporary jobs increased rapidly (+7.4% annually) and across the entire distribution (see Figure 8 and footnote 7). However, during 2008-2014 the number of permanent jobs plummeted (-2.4% annually), except at the very top of the distribution, while temporary jobs kept on growing (+2.8% annually). Note, finally, that after 2008 the number of low educated in employment fell by 5 per cent per year and the number of medium educated by 2 per cent while the number of high educated still grew by 1 per cent (concentrated in the highest four deciles), much less though than before 2008 (+5%).

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[35] Regarding the other categories, for demographic reasons – the post-war baby boom retired – the number of pensioners grew even more in size after 2008. Their average income shows the most positive balance during 2003-2014, though it still decreased during the Great Recession. Following the economic cycle, benefit numbers declined (-9%) before the crisis and rose strongly (27%) afterwards; the average benefit fell (-4%), however.

[36] The rate of dual earnings among remaining couples still increased.

[37] Salverda and Brals (2016) show that pairing grew among the highest educated but declined at lower levels of attainment.

[38] These and following data from CBS/Statline, labour force survey data: http://statline.cbs.nl/Statweb/publication/?DM=SLNL&PA=82956ned&D1=a&D2=a&D3=0-1,3-5,7-8&D4=a&D5=69&HDR=G3,G4&STB=G2,G1,T&VW=T

Figure 8 Number of wage earners by age and type of contract, shifts of absolute numbers within 2-percentile groups of individuals ranked by their household's net-equivalized income

A. 2003-2008   **B. 2008-2014**
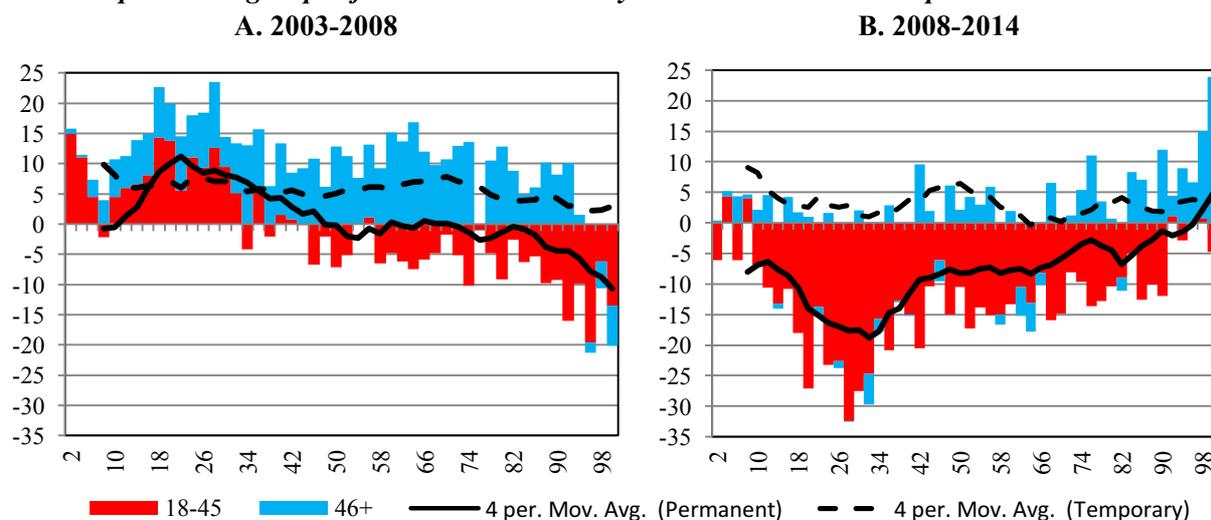
Note: Permanent and temporary contractual shifts are smoothed to 4-group moving averages.
Source: Authors' calculations on CBS/IPO microdata.

5. Conclusions

The Netherlands is a fascinating case for studying the evolution of living standards of ordinary households. With a healthy long-term economic growth, blossoming employment levels, and a competitive edge in exporting, the Netherlands performs very well at the macro level. In this chapter we find that the picture has been markedly different for ordinary working households at the micro level, however.

We first show that living standards have been utterly stagnant across the entire income distribution, lagging substantially behind economic growth. Net-equivalized household incomes have only grown by about 0.4 per cent per annum on average for the middle between 1977 and 2014 and lagged growth in net domestic product (NDP) per capita by a full percentage point per year.

A first main reason why incomes did not keep up with growth is that prices have grown faster for consumers than for producers, in particular also since 2008. Second, average annual individual incomes stalled in real terms, underpinned by an active strategy of secular wage moderation by the government and social partners – as evidenced in the decline of the wage share from 57 per cent of GDP to 49 per cent – aimed at boosting exports. Third, individual average annual incomes rose less because of an extremely rapid expansion of female employment that was generally part-time to help households to respond to stagnating individual earnings, to up to half of all jobs in the country currently. This strong expansion of national labour supply by almost 50 per cent also promoted market conditions favourable to prolonged wage moderation. Finally, the number of households expanded by more than 60 per cent while overall population growth was 22 per cent, meaning that economic growth had to be spread much more widely across households. Wage incomes might also be underestimated in the data before 2000 when pension premiums are excluded, and capital incomes are imperfectly captured as in most countries.

In this chapter we pay particular attention to demographic changes, which have markedly changed the composition of the middle of the distribution in comparison with its bottom and top tails. The share of

wage earners in the middle went up from about a third in 1977 to almost half in 2014, entirely due to a rise in dual earners. The share of single earners increased only at the bottom. Pensioners almost tripled their share in the middle, whereas the number of benefit recipients increased particularly at the bottom and was unchanged in the middle, and children declined less at the top. With the boom in female labour supply, the number of persons with no own income almost disappeared across the entire distribution.

A demographic and labour market change that is particular for the Netherlands is the prevalence of a part-time second earner. The labour market behaviour of the main and single earner are quite comparable. The incomes of the second earner mainly cover the needs of larger households compared to single earners up to the middle. Higher up the distribution, which is where second earners largely concentrate, they provide additional income to the household. Second earners allow households to climb the income ladder primarily by working more hours at considerably higher levels of hourly pay even though these increase not fully in line with their higher levels of educational attainment. Taking main and second earners together at the top, their income level advanced between 1977 and 2014 largely in line with the 48 per cent increase in net domestic product per capita. Indeed for them fielding more workers from the household is a successful strategy of coping with stagnant wage.

In our final section, we looked closer at the Great Recession, denoting two worrying trends for ordinary households. First, the Great Recession has been particularly detrimental to younger workers (ages 18-45), whose number fell precipitously after 2008 throughout the distribution, while older workers clung on successfully. Household formation practices of younger couples shrunk as well, which is particularly worrying for the future given the importance of pooling incomes. Second, the number of permanent jobs plummeted during the Great Recession, while the number of temporary jobs continued to increase.

A main strategy to boost living standards of ordinary working households is to relax the Dutch dogma of wage moderation. With a trade surplus at record level, there seems ample space to do so. The government can actively contribute by allowing the minimum wage to rise, which has essentially been stagnant since the mid-1990s. This may help narrowing the gap between economic growth and the evolution of incomes in general. The government may also decide to implement particular policies – some of which have been initiated already since 2014 – though this requires additional research enquiring into the behavioural effects. For instance, the gap between single and dual earners can be addressed. Policy possibilities include increasing taxation in higher income brackets where dual earners concentrate or introducing an income tax credit for households with low earnings, which are usually single earners. Taking children out of the equation, e.g. by introducing a child basic income as advocated by Atkinson (2015), would protect households that fully need the second earnings for their children. Labour market policies that stimulate the number of hours worked by second earners, such as childcare potentially, would help reducing the employment and earnings gap between the middle and the top. However, this would not support households in the bottom of the distribution who generally have no spouse; although it might help single-parent households.

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Appendix: Data

For this chapter, we use three main sources of data: National Accounts, Income Panel Survey (IPO)[39] for 1977-2014 (comprising up to 270,000 individuals spread over somewhat less than 100,000 households per year), and a dataset commissioned from CBS that matches individuals from the Labour Force Survey (EBB) and the Integral Household Income (IHI) dataset.[40] IHI comprises for the full population the income data underlying the IPO sample, but provides less detail. The match contains 400,000 observations for individuals on an annual basis, consisting of repeated quarterly observations. We briefly discuss the most important caveats of these data.

The National Accounts (NA) are used from both CBS and OECD. The OECD National Accounts provide more detail and in its *Economic Outlook* links the earlier data (1977-1995)[41] to the current data based on ESR2010 accounting, which replaced ESR1995. The difference due to this rule change is substantial and growing (7% in 1995 to 8% in 2010) and it increasingly concentrates on incomes from capital, i.e., other primary incomes than employee compensation (+6% to +14%) and depreciation (+16% to +19%). The gap for compensation of employees is smaller and declining (+6% to +3%).

The administrative income data from IPO captures incomes from wages, benefits and pensions very well compared to the NA, but incomes from enterprise and wealth as observed in NA (= net operating surplus) exceed corresponding IPO incomes by about one quarter of NDP currently. The quality of the IPO data for the earliest years (1977-1989) seems weaker than afterwards (1990-2014), as, for example, the coverage of NA employee compensation is at or below 80%.

IPO is characterised by a significant series break between the years 1999 and 2001, when several definitions and some of the observation methods were changed. Results for the first year (2000) of the changes have remained unsatisfactory and still need revision according to CBS; we disregard these. The break has important quantitative effects. Contributions to occupational pensions were not observed before but are since 2000 added to gross wages[42], while imputed rent for self-owned housing, an important component of income from wealth, was effectively halved compared to the preceding approach.[43] These effects increase with the level of income and affect the income distribution particularly at the top end. However, up to 15% of the 20% gap for the top decile might well be real: in 1999 the missing pension contributions would have diminished the gap by an estimated 8 percentage point, while without the reduction in imputed rent in 2001 the gap would have been 23%. Several other issues affect the NA-IPO gap for primary incomes. By choice of CBS, IPO treats occupational pensions received as transfer income and not as primary income, in spite of the fact that the Dutch system of occupational pensions is fully capital funded: contributions are part of employee compensation and returns are obtained in the capital market.[44] These returns will be part of the NA-IPO gap for other primary incomes (4 to 7% of GDP).

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[39] https://www.cbs.nl/NR/rdonlyres/728C432C-D485-43AA-9228-4B7BDE257E73/0/ipoinkomenspanelonderzoek2001evmicrodata.pdf

[40] https://www.cbs.nl/NR/rdonlyres/64336C62-2A10-4477-A339-A2B154B8ED47/0/integraalhuishoudensinkomenmicrodata.pdf

[41] Actually, the linking amounts to a simple linear backwards extrapolation of the old-new difference for the year 1995.

[42] Naturally, the problem is their absence before 2000. IPO's coverage of NA wage compensation improves from 84% to 94%.

[43] This was based on a much higher rate of depreciation of the real estate. The planned new IIV statistics that will replace IPO later in 2017 puts that depreciation again much lower (CBS, 2017a) and imputed rent correspondingly higher. Note that this depreciation affects the differences between GDP and NDP as well as Net National Income, perhaps by as much as 2 % points.

[44] The OECD Income Distribution Database (IDD) first included this in capital income and currently asks the national statistical offices to specify this separately (http://www.oecd.org/els/soc/IDD-ToR.pdf).

Finally, the specially commissioned IHI-EBB match of income and labour force survey data warrants some attention. It supplemented information on working hours, contract type and educational attainment; working hours could be used to determine hourly wages. As survey information from EBB is on a quarterly basis, while income information from tax records is annual, we have constructed annual series using the weights of EBB. Moreover, as the EBB data are collected from a rotating quarterly panel over 12 months, we assume that if an individual is not observed during all quarters of a calendar year the information available for the other quarters is valid for the entire year. Furthermore, IHI does not contain wage data, but the more general primary income, which includes capital incomes such as imputed rent. The distribution of primary incomes for the selection of employees over 50 2-percentile groups shows patterns for 2003, 2008 and 2014 that narrowly resemble those of annual wage incomes according to IPO, but the absolute numbers differ. More generally, the administrative data from IHI and from IPO closely resemble each other. For 2003-2014 for which we have both sources for primary income, correlations for employees in their number, and mean and median primary and net-equivalized household income are always above 0.98. This allows us to combine wage incomes from IPO with EBB information on working hours to determine hourly pay.