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Smeeding, Timothy Michael; Sullivan, Dennis Hal

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Luxembourg Income Study Working Paper Series

Working Paper No. 173

Generations and the Distribution of Economic Well-Being: A Cross-National View

Timothy Smeeding and Dennis Sullivan

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Generations and the Distribution of Economic Well-Being: A Cross-National View*

Timothy M. Smeeding Center for Policy Research Luxembourg Income Study Syracuse University 426 Eggers Hall Syracuse, NY 13244-1020

Dennis H. Sullivan Department of Economics Miami University Oxford, Ohio 45056

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I. Introduction

This paper explores differences in economic well-being across cohorts of the population in four modern nations (Canada, Sweden, United Kingdom, and United States). It focuses on relative incomes within countries, poverty rates and social expenditures by age group over the 1974 to 1994 period. Cross-national patterns of level (most recent year's data) and trend are both explored.

This work follows in the long tradition of Richard Easterlin to examine patterns of economic change over the life cycle from a cross-national perspective. Ultimately, economists are primarily interested in the ways in which individuals respond to economic conditions in terms of choice of housing arrangements, marriage, childbearing, and work status (i.e., decisions such as schooling and retirement) (Easterlin 1987; Easterlin, MacDonald, and Macunovich 1990). And our work will eventually explore each of these arenas from a cross-national perspective. This paper should therefore, be seen as an appetizer for a wider range of in-depth explorations to follow.

II. Data and Technical Details

The data for this paper come from the Luxembourg Income Study (LIS) database, a collection of almost 100 household surveys in 27 countries spanning the 1970 to 1995 period. LIS has been widely used over the past decade to examine relative economic well-being, poverty, and inequality across a large number of nations (e.g., Atkinson, Rainwater, and Smeeding 1995; Gottschalk and Smeeding 1997). Here we select four countries with consistent high-quality data over a 17 year period. These nations were also selected because of their similarities and differences. The United States and the United Kingdom have experienced rapid secular increases in inequality and in relative poverty over this period (Gottschalk and Smeeding 1997; Smeeding 1997). Inequality has increased less in Canada and Sweden while poverty levels are generally lower in these nations as well. We also examine social expenditures which vary across these nations and over time. Our unit of account is the household and our main measure of well-being is household sizeadjusted disposable income (ADPI), where after-tax and transfer disposable income (DPI) is adjusted for differences in household size(s) based on a logarithmic equivalence scale: $ADPI = DPI/S^{e}$ where e=.5. The unit of analysis is the household for income and social transfers, but persons (within households) for poverty measurement.

Two different approaches are used to interpret patterns of income by age of household head.

The first displays the results by household head age groups. The second, presented in Part IV of the

paper, reinterprets the age groups in the most recent surveys as birth cohorts, providing some cross-

national insight into the question of whether particular cohorts have been relatively "fortunate."

We employ three measures of the relative situation of age groups:

Relative median income ("income") which is the ratio of the ADPI of the household containing the median income person within an age group to the ADPI of the household containing the median income person among all households.

Relative poverty ("poverty") is the fraction of the persons in an age group with incomes less than half of the ADPI of the household containing the median income person among all households. Thus, they show the percent of persons living with a head of a given age where the household income is less than half the median for all households.

Social transfers ("transfer") are the ratio of total cash social expenditures received by an age group to the sum of pre-tax, pre-transfer market incomes received by that age group. Market income is top and bottom coded to ensure consistency over time and across nations.

Here we carry out only the relative median income comparison to contrast it to the age group approach. The basic data are presented in a series of figures with the actual numerical values contained in Appendix Tables 1 and 2.

III. Age Group Comparisons

Relative Income and Poverty: Levels and Trends

Patterns of (relative median) income and poverty are examined across countries and over time within countries. Each country's age-income profile displays the familiar inverted u-shape (Figure 1, top) though the peaks occur at different points across the nations: earlier (aged 45 to 49) in the United Kingdom, and later (aged 55 to 59) in Sweden, with Canada and the United States peaking in between (aged 50 to 54). The United States profile is also more peaked than in the other nations, particularly owing to the relatively lower incomes of younger households in the United States. The second most peaked profile is the United Kingdom, reflecting the rapid decline in average incomes among its aged. The profile declines least rapidly with age in the United States.

Overall levels of inequality differ markedly across these nations and these differences are reflected in their differential poverty rates. The United States has the highest relative poverty rates and Sweden the lowest among the age groups shown here up to age 65 (Figure 1, bottom). Beyond age 65, elders in the United Kingdom have higher poverty rates than do elders in the United States; and beyond age 70, Canada displays a lower elder poverty rate than does Sweden. The overall poverty rates are 6.7 percent in Sweden, 11.6 percent in Canada; 14.6 percent in the United Kingdom, and 19.1 percent in the United States.

The age pattern of poverty that emerges is clear. In general, younger households (under age 30) are doing worse than are elders (over age 65) and both the young and the old have higher poverty rates in the United States than in other nations. Middle-aged families, aged 40 to 54 who generally represent the baby boomers in most of these nations, tend to have the highest incomes and lowest poverty rates in every nation.

Trends within each nation are shown in Figure 2, with the earliest, middle, and latest year coded the same in each country. There are some large movements in both incomes and poverty over time. The relative position of young households in the United States has worsened considerably

since 1979, producing a much steeper age income profile through the working ages. This pattern is consistent with other analyses of this age group using other data sources (e.g., Card and Lemieux 1997; Duncan et al. 1997). In contrast, the aged have greatly improved their relative income position with the largest differences occurring at older ages (see also Smith 1997). In general, changes in poverty rates mirror this worsening for the young and the improvement in economic status among the aged.

The evolution of the age income profile in the United Kingdom has been similar to that in the United States, but much less dramatic. Although the relative median position of younger households has not changed much, poverty is generally higher across the entire working age population than it was in the 1970s, particularly among the young. This result is due in large part, to a general rise in inequality (Gottschalk and Smeeding 1997). The relative poverty position of the elderly has not improved in the United Kingdom as it has in the United States. Indeed, poverty rates among the very old in the United Kingdom have increased slightly since 1979 after improving from 1974 to 1979.

Canada has had minor but noticeable steepening in its profile across the working ages with a decline in relative income and a rise in young household's poverty rates. There has been no real effect on poverty among households over age 30. The relative income position of older Canadian households has improved dramatically. Canadian old age benefits have become highly targeted on the low-income elderly, producing a large decline in poverty status (Banting 1997; Card and Freeman 1993).

The age/ADPI profile in Sweden has been steepening across the working ages with the peak income moving to older ages during the 1980s. The targeting of transfers upon low-income working-age families explains why there has been no discernible change in poverty among workingage families, which remains very low. Unlike the other countries, the profile among older

-4-

households has actually steepened in Sweden between 1981 and 1992. Although the relative position of older households improved in Sweden between 1975 and 1981, it has not improved since. Indeed, poverty among older households has increased in Sweden, and is similar to that in Canada, though still much lower than in the United States or United Kingdom. We conclude that based on these analyses, the young appear to be doing worse now relative to 20 years ago, while the aged are a mixed group across these nations.

The Role of Social Expenditures via Income Transfers

In this section of the paper we examine the changing mix of social transfers compared to market income for these populations. Rather than show social transfers as a fraction of total income, we present the ratio of transfers to market income. The reason for this presentation is to show the tradeoff between income support from government and income support from the market (earnings, capital income, private pensions, etc.) over time and across nations.

We begin by noting the overall transfer to market income ratios in the most recent year ranging from 10.6 percent in the United States to 48.8 percent in Sweden, with Canada (16.7 percent) and the United Kingdom (16.3 percent) between these two. Given these differences in support levels, Canada, the United Kingdom, and the United States have the most similar patterns of transfers to market income by age group in the early 1990s (Figure 3).

Among the elderly the ratio of transfers to other support (earnings, pensions, capital income) rises rapidly beyond age 60, peaking at roughly a 1:1 ratio by age 75 in the United States, with slightly higher ratios in Canada and the United Kingdom. The United States is the most frugal transferor at all ages, Canada and the United Kingdom are very similar up to older ages where Canada spends a bit more than does the United Kingdom. Sweden is literally off the chart at beyond age 60, with ratios of 7 or 8 kronor of transfer to each kronor of market income at older ages.

These expenditures are mirrored somewhat in the poverty rates in Figure 1, up until the 55-59 age group. Beyond age 60 social expenditure and antipoverty performance differ greatly. The United States, which spends the least, and Sweden, which spends the most, have predictable outcomes. The most interesting difference is between Canada and the United Kingdom which spend roughly the same overall amount on social transfers. In Canada, old age expenditures have been increasingly targeted toward those who would otherwise be poor. A strong income tested old age supplement to the Canadian Social Security pension has produced Canadian old age poverty rates at or below Swedish rates in recent years. In contrast, the United Kingdom lower tier benefit to their SERPS retirement system is ineffective in reducing old age poverty while the upper tier of the system produces high benefits for the nonpoor aged. Thus, it is not just what you spend, but how well you spend it that matters in terms of antipoverty performance.

Trends in transfers relative to market incomes differ widely across nations (Figure 4). The relative level of transfer in the United States is remarkably constant over the 1974 to 1994 period in both level of outlay and pattern. Because poverty rates have risen from 16.4 to 19.1 percent over this period, the transfer system has lost a bit of its antipoverty effectiveness, but the overall consistency for each age range is remarkable.

In contrast, Sweden's ratio of transfer to market income has risen from 26.6 to 48.8 percent over the period, with most of the increase going to those over age 65. Poverty has remained at 6.7 percent overall for Sweden, but the cost of benefits for the aged has skyrocketed, owing to the relatively large fraction of Swedes who are now aged 65 or older.

In Canada, social expenditures grew from 1979 to 1994 and were targeted at the old and at the young. In particular, we note a large increase in the ratio of transfer to market income at older ages. This matches other recent evidence that Canada's male labor force participation rate has declined more rapidly over this period than in any of the other nations studied here (Quinn and Smeeding 1997; OECD 1996).

The United Kingdom offers the most interesting patterns of change in transfers across the life cycle over time. After a more than doubling of the transfers to market income ratio from 9.7 to 19.0 percent from 1974 to 1979, under Margaret Thatcher's influence, the ratio fell back to 16.3 percent by 1991. At younger ages, 1979 and 1991 look the same in Figure 4, while at older ages, 1974 and 1991 are similar. While the United Kingdom did not receive much of an antipoverty dividend from higher transfers between 1974 and 1979, the lowering of transfers from 1979 to 1994 was associated with a rise in overall poverty from 9.2 to 14.6 percent. Most of the decline in transfer beyond 1979 were absorbed by the aged whose poverty rates rose with the partial privatization of the United Kingdom social retirement system and the relatively meager level of lower-tier assured old age benefits that these reforms brought with it.

IV. A Synthetic Cohort Approach

A slightly different approach to the relative median income data is to analyze the relative fortunes of birth cohorts. Since the LIS surveys are not panels, and thus involve a different sample of households for different years, we continue to compare the relative median income within groups, but this time the age groups are all in the same five-year birth cohort. The results are displayed in Figure 5, based on the data in Appendix Table 2.

By choosing the particular birth cohort years shown, the adaptation of the United States data is straightforward. The 1920-24 birth cohort, for example, was aged 50 to 54 in 1974, aged 55 to 59 in 1979, and aged 70 to 74 in 1994, so the progress of that cohort can be inferred directly from Figure 2. For other countries, however, the age groups do not match up so exactly.

One can select from among several ways to display synthetic cohort results. What we show in Figure 5 is a comparison of the *actual* relative median income *in the most recent survey year* for the particular birth cohort to the relative median income of that *same age group in the previous survey year*. For the United States, the comparison is just an alternative depiction of the Figure 2 data: in Figure 2 we see that those aged 70 to 74 in 1994 had a higher relative median income than those aged 70 to 74 in the earlier surveys; in Figure 5, the same point is made by saying that those born between 1920 and 1924 had a higher relative median income in the 1994 survey than the comparable age group (aged 70 to 74) had in the earlier surveys. Because of different survey years, the relationship of Figure 2 to Figure 5 can be more complicated for other countries. In Sweden, for example, the 1920-24 birth cohort was aged 68 to 72 in the most recent survey year, 1992, so Figure 5 compares the relative median income of those aged 68 to 72 in 1992 to those aged 68 to 72 in the previous surveys.

Although the individual panels in Figure 5 may be considered as little more than a reinterpretation of Figure 2, the cross-national comparison in Figure 5, can be more directly employed to shed light on the question of whether certain birth cohorts have been *relatively* "fortunate" in different nations.

For example, one can make the following claim about the United States based on Figure 5: if persons born between 1920 and 1924 had predicted their relative median income in 1994 based on the relative median income of the aged 70 to 74 age group in 1974 or 1979, they would have underestimated their actual outcome, and the same underestimate characterizes every United States cohort born before 1955. For the United States, that result is a reinterpretation of the fact that the US94 curve in Figure 2 lies above the other two curves for every age group over age 40. In that sense, *all* of the United States cohorts born before 1955 have been "fortunate."

Looking at the other panels of Figure 5, we see that except for the Depression-era cohorts, the relatively "fortunate" experience of older cohorts is common in other countries also. The 1930-34 cohort was relatively "unfortunate" in both Canada (aged 60 to 64) and the United Kingdom (aged 57 to 61). The 1935-1939 cohort was likewise relatively "unfortunate" in the United Kingdom. The youngest cohort depicted in Figure 5, born between 1950 and 1954, was slightly more "fortunate" than the preceding survey would have predicted, except in Sweden.

In fact, the question of whether the pattern observed for older cohorts in the United States will persist for the younger cohorts of baby boomers as they age is a prime policy question. Continued analyses of this type with later data can help us answer this question.

V. Discussion and Future Research

Based on four nations, the LIS data offer a rich opportunity to explore the changing fortunes of age groups (and of cohorts) over time. Our next steps are to look more closely beneath these trends to separate the changes in living arrangements, retirement, marriage, and fertility which underlie the patterns we observe. Clearly, most of the action comes from economic and demographic changes at young and old ages.

Card and Lemieux (1997) find that, at earlier ages, Canadian youth responded to the deteriorating Canadian labor market of the late 1980s and early 1990s by living with their parents, while in the United States fewer youth returned to the parent's nest. These findings are entirely consistent with the relatively greater steepening of the age income profile in the United States versus Canada in Figures 1 and 2. The earnings related incentives for added years of education and their effect on emerging patterns of labor market participation are playing themselves out in each of these nations. The implications for the cost of education, choice of living arrangements, age at first

marriage, and fertility need to be further examined within each of these nations in the Easterlin tradition.

A second line of further inquiry deals with the transfer costs of an aging society. The ratio of transfers to market income have risen dramatically in Canada and in Sweden from age 55-59 onward in recent years. Like the United States, Canada and Sweden face a steep future cost of an aging society. Sweden is, in fact, well into the aging of their population while Canada and the United States are not going to feel the pressure for another decade or longer (Gruber 1997). However, the trend toward early retirement (and early take-up of social transfers) in Canada is much greater than in these other nations. The United States has, in fact, halted its decline in labor force participation for older men and is experiencing a slight reversal (Burkhauser and Quinn 1997). But while the Social Security spending implications of more work at older ages seem rosy for the United States, the effectiveness of the old age transfer system in preventing old age poverty in America is far less than in Canada (or in Sweden). The United Kingdom has managed to largely avoid a future old age retirement cost crisis by its two-tiered scheme whereby only the first tier depends on tax revenues to fund transfers, with the second tier of SERPS largely self-funded by retirees' own contributions. But the bad news of high and rising old age poverty rates in the United Kingdom emerges from this analysis.

As the United States faces a reform of its old age social transfer system, there is much to be learned from cross-national comparisons of transfer cost, social policy design and outcomes such as old age poverty rates. Can the United States reform its system to encourage greater market incomes (via higher savings rates, better occupational pensions, and increased market earnings) at older ages? Can it avoid the high social transfer costs of old age which will beset many other nations? The British seem to have achieved this avoidance of higher taxpayer cost, albeit at the price of rising oldage poverty rates. And so, unlike Britain, can the United States reform its old age Social Security system to avoid an increase in old age poverty, and perhaps like Canada, further reduce economic misery and poverty in old age? Further cross-national analyses along the lines suggested here may reveal a path for the United States Social Security system which produces both a slower growth in overall outlays and greater antipoverty effectiveness. If so, this line of research will be well worth the effort.

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Figure 1 Relative Median Income and Relative Poverty by Age of Household Head in the Early 90's for Four Nations





B. Relative Poverty²



Notes: ¹ Relative Income is the Adjusted Disposable Income of the household containing the median-income person in the age group relative to the Adjusted Disposable Income of the household containing the median-income person in the nation.

² Relative poverty is the poverty rate in the cohort, where a household's members are "poor" if the Adjusted Disposable Income of the household is less than half of the Adjusted Disposable Income of the household containing the median-income person in the nation.

Figure 2 Relative Median Income and Relative Poverty by Age of Household Head from the Early 70's to the Early 90's for Four Nations



35-39

40-44

¹ Relative Income is the Adjusted Disposable Income of the household containing the median-income person in the age group Notes: relative to the Adjusted Disposable Income of the household containing the median-income person in the nation. ² Relative poverty is the poverty rate in the cohort, where a household's members are "poor" if the Adjusted Disposable Income of the household is less than half of the Adjusted Disposable Income of the household containing the median-income person in the nation.

Figure 3 Ratio of Social Transfer Income to Market Income of Household Head by Age in the Early 90's for Four Nations



Note: The ratio of social transfer income to market income is computed as the ratio of the sums of total social transfers to market income within each age of head group.

Figure 4 Trend in the Ratio of Social Transfer to Market Income by Age of Household Head from the Early 70's to the Early 90's for Four Nations



Note: The ratio of social transfer income to market income is computed as the ratio of the sums within the age of head grour.

Figure 5 Relative Median Income by Birth Cohort of Household Head for Four Nations¹













Source: Luxembourg Income Study

Note: 1 Table

² Birth ³ CS1

Appendix Table 1 Generational Differences in Well Being: The Basic Data

		Canada				Sweden			UK		US			
	Age Group	1975	1981	1994	1975	1981	1992	1974	1979	1991	1974	1979	1994	
A. Relative Median Income ¹	<25	0.85	0.83	0.57	0.81	0.86	0.66	0.93	0.90	0.72	0.71	0.73	0.51	
	25-29	1.01	0.96	0.93	1.07	1.08	0.98	0.88	1.00	0.95	0.94	0.92	0.73	
	30-34	0.97	0.94	0.93	1.08	1.02	0.99	0.92	0.94	1.00	0.96	0.98	0.87	
	35-39	0.98	0.98	0.96	1.08	1.04	1.03	0.95	0.98	0.96	1.01	1.00	1.00	
	40-44	1.05	1.05	1.06	1.11	1.11	1.09	1.06	1.11	1.14	1.05	1.09	1.12	
	45-49	1.13	1.11	1.16	1.16	1.14	1.22	1.24	1.26	1.34	1.17	1.21	1.32	
	50-54	1.18	1.23	1.27	1.13	1.12	1.29	1.30	1.27	1.26	1.29	1.21	1.37	
	55-59	1.19	1.21	1.22	1.07	1.19	1.29	1.23	1.15	1.18	1.21	1.25	1.30	
	60-64	1.08	1.06	1.01	0.99	1.08	1.19	1.05	1.00	1.04	1.05	1.08	1.12	
	65-69	0.80	0.86	0.93	0.79	0.95	0.97	0.74	0.71	0.80	0.84	0.91	1.00	
	70-74	0.62	0.76	0.85	0.70	0.83	0.85	0.63	0.62	0.71	0.73	0.80	0.91	
	75+	0.57	0.62	0.73	0.59	0.72	0.67	0.58	0.57	0.61	0.62	0.66	0.77	
B Relative Poverty ²	~25	0.24	0.24	0.42	0.21	0.21	0.36	0.05	0.15	0.34	0.30	0.29	0.49	
D. Relative I over ty	25-29	0.11	0.13	0.12	0.03	0.04	0.04	0.08	0.10	0.18	0.16	0.18	0.31	
	30-34	0.11	0.12	0.14	0.03	0.05	0.05	0.00	0.08	0.14	0.16	0.16	0.22	
	35-39	0.13	0.12	0.14	0.03	0.03	0.02	0.07	0.00	0.13	0.13	0.15	0.18	
	40-44	0.10	0.09	0.12	0.02	0.05	0.02	0.07	0.04	0.09	0.14	0.11	0.14	
	45-49	0.09	0.08	0.09	0.03	0.05	0.03	0.03	0.01	0.07	0.10	0.12	0.10	
	50-54	0.10	0.09	0.07	0.04	0.05	0.04	0.03	0.04	0.09	0.10	0.11	0.10	
	55-59	0.12	0.09	0.10	0.04	0.05	0.03	0.04	0.07	0.12	0.12	0.13	0.12	
	60-64	0.16	0.14	0.16	0.06	0.04	0.03	0.09	0.10	0.12	0.19	0.16	0.16	
	65-69	0.24	0.19	0.06	0.08	0.01	0.03	0.22	0.16	0.16	0.22	0.20	0.16	
	70-74	0.32	0.17	0.04	0.08	0.01	0.05	0.26	0.19	0.20	0.28	0.24	0.18	
	75+	0.40	0.25	0.05	0.21	0.05	0.09	0.36	0.25	0.28	0.35	0.32	0.23	
Overall Average		0.14	0.13	0.12	0.07	0.05	0.07	0.09	0.09	0.15	0.16	0.17	0.19	
C. Social Transfers	<25	0.06	0.06	0.22	0.15	0.26	0.41	0.03	0.20	0.19	0.05	0.04	0.08	
and Market Income ³	25-29	0.06	0.06	0.11	0.16	0.25	0.33	0.02	0.11	90.0	0.04	0.03	0.05	
und Market Income	30-34	0.06	0.05	0.10	0.12	0.23	0.33	0.02	0.12	0.08	0.03	0.03	0.03	
	35-39	0.00	0.05	0.10	0.12	0.18	0.26	0.02	0.12	0.09	0.03	0.03	0.04	
	40-44	0.07	0.05	0.08	0.12	0.10	0.20	0.03	0.11	0.07	0.03	0.03	0.04	
	45-49	0.06	0.05	0.07	0.09	0.14	0.15	0.03	0.08	0.06	0.03	0.04	0.03	
	50-54	0.07	0.05	0.08	0.10	0.15	0.15	0.03	0.08	0.08	0.04	0.04	0.04	
	55-59	0.07	0.06	0.09	0.17	0.22	0.26	0.06	0.10	0.11	0.05	0.05	0.05	
	60-64	0.09	0.09	0.22	0.31	0.56	0.66	0.11	0.22	0.21	0.11	0.08	0.14	
	65-69	0.44	0.48	0.71	1.72	3.11	3.32	0.56	0.84	0.69	0.48	0.50	0.46	
	70-74	0.77	0.74	1.05	3.63	5.09	6.21	0.83	1.28	0.79	0.76	0.71	0.71	
	75+	1.01	0.89	1.27	6.40	5.89	7.89	1.12	1.64	1.09	1.06	1.02	1.02	
Overall Average		0.10	0.10	0.17	0.27	0.41	0.49	0.10	0.19	0.16	0.09	0.09	0.11	

Source: Luxembourg Income Study Notes:

¹ See Figures 1 and 2

² see Figures 1 and 2 ³ see Figures 3 and 4

Appendix Table 2

Synthetic Cohorts: The Basic Data on Relative Median Incomes of a Birth Cohort in a Given Year to the Same Age Group in the Previous Survey Year¹

Canada						Sweder	1			UK			US			
Birth Cohort	Age Group	1975	1981	1994	Age Group	1975	1981	1992	Age Group	1974	1979	1991	Age Group	1974	1979	1994
1920-24	70-74	0.62	0.76	0.85	68-72	0.71	0.85	0.90	67-71	0.67	0.69	0.77	70-74	0.73	0.80	0.91
1925-29	65-69	0.80	0.86	0.93	63-67	0.84	0.96	1.03	62-66	0.95	0.84	0.96	65-69	0.84	0.91	1.00
1930-34	60-64	1.08	1.06	1.01	58-62	1.02	1.15	1.27	57-61	1.17	1.11	1.09	60-64	1.05	1.08	1.12
1935-39	55-59	1.19	1.21	1.22	53-57	1.13	1.16	1.29	52-56	1.31	1.24	1.24	55-59	1.21	1.25	1.30
1940-44	50-54	1.18	1.23	1.27	48-52	1.15	1.17	1.27	47-51	1.28	1.30	1.32	50-54	1.29	1.21	1.37
1945-49	45-49	1.13	1.11	1.16	43-47	1.13	1.13	1.17	42-46	1.13	1.17	1.25	45-49	1.17	1.21	1.32
1950-54	40-44	1.05	1.05	1.06	38-42	1.09	1.09	1.06	37-41	0.97	0.99	1.03	40-44	1.05	1.09	1.12

Note: ¹ Age groups are the ages achieved by the birth cohort in the most recent survey.