



Wealth and the Distribution of Wealth in the Netherlands

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Abstract

This paper presents an overview of the balance sheets of Dutch households. It extends the SNA concept of net worth with implicit wealth in social insurance schemes, which will be called transfer assets. Moreover, micro data sources are linked to the macro data from the national accounts, allowing for a detailed analysis of the distributions of household net worth in the Netherlands.

The results show that Dutch households have large transfer assets, almost as much as they hold in financial assets, and even exceeding the amount they hold in non-financial assets. The distribution of these transfer assets depends on the demographics in the society. Distributional estimates of these transfer assets or of other net worth components can be used for example to identify vulnerable households, or to show the lifecycle hypothesis. Extensive attention is paid to the work-related pension schemes, which are part of net worth in the SNA, but often not taken into account in inequality studies. The way of recording makes a good comparison of wealth and wealth inequality in time difficult, but including them is necessary for comparison between countries.

Keywords

Household wealth, Implicit wealth, Net worth, Transfer assets, Wealth distribution

Introduction

Stiglitz, Sen and Fitoussi (2009) made several recommendations regarding the focus national accounts should have in the future. The current focus on production and Gross Domestic Product (GDP) should shift to a multi-dimensional approach to measure well-being. Material living standards as measured by the System of National Accounts (SNA) is only one of those dimensions, and for this they recommended to emphasize the household perspective more, instead of focusing on the total economy. A joint analysis of income, consumption and wealth is more informative of households' material living standards. Furthermore, they discuss shortcomings of the System of National Accounts, and argue that the current wealth concept of financial and non-financial wealth is insufficient, because it excludes important economic measures like environmental wealth, and human capital. Similar conclusions were drawn by the IMF/FSB report to the G-20 Finance Ministers and Central Bank Governors (2009), and these recommendations and conclusions were followed up in world-wide task forces and expert groups.

Economists and statisticians agree on the fact that the wealth concept in the SNA is limited and does not represent welfare perfectly. Where there are numerous initiatives to include for example human capital or environmental resources in the SNA, only recently has the focus on implicit wealth of households in transfer schemes increased. The handbooks on national accounting SNA 2008, and ESA 2010, take the first steps in this direction by introducing a supplementary table on pensions. In this paper the current net worth concept will be extended with this implicit wealth in transfer schemes, which we will call transfer assets.

Distributions of wealth are rare, because often detailed information is lacking. Often distributions within the household sector are limited to income, consumption and savings. However, wealth is a necessary dimension to analyze consumption possibilities of households over time. Statistics Netherlands paid much attention to the recommendations of Stiglitz, Sen and Fitoussi, and on the focus on distributions of income and consumption (Bruil & Koymans, 2014) (Fesseau & Mattonetti, 2013a) (Fesseau & Mattonetti, 2013b), jointly with wealth. Bruil (2015) shows that this joint analysis is crucial to understand these distributions, he finds that elderly households have lower incomes and a very negative savings rate, but also the highest wealth levels as measured by their financial and non-financial means. In the literature this is predicted by the economic lifecycle, first described by Modigliani and Brumberg (1954).

This paper has two main objectives: first the wealth concept of the SNA is extended by including the estimates for implicit wealth in social insurance schemes (which we will call transfer assets), and second the distribution of all wealth components is given. It shows that wealth held in social insurance schemes is larger than wealth held in non-financial assets like dwellings, and almost as large as financial assets. Second, the distributions allow for identifying vulnerable households, deriving a measure of wealth inequality, and assess the accumulation of wealth over the lifecycle.

The outline of this paper is as follows. In the next section the methodology of transfer assets and the distribution of wealth in the national accounts is described. After that the results are shown for both the macro view of wealth and the distributions over households and individuals. Section four summarizes and concludes.

Methodology

Data sources

The methodology focuses on the two objectives of this paper. First, the implicit wealth of households in social insurance schemes is estimated using micro data. Second, the methodology to add distributions to the national accounts macro totals will be discussed.

For both elements of this paper the Income Panel Survey (IPS) is the main data source. The IPS aims to describe the composition and distribution of income and wealth of individuals and households in the Netherlands. It is a register panel with information from different administrative sources, among which tax data. In 2012 the total sample was approximately 277,000 people in over 97,000 households. The survey records detailed financial information by individual and household, including the composition (bank deposits, shares and bonds, company assets of the self-employed, loans and mortgages etc.) and distribution of wealth across households. Ownership of wealth components might not be straightforward however, even if information is available at individual level.

Funded pension entitlements and transfer assets require a customized approach, as entitlements are not readily available for the entire population. We identify two phases in these schemes, the accumulation phase, and the benefit phase. The age profiles of benefits for unfunded pensions, disability pensions, survivor pensions, and unemployment schemes are taken from this data source as well. The same holds for the funded pension schemes, which are part of the core SNA. For the accumulation phase, entitlements are taken from the pension claims statistics (PCS). This source covers the entitlements of individuals who are below the retirement age.

Transfer Assets

The amount estimated is the sum needed by the government to cover all her outstanding obligations in case she would decide to terminate these social insurance schemes. This implicit wealth of households will be called transfer assets in the remainder of this paper. It excludes liabilities, because in a terminated social insurance scheme contributions no longer need to be paid. The transfer assets are the entitlements that are accrued to date, the concept which best reflects SNA practices (Mink, 2007).

The methodology for transfer assets draws upon the work done by (Schmitz, Barb, & Bruil, 2015). They show the first results for the entitlements of Dutch households in unfunded pension schemes, which is recorded in the supplementary pension table of SNA 2008 and ESA 2010. The initiative of the National Transfer Accounts (NTA) introduces a similar concept, for the purpose of analysing the generational economy (United Nations, 2013, p. 18). They call this transfer wealth, which is first discussed by Lee (1994). This concept differs in a few aspects from transfer asset as we estimate it in this paper, first because it includes all transfer schemes within the SNA, also the ones where no entitlements are accrued, and second because the liabilities of these schemes are included too. Finally the population is larger because future generations are also included. As this does not comply fully with national accounting practices we decided to follow the accrued to date concept of the supplementary pension table instead.

In this paper the model of Schmitz *et al.* is further adapted to incorporate the increasing retirement age in the Netherlands. The model uses the population by age {0-99 years} and gender in the base year. For each of this combination of age and gender the remaining life expectancy is known. For the individuals who receive unfunded state pension benefits the age profile (the average old age pension benefit by age and gender) is known from the income panel survey (IPS). These benefits are calculated into entitlements using the life expectancy and the discount rate. The IPS does not cover

the entitlements for the individuals who accumulate entitlements (those below the retirement age). These individuals accrue 2% of the average pension benefit a year. In the Netherlands entitlements in unfunded pension schemes are independent of labour history, but simply depend on the years lived in the Netherlands, hence in 50 years one can accrue a full benefit. Also the accrued entitlements are recalculated using the life expectancy, the projected retirement age and the discount rate.

The discount rate is the most influential element of this model. We use the discount rates given by the Dutch Central Bank (De Nederlandsche Bank) as published in the interest rate term structure. Pension funds and insurers are obliged to use these rates to estimate their outstanding (funded) entitlements, and by choosing the same rates for the unfunded schemes we achieve consistency with these funded pension schemes. This consistency is necessary for a meaningful analysis of the pension system¹. The entitlements are valued as accrued obligations, which means the future increases due to indexation are not taken into account, again to ensure comparability with the funded pension scheme and its valuation in the national accounts.

Schmitz *et al.* (2015) limit the scope of the supplementary pension table to the old age unfunded pension schemes, as described by the technical compilation guide (Eurostat, European Central Bank, 2011). However, when EU member countries cannot easily distinguish the old age schemes from disability or survivor schemes these can be included as well. The concept of transfer assets as it is presented in this paper includes all social security schemes in which entitlements are accrued, i.e. survivor benefits, unemployment schemes, and disability insurance schemes. The population that participates in these schemes is in the working age, and this participation ends when the retirement age is reached. For these schemes a similar approach is taken as for the unfunded pension schemes. Age profiles for the population are taken from the IPS, and combined with the population data. Because of the accrued to date concept, new entrants in the population are not taken into account, but new entrants in the schemes are possible, as long as they have built up entitlements. For example a fourteen year old is not part of the population, because he/she is not of legal working age. But a twenty year old is in the population even if she does not benefit from one of these schemes. As long as she is part of the population, she accrues entitlements. In case of the unemployment scheme these are measured in months. The twenty year old will not yet have a long work history and have accrued only a few months' worth of entitlements. But when she becomes unemployed, say 10 years later, her wage will be higher than in the base year. The age profile is adjusted for these time effects. Net present values are calculated using the same discount rate as we used for the unfunded pensions.

Distributions

For transfer assets the distribution over individuals is the starting point of the model, and the macro estimates are the results of these age profiles by gender. For distributional purposes we want to allocate these age profiles to households as well. This is done through the use of demographics in the population, because for every household group the composition by age and gender is known. As a result elderly households have more unfunded pension entitlements, but less unemployment and disability entitlements. Younger households are allocated relatively less pension entitlements and more unemployment entitlements.

¹ In the Technical Compilation Guide (Eurostat, European Central Bank, 2011), Eurostat proposes one discount rate for all European countries; 5% real and 3% nominal. These discount rates are the same as agreed in the Ageing Working Group of the European Commission, but differ from the Interest Rate Term Structure in the Netherlands.

For the core SNA transactions the micro data sources used are also the IPS and the PCS. Methodology follows the work done by Bruil and Koymans (2014), which is consistent with the approach taken by the EGDNA for income and consumption (Fesseau & Mattonetti, 2013b). The methodology for the distribution over individuals is presented in detail by Bruil and Van Tongeren (2014).

From the national accounts we use the financial and non-financial account. Our national accounts data are compliant with the SNA 2008 and ESA 2010 handbooks. The micro data sources contain the necessary information to distribute the national accounts totals. A conceptual link is made as closely as possible between the SNA and the available micro data. If no conceptual link can be made, a proxy variable is used. The sum of the distributions derived from the micro data sources do not equal the macro totals in the national accounts. These coverage gaps occur due to differences in population, measurement, or conceptual differences. The distributions are therefore balanced (proportionally) to be numerically consistent with the national accounts totals. The coverage gap between the micro sum and the macro total indicates the quality of the link, for most components this is considered to be good (mortgages, savings), for non-financial assets other than dwellings this coverage is poorest, mainly due to differences in measurement.

An important financial asset missing in the IPS are the pension entitlements. These pension entitlements do not have to be recorded in the tax returns, and micro statistics consider them deferred income rather than wealth. However, the paid premiums do accumulate to large savings held by pension funds and insurers. In the national accounts these are, since ESA 2010, recorded as entitlements. This means that the pension wealth held by households equals the amount pension funds and insurers need to cover the future benefits. For transfer assets we decided to follow the same concept of recording. The age profiles of pension entitlements are derived by combining two data sources: first the pension claims statistics estimates the entitlements of individuals who are below the retirement age, second the IPS is used to estimate the entitlements of the retired population. The (future) claims are capitalized using the remaining life expectancy of each age group, and the expected retirement age. Again the sum over the distribution is balanced to the national accounts total, which is different from transfer assets where this balancing is impossible due to the absence of a national accounts total.

Much of the existing research on distributions of income, consumption, and wealth focuses on the household, as this is the institutional unit in the SNA. But demands for distributional information in the System of National Accounts are not limited to the household perspective. Demographic changes resulting in an ageing society demand for the introduction of the age dimension, which is better reflected on the individual level. A household often covers multiple generations, each with their own economic behavior. To add the age dimension to the national accounts the work on the National Transfer Accounts (NTA) gives insights in the generational economy, aiming to include the wealth distribution over the lifecycle (Lee & Mason, 2011) (Barb & Bruil, 2013) (United Nations, 2013). Therefore, we do not only distribute national accounts totals over households, but also over individuals.

The methodology for the distribution of the core SNA variables is similar for the household perspective and the individual perspective. Only because wealth is often measured on the household level by the micro data sources, additional methods are needed to allocate those items to individuals. This happens specifically with variables that are imputed instead of measured; those are assigned to one person within the household. In the IPS this is the case for some property income components. For wealth components, this is caused by the Dutch tax regulation. Because tax data are an important data source for the IPS, Dutch tax regulation rules are reflected in the results. Couples may shift their financial resources (wealth) to the individual with the highest income, in

order to pay less tax. To get a truly individual age profile, corrections on this micro data are needed. We assume that ownership of wealth is on an equal basis within the adult couple in a household. Therefore we allocate 50% of the wealth component to both individuals. For the other individuals in the household the allocation is already made by the micro data.

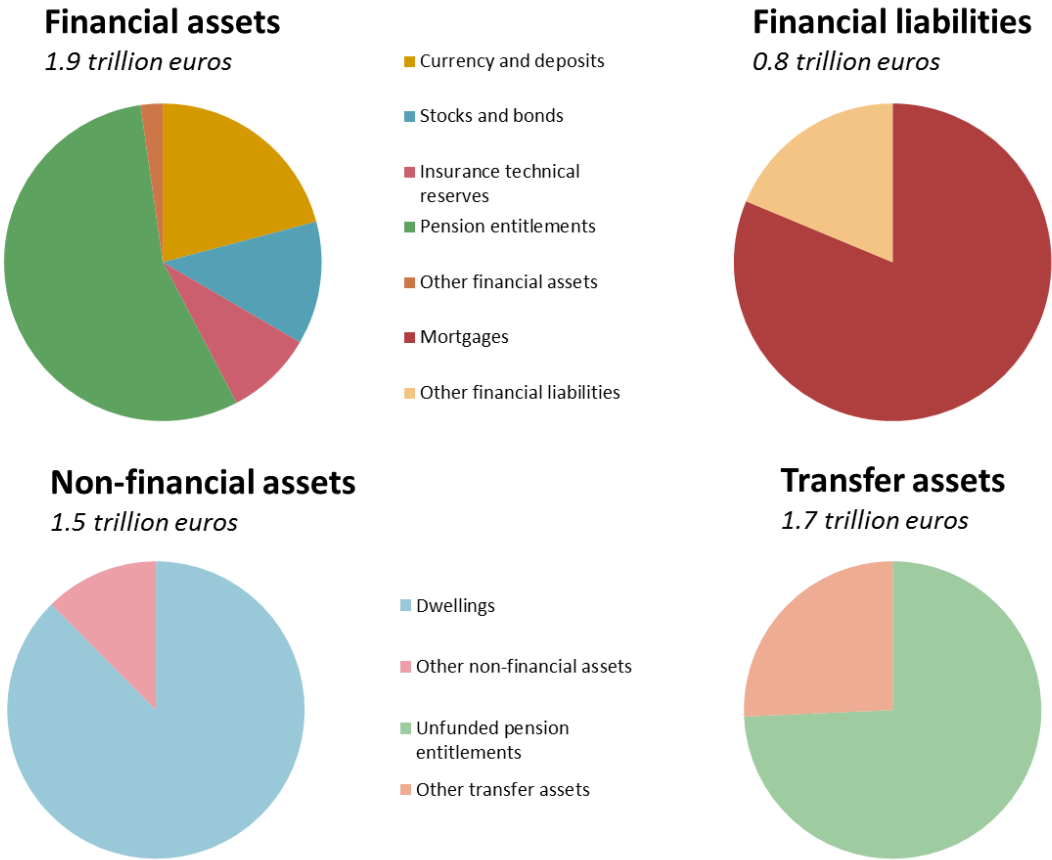
Results

The results presented here focus on the macro picture of net worth, including the new concept of transfer assets. Also the distributions of net worth will be shown. In this paper, households will be categorized according to their disposable income and to the age of the head of the household. The latter category is found to be a necessary angle because of the economic lifecycle, that states that households accumulate wealth to cover consumption needs for when they retire.

Macro view

Transfer assets amount to 1.7 trillion euros in 2012 (equal to a 100 thousand euros per capita), which is more than the macro total of non-financial assets, and only 0.2 trillion euros less than financial assets. The largest part of this is in unfunded pension entitlements. These account for 25% of total assets (financial, non-financial, and transfer assets) as presented here. In comparison, funded pension entitlements account for 21%. Total household net worth (the difference between assets and liabilities) equals 4.2 trillion euro, or 253 thousand euros per capita.

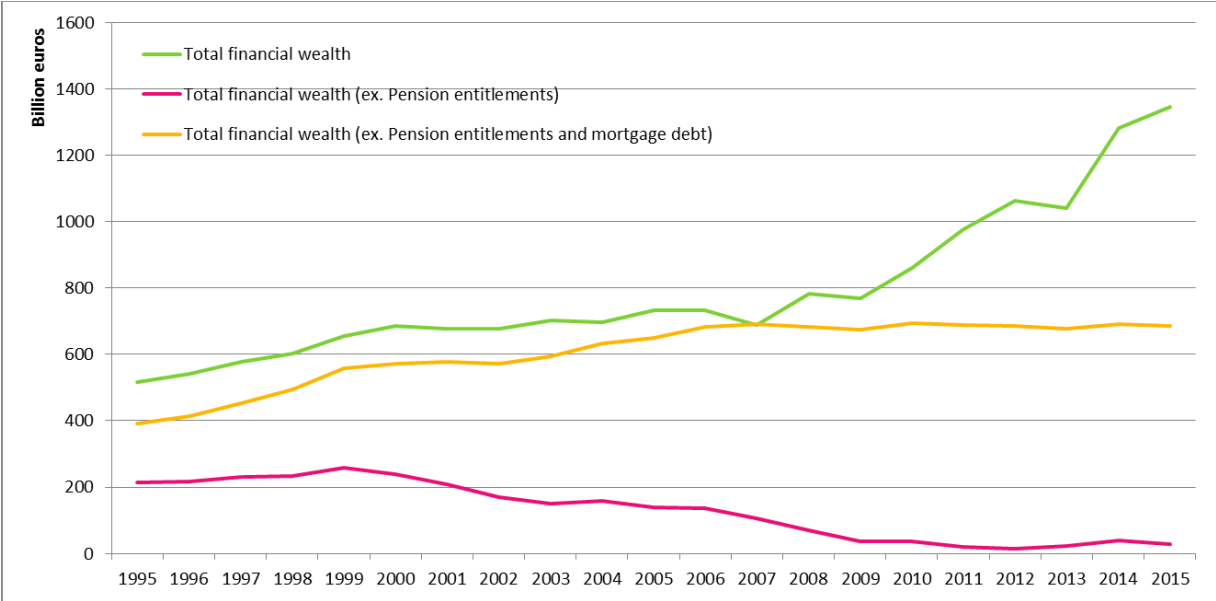
Figure 1: Households' net worth, 2012



On the households' balance sheets presented in figure 1, two components are by far the most influential: net worth in dwellings, and pension entitlements. The former equals the value of dwellings (non-financial assets) minus the mortgage debt (financial liabilities). The latter differ from

other assets in the sense that they are accounted for as the net present value of future benefits. It is the amount needed today to be able to cover all future benefits. The pension entitlements on the financial assets are the work-related, funded, schemes. These are especially high in the Netherlands compared to other countries. For an accurate comparison of wealth between countries it is necessary to include these. Also the transfer assets mentioned extensively before are recorded as entitlements. The more generous the welfare state is, the larger these entitlements will be. These differences between countries is what the supplementary pension table tries to capture. While it is necessary to include them in an international comparison, over time these entitlements influence the financial net worth of households greatly. This is because the interest rate used to capitalize the entitlements has a large impact on the total.

Figure 2: Total financial net worth



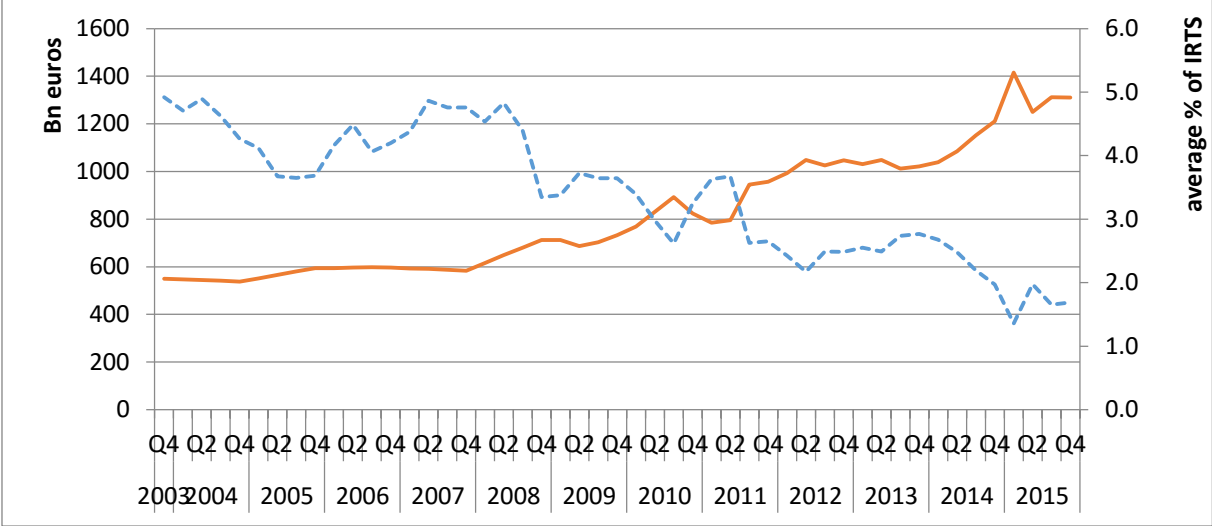
A time series of financial net worth (figure 2) suggests that households became richer over the years. In 2007 households owned 690 billion euros, and this increased to 1346 billion euros in 2015. But households didn't become almost twice as rich in these years, this was mainly because of the influence interest rates had on the value of pension entitlements (figure 3). If we exclude these entitlements, financial net worth decreased because mortgage debt rose more than financial assets did. If we exclude mortgage debt as well, because this has a counterpart in the non-financial accounts, the yellow line shows that Dutch households own in 2015 about as much funds as they did in 2007.

The discount rate is the most influential parameter in estimating the pension entitlements. Until 2008, pension funds could discount their obligations against an interest rate of 4%. From then onwards, they were obliged to use an interest rate term structure (IRTS), as published by the central bank. The IRTS gives a market yield for outstanding obligations depending on the duration of the loan term. For elderly people, with a relative short duration of their remaining entitlement, the interest rate is low. For younger people, just starting to accumulate entitlements, the interest rate is higher. The IRTS is updated every month with the market rates, which are reflected in the discount rates and thus in the pension entitlements. Since 2008 the interest rates decreased, which made the entitlement increase (Figure 3).

The ageing society leads to more people in higher ages groups. These ages groups are the ones that depend on pension income, either from funded schemes (financial assets), or unfunded schemes

(transfer assets). The true value of these entitlements lie in the future benefits. The sustainability of these schemes is currently debated, and many fear there won't be a pension when they retire. For funded pension schemes the coverage rates are an indicator of what is actually available, at the end of 2015 this coverage rate for the entire sector was 102%, while it was 144% at the end of 2007².

Figure 3: (left) Pension entitlements, and (right) interest rate term structure

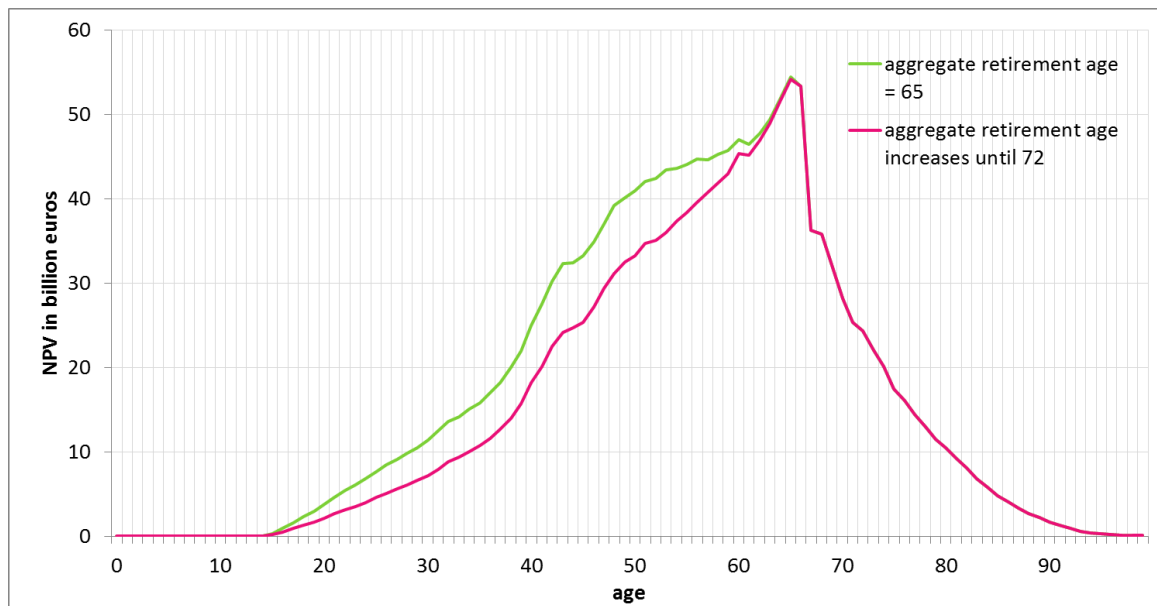


For the unfunded pensions there is no such coverage rate, simply because there are no funds. The CPB Netherlands Bureau for Economic Policy Analysis concludes that the system is sustainable for the Netherlands, based upon generational accounting principles (CPB, 2014). The reason the sustainability improved is the increase in retirement age. This was enacted in 2012, by both the senate and the house of representatives, and was a necessary step to relieve the impact the ageing society has on the government budget. The retirement age is to rise to 67 years in 2023, after which it follows life expectancy. Using the projected life expectancy of Statistics Netherlands, it is estimated that the retirement age is 72 in 2060. This increasing retirement age influences the balance sheets of household greatly.

Figure 4 shows the impact of the increase of this retirement age for the unfunded state pension benefits, for 2012. The area below the line equals total unfunded pension entitlements. The difference between the two lines is the wealth loss per age group, due to this increase. This loss is only bore by the generations younger than 65 years old, because the increasing retirement age does not change anything for those age groups already receiving benefits. The age groups 0-15 do not yet participate in this social security scheme so for them there is no impact either. Total wealth loss for the age groups between 15 and 65 equals 175 billion euros. Partly this loss is offset by the increase in disability and unemployment entitlements, these schemes will continue longer once the retirement age increases. These schemes are smaller though, and because the age groups around 60-65 years only receive small amounts in these schemes, the estimated gains from increasing the retirement age are small as well (around 9 billion euros).

² Data derived from <http://www.dnb.nl/statistiek/statistieken-dnb/financiele-instellingen/pensioenfondsen/toezichtgegevens-pensioenfondsen/index.jsp> ; Table 8.8.

Figure 4: Unfunded state pensions



The estimate of transfer assets is able to capture these effects of the ageing society, and allows for a better analysis of funded and unfunded entitlements between countries. Moreover if households have large entitlements on their balance sheet, they have less need to personally accumulate financial assets to cover for income loss due to unemployment or retirement. This should come forward in the pension table and can influence inequality through the redistributive effects of social schemes.

Inequality

In our distribution studies we rank households according to their income level. This is in line with the recommendations of Stiglitz, Sen, and Fitoussi, and necessary if wealth is considered jointly with income and consumption. Studies of wealth distribution recently focused on inequality between households, inspired by the work of Piketty (2014). In most studies, also for the Netherlands, households are ranked by their level of wealth (WRR, 2014, pp. 79-100) (Wilterdink, 2015). This foregoes the crucial point that households with lower incomes can still own a large amount of wealth and vice versa.

Figure 5: Net wealth by standard of living

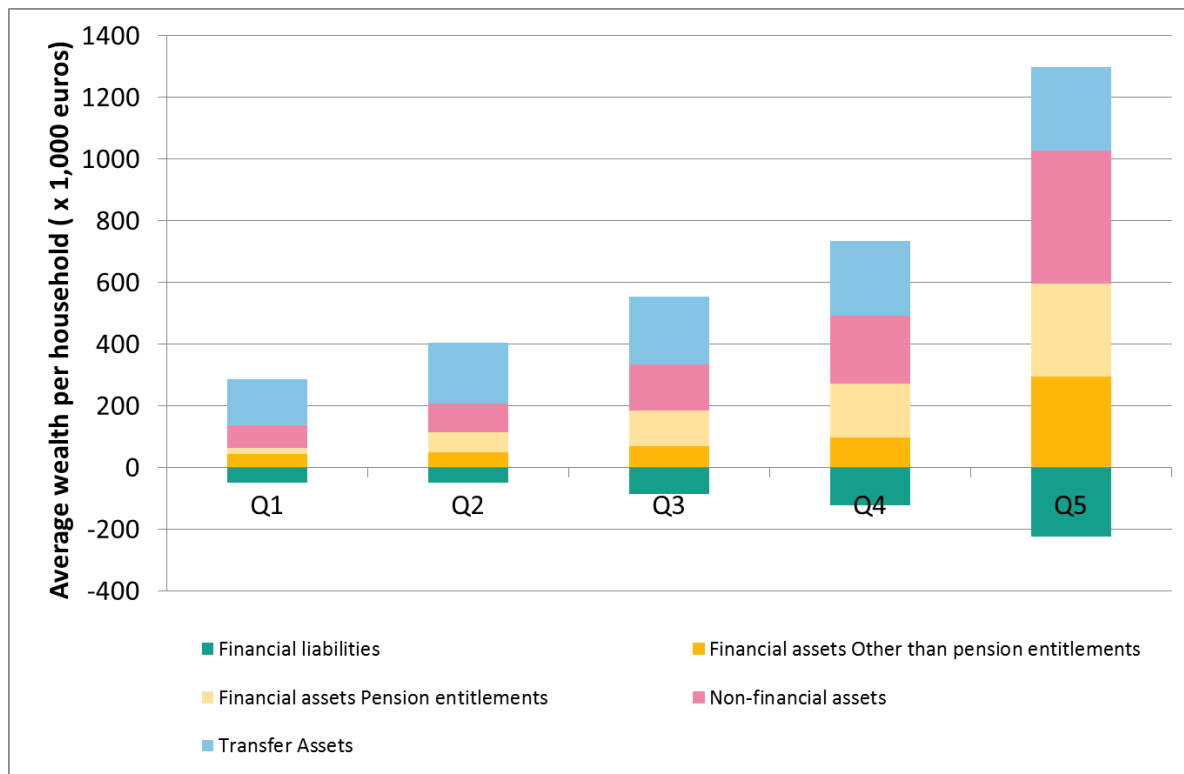
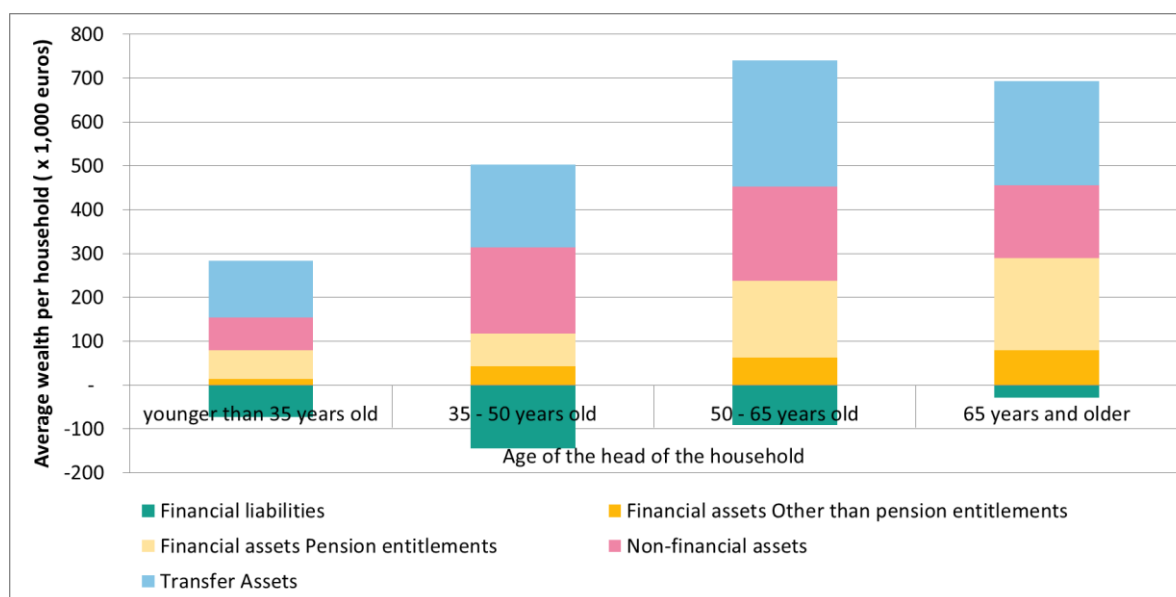


Figure 5 shows that the households with the highest incomes have the highest wealth as well, but that households with the lowest incomes still own a positive amount of wealth. When wealth inequality is determined by the ratio of the group with the highest wealth to the group with the lowest wealth, the outcome changes depending on which wealth concept is used. Using the traditional SNA concept of net worth (financial assets minus financial liabilities plus non-financial assets) leads to a ratio of 9.3. This is lowered to 4.6 when we introduce transfer assets. This is to be expected, because also income inequality decreases when redistributive social schemes are taken into account (Bruil, 2015). When instead all entitlements are excluded (the pension entitlements and all transfer assets), inequality decreases as well, but only to a ratio of 7.7.

Pension entitlements and transfer assets have therefore a different impact on wealth inequality. The amount of transfer assets per household group depends mostly on the demographics in the society, the funded pension entitlements are income dependent. The main transfer asset component is the unfunded state pension benefit which does not depend on labor history in the Netherlands, but only on the number of years someone lived here. Disability and unemployment benefits are relatively often in the lower income quintiles, but entitlements are also estimated for the other quintiles. It is not estimated how many entitlements are owned by individuals currently receiving a benefit, but who are currently in the population who takes part in the disability or unemployment scheme. As a result the distribution of transfer assets does not differ much over the income quintiles. This is a big difference with the distribution of the flows in a given year, that do go to the lowest quintiles. Where the higher incomes have equally high entitlements, they do not need to use them (in case of unemployment or disability schemes) or they move to a lower income quintile when they start to receive them (in case of unfunded pension benefits).

Figure 6: Net wealth by age of the head of the household



If the same exercise is done for the distribution of age of the head of the household, it shows that there are good reasons to exclude entitlements in measures of inequality. Because of the way of recording, by definition the individuals aged around 65 years old have the highest entitlements. Using the traditional SNA concept of net worth leads to a ratio of 5.3, where the group 50-65 is wealthiest and the group younger than 35 has least wealth. When all entitlements are excluded, the households of 65 years and older turn out to own the highest level of wealth, mainly because their financial liabilities are lowest. Inequality increases, because the young have not yet accumulated many financial assets.

There is an ambiguity of the pension entitlements in the wealth (inequality) discussion. For a comparison with other countries it would be good, if not crucial to include all entitlements as they account for the differences between countries in social welfare and income insurance for old age. But for a comparison over time or between groups within the country it might be misleading. Inequality increases if, *ceteris paribus*, the interest rate decreases further. For a more informative presentation of (the distribution of) household net worth, it is therefore necessary to show both the net wealth including and excluding the pension entitlements.

Net worth in dwellings

Loan liabilities of households consist mainly of the mortgage loans. These are relatively high in the Netherlands because tax benefits on mortgages made those loans available for a large number of households. Around the 1990s, interest-only mortgages became popular in which no redemptions had to be paid. The interest payments were tax deductible, which made it that households could afford relatively expensive houses. The mortgage could even extend beyond the value of the house, for example to cover transaction costs or to finance home improvements. Since a few years the rules for this tax deduction are stricter, limiting the tax benefits for new mortgages to types where the mortgage loan has to be paid off.

Figure 7: Net worth in dwellings and debt ratio.



The underlying counterpart of these high liabilities is the value of the dwellings. These are still higher than the loans taken out to finance them. Figure 7 shows for a series of years the ratio of the assets and liabilities related to households. This ratio is an upper bound estimate, because savings or investments accumulated in savings mortgages are not included. In these mortgage types, savings are built up over the loan term to the amount needed to pay off the debt. The savings and investments are part of the financial assets, but from the national accounts data it is not clear which share of financial assets is linked directly to these mortgages. From research on loan level data, Mastrogiacomo and Van der Molen estimate for 2014 that between 31 and 37 billion euros is saved in these types of mortgages (2015). This would lower the debt ratio only slightly from 52% to 50%.

Because of this high indebtedness in mortgages, the Dutch housing (and banking) sector is considered vulnerable (Organization for Economic Cooperation and Development, 2014). A shock in housing prices could lead to a remaining debt for those households who need to sell, for example in case of divorce. The financial crisis of 2008 did in fact result in lower values of dwellings, where the decline was especially large in 2012 and 2013 with 6% per year. The growth of total mortgage debt fell in the years after 2008, but was negative only in 2013 and in 2014. In these years, households paid off more of their debt than what was taken out in new mortgages. From this macro view we find that the debt ratio increased from 41% in 2008 to 51% in 2012. In figure 8 below, this is broken down by age of the household head. For all household types the debt ratio increases, but it shows that for the youngest households this ratio is close to 100% in 2012.

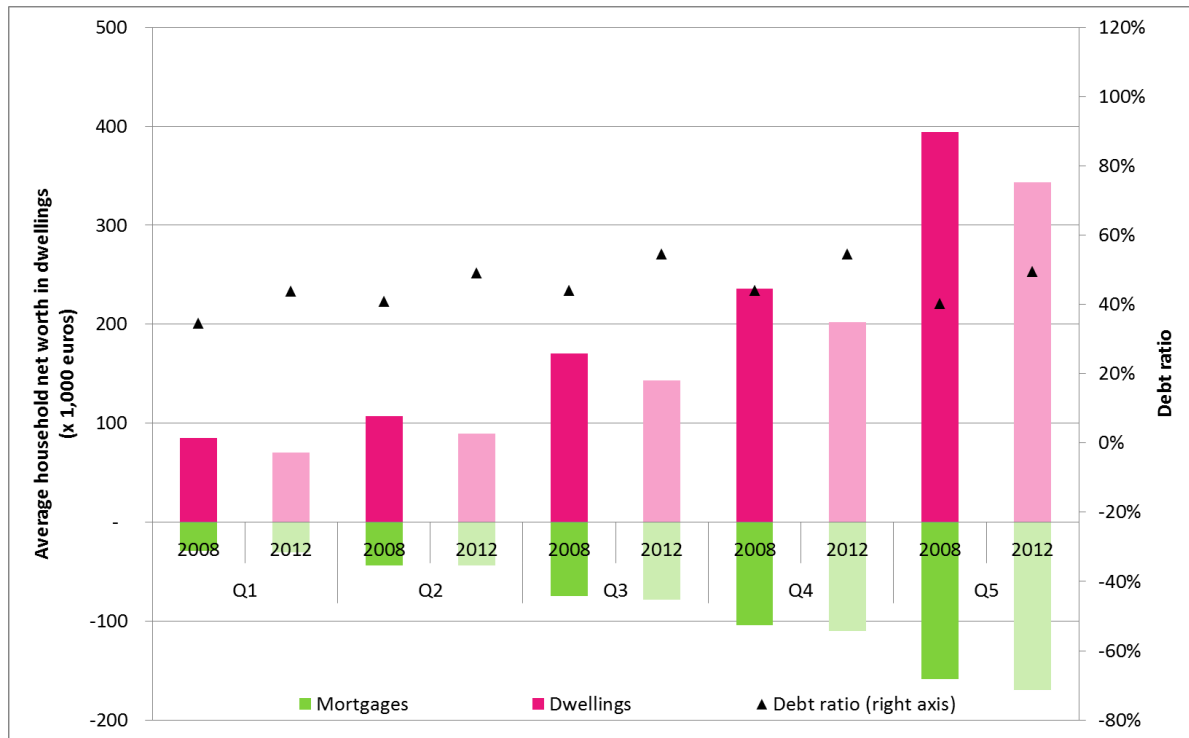
Figure 8: Average net worth in dwellings by age of head



It shows that also the households aged between 35-50 years old experience a sharp increase in their debt ratio, reaching to 74% in 2012. This group had both a decrease in the average value of their dwelling, and an increase of their mortgage debt. Elderly households, experienced the lowest decrease in the value of their dwelling. This analysis is done based upon cross sections of the population in each year. There are dynamics in place where households move from one household group to another over the years, in case of this category this is simply because the household head ages. The higher average mortgage debt and lower value of dwellings of the elderly households in 2012, can also be a results of these dynamics, where new entrants in this group have higher levels than the ones leaving this group.

This debt ratio shows that mortgage debt as a total is a risk, but mainly for the young, not so much for the group of elderly households. If this debt ratio is considered for the income groups, it turns out that this is relatively stable over the households. Average net worth is highest for the richest households, but their debt ratio does not differ much from that of the households with the lowest incomes. This is result of the demographics in the distribution, because there are relatively many elderly households in the lowest income quintiles.

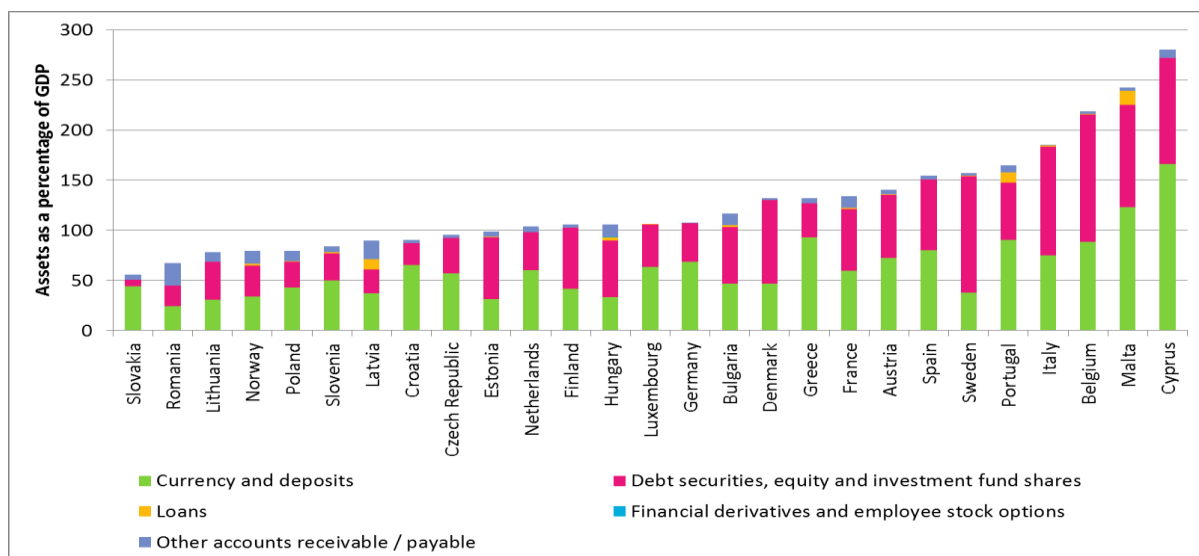
Figure 9: Average net worth in dwellings by income group



Lifecycle wealth accumulation

For the most influential items on the balance sheets it is shown that the distribution over households is distinctly different, and so might the responses to economic shocks. Given that Dutch households own a large amount of transfer assets, and work related pension entitlements, which is also via a compulsory scheme, the need to accumulate wealth in other means is low. Figure 10 shows for a number of European countries the financial assets, other than pension entitlements and insurance technical reserves, as a percentage of GDP. The Netherlands is ranked below the middle, for a large part because of the low percentage of debt securities, and equity and investment fund shares.

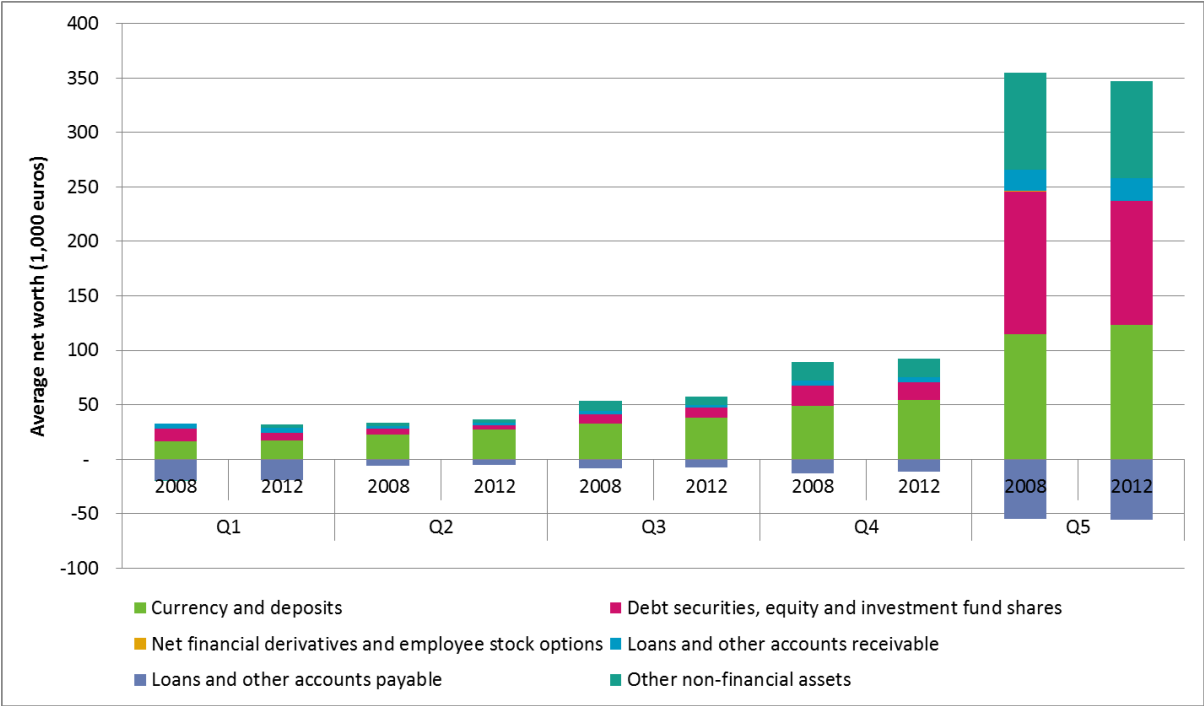
Figure 10: Assets as a percentage of GDP (2014). Source: Eurostat



Wealth is often mentioned to have a skewed distribution compared to income. For these components of net worth, that are accumulated without any institutional interference, this is

definitely true. These assets are accumulated mainly by the households with the highest incomes. In figure 11 and 12 we also include the other non-financial assets and loans and accounts payable. The former are allocated mainly to the self-employed, of which many are part of the highest income group, but also in the lowest as some self-employed report negative incomes in a year. Wealth inequality (again measured as a ratio of the group with the highest average wealth to the group with the lowest average wealth) is 22.2 in 2008, and 22.9 in 2012. The financial crisis had the most impact on the debt securities, and equity and investment fund shares. This loss is mainly bore by the richest households, but also the poorest, therefore the impact on inequality as we measure it here is limited. For the lowest income group this loss was partly offset by the increase of other financial assets. Again it must be mentioned that the use of cross sections foregoes the income and wealth dynamics between these years, which means that households that are categorized in the first income quintile in 2008 can very well be part of a higher income group in 2012, and vice versa.

Figure 11: Other net worth components by income group

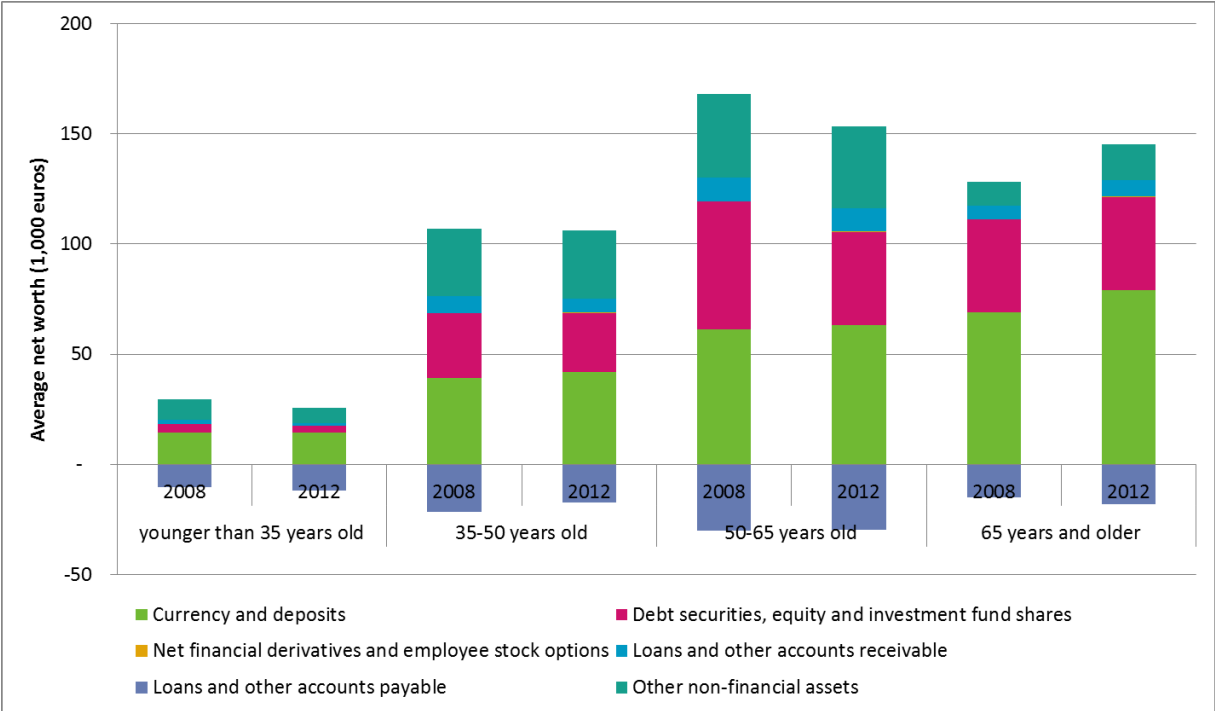


The lifecycle hypothesis predicts that households accumulate wealth with age, and that elderly (retired) households use this accumulated wealth for their current consumption needs. These other net worth components can be used individually to smooth consumption needs over time. From our results on these cross sections we do not find strong evidence for this second part of the hypothesis. In 2008, the households of which the head is aged 65 or older have on average less wealth than the age group below them, but in 2012 this is slightly more. The average amount of stocks and bonds for the elderly are lower in 2008, but in 2012 this is equal to the age group 50-65 years. Where the financial crisis decreased the value of equity for the age groups below 65, only the elderly saw this increase.

However the patterns derived from these cross sections in both years do not necessarily reflect the course of life of different cohorts. Poterba (2004) finds similar empirical results as we do in his work on the effects of demographic changes on asset prices and returns. As a potential reason he mentions the different effects that are part of these cross sections. The lifecycle hypothesis focuses on the age effect; the fact that the young do not accumulate wealth, and therefore do not have assets

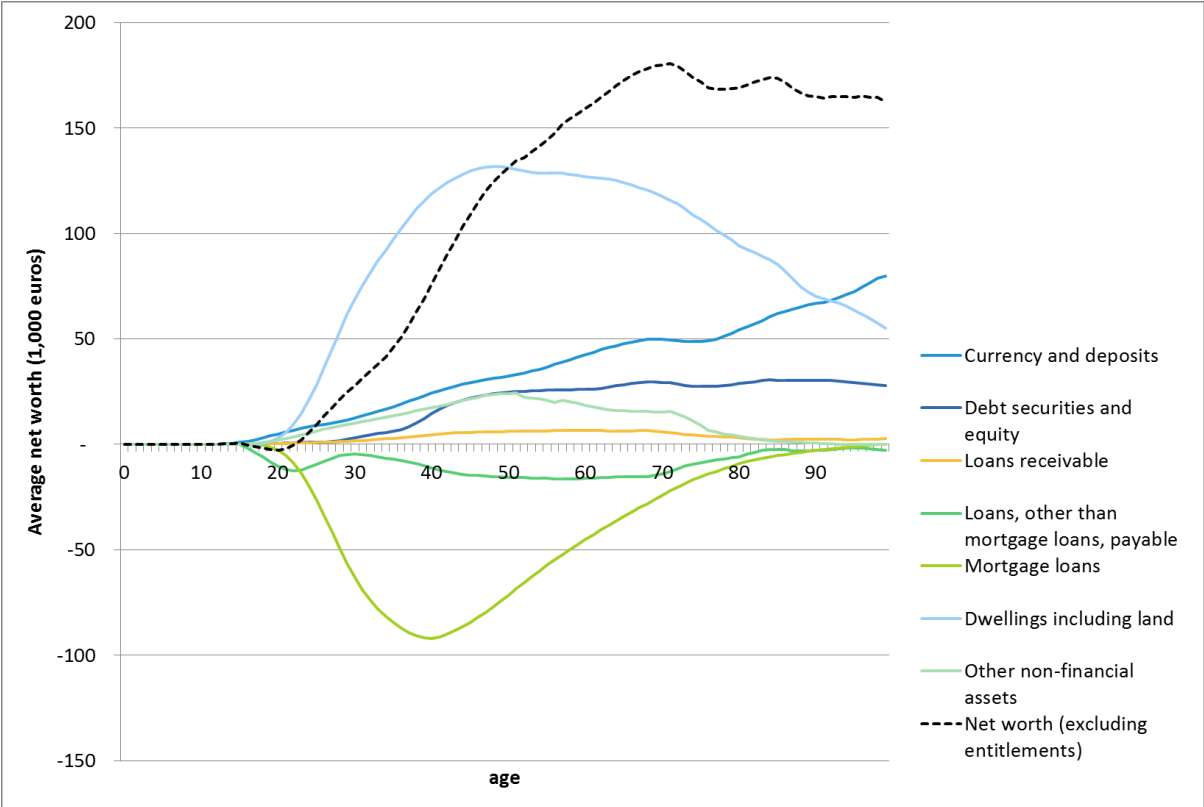
either, is such an effect. A second effect, that disturbs the analysis of the first, is the cohort effect. This means that cohorts behave differently over the lifecycle. The housing market includes many of these cohort effects; for example the current first time buyers can only benefit from tax deduction if they fully pay off their mortgage; this makes it likely that they will have relatively lower mortgage debt when they reach the age of the current generations. Third, the time effect is important in the comparison of age profiles at different points in time. The slump on the housing market, resulting in the drop in net value of dwellings between 2009 and 2012, is an example of this effect. This harmed every age group as became clear from the debt ratio in figure 8.

Figure 12: Other net worth components by age of the head of the household



If the distribution of wealth is considered over the age of the individual, as is the ultimate aim of the National Transfer Accounts project (United Nations, 2013), the pattern is similar to that of households. Even at the highest ages, individuals still own a large amount of wealth, mainly in currency and deposits. The oldest age group considered (99 years and older) has almost no liabilities left, but still owns a large sum in dwellings and currency and deposits. Only the youngest individuals have slightly negative wealth, partly due to student loans. Currently new students can no longer benefit from government grants to finance their studies, they can only depend on loans. This means they will end up with more debt than current generations at the same phase in their lifecycle.

Figure 13: wealth accumulation by age group of the individual (2012)



We can compare these results to the net worth of the previous year, then we find the financial transactions and other changes in volume and price. For a correct comparison we have to link the age group X in 2012 with the age group X-1 in 2011. Figure 14 is the results of the distributions of all underlying SNA financial balance sheet items except the pension entitlements and insurance technical reserves. This still includes time effects; the change in net worth can't be broken down in separate effects (in SNA terminology financial transactions and other changes in prices and volumes), because micro data only allows us to distribute the balance sheets and not the flows.

Figure 14: Change in net worth excluding entitlements (2011-2012)

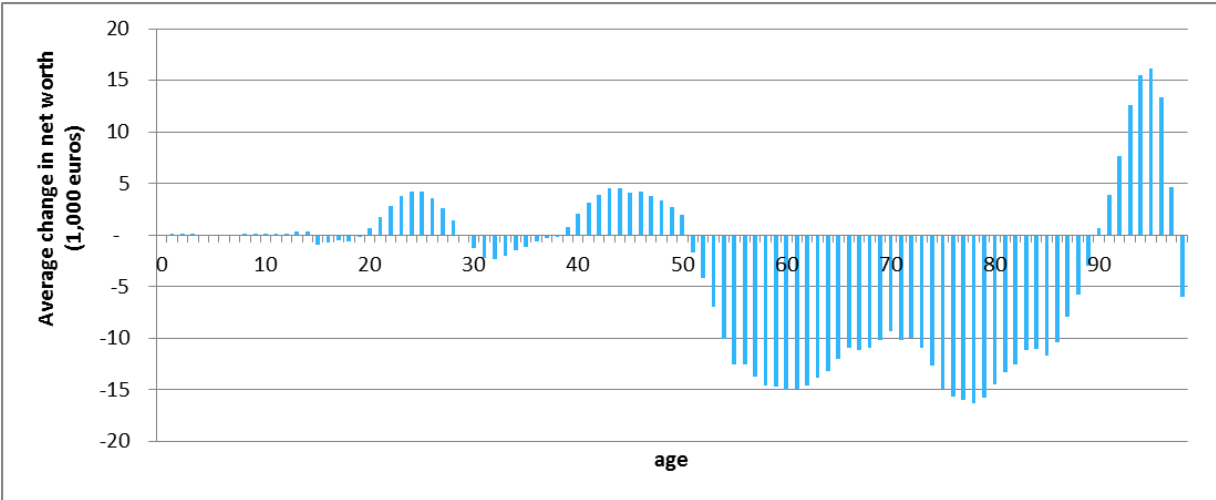


Figure 14 gives a better view of wealth accumulation by individuals, more in line with the lifecycle hypothesis. Individuals over 50 years old had a negative change in net worth, except for the eldest

people. For these people it must be noted that the coverage of the micro data is low, as there are relatively few people in these age classes. As a result the values for these age classes include a larger uncertainty.

The cross sections on net worth of households alone couldn't confirm the lifecycle hypothesis, due to cohort and time effects. But on the individual level the change in net worth would suggest that this hypothesis holds. Following the recommendations of Stiglitz *et al* (2009), including income and consumption, further backs this up. In this case we do find negative savings for the elderly households (Bruil, 2015), which is in accordance with the hypothesis.

Summary and conclusions

The focus on wealth has increased substantially, and lately attention has been paid to both the scope and the distributions. In this paper we extend the scope of wealth within the SNA with implicit wealth in social security schemes. It shows that these transfer assets are almost as large as the traditional, financial assets in the SNA, and even larger than the value of the assets held in non-financial means. This is a direct result of the welfare state in the Netherlands, with its large public and private transfer schemes. The largest part of transfer assets are the unfunded pension schemes, which is the largest scheme in size of benefits and participants.

Until recently the distributions within the household sector were mostly covered by micro statistics. The SNA framework brings valuable benefits to the table, among which the inclusion of the work related pension entitlements. However there is a clear ambiguity in considering these results. Given the size of these entitlements, including them in net worth is necessary when a comparison between countries is made, but, because of the way of recording, a comparison in time is misleading. When looking at total net worth, it seems as if Dutch households currently are much richer than they were a few years ago, but this is merely because the market interest rates decreased, as shown in this paper. Even though there are many concerns about the sustainability of the pension system, the entitlements increased as a result of the interest rates, and thus did the entitlements. If these work related pension entitlements are excluded from the analysis, Dutch households own as much funds in 2015 as they did in 2007.

The same conclusion can be drawn when wealth inequality is considered, including the entitlements shows the impact of the redistributive schemes, but in time the influence of the discount rate might draw the wrong conclusions. All other things equal, a decreasing interest rate would increase inequality, because households with the highest incomes have the highest work-related entitlements as well. This effect is not desirable. Due to the different distributions, the entitlements in work related pension schemes (financial assets) and transfer assets have a different impact on wealth inequality.

Furthermore if we look at the distribution of wealth we find interesting results. A major component of the balance sheets is the net value in dwellings, measured by the non-financial assets held in dwellings, minus the mortgages taken out to finance those. Where the Dutch households are considered vulnerable because of the high mortgage debts, the distributions show that this holds mainly for the youngest households.

The high amounts household own in entitlements reduce the need to accumulate assets themselves, as stated by the lifecycle hypothesis. Looking at net worth items, other than these entitlements and net worth in dwellings, we do not find evidence that elderly household use this wealth for consumption purposes. These results are not corrected for cohort and time effects, which makes conclusion on this point difficult to draw. An analysis on the individual level improves this view.

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