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Saving and wealth holdings of the elderly

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Summary

Using panel data for the Netherlands, we find that wealth holdings of the elderly are very unevenly distributed. Furthermore, the inequality increases with age, which indicates different rates of accumulation (or decumulation) across wealth levels. This divergence in behaviour depending on wealth holdings points to a strong bequest motive. The presence of a bequest motive is confirmed by subjective information obtained from a new and unique panel, the VSB-panel, that we exploit. For most elderly the level of assets is so low that it probably mainly serves to satisfy a precautionary motive. Subjective information in the VSB-panel shows that precautionary motives are indeed quite strong among the elderly. For the vast majority of the elderly social security and pensions are absolutely essential to maintain a decent standard of living.

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1. Introduction

There is considerable interest in the savings behaviour and wealth holdings of the elderly, for obvious reasons. First of all, the increasing percentage of elderly in developed economies makes their wealth position of particular interest from a policy perspective. I

the elderly have not saved enough (either through asset accumulation or pensions) to sustain themselves in old age, this may have dramatic consequences for society as a whole. A second reason to be interested in the savings behaviour of the elderly is that it provides a *prima facie* test of the life cycle hypothesis.

In this paper we use Dutch data to shed light on these issues. Our findings are the following: wealth is very unevenly distributed among elderly households and decumulation of wealth does not take place until a very old age. These two facts are interrelated. For most households asset holdings are so small that they could only finance consumption for a few months. Hence, these assets probably serve more as a buffer for adverse shocks than as a source of consumption. Consumption is mainly financed through social security and pension income. For the group of households with considerable asset holdings we find that the house is a very important component. Here we also find little evidence for decumulation. These observations suggest an important bequest motive for the wealthier households.

The importance of a bequest motive is further investigated on the basis of subjective data from a new and unique data set we are using. It appears that particularly among the rich, people report bequest motives as a reason to save money, even at advanced age. Also, we find that particularly among the elderly precautionary motives play a role; this motive gains importance if wealth holdings are lower.

The organization of this paper is as follows. In Section 2 we provide some institutional background about the Netherlands needed to understand the empirical analysis. There we also provide a description of the data used in this study. In Section 3 we look at the wealth accumulation of households in more detail. Although we use panel data throughout, we use the data in three different ways. First we only consider a cross section to illustrate the level and distribution of wealth holdings. Next we construct synthetic cohorts to disentangle age and cohort effects. Finally we exploit the panel nature of the data to eliminate possible biases due to differential attrition of different wealth groups. In Section 4 we consider savings on the basis of the VSB-panel. The variable used is self reported savings. Here we find that next to the "usual" variables, also psychological variables like patience and a self reported bequest motive affect the level of savings. Section 5 concludes.

2. Some background information

2.1. INSTITUTIONAL DETAILS

The Netherlands is a country with a high saving rate. For instance, during the eighties household savings amounted to approx-

imately 14% of disposable income. Most of this saving (approximately 11% of disposable income) is in the form of so-called "contractual saving", i.e. pension funds, life insurances, etc. Other or "free" saving amounts to approximately 3% of disposable income. Everyone in the Netherlands is covered by a general old age pension (AOW) starting at the age of 65. For the most part, the level of benefits is independent of other income but does depend on household composition. For a couple the level of benefits is equal to the minimum wage (approximately Dfl. (Dutch Guilders) 18 000 per annum after tax), while a single-person household receives 70% of the minimum wage. In addition, the vast majority of employees (80%) are covered by an occupational pension scheme. In general, if the employer offers a pension scheme, participation in such a scheme is compulsory. In *Pensioenkaart van Nederland* (1987) (Pension Map of the Netherlands or PN, 1987) it is estimated that 99.4% of the pension schemes is of the defined benefit type, whereas the remaining 0.6% is of the defined contribution type. More than 72% of the pension benefits are defined on the basis of final pay. While the pension schemes are funded, the social security system is pay-as-you-go. Combining the effects of the general old age pension and the private (employer provided) pension brings the following before tax replacement rates: approximately 19% receive at least 80% of final pay, 20% receive between 70 and 79% of final pay, 27% receive between 60 and 69% and 34% receive less than 60%.† Note, however, that the after tax replacement rate tends to be higher than the before tax one. For example, Keeser (1990) shows that if the before tax replacement rate is 70% the after tax replacement rate becomes as high as 90%. This phenomenon can be explained by the progressivity of the tax system and the fact that retired persons do not pay social security premia.

In addition to the general old age pension and the occupational pension schemes, two other institutions need to be considered the disability scheme and the various early retirement schemes. Approximately 800 000 workers in the Netherlands receive disability benefits. Some studies have indicated that for many people the disability scheme is effectively a combination of unemployment insurance and early retirement.

2.2. DESCRIPTION OF THE DATA SETS

In this paper, we examine saving and wealth by using micro data from two Dutch data sets: the Socio-Economic Panel (SEP) and

† See PN (1987).

the VSB-panel.† The SEP is a survey administered by the Central Bureau of Statistics (CBS) for a panel of approximately 5000 households. The SEP is representative of the Dutch population, excluding those living in special institutions such as nursing homes. The first survey was conducted in April 1984. The same households were interviewed in October 1984 and then twice a year (in April and October) until 1989. Since 1990 the survey has been conducted once a year in May. In the October interview, information is collected on socio-economic characteristics, income, and labour market participation. The April interviews contain information about socio-economic characteristics as in the October interviews, but rather than gathering data about income, from 1987 onwards the April questionnaire includes questions on a wide range of assets and liabilities. For the purpose of this paper, we examine data from 1987 to 1991.

The VSB-panel has been devised by researchers at the CentER for Economic Research at Tilburg University and has been supported by the VSB foundation. The sample consists of a panel of approximately 3000 households and is divided into two parts. One part, which is composed of approximately 2000 households is representative of the Dutch population, whereas the second part of 1000 households oversampled the rich households.‡ The questionnaire is divided into five main parts and information is collected on the following: "Health and income", "Accommodation and mortgages", "Household and work", "Assets" and "Economic psychology". In this paper, we use the information contained in the Economic psychology part.

3. Wealth holdings of the elderly

3.1. WEALTH HOLDINGS FROM CROSS-SECTIONS

We restrict our attention to households whose head is at least 50 years old.§ Given the importance and coverage of the social security system, it is important to consider first not only liquid and total

† For a detailed description of the SEP, see Alessie, Lusardi, and Aldershof (1994).

‡ Only households with income greater than 105 000 guilders are considered in this part.

§ From 1990 on, the SEP does not collect information on the assets and liabilities of the self-employed. In order to have comparable figures across years, we have also excluded the self-employed from our samples.

net worth,[†] but also social security and pension wealth.[‡] Social security and pension wealth are the actuarially discounted sums of current and future social security and pension income that households receive after age 65. In Table 1 we present the distribution of all these wealth measures for different age groups in 1989. The first thing to note is that there is substantial heterogeneity in the holdings of liquid and total net worth in these age groups. Standard deviations are big and the mean of both liquid and total net worth is well above the median, indicating that the distribution is skewed to the right. Mean financial wealth is higher for the elderly (above 70) than the younger households, while the median is lower. This indicates that wealth inequality is greater among old households than younger ones. Similar results apply for total net worth, since we can see that the mean decreases at a lower rate than the median. Since the mean and median of the distributions give such different information we will present them both in most of the analyses that follow.

Without presenting a table we mention that there is also a group of households below the median that approach retirement with negative or little wealth, as little as Dfl. 1000. This group is disproportionately represented, in particular in the age group 50 to 64, by singles, in particular single women, and by households with low education. We found that less than 1% of the households with a head who is at least 65 years old has negative net worth. This percentage is much higher for the younger age groups.

The importance of housing in the composition of wealth is apparent by comparing median liquid and total net worth. Housing is a very important wealth component for the households with a head younger than 65. For this age group median net worth is much higher than median financial wealth, in particular for the age group 50–54. However, this difference is much reduced after age 70, housing does not play a major role in the portfolio of non-wealthy elderly households. While the importance of housing should not be understated, homeownership, particularly among the elderly, is much lower in the Netherlands than in the U.S.

[†] We will use the terms liquid net worth and financial net worth interchangeably, as referring to total assets minus debt, excluding housing. (Total Net worth is defined as the sum of financial net worth and net housing equity.)

[‡] Pension and social security wealth are not directly observed in the SEP. However, information is collected on labour market history, marital status, family composition and other important factors that allow us to impute these measures from the SEP. See Alessie, Kapteyn and Klijn (1994) for a detailed description of the calculation of pension and social security wealth and the assumptions needed to perform those calculations. Note, however, that in order to perform these calculations, we need to exclude the households for which the information necessary to calculate pension and social security wealth is not available. Therefore, the sample we used to construct Table 1 is restricted to a relatively smaller number of observations than in other samples, i.e. 1162 observations.

TABLE 1 *Wealth holdings of the elderly*

Age	No. of observations	Liquid net worth		Net worth		Social security		Pension wealth		Total	
		Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median
50-54	202	30 364 (59 199)	15 772	100 132 (141 204)	56 867	169 689 (29 919)	178 876	122 952 (129 190)	88 251	392 775 (207 770)	360 958
55-59	163	32 503 (55 951)	16 682	98 579 (124 402)	40 233	191 930 (38 768)	208 753	118 650 (153 793)	82 298	404 160 (223 482)	359 343
60-64	149	35 791 (89 108)	12 658	95 119 (150 037)	28 899	225 730 (50 939)	242 149	119 098 (168 850)	52 260	439 948 (270 354)	377 043
65-69	245	31 469 (50 410)	14 415	84 102 (124 028)	24 729	228 099 (51 298)	246 764	128 634 (176 765)	59 550	440 836 (275 377)	354 259
70-74	206	36 950 (97 408)	9 812	90 633 (173 668)	15 154	189 172 (47 468)	201 126	81 518 (154 323)	28 226	361 323 (271 842)	283 228
75-79	121	41 037 (113 432)	9 526	64 462 (137 844)	10 460	142 500 (42 917)	124 763	61 157 (110 988)	15 380	268 120 (219 298)	207 962
80+	76	50 181 (165 325)	7 973	79 620 (221 824)	9 605	100 920 (37 276)	85 397	37 481 (56 343)	12 801	218 022 (254 862)	140 880

Source: Own calculations based on the SEP.
S.D.s in parentheses.

Sheiner and Weil (1992) report, for example, that the homeownership rates of the households older than 64 is approximately 74% in the U.S., while in our sample the homeownership rate for the same group of households is only 29% in 1991.

Both financial wealth and total wealth are substantially lower than social security and pension wealth. In particular, social security wealth represents a critical part of the wealth holdings of the elderly. Although median pension wealth is much smaller than median social security wealth, it is still a bigger component in the portfolio of median elderly households than private net worth. Not surprisingly, social security wealth is the most evenly distributed wealth measure. In this case, means and medians are similar and the median is actually above the mean (except for the age groups 75–79 and 80+). Note that every person older than 65 in the household receives a social security benefit (AOW). While there is a relatively flat rate for social security benefit, which depends mainly on family composition, the pension benefit depends on wages and on work history (see Section 2). Consequently, pension wealth shows a more skewed distribution than social security wealth, even though the level of skewness is smaller than in the case of net worth. In our sample approximately 25% of the households do not have pension wealth, but only social security wealth. These households are usually the ones with little or no work history and they are heavily concentrated among singles and are mostly women. Female labour participation is very low in the Netherlands. Also, while married women may benefit from the longer work history of their husband, single women are more likely to rely on social security only.

3.2. WEALTH PROFILES FROM COHORTS

While Table 1 shows that median net worth declines with age, we cannot infer from these figures whether the elderly are decumulating wealth, as predicted by a (simple) version of the life cycle model. The figures confound the age and cohort effects and it may be highly misleading to look at one cross sectional distribution only. It is possible that older cohorts are simply poorer than younger ones (for example because of lower wages and lower initial wealth) and we need to take this fact into account.

Given that we have 5 years of wealth data in the SEP (from 1987 to 1991), we can consider the wealth holdings of different year of birth cohorts. Even though this does not exploit completely the panel aspect of the data set, it allows us to account for cohort effects. In Table 2(a) we consider mean and median liquid and total wealth holdings of households who are 50 or older in 1987 (therefore born before 1937) and we consider households of the

TABLE 2(a) Mean and median (financial) wealth of elderly cohorts

Age in 1987	No. of observations		Financial wealth				Home ownership rates				Net worth				Rank sum test equality median (p-values)	
			Mean		Median		Mean		Median		Mean		Median		Financial wealth	Net worth
			1987	1991	1987	1991	1987	1991	1987	1991	1987	1991	1987	1991		
50-54	279	256	19 655	35 258	11 000	18 675	46.9	51.9	72 626	111 600	30 205	64 380	0.0010	0.0004		
			1986	3740	1578	1868	2.99	3.12	6440	9111	5274	10 851				
55-59	283	295	24 824	39 186	11 378	17 211	40.6	42.0	78 435	108 730	27 883	38 131	0.0094	0.0794		
			2912	5044	1427	1922	2.92	2.87	6807	10 038	4989	9923				
60-64	285	276	33 240	50 035	15 000	20 767	40.3	36.6	94 834	111 173	33 851	37 628	0.0038	0.2799		
			3338	5314	1498	2488	2.91	2.90	8360	9 641	9155	8614				
65-69	266	256	35 325	40 153	11 887	12 276	27.8	26.5	79 050	94 916	16 018	18 340	0.6957	0.7703		
			5335	5618	1283	1407	2.75	2.76	9042	10 523	2728	2908				
70-74	211	198	25 691	32 472	9981	9300	29.8	27.3	71 424	79 705	14 350	14 244	0.9553	0.9453		
			3700	4120	1248	1216	3.15	3.17	9200	10 335	3289	3117				
75-79	160	101	43 068	38 616	13 337	11 160	24.2	23.7	84 787	75 445	16 900	17 577	0.8776	0.9142		
			9005	7369	2128	2897	3.39	4.23	13 879	13 293	2347	4157				
80 +	110	51	24 581	35 389	6500	9300	13.6	19.6	44 535	66 582	6500	12 374	0.5201	0.3792		
			4637	8207	1298	3657	3.27	5.56	9365	17 919	1447	4411				

Source: Own calculations based on the SEP.

Whenever a cell contains two numbers, the second one is the standard error associated with the mean or median in the same cell.

same year of birth cohorts 4 years later in 1991. We restrict our attention to liquid and total net worth, since both social security and pension wealth are outside the choice set once the head (and the partner) are older than 65. Furthermore, these wealth measures are annuitized and therefore not bequeathable (apart from some special cases, where widows can continue receiving the pensions of their husband even after his death).

From Table 2(a), we see that median and mean (liquid) net worth of the group of households whose head was younger than 65 in 1987 has risen much faster between 1987 and 1991 than the cross-section wealth age profile (see Table 1) would suggest. For the older cohorts there is not a particularly clear pattern, and the reported statistics to test whether medians change between 1987 and 1991 do not indicate significance. So we find neither evidence of accumulation nor of decumulation.

Note that it is still difficult to correctly interpret these findings. Many problems need to be addressed before we may attach any interpretation to the data. First, there may exist differential mortality across households. As some authors have mentioned, wealthy households tend to live longer and the group of households we observe, for example after age 70, may be disproportionately represented by these households.† In this case, we may be led to incorrectly reject the predictions of the life cycle model. Similarly, if rich elderly are less likely than poor elderly to live with their children or enter nursing homes (in this case they would drop out from the sample), older households may be heavily selected into the high wealth group.‡

3.3. WEALTH PROFILES FROM PANEL DATA

To address these problems, we exploit the panel feature of the data set and consider only the households which are in the data set both in 1987 and in 1991.§ Table 2(b) shows that for the older age groups in 1991 mean and median liquid net worth and total net worth tend to be lower in the panel data set than when accounting for cohorts. In contrast to the argument in the preceding subsection, we see by comparing Tables 2(a) and 2(b), that rich households are more likely to drop out of the sample in the panel analysis than poorer households. This attrition can be explained by the fact that non-responses tend to be more likely among the richer

† See Hurd (1989, 1990) and Attanasio and Hoynes (1995).

‡ See also Börsch-Supan (1992).

§ If the head of a household changes during the 5-year period, it is still treated as belonging to the same cohort it belonged to in 1987. As a result of this convention, some of the changes observed may be the result of household composition changes.

TABLE 2(b) Mean and median (financial) wealth of the same elderly cohorts (panel data)

Age in 1987 observations	No. of observations	Financial wealth			Home ownership percentages			Net worth			Change financial wealth			Change net worth			Sign test equality median (p-values)
		Mean		Median	Mean		Median	Mean		Median	Mean		Median	Mean		Median	
		1987	1991	1987	1991	1987	1991	1987	1991	1987	1991	1987	1991	1987	1991	1987	
50-54	189	20 798	29 396	11 900	18 748	50.3	49.7	80 474	101 857	35 900	60 898	8597	4397	21 383	7515	0.0000	0.0000
		2351	2618	1735	2269	3.64	3.64	8353	9885	6345	11 984	2356	1071	3253	1950		
55-59	203	26 248	33 322	10 600	15 810	40.9	39.4	77 513	95 917	23 500	29 272	7073	2120	18 403	3400	0.0016	0.0000
		3921	5267	1414	2061	3.45	3.43	8166	11 374	4771	6173	2380	773	6044	1467		
60-64	191	35 096	40 063	16 000	17 670	36.6	33.0	87 374	91 090	28 137	28 618	4960	1960	3707	1144	0.0007	0.0738
		4205	4217	1945	2611	3.49	3.40	8888	9074	7970	7616	3238	880	4059	999		
65-69	184	31 348	40 810	11 265	11 532	26.6	23.9	69 720	79 342	16 018	17 335	9462	288	9622	258	0.3560	0.4130
		5096	7996	1477	1562	3.26	3.14	8783	11 490	3864	3129	5014	525	5700	553		
70-74	153	23 416	30 933	9500	9092	26.8	23.5	67 968	67 832	12 500	10 230	7517	429	464	51	0.2090	0.5000
		3160	5027	1298	1304	3.58	3.43	9511	10 034	3245	2294	3936	441	5263	497		
75-79	84	27 950	35 738	12 300	13 181	30.9	23.8	68 329	72 601	17 750	18 348	7786	1440	4272	426	0.0188	0.2900
		6539	7203	2628	3181	5.04	4.65	12 531	13 548	5344	3956	3602	898	5044	1027		
80+	36	31 033	30 445	11 864	5255	22.2	16.6	68 116	59 315	12 742	10 853	-587	-1349	-3801	-1362	0.0326	0.0670
		8076	7751	3848	4529	6.93	6.20	19 831	19 221	6682	4635	4480	1707	6026	1869		

Source: Own calculations based on the SEP. Whenever a cell contains two numbers, the second one is the standard error associated with the mean or median in the same cell.

households, who hold a more diversified portfolio and have to fill in many questions on their assets and liabilities.† The use of panel data is of critical importance for this analysis. Table 2(b) shows that mean liquid net worth increases rather than decreases as the households age. Median liquid net worth remains roughly constant for the older cohorts (except for the 70–74 and 80+ cohorts, where there is a tendency for the median to decrease). For the cohorts in the age group 70–74 and 75–79 in 1987, the absolute increase in mean total net worth is smaller than the increase in liquid net worth, which implies that mean housing equity decreases over time. Indeed, we do observe a decrease in home ownership, which goes from 26.8 to 23.5% and from 30.9 to 23.8% for the two groups, respectively. Venti and Wise (1989, 1990) also show that in the U.S., the decrease in homeownership happens very late in the life cycle, but the decrease in homeownership appears to be much lower than in the Netherlands. Median net worth of the 70–74 cohort decreases by 18% during the 4-year period, while median liquid net worth only decreases by 4%. Also, contrary to Table 2(a) in which the panel feature of the SEP dataset is not exploited, Table 2(b) seems to indicate that the median household in the 70–74 cohort decumulated wealth mainly by reducing their home equity.

Finally we notice that the median of changes in financial or total wealth do not always show the same direction as the change in the median of the distributions of financial and total wealth. For instance, for the 70–74 cohort the median financial wealth is Dfl. 9500 in 1987 and Dfl. 9092 in 1991, yet the median change in financial wealth shows an *increase* of Dfl. 429.

To understand what happens to the wealth holdings of elderly households it is obviously important to pay attention to the evolution of their incomes. Our data shows that mean and median pension income remain fairly constant over time, except after age 80 where median pension income decreases somewhat from Dfl. 17 964 to Dfl. 15 348. However, median income per equivalent adult‡ remains fairly constant for this group, which implies that the drop in pension income is mainly due to the fact that in some households one of the spouses died between 1987 and 1991.

† For an analysis of the data selection and the evaluation of non-response rates, see Alessie, Lusardi and Aldershof (1994) and Alessie and Zandvliet (1993). Even though the attrition may leave us with a selective sample, if the simple life cycle model holds, we should observe decumulation as the head of the household gets older.

‡ The CBS equivalence scale used is almost the same as the equivalence scale used in the AOW and most occupational pension schemes.

3.4. WEALTH PROFILES AND FAMILY COMPOSITION

So far, we have not accounted for family size in making our comparisons across time. There is some theoretical work which explains why saving is intimately related to family composition. Browning (1994), for example, emphasizes that the household is composed of individuals who may have different propensities to save. For instance, it is well known that on average men marry younger women and that the life expectancy of women is higher than that of men. Women may have an incentive to save more. Since we classify the household by using the age of the head of the household, we may be disregarding this effect.

Without presenting any tables we briefly describe how wealth holdings of single and multi person households evolve over time. Both financial wealth and net worth is much lower for the single person household. Homeownership, in particular, is very low for the 65–74 cohort: it is 14% in 1987 and it goes to 11% in 1991. Mean housing equity decreases by Dfl. 7770, going from Dfl. 24 350 to Dfl. 16 659 in 1991. Given the fact that housing prices increased considerably between 1987 and 1991, this change in housing equity is potentially explained by those single person households who sold the house. However, the elderly median single household is typically not a home owner, and consequently median financial wealth and median net worth are almost equal. Furthermore, both income and the median wealth to income ratio are rather low for this group of households. The latter has a median equal to 0.30. For multi-person households the median financial wealth to income ratio is about twice as high. Even this is of course not terribly high, as it would imply roughly that for the median household liquid wealth could finance consumption for not much more than 8 months. Therefore the fact that the median household does not decrease his/her small amount of wealth, cannot easily be interpreted as evidence against the life cycle model. It seems reasonable to assume that the remaining wealth serves as a buffer against future contingencies.

3.5. WEALTH PROFILES AND HOME OWNERSHIP STATUS

Given the fact that in the Netherlands only a small fraction of the elderly households own a house, it is interesting to look separately at the wealth profiles of the majority of the Dutch elderly households, namely the renters. In the panel we condition on whether households were renters or home owners in 1987. The first thing that stands out from Table 3(a) is the low level of mean and median

TABLE 3(a) Mean and median (financial) wealth of renters (panel analysis)

Age in 1987	No. of observations	Financial wealth						Net worth						Δ financial wealth			Δ net worth			Sign. test equality median (p-values)			
		1987		1991		1991		1987		1991		1991		Mean	Median	Mean	Median	Mean	Median				
		Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median				
Year		1987	1991	1987	1991	1987	1991	1987	1991	1987	1991	1987	1991	Mean	Median	Mean	Median	Mean	Median	Financial wealth	Net worth		
50-54	94	11 771	19 832	6 294	9 005	12 963	23 660	6 294	10 837	8 061	2 444	10 697	2 610	8 061	2 444	10 697	2 610	8 061	2 444	10 697	2 610	0.0298	0.0095
		2 005	29 688	2 171	3 035	2 214	3 682	2 399	3 125	2 299	1 152	2 718	1 418	2 299	1 152	2 718	1 418	2 299	1 152	2 718	1 418	0.0824	0.0548
55-59	120	17 862	24 164	5 492	7 704	18 696	31 871	5 492	7 704	6 301	7 74	13 175	7 94	6 301	7 74	13 175	7 94	6 301	7 74	13 175	7 94	0.2753	0.4672
		4 779	7 378	1 523	1 661	4 837	13 229	1 523	1 661	3 249	6 95	8 990	6 71	3 249	6 95	8 990	6 71	3 249	6 95	8 990	6 71	0.8634	1.0000
60-64	121	22 209	24 524	11 770	11 139	22 899	25 774	11 800	11 139	2 315	4 67	28 74	4 42	2 315	4 67	28 74	4 42	2 315	4 67	28 74	4 42	0.7770	0.9248
		2 896	3 407	1 966	1 970	2 987	3 701	1 816	1 970	1 933	6 67	21 72	7 06	1 933	6 67	21 72	7 06	1 933	6 67	21 72	7 06	0.5990	0.7465
65-69	135	19 208	21 347	8 000	9 300	20 041	22 880	8 000	9 300	2 139	1 12	28 38	91	2 139	1 12	28 38	91	2 139	1 12	28 38	91	0.7770	0.9248
		2 716	3 453	1 421	1 615	2 821	3 625	1 421	1 615	1 723	5 56	4 94	1 15	1 723	5 56	4 94	1 15	1 723	5 56	4 94	1 15	0.5990	0.7465
70-74	112	15 415	17 478	6 791	6 091	19 254	19 748	6 791	6 091	2 062	2 00	4 623	4 50	2 062	2 00	4 623	4 50	2 062	2 00	4 623	4 50	0.7770	0.9248
		2 237	3 599	1 293	1 354	3 964	3 991	1 293	1 354	3 009	4 40	1 82	1 33	3 009	4 40	1 82	1 33	3 009	4 40	1 82	1 33	0.5990	0.7465
75 +	86	16 389	15 868	7 750	6 968	16 389	16 571	7 750	7 433	- 520	- 240	1 646	5 19	- 520	- 240	1 646	5 19	- 520	- 240	1 646	5 19	0.7770	0.9248
		2 755	2 448	1 719	2 027	2 755	2 491	1 719	2 204	1 524	4 57	1 646	5 19	1 524	4 57	1 646	5 19	1 524	4 57	1 646	5 19	0.7770	0.9248

Source: Own calculations based on SEP. Whenever a cell contains two numbers, the second one is the standard error associated with the mean or median in the same cell.

net worth of renters.† The median wealth to income ratio is well below one, given that median total income of households older than 65 is approximately Dfl. 20 000. By looking at the median change in net worth in Table 3(a), we note that up to the 70–74 cohort, at least 50% of the households do not dissave. On the other hand, the amount of savings is very small. For the oldest cohort, the median change in net worth is only slightly negative. As before, this amount of wealth would last a household only a relatively short period. It seems reasonable to assume that for most households the remaining wealth mainly serves as a buffer against adverse circumstances, in other words the money is held for precautionary reasons. We return to this issue in the next section.

In Table 3(b), we summarize the wealth age relationship of those elderly households who were home owners in 1987. For this group of households, the housing equity is the dominating asset in their portfolio. For example, in 1987 median financial wealth among the home owners in the 65–74 cohort was Dfl. 25 000, while median housing equity was about five times that amount, namely Dfl. 130 000. Although financial assets play a relative minor role in the portfolio of elderly home owners, they hold more liquid wealth than renters. Both mean net worth and mean financial wealth increased between 1987 and 1991 for all cohorts older than 50. However, median net worth and median housing equity among home owners in the 65–74 and 75 plus cohorts decreased in that period. Table 3(b) shows that a part of this decrease may be attributed to the fact that some elderly households who were owners in 1987, have sold the house. Using American data Sheiner and Weil (1992) also find that elderly home owners reduce their housing equity as they age and that the reduction in housing equity is related to two important events in life: widowhood and death. They find that the reduction in housing equity that occurs at the time of widowhood partly explains the age profile of housing wealth found in the data.

We have investigated for three different years of birth cohorts (55–65, 65–74 and 75+) and for four groups (single or multi person households in 1987 and 1991) the ownership rates in 1987 and 1991, and the transition rates from owning to renting and vice versa. Not surprisingly, the elderly renters almost never buy a house in their old age. Only the transition from owning to renting is of importance to understand the decline in home ownership rate which took place between 1987 and 1991. We have tried to relate transitions from ownership to renting to changes in family composition (including death of a spouse) and to age. Although we

† Note that, even for renters, there remains a difference between financial wealth and net worth. The reason for this (small) difference is due to other real estate (and associated mortgages) that households can own (see also Table 2).

TABLE 3(b) Mean and median (financial) wealth of owners in 1987 (panel analysis)

Age in 1987	No of observations	1991 home ownership rate	Financial wealth		Net worth		Housing equity		Δ Financial wealth		Δ Net worth		Δ Housing equity		Sign test equality median (p-values)	Net wealth						
			Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median			Mean	Median				
Year			1987	1991	1987	1991	1987	1991	1987	1991	1987	1991	1987	1991								
50-54	95	95.8	29 780	38 858	19 423	28 022	147 275	179 231	124 800	147 491	117 544	140 373	95 000	116 428	9127	6384	31 956	23 954	22 808	15 477	0.0000	0.0000
			4046	4091	3668	4510	13 920	15 731	11 688	9279	11 216	14 574	9125	10 970	4112	2192	5700	6094	6094	4694		
55-64	153	90.8	47 065	55 877	24 840	31 621	179 144	195 583	140 500	158 112	132 079	139 705	117 500	120 904	8812	8498	16 348	20 282	7625	11 764	0.0000	0.0000
			5726	5673	2557	3502	10 972	11 293	6589	7786	7610	8334	7141	4905	4175	1948	6157	5425	5696	3285		
65-74	90	85.6	55 900	82 249	25 310	20 228	203 040	218 628	162 160	152 628	147 140	136 378	130 000	125 555	26 349	1299	15 588	1180	-10 761	-141	0.3428	0.9161
			10 108	16 240	3149	5949	16 863	21 774	16 727	16 001	11 198	11 159	10 293	8064	11 186	1706	13 211	9754	7628	5519		
75+	34	73.5	60 458	80 392	28 196	48 788	194 187	200 257	150 966	143 533	133 728	119 865	117 500	109 279	19 933	7825	6070	6880	-13 863	-13 053	0.0243	1.0000
			15 733	16 158	9647	19 257	26 117	28 040	23 248	26 206	16 017	18 877	16 163	18 791	8973	7666	13 489	17 857	14 126	10 853		

Source: Own calculations based on SEP. Whenever a cell contains two numbers, the second one is the standard error associated with the mean or median in the same cell.

seem to see a pattern where older cohorts may have a higher tendency to move to a rented dwelling, the small number of observations has made it impossible to say anything definitive about what the main factors are behind these transitions.

It is useful to sum up what we have observed so far. There is little indication of substantial decumulation. Means seem to grow a bit faster (or fall a bit less fast) than medians. This hints at an increase in inequality among the elderly with age. One explanation for this would be a bequest motive as modelled by Hurd (1989), where the extent of decumulation will be inversely related to net worth. Furthermore, for most households net worth is so low that it can hardly be used for income smoothing. Rather, the amount of wealth left would seem to be just enough for precautionary reasons. To investigate the two explanations (bequest motive and precautionary motive) given for the observed patterns of wealth holdings among the elderly, we now turn to a new source of evidence, the VSB-panel.

4. Savings

4.1. HOUSEHOLD SAVINGS IN THE VSB-PANEL

As we mentioned previously, the VSB-panel is composed of two parts: a data set representative of the Dutch population, and a sub-sample where rich households are oversampled. We will use both samples in the analysis of the importance of bequest and precautionary motives. We have to say, however, that due to non-response rates for some questions and the process of editing and cleaning of the data, the final representative sample does not quite reflect the population of Dutch households. In particular, households with low incomes seem to be underrepresented.

We use the information about saving, which is embodied in the economic psychological part of the VSB questionnaire. In this part, households are asked to report whether they have saved in the past 12 months and we can therefore examine in this data whether the elderly dissave. Consistent with the previous figures from the SEP data, many households 60 or older have indicated that they continue to have positive saving. The amount saved, which in the psychological part of the VSB data is observed in brackets rather than as a continuous variable, indicates that for the large majority of the elderly households (i.e. households with a head (respondent) 60 or older), who continue to have positive savings, the amount saved is either less than Dfl. 3000 or between Dfl. 3000 and Dfl. 10 000. Savings are not concentrated in the sub-sample of rich households. While a higher proportion of households in this group than in the representative sample have indicated that they saved

in the past 12 months, in the latter sample as well more than 50% of the sample of the elderly households have indicated they saved. Apart from saving in the past, households are asked whether they plan to save in the future. This question allows us to examine whether savings tend to persist among the elderly. The evidence indicates that not only many elderly households reported to have saved in the past 12 months, but they also plan to continue saving in the future.

The questionnaire has quite a few questions about motives to save.† The two most important ones among the elderly are the motive to have some savings to cover unforeseen expenses as a consequence of illness or accidents (we will call this the precautionary motive) and a bequest motive. For most motives respondents could indicate on 7-point scale (from "very unimportant" to "very important") whether a particular motive was considered important. For the elderly (household head 60 or older) the mean score for the precautionary motive was equal to 5.09. In the light of the discussion regarding Tables 3(a) and 3(b), it is of interest to compare mean scores for this variable for renters and home owners. We find a mean score equal to 5.28 for renters and a mean score equal to 4.95 for home owners. The difference is significant at the 10% level ($t=1.85$). This is consistent with the suggestion that a precautionary motive is particularly relevant for households with low wealth. As we have seen, wealth of renters is substantially lower than that of home owners.

Regarding bequests, two important facts emerge from the data. Approximately one third of the representative sample and half of the rich households sub-sample have indicated that they have thought about leaving a bequest. The percentages are higher among the elderly. While thinking about a bequest does not necessarily imply leaving one, this information at least indicates that bequests are present in the minds of Dutch households. The other relevant fact is that when asked about the amount of the bequests, a very large proportion of households, both in the representative and the sub-sample of the rich, have indicated large amounts for the bequests. For the households in the representative sample, who have indicated they have thought about leaving a bequest, the median amount is Dfl. 150 000 while the mean is Dfl. 223 551. In the sub-sample of rich households the values are Dfl. 350 000 and Dfl. 477 098 respectively. For the households whose head is 60 or older, a bigger proportion have indicated the bequest motive and the median and mean are Dfl. 190 000 and 267 807 for the representative sample and Dfl. 500 000 and Dfl. 528 538 for the rich

† Thirteen motives are listed and they range from children's education, to buying a house or durables, to precautionary motives and additionally there is a lot of information about bequests.

households. The amount of the bequest is relevant per se, but can be better understood when considering the assets that households have indicated they would like to bequeath. Many households have indicated cash, but a big proportion, in particular in the subsample of the rich, have indicated the house among the assets to leave as a bequest. Among the elderly, there is a higher proportion of households who have indicated the house as a bequest than in the total sample.

Another useful feature of the bequest data is that, among the recipients of the bequests, the partner is indicated as often as the children. Among the elderly, the children are indicated more frequently among the recipients of the bequest. Also, a non-negligible share of households, in particular in the representative sample, have indicated charities and such institutions as recipients of their bequests.

4.2. SAVINGS, HOUSING AND BEQUEST

We present hereafter two sets of regressions, where we investigate whether the reported motives can explain the actual behaviour of the elderly. In the first set of regressions, we examine which variables can explain savings. In the second set of regressions, we investigate more closely the bequest motive.

We perform an ordered probit regression where the dependent variable is represented by the amount of saving, reported in brackets, that the household has done in the past 12 months. In Table 4, we present results for the total sample and for the elderly only.† We find that savings decrease as the respondent‡ in the household gets older. The household saves more if the partner is present and when the main respondent is a male although this effect is not significant in the elderly subsample. It also saves more if the respondent holds a university degree. These results are consistent with the findings of other empirical studies on saving.§ Furthermore, consistent with the predictions of the life cycle-permanent income model, savings move in anticipation of expected income changes. The survey reports information on the expected percentage change in income in the next 5 years. The regression coefficient corresponding to this variable is negative and is significantly different from zero for the total sample, indicating that some savings are done to smooth future expected income decreases.

† In our estimation procedure the elderly are defined to be those households whose head (respondent) is at least 60 years old.

‡ In most cases (2200 out of the 2300 households) the head of the household is the respondent, while in the remaining cases the respondent is the partner.

§ See the review of the evidence in Browning and Lusardi (1995).

TABLE 4 *Household savings and bequest*

<i>Variables</i>	<i>Total sample</i>		<i>Elderly only</i>	
	<i>Represent. and rich household</i>	<i>Represent. sample</i>	<i>Represent. and rich household</i>	<i>Represent. sample</i>
Age	-0.009 (0.001)	-0.009 (0.001)	-0.015 (0.009)	-0.011 (0.010)
Male	0.127 (0.059)	0.126 (0.069)	0.082 (0.148)	0.060 (0.161)
Partner is present	0.291 (0.061)	0.351 (0.067)	0.435 (0.136)	0.522 (0.151)
University degree	0.112 (0.059)	0.186 (0.092)	0.243 (0.152)	0.288 (0.192)
Expectations of Y changes	-0.001 (0.0007)	-0.002 (0.0007)	-0.0053 (0.0038)	-0.009 (0.004)
Long horizon	0.213 (0.072)	0.160 (0.095)	0.435 (0.196)	0.327 (0.216)
Patient	0.402 (0.045)	0.375 (0.057)	0.265 (0.105)	0.164 (0.117)
Bequest	0.180 (0.048)	0.225 (0.062)	0.177 (0.110)	0.280 (0.118)
Rich household sub-sample	0.603 (0.053)		0.568 (0.148)	
No. of obs	2278	1500	454	375
Log likelihood	-3330.76	-2028.63	-607.61	-467.84

Standard errors in parentheses.
Source: VSB panel.

While many elderly have indicated that they expect their income to remain the same in the next 5 years, some elderly report that they expect their income to decrease in the future. This is reasonable, in particular if we consider the loss in annuity income which is associated with the potential death of one member in the family. The regression coefficient corresponding to the variable indicating the change in income in the next 5 years remains negative for the old households as well, although the significance is weak. We have also considered two other variables which are provided in the data set and can be of importance for savings. One is the planning horizon of the household and consistent with intuition, households with longer horizons save more. We have used this variable for the elderly too. In this case, the planning horizon can also indicate the remaining lifetime. We find that the elderly with longer horizons tend to save more in their old age. The other variable, called Patient in Table 4, is a self-reported

measure of attitude towards spending and saving which can proxy for the degree of patience and/or thriftiness. Consistent with intuition, thrifty households and thrifty elderly tend to save more. We find that savings are very sensitive to income. We find even in the raw data that a high proportion of rich elderly report to have saved in the past 12 months. The amounts saved are also higher than in the representative sample of the elderly households.

An interesting feature of these regressions is that the households who have thought about leaving a bequest save more. This is the case for the total sample and it holds also in the sample of the elderly.

Given these findings, we investigate in more detail the bequest motive for the elderly only. We use here both the information on whether or not the respondent has thought about leaving a bequest and the planned amount. In Table 5, we present the empirical findings. We estimate a probit regression for the bequest variable, while we perform a tobit for the desired amount of the bequest. Two important variables emerge from Table 5. First income is a strong determinant of the bequest motive. This result is very robust and was noticeable even in the raw data. The second is homeownership. The elderly who own a house are more likely to report a bequest motive. These findings are consistent with the simple statistics reported before. Many households have indicated the house among the assets to leave as a bequest and their expectations may conform to their actual behaviour. Note also that bequests are positively related with age. This provides again some indication why the elderly do not dissave as they age. As for saving, we find that households who have longer planning horizons and are more patient or thrifty are also more likely to have a bequest motive. This result is consistent with extended life cycle models that take bequests into account.

The only outcome which seems to be counterintuitive is that the dummy for children has a negative coefficient in both the probit and the tobit. Since at the time of the analysis the wealth data were not available yet for analysis, we suspect that the children dummy may pick up a negative influence of the presence of children on wealth accumulation; the negative sign would then indicate a positive effect of wealth on a bequest motive, rather than a direct negative effect of the presence of children. We should also note that the effect of children becomes less negative for households with a higher income (cf. the interaction effects).

5. Concluding remarks

The picture emerging from our analysis can be summarized as follows. Wealth holdings among the elderly are very unevenly

TABLE 5 *Bequest motive*

	<i>Probit regressions</i>		<i>Tobit regressions</i>	
	<i>Represent. and rich household</i>	<i>Represent. sample</i>	<i>Represent. and rich household</i>	<i>Represent. sample</i>
Constant	-1.336 (0.870)	-0.867 (0.908)	-1 059 864 (313 188)	-894 364.3 (324 274.5)
Age	0.022 (0.012)	0.014 (0.013)	11 268.2 (4263.2)	8581.6 (4422.6)
Male	-0.344 (0.186)	-0.285 (0.195)	-25 962.0 (66 349.0)	-38 610.2 (69 257.9)
Partner is present	-0.191 (0.170)	-0.265 (0.182)	-74 396.2 (60 374.3)	-42 629.2 (63 804.0)
University degree	0.253 (0.202)	0.230 (0.245)	46 980.3 (64 993.5)	-16 754.5 (81 860.2)
Long horizon	0.442 (0.257)	0.369 (0.270)	313 146.9 (82 854.1)	262 148.5 (87 747.7)
Patient	0.248 (0.131)	0.318 (0.142)	73 139.6 (47 416.3)	110 862.9 (51 716.9)
Home owner	0.610 (0.141)	0.635 (0.145)	375 526.6 (55 304.3)	381 783.8 (55 198.2)
Y>28 000 &<43 000	-0.274 (0.357)	-0.244 (0.360)	-43 208.9 (130 210.9)	-28 850.4 (125 215.0)
Y>=43 000 &<80 000	-0.070 (0.342)	-0.228 (0.358)	79 122.3 (119 752.8)	-12 688.5 (123 766.9)
Y>=80 000 (independent) children	0.003 (0.411)	0.392 (0.513)	305 580.3 (136 691.1)	304 602.8 (160 098.8)
yes/no (CHILD)	-0.906 (0.271)	-0.877 (0.274)	-281 417.6 (107 888.7)	-268 869.2 (104 383.3)
(Y>28 000 &<43 000)*CHILD	0.789 (0.415)	0.753 (0.417)	258 051.9 (156 911.4)	235 057.6 (150 324)
Y>=43 000)*	0.832 (0.381)	0.955 (0.400)	264 347.2 (137 695.1)	351 826.6 (141 966.3)
Rich household sub-sample	0.632 (0.232)		192 873.6 (70 364.2)	
No. of obs	454	375	454	375
Log likelihood	-262.57	-225.13	-3306.47	-2350.27

Standard errors in parentheses.
Source: VSB panel.

distributed. After the age of 65 the median household does not seem to accumulate or decumulate significant amounts of wealth anymore. Only at rather advanced ages do we see some decumulation. In itself this cannot be taken as strong evidence

against the life cycle hypothesis. For most elderly, the wealth holdings are so low, that the remaining wealth can be seen as a buffer for adverse shocks. This is consistent with the finding in the VSB-panel that among various possible motives to save the elderly attach a great deal of significance to a precautionary motive. However, there is a second important motive, namely the bequest motive. The bequest motive is particularly predominant among the well-to-do elderly and appears to provide a significant explanation of savings of large portions of the elderly.

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