

One-person households – a growing challenge for sustainability and housing policy

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Abstract

We know that in many Western countries a growing number of persons live alone in one-person households even though the majority of the homes are built for families. This may represent a problem in several ways: On one hand it implies increased housing consumption as well as increased energy consumption as those who can afford it chooses to live alone in big houses or apartments. On the other hand there may also be a social problem associated with living alone, if less wealthy singles are obliged to live in less attractive dwellings compared with people living as couples that typically have two incomes. This paper discusses international studies of the so-called second demographic transition, understanding the conditions behind the growing number of households with one person. The literature review was supplemented with studies on the consequences of energy and resource consumption of people living alone. We then focused on Danish historical data on the social and demographic background for why there is a growing number of persons living alone. Next follows a presentation of one-person households in Denmark: A database comprising the complete Danish population was used to describe the housing conditions of people living alone in comparison with the general population of Denmark. These analyses included the relevant socio-economic background variables as well as relevant housing data. The objective description was supplemented with a subjective assessment of how people living alone perceived their own life situation compared with how others perceived their own life. In the conclusion we raised the question of whether new types of co-housing

could be made attractive for those living alone – and thus provide a both more resource-efficient and socially accommodating way of living, compared with forming a one-person household.

Key words: One-person households, Singles, housing statistics, energy- and resource consumption, second demographic transition.

Introduction

It is not a new phenomenon that not all people form couples and live in a nuclear family. What *is* new is the option of forming a one-person household. People living in one-person households are, however, a diverse group. It contains young people who have left their parental home and may later form a household with a spouse, it contains people who have divorced and might remarry, widows and widowers who have lost their spouse, and finally it also contains people who have lived most of their life alone and intend to continue doing so. Half a century ago these different groups of people would not normally have had the possibility of living in their own household. The older widows(-ers) would have lived with their adult children or in an old-age home, the younger ones would have stayed at a pension or lodged with the household where they were employed as maid or farmhand.

In many ways it can be viewed as a positive development that people who are not in a relationship have the economic possibility of forming their own household and furthermore that it is culturally accepted to do so. There are, however, problems related to this development. In this article we focus on two different types of problem. One problem is the environmental problem related to the growing energy consumption and thus the related climate change problem resulting from ever more people living in one-person households. The other problem is the social problem of how people in one-person households actually live. Do they have satisfactory housing conditions and are they as content with their life as others? Together these two problems give rise to the relevant question of whether the available housing – which in most cases was built for family living – provide adequate opportunities for the growing proportion of people living in one-person households.

This article focuses on people who live one person in a household. This has been called single living (Depaulo, 2006) or solo-living (Chandler et al., 2004; Wasoff et al., 2005), but in this article we will use the stricter but not very idiomatic term: one-person households. The notion of singles is primarily related to younger urban individuals, as described in popular movies like "Bridget Jones's diary" or "Sex and the City", and thus this notion does not comprise all the different types of people living in one-person households. Furthermore it is possible to be single without living in a one-person household, if one either lives together with friends or one's children. On the other hand, one can also be part of an established relationship, and consequently not be single, but actually live in a one-person household, which is known from the notions of COLA (couples living apart) or LAT (living apart together). The notion of solo-living has been used sporadically in the literature, however, as this notion is still not in common use we will stick to the term of one-person household, which includes all types of people living alone in a household.

In the first part of this article we refer and discuss the facts about the correlation between energy consumption and the number of persons living in a household. Then follows a review of the international literature on how and why still more people live in one-person households; a review that will be combined with research on how one-person households live. The remainder of the paper focuses on statistical data on one-person households in Denmark. First, we describe the historical trends. Second, we present data on who lives in one-person households in Denmark and finally how they consider their life situation.

Energy consumptions in relation to household size

In the international literature it has been concluded that one-person households in general have a negative impact on resource consumption and the environment (Williams, 2007). Williams refers to a study by Lui et al. (2003) which concluded on a global study that the declining household size would have a negative impact on biodiversity and natural resources. Furthermore, Williams refers to a UK study (International Consumer Protection and Enforcement Network, 2001) that shows how household size influences consumption of

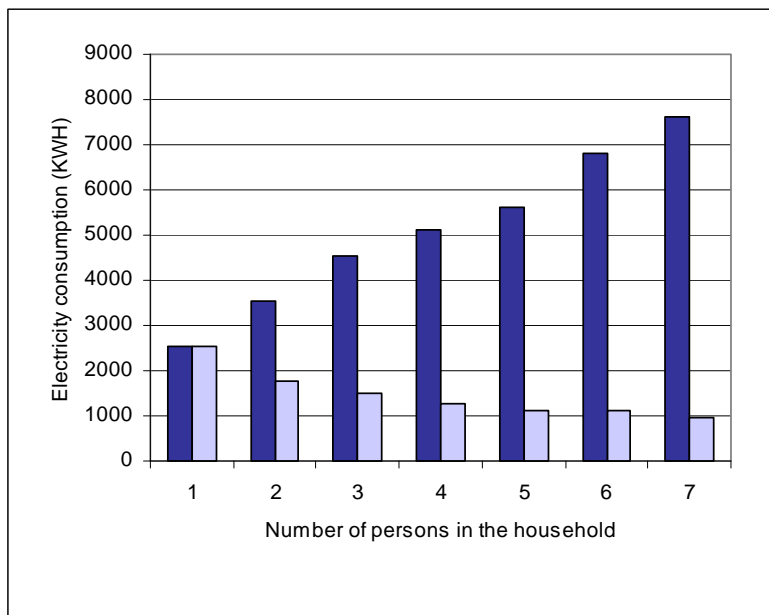
goods and indirect energy consumption as well as to other studies (Fawcett, et al., 2002; Normann and Uiterkamp, 1998) which show an inverse relationship between direct energy consumption and household size. We will supplement this review with results showing how household size had a major impact on the direct electricity consumption in Danish households.

Statistical analysis were conducted on a database consisting of approx. 50,000 households with information on their inhabitants (household size, income, education, age, nationality, employment) and information on housing (type of housing, ownership, size, installations) combined with information on consumed electricity, heat and water (Petersen and Gram-Hanssen, 2005; Gram-Hanssen, Kofod and Petersen, 2004).

Table 1: Regression analysis of the effect of background variables on electricity use in apartments. Based on analysis of the Aarhus database, n=40,281

Background Variable	Effect on Electricity Use kWh/year	Explanatory Power Change in R2 (%)
Per person in the household	291	21.9
Per 100,000 DKK in gross income	20	1.3
Per 10 m ² floor area	119	7.2
Per age square of oldest person	-0.1	1.3
Per 0-6 year-old children	-76	
Per 13-19 year-old children	117	0.3
Long education compared with only primary school	-63	0.1

Figure 1: Relation between household size and electricity consumption per household and per person. The dark blue column shows electricity consumption per household and the light blue one shows electricity consumption per person. Based on analysis of the Aarhus database, n=50,000



Analysis showed that particularly water and electricity consumption per household was highly dependent on number of persons in the household. Table 1 shows - as an example - the regression analysis on the importance of different background variables in relation to electricity consumption in apartments. It shows that the number of persons in a household explains approx. 22 % of the variation between the differences in

the electricity consumption of households whereas the rest of the background variables only explain a few per cent each. However, analysis also showed that in particular the consumption of electricity per person was highly dependent on the number of persons living in the household. Figure 1 thus shows how electricity consumption per household increases with the number of persons per household, though electricity consumption per person falls with more persons living together in a household. For instance, the electricity consumption per person when four persons live together is on average only half of what it is in one-person households. The number of persons in a household is thus of major importance when discussing how to reduce e.g. electricity consumption in households. However, as described in the next section, the trends in most Western countries show continued decline in household size with still more people living alone.

The second demographic transition and housing

The (first) demographic transition is a model developed back in the 1920s that explains how societies changed from high to low birth and death rates following economic development and industrialisation. The second demographic transition describes the demographic changes taking place in most Western countries since the 1960s and onwards. Ogden and Hall (2003) refer among others to (van de Kaa, 1987) when describing this second transition, which has a strong impact on household size and structures. The key features are "declining fertility to below replacement levels, the postponement of marriage and increase in cohabitation, delayed child-bearing, a sharp rise in divorce and couple separation, and a rise in single-parent families" (Ogden and Hall, 2003: p89). Based on census data from France, Ogden and Hall conclude that the second demographic transition was evident in France especially in the last two decades of last century.

In another study Hall and Ogden together with Hill (1997) use longitudinal data to compare the pattern and structure of one-person households in England and Wales with France. They start by stating that the increase in one-person households results from three different types of factors:

1. Compositional factors, including age structure combined with patterns of divorce and marriage
2. Propensity to live alone as a chosen lifestyle
3. Economic ability to be able to live alone

As their study is based on statistical demographic data, they can primarily explain the compositional factors of the decline in household size. However, based on the changing social characteristics of those living alone in 1971, 1981 and 1991, they also add hypotheses and insights on the economic ability and the propensity to choose to live alone.

A comparison of different European countries clearly showed that all countries have experienced growth in one-person households between 1970 and 1990. The highest percentages of one-person households are found in the Nordic countries with Sweden leading with 39.6 % of all households being one-person households and Denmark with 35 % in 1990. The lowest percentages were found in Southern Europe with 17.3 % one-person households in Greece in 1990. However, Greece has also had an increase in one-person households between 1970 and 1990 (Hall, Ogden and Hill, 1997). France and Great Britain lie in the middle of this spectrum with 27.1 % and 26.8 % one-person households respectively in 1990. By using longitudinal data primarily from England and Wales, Hall, Ogden and Hill were able to describe which compositional factors are the most important in explaining this growth. They concluded that even though older widows(-ers) constitute the majority of one-person households, the age group with the biggest growth in the period was the young adults. Looking at the marital status of those living in one-person households Hall, Ogden and Hill concluded that never-married people make up almost one third of one-person households over the 20-year period; that the proportion of widows(-ers) have declined to slightly under 50% and that those divorced or separated have increased many times and reached 15 % of those living alone in England and Wales in 1990.

The growing percentages of young adults living in one-person households also have an impact on urban geography, as younger one-person households tend to live in the city whereas the older ones are often found in more remote rural areas or retirement areas along the coast. The increase in younger people living in one-person households has thus had a strong impact on the household distribution in big cities. There were about 50 % one-person households in Paris in 1990, and more than 65 % of these were under 60 years old (Hall, Ogden and Hill, 1997). Hall, Ogden and Hill also found interesting gender differences in their data. There are thus remarkably more women living alone in the older age group, due to a longer duration of life among women than men, whereas there are more men in the younger age groups than there are women,

though also among women there is an increasing number who lives alone. The social distribution of the one-person households also varies according to gender. Among both men and women in England and Wales there has been a shift towards higher social classes of those living alone. However, while the social distribution of men living alone in 1990 was quite similar to men in general, the social distribution of women living alone was quite different from women in general, as the women living alone are more likely to be in higher social groups than other women (Hall, Ogden and Hill, 1997).

Other researchers have used parts of the same longitudinal data from England and Wales and have confirmed many of the conclusions reported above, but they have also added the interesting conclusion that once a person lives alone, s/he is more likely to continue living alone than to move in with others. They conclude: "the research provides some evidence to refute suggestions that living alone is a temporal phase in one's adult life" (Chandler et al., 2004:13).

Furthermore, many of the above presented insights and conclusions based on European and especially UK data have been confirmed by an Australian study. The study has a stronger focus on housing issues and implications for the housing market (Wulff, 2001). Wulff described how people living alone prefer flats to detached houses, and that they also prefer more spacious flats with more rooms if they can afford it. Wulff concludes that this presents a growing mismatch between the housing wishes of people living alone and the existing dwellings and household types in Australia.

Data and methods

The starting point of this project was an interest in the increase of one-person households and their housing situation. The project included both qualitative and quantitative data; however this paper only deals with the quantitative data. The quantitative data consisted of three different data sets, each related to a different aspect of studying one-person households:

1.

Statistical historical data from Statistic Denmark. Register based data allowing us to follow age and gender composition of those living alone in the years 1981-2006.

2.

Two databases based on an extract from Statistics Denmark of all individuals, households and houses in Denmark on the 1 January 2008: Traditionally, researchers with an interest in one-person households have taken the household unit as their point of reference (e.g. Wulff, 2001) – which we also did for our analysis of household characteristics. But utilising a household reference person when analysing individual-level data (like income, socio-economic status etc.) misrepresented the profile of households consisting of more than one person (i.e. their profile would be skewed towards better educated and more affluent households and consequently introduce a gender bias (towards men)), which we would like to avoid. Consequently, we have chosen to create two databases: one consisting of all adults (18+ years) in Denmark in which household and housing data were linked to the individuals, which were used on the individual-level analysis (N=4.260.306); and a second database consisting of all households in which housing and individual-level data were linked to the households based on the household reference person (the individual in the household with the highest annual gross income) (N=2.540.155). As housing situations vary across the course of life, we divided the population into three age groups: 18 to 29 years, 30 to 60 years and 61+ years, which in general corresponds to different life stages: youth, adulthood and old age.

3.

Data from the Danish Values Study¹: These data included questions about how people living in a one-person household perceived their own life situation. The Danish Values Study covers a wide range of subjects from religion to politics to attitudes towards immigrants and the protection of the environment. The data presented in this article were part of the most recent data wave from 2008 where 1507² people participated in face-to-face interviews. In this part of the article we have chosen to focus on the 30 to 60 years old, thereby limiting

¹ The Danish Values Study is part of the European Values Study

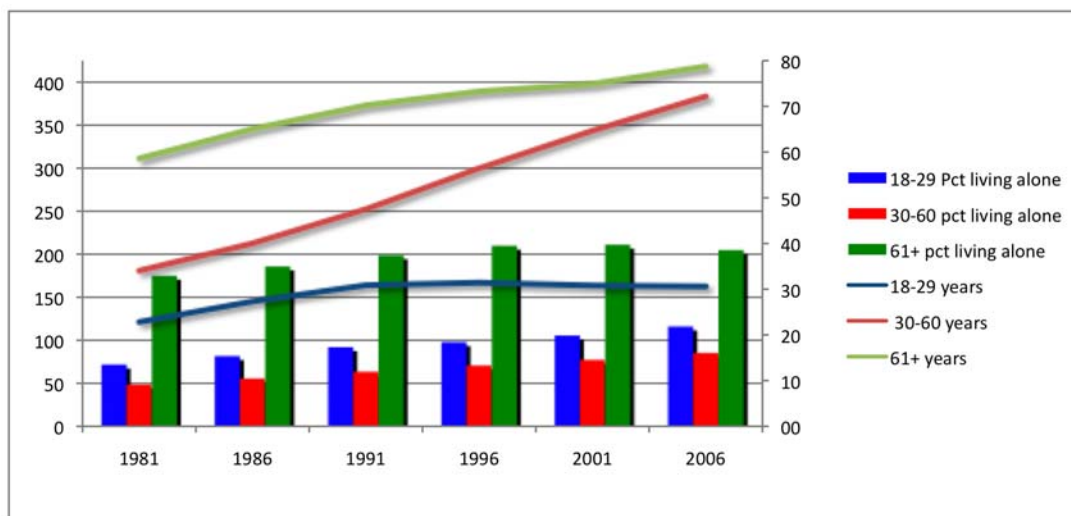
² Response rate: 51 %

the sample to 855 respondents. Of these, 11.6 % (or exactly 100 persons) lived in a one-person household. The reason for this narrowing of the focus will be presented in the section on assessment of life situation.

Single living in Denmark – understanding the historical trend

Looking back on the last 25 years, it became clear that (a) the number of one-person households as well as the proportion of one-person households and (b) the number of people living alone and the proportion of people living alone had increased dramatically. The period 1981-2006 saw an increase of 350,000 one-person households and the same period saw an increase in the proportion of one-person households from 29.5 % in 1981 to 38.3 % of households in 2006 – corresponding to an increase of 30 %. Looking at the increase of one-person households in relation to people living alone, the development was even more profound: the share of people living alone increased from 16.1 % in 1981 to 22.9 % in 2006 – an increase of 42.5 %. As seen in Figure 2, the demographic development underpinning the overall growth of the number of persons living alone was primarily driven by an increase of the number of people aged between 30-60 years and 61+ years living alone - with the most notable increase among those aged 30 to 60 years. It was also apparent from Figure 2 that the propensity to live alone had increased within all age groups during the period. In relative terms the increase had been most profound among the middle-age group (30-60 years), where the share of persons living alone had increased by 76 % – from 9.1 % to 16.1 % in the period from 1981 to 2006. But also among young people, the share of people living alone has increased a lot – from 13.5 % to 21.8 % (an 61.6 % increase). It is worth noting that the tendency towards an increase in propensity among the elderly to live alone came to a halt in 2001 and the proportion of elderly living alone even fell between 2001 and 2006 resulting in 38.6 % of the elderly living alone in 2006 compared with 32.9 % in 1981. On the whole, the consequence had been that those living alone in 2006 were in the middle-aged group (30-60 years) instead of the elderly group to a much larger extent than was the case in 1981.

Figure 2: Development in the number of people living alone (left axis in '000) and development in propensity for living alone (right axis, in per cent) for three age groups (18-29, 30-60 and 61+ years) 1981-2006

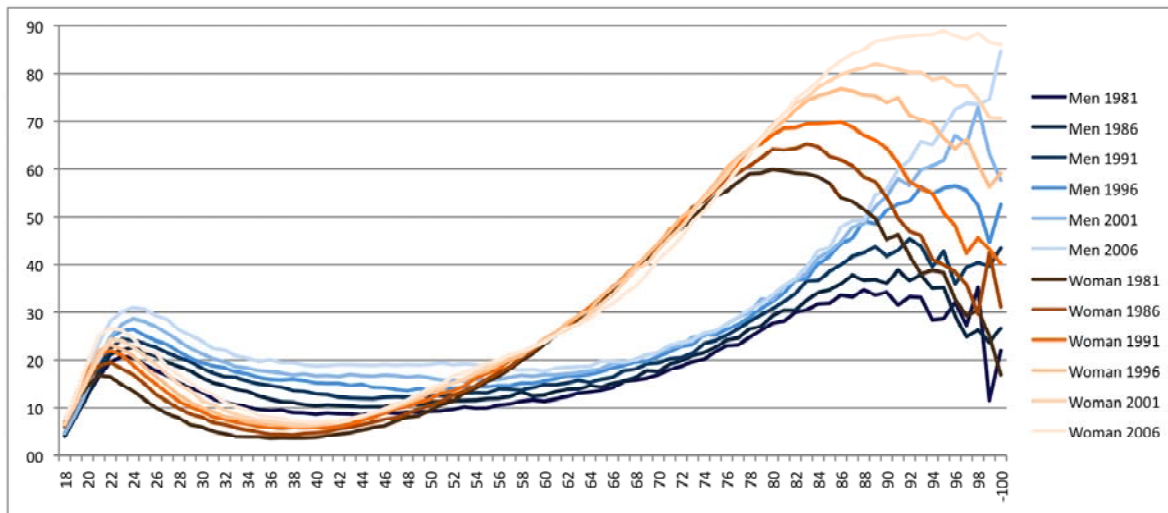


Source: Statistikbanken (Fam12), Statistics Denmark (retrieved 14.04.09)

Although women in general tended to live alone more often than men, the difference between the genders had decreased between 1986 and 2006, because the increase in living alone was lower for women than for men. On the whole the proportion of men living alone increased from 13.1 % in 1981 to 21.6 % in 2006, whereas the share of women living alone in same period has increased from 18.8 % to 24.1 %. Looking more closely at the development (see Figure 3), it became apparent that both gender saw a large increase in the proportion of very old people living alone. But whereas the growth in living alone among women in addition primarily was among younger women in their twenties, the increase for men also occurred for those in their thirties and forties. Consequently, the age pattern of men and women living alone had become increasingly distinct from one another over the last 25 years.

Elderly people tended to live alone more often today, because they were often provided for in their own homes instead of moving to a nursing home.³ The tendency of more young people living alone probably highlighted the current trend of delaying the formation of a nuclear family. Women's increasing tendency to live alone in comparison to that of men was interesting and somehow validated the cultural interest in 'single women'. The changing propensity of women to live alone was rather unique compared with men, as it was not simply a uniform increase in propensity for living alone (as it more or less was for men) but a change in the pattern of living alone.

Figure 3: Development trends of men and women living alone seen in relation to age 1981-2006 (%)



Source: Statistikbanken (Fam12), Statistics Denmark (retrieved 14.04.09)

There has been some debate in Denmark as to whether the increase in people living alone reflects a decrease in the proportion of people living with a partner/spouse (Christoffersen, 2007) or whether the decline in household size reflects that today those without a partner to a higher degree live on their own as compared with previously. A Danish study (Danish Building Research Institute and Institute for Local Government Studies, 2001), states that approx. 80 % of people between 30 and 60 years who do not have a partner live in one-person households and that this percentage has been quite stable between 1981 and 1996. This study thus indicates that the decline in household size also reflects a decline in partnerships. The data presented here offered no certain evidence either for or against this discussion, but the shift in household composition towards more and more people living alone reflected a shift in family structure which was in itself is highly interesting.

Who lives in one-person households, where and how do they live?

Demographic characteristics of persons living alone

The latest data from 2008 suggested that almost 1,000,000 households (984,480) were one-person households - which corresponded to approx. 23 % of all adult Danes living alone (see Table 2).

³ Furthermore nursing homes are increasingly being rebuild and are correspondingly administratively viewed as a collection of households instead of being considered one big household.

Table 2: Demographic profile of households in Denmark 2008

Age group	18 – 29		30 – 60		61 +		All	
	One person	Other	One person	Other	One person	Other	One person	Other
Category of household								
Persons	166179	586036	386922	1971952	431379	717838	984480	3275826
Share of persons in age group (%)								
All	22.1	77.9	16.4	83.6	37.5	62.5	23.1	76.9
Men	24.1	76.0	20.0	80.0	25.0	75.0	22.0	88.0
Women	20.1	79.9	12.7	87.3	47.9	52.1	24.2	75.8
Relative share of household category (%)								
All	16.9	17.9	39.3	60.2	43.8	21.9	100	100

In relation to the age composition of those living alone, the majority (43.8 %) were aged 61+ years and the second largest group were those between 30 and 60 years (39.3 % of those living alone). Looking at individuals living alone from a different angle, living alone was most common among the elderly where 37.5 % lived alone and mainly uncommon among the middle-aged where only 16 % within the age group lived alone. The proportion of men and women living alone varied quite a lot depending on age. Among the young and the middle-aged, more men than women lived alone, whereas more women lived alone among seniors (actually, almost 70 % of seniors living alone were women). The underlying reason behind the big difference between the proportion of middle-aged men and women living alone can be found partly in the pattern of marital or relationship break-ups involving children – in the vast majority of cases the children end up living with the mother (Gram-Hanssen & Laurentzius, 2007). On the other hand, both the general age difference in couples between men and women (men being the oldest) and women's higher average life expectancy (Christoffersen 2007) are likely to account for the huge difference in the proportion of men and women living alone above the age of 61.

The ethnic composition of people living alone was somewhat different from the ethnic composition of the population. It was predominantly individuals of Danish origin as opposed to foreign origin who lived alone. Immigrants and descendents of immigrants from non-Western countries lived alone to a much lesser extent than individuals of Danish origin – this was true across all three age groups. Immigrants from Western countries on the other hand tended to live alone as often as ethnic Danes. (not shown with data here)

Using survey data from the Danish Values Study we were able to look into the frequency of parenthood among people living alone. It was found that 45 % of those in the middle-aged group living alone had children (33 % of men and 62 % of women). However, only approx. 20 % of men and women of the age from 30 to 49 living alone were parents, thus suggesting that it was much more common to have children and live alone if the children were in their teens or older.

The marital status of those living alone was also quite different from individuals not living alone. Those living alone were to a much lesser extent married and to a much greater extent divorced or widowed. For elderly living alone, 12 % had never been married indicating that at the most approx. 10 % of persons in that generation had lived alone for their whole lifespan - highlighting how relatively unusual it actually is (or has been) to live alone the entire life.

Socio-economic situation

Looking at the socio-economic situation of people living alone compared with others (see Table 3), it was apparent that living alone took different forms in the course of a life. Apart from more students and fewer 'others' (mainly school-'children' attending either secondary school or high school/a-levels), young people who live alone have a socio-economic profile that was not notably different from that of other young people. It is worth noting that in spite of a higher proportion of unemployed persons among young people living alone –as a group they had a higher average income than other young people. Seen as a group, young people living alone had a social composition that was much the same as that of other young people.

Focusing on the third age group (61+ years), seniors living alone were to a much higher degree retired than other seniors and correspondingly fewer seniors living alone were employed. This difference was to a great extent the result of the different average age of this group. Those living alone had a higher average age (75.3 years) compared with those not living alone (69.3 years). Consequently, the average income was lower for seniors living alone than for other seniors. The small but nonetheless distinct difference in the educational level between seniors living alone and other seniors was also partly a consequence of the age difference in the two groups, as the educational level has increased dramatically over the last 50 years (Jacobsen 2004). When taking the age difference into account, seniors living alone were not very different from seniors not living alone in terms of their socio-economic situation.

The middle-aged group was rather unique in that there were rather substantial differences between those living alone and others. Firstly, almost 30 % of people living alone among the middle-aged group (30-60 years) were without employment compared with 12 % among others in the same age group. This was mainly caused by a very large proportion (18 %) of people receiving social pensions. Social pensions are awarded to persons who are physically and/or mentally unable to work and who are not expected to regain the ability to hold a job. In other words, this group was unquestionably the weakest group of people without employment. Secondly, in relation to education, those who lived alone were more likely to be less educated than those who did not live alone; this was especially notable in the proportion of people who only had an elementary school education. These education and employment patterns are reflected in the average income of the two groups: people who lived alone had a substantially lower income than others. Actually, a difference in gross income within each socio-economic status group could primarily be found between employed persons with a high income: those living alone had an income that was comparably lower (approx. 6 %) than that of others. In other words, the socio-economic situation of persons in the middle-aged group living alone was on average substantially worse than that of others in the same age group. This held true in general – a very large part of those living alone were substantially less educated and marginalised from the labour market and had a rather low income, but a notable minority of people living alone were quite affluent and privileged.

These different trends were related to differences between the genders. In absolute terms, women have a much higher chance of being unemployed, which was also the case among those living alone – 32 % of women and 28 % of men living alone were without employment. But generally the 'effects' of living alone hit harder among men than among women in the sense that men experienced a larger relative increase in their risk of being without employment: there are 2.9 times more men living alone without employment compared with other men and for women the corresponding figure was 2.1. Furthermore, whereas men living alone tend to be less educated, often unemployed and with a lower income; women who live alone were actually better educated and were employed with a high income as often as other women in the age group. These findings suggested a connection between living alone, high education, high income and high-quality employment among women – a connection that could not be found among men. Further research was being carried out to uncover the reasons behind these differences and their causal relationships. So far the findings suggested that living alone for some women was part of a wider lifestyle choice, where living alone offered an opportunity to prioritise a professional career and individual independence as an alternative to family (husband/children). The opposite seemed to be the case for men, where NOT living alone was associated with higher quality jobs, higher education and higher income. These findings seemed to indicate that there were (still) cultural and societal gender roles that made it harder for women not living alone to prioritise a professional career.

Table 3: Social composition, average gross income and level of education in three age groups 18-29, 30-60, 61+ (2008)

Age group Category of household	18 – 29		30 – 60		61 +		All
	One person	Other	One person	Other	One person	Other	
Socio-economic status (%)							
Social pension/benefit	2.2	0.7	17.5	4.6	6.0	4.7	5.3
Unemployed (outside the labour market)	3.1	3.5	4.3	2.2	0.3	0.3	2.1
Unemployed	3.6	3.4	7.6	5.6	0.6	1.2	4.2
<i>Without employment, all</i>	<i>9.0</i>	<i>7.6</i>	<i>29.3</i>	<i>12.4</i>	<i>6.9</i>	<i>6.2</i>	<i>17.6</i>
Student	43.1	37.7	3.6	3.2	0.1	0.1	8.7
Employed with low income	24.6	28.0	14.5	20.4	1.4	3.9	16.4
Employed with middle-income	15.3	13.2	36.4	41.9	4.3	9.8	27.2
Employed with high income	1.7	1.4	13.9	19.1	2.3	6.5	11.7
<i>With employment, all</i>	<i>41.7</i>	<i>42.6</i>	<i>64.8</i>	<i>81.4</i>	<i>8.1</i>	<i>20.2</i>	<i>55.3</i>
Retired/pensioner	n/a	n/a	n/a	n/a	83.9	71.1	20.5
Other	6.3	12.0	2.2	3.0	1.1	2.3	4.0
Total	100	100	100	100	100	100	100
Education (%)							
Higher education	7.2	5.4	12.1	13.1	4.5	7.4	10.0
College (or similar)	14.2	12.0	15.2	20.1	10.9	11.8	16.1
Vocational education/training	29.6	29.3	39.2	42.3	27.3	37.3	37.6
High school/ A-level	4.9	4.1	4.2	3.4	1.3	1.1	3.0
Secondary school /elementary school (finished as well as unfinished)	44.1	49.2	29.3	21.1	56.0	42.3	33.3
Total	100	100	100	100	100	100	100
Income (in DKK '000)							
Average gross income	160	141	280	319	189	212	254

Housing Situation

People living alone are not only different from others in regard to their demographic and socio-economic profile – their housing situation is also different. As highlighted earlier, age plays a crucial part in the general circumstances of people. This was also apparent when studying the housing situation of the Danish population regardless of household size (see Table 4). Generally, young households tended to be situated in (or in close proximity to) the inner city and young households to a much lesser degree owned a house and these were smaller in size and more substandard compared with older households' housing situation and young people tended to have lower residential stability. This general trend was amplified for one-person households across the three age groups: individuals in one-person households were in comparison with other households within their age group more often situated in the inner city, the dwellings were more often privately sublet, and were less often privately owned houses, they were smaller and more often substandard. One-person households on the other hand (unsurprisingly) offered more space per occupant than other types of households within their age group. The effects of being a one-person household were most pronounced for the middle-aged group and among elderly households. Middle-aged (30-60 years) one-

person households were for example more than twice as often situated in the central city and only 23 % lived in privately owned houses compared with 66 % of other households. It is worth noting that seniors living alone had a housing size almost as large as the average housing size for households with more than one person among the 18-29 years.

Table 4: Household category, level of urbanity, housing type, housing condition, housing size and residential stability in three age groups 18-29, 30-60, 61+ years (2008)

Age group	18 – 29		30 – 60		61 +		All
	One person	Other	One person	Other	One person	Other	
Category of household							
Level of urbanity (%)							
Inner city	31.3	26.2	23.0	10.7	14.0	7.0	15.0
Suburbs	27.4	23.3	21.7	18.6	21.2	17.6	20.2
Medium/large size town	22.6	19.5	21.1	19.8	21.6	20.9	20.6
Small town	9.3	12.2	14.2	19.6	19.2	21.7	17.9
Village	1.4	3.6	3.6	5.8	4.2	5.9	4.8
Country side/ rural areas	8.0	15.2	16.4	25.4	19.7	26.8	21.5
Total	100	100	100	100	100	100	100
Type of household (%)							
Privately owned house	4.5	23.3	23.1	65.8	29.4	69.4	47.2
Privately owned flat	7.3	7.1	9.0	3.8	5.6	4.0	5.3
Multi-ownership scheme	11.1	9.8	11.4	4.5	8.9	5.2	7.1
Private sublet	50.0	36.6	27.5	11.1	26.3	8.5	19.8
Public housing	27.1	23.1	29.0	14.8	29.8	12.9	20.5
Total	100	100	100	100	100	100	100
Substandard housing condition⁴ (%)							
Proportion	20.6	11.0	13.0	9.1	10.1	8.6	10.7
Average housing size (m²)							
	55.7	91.9	82.2	131.4	90.1	132.0	109.8
Space per resident⁵ (m²)							
	55.9	38.0	82.2	45.7	90.1	62.9	55.7
Residential stability,⁶ (years)							
Average time in current dwelling	2.3	4.9	8.8	10.9	21.7	26.5	13.3

To sum up, the demographic data showed that living alone in youth and in adulthood was most common for men whereas women formed the majority of the elderly living alone. It was among the elderly that we found the highest proportion of people living alone and among the middle-aged we found the lowest. In general, the socio-economic data as well as the housing data suggested on the one hand that people living alone had another lifestyle than other people in the sense that they tended to live in different places (more often close to the city) and partly therefore tended to live in public housing or private sublets. Those living alone had the benefit of more space than other households did. On the other hand the socio-economic situation of people living alone was not as good as that of others in their age group. The differences between the young people living alone and other young people were rather minor and were most apparent in the quality of the housing they lived in. Seniors living alone were also to a great extent similar to others within their age group taking into account their higher average age. There were real and substantial differences

⁴ Housing without kitchen, bath, toilet and/or with substandard heating installation such as stove, electric radiator, gas radiator.

⁵ Including children in the household

⁶ The household category can have changed (e.g. from a one-person household to a two-person household) during this time.

between the middle-aged group of persons (30-60 years) living alone and those not living alone. Generally those living alone were marginalised in terms of the socio-economic situation, but for some women, living alone was associated with a better chance of having a high income job.

Assessment of own life situation

The aim of this section is to shed light on the potential differences in the assessment of own life situation between people living in one-person households and those living in households of two or more. More specifically, the focus will be on how people assessed their own situation in relation to happiness, health, control over life and satisfaction with life⁷.

As mentioned above, this section focuses on the 30 to 60 years old. The reason for this is twofold. Firstly, living alone at the age of 30-60 years might be connected to social stigmatisation as one was expected to be part of a family (and might desire to be so oneself). This again might be expected to influence one's assessment of one's life situation. Secondly, as was shown above, differences in the socio-economic situation were found primarily in the group of the 30 to 60 years old. Since it might be expected that the socio-economic situation influenced one's assessment of one's life situation, we intend to focus on the 30 to 60 years old in this section. Hence, we focused the analysis on the age group where interesting and significant differences could be expected between one-person households and other households; differences that were likely to impact the life of the people living in one-person households.

A comparison between one-person households and more-person households in terms of happiness⁸ showed that while almost half of the people living in a household of more than one person describe themselves as very happy, only one-third of the people living in a one-person household did the same (see Table 5 below). It was especially notable that 15 % of one-person households did not consider themselves happy compared with only 2 % of people living in households of two or more. A similar connection was found between whether the respondent lived alone or not and how the respondent assessed his/her own health⁹. People living in a one-person household generally rated their own health as being poorer than people living in a household of two or more.

Table 5: Household categories, happiness and health, in percentages (2008)

	Taking all things together, how happy would you say you are?			All in all, how would you describe your state of health these days?		
	Very happy	Quite happy	Not happy*	Very good/ good	Fair	Poor / very poor
One person	32	53	15	73	18	9
Other	49	49	2	84	12	3
All	47	49	3	83	13	4

*Not happy = 'Not very happy' and 'Not at all happy'

Yet another aspect of how people living in a one-person household assessed their own situation was the extent to which they found that they had control over their own life¹⁰ and whether they were satisfied with life as a whole (see Figure 4)¹¹. While rather more than half of the individuals living alone felt that they had a great deal of control over their own life, the same could be said of two-thirds of the ones living with at least one other person. When it came to overall satisfaction with life, people living alone were less satisfied: just

⁷ The analyses will be purely descriptive and will not explore the causality of the associations due to the limited space. All the presented associations are significant with a p-value below 0.05.

⁸ Q: "Taking all things together, would you say you are: very happy, quite happy, not very happy, not at all happy?"

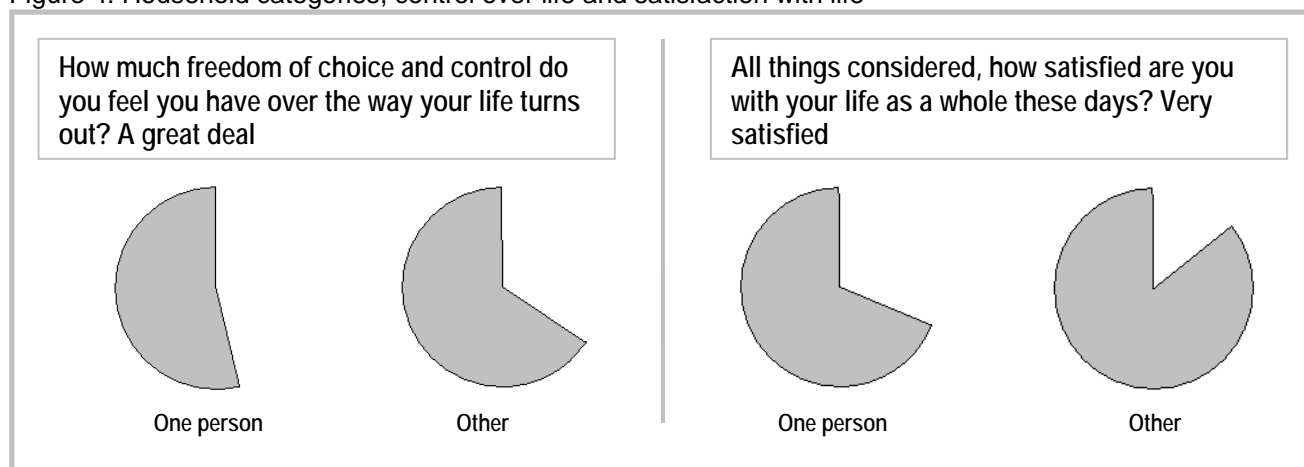
⁹ Q: "All in all, how would you describe your state of health these days? Would you say it is very good, good, fair, poor, very poor?"

¹⁰ Q: "Some people feel they have completely free choice and control over their lives, and other people feel that what they do has no real effect on what happens to them. Please use the scale to indicate how much freedom of choice and control you feel you have over the way your life turns out?" Scale from one to ten.

¹¹ Q: "All things considered, how satisfied are you with your life as a whole these days?" Scale from one to ten.

under 70 % of people living alone found that they were very satisfied with life compared with 85 % of people living in a household of two or more.

Figure 4: Household categories, control over life and satisfaction with life¹²



Thus the overall picture drawn in this section is that people living in a one-person household perceived their general life situation as less good than people living in a household of two or more. Gundelach and Kreiner have shown that while there is a connection between happiness and marital status, it is not that you become happier by getting married; it is the happy ones that get married (Gundelach & Kreiner 2004:375). It is not within the scope of this article to analyse whether the same is the case for the connection between the perception of life situation and whether one lives alone or not: whether living alone influences one's perception of one's own life situation or whether it is the other way around. Regardless of the causality, it gives an interesting contribution to the understanding of the life of people living alone.

Conclusion and discussion

In this article we have dealt with the question of the increase in one-person households in relation to their housing situation. The interest in this issue was partly an environmental interest as a result of the rising resource consumption stemming from more people living alone and partly a social interest in the situation of those living alone. In the article we confirmed many international research findings on the demographics of one-person households: persons in the 60+ age group still formed the majority of the one-person households, though the rise in one-person households in the last three decades related primarily to an increase in the age group from 30-60 years. Our analysis also confirmed the tendency for younger people living alone to settle in the most urbanized areas, whereas older one-person households to a greater extent lived in more rural areas. Other parts of our analysis, however, suggested that there was a different social pattern in Denmark than what was reported in international studies. The Danish data thus showed that in general people living alone belong to lower social classes than others. This was especially true of men, whereas the relationship was not as straightforward for women, since women living alone were for example better educated than other women. These gender differences were also reported in the international studies; however, these studies show that men living alone and living with others were quite similar in regard to social class. These differences between Danish and international results call for more research.

In relation to the environmental problems we have referred to research on how decreasing household size have a negative impact on environment and resource consumption and we have added Danish results documenting a strong correlation between electricity use and household size. Electricity consumption per person is twice as high for people living alone as for people living three or four together.

Our analysis also focused on the objective housing situation of those living alone and on the subjective assessment of their own life situation. Objective data indicated that people living alone to a somewhat higher

¹² The figure shows the share answering 8, 9 or 10 on a ten point scale with ten representing 'a great deal' and 'very satisfied' respectively.

degree experienced substandard housing conditions; however, the percentages were quite low and only a few per cent higher than for households with more than one resident, except among the youngest. Furthermore, it was found that the available number of square meters per person were quite high, and higher than for others for all age groups of those living alone. What seems to be more alarming in relation to the situation of one-person households was the subjective assessment of people living alone, as they described themselves as less happy, less healthy, less satisfied and feeling that they had less freedom of choice and control over their own life situation as compared with how others judge their own situation. When we compared this information with the analysis of resource consumption, it seemed obvious to raise the question whether new and less resource consuming housing forms for people living alone would be attractive for those who apparently were not very satisfied with their present life situation.

Jo Williams (2007) demonstrated how different types of co-housing can be resource efficient compared with one-person households and based on focus group interviews, she also includes discussions on the degree to which those living alone are interested in peer-shared housing and collaborative housing. Williams concluded that at the moment these housing options only provide a lifestyle choice for a select group, however, high housing prices especially in inner London have made it more common with shared housing and online matching sites, speed housing dating and agencies to find house mates have emerged. Such activities could lead to greater acceptance of different types of co-housing and make these alternatives more attractive to a larger proportion of those living alone. For our part we would like to add that it would be interesting if developers, municipalities, housing associations and other relevant actors would experiment more with attractive types of housing for one-person households incorporating different types of common space and facilities – making housing for people living alone both more resource efficient and more socially attractive. Such a scheme might potentially be a socially beneficial set-up for those living alone insofar as it will provide a housing context which facilitates the creation of social networks and hence potentially serve as a basis for improvement of socio-economic status and might furthermore enhance the subjective feelings of happiness.

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