Research Article

Cumulative Advantage, Cumulative Disadvantage, and Evolving Patterns of Late-Life Inequality

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Abstract

Purpose of the Study: Earlier studies have identified a pattern of cumulative advantage leading to increased within-cohort economic inequality over the life course, but there is a need to better understand how levels of inequality by age have changed in the evolving economic environment of recent decades. We utilized Survey of Income and Program Participation (SIPP) data to compare economic inequality across age groups for 2010 versus 1983–1984. **Design and Methods:** We examined changing age profiles of inequality using a summary measure of economic resources taking into account income, annuitized value of wealth, and household size. We adjusted for survey underreporting of some income and asset types, based on National Income Accounts and other independent estimates of national aggregates. We examined inequality by age with Gini coefficients. **Results:** Late-life (65+) inequality increased between the 2 periods, with Gini coefficients remaining higher than during the working years, but with a less steep age difference in inequality in 2010 than in 1983–1984. Inequality increased sharply within each cohort, particularly steeply in Depression-era, war-baby, and leading-edge baby boom cohorts. The top quintile of elderly received increasing shares of most income sources. **Implications:** Increasing inequality among older people, and especially in cohorts approaching late life, presages upcoming financial challenges for elderly persons in the lower part of the income distribution. Implications of this increasingly high-inequality late-life environment need to be carefully evaluated as changes are considered in Social Security and other safety-net institutions, which moderate impacts of economic forces that drive increasingly disparate late-life economic outcomes.

Keywords: Income, Wealth, Inequality, Social Security

Purpose of the Study

Establishing effective and equitable retirement income institutions is a central challenge for all developed societies. In the United States, substantial and increasing shares of governmental resources are devoted to this goal. These include Social Security Old Age and Survivors Insurance (projected at $772 billion in 2016, about 19% of federal spending and 4.1% of GDP) and other pension payments (Congressional Budget Office, 2015). They also include substantial indirect support through tax expenditures (e.g.,

preferential tax treatment of private pensions and individual retirement accounts), projected at $161 billion in forgone federal tax revenues in 2016 (Joint Committee on Taxation, 2014). Nevertheless, late-life economic inequality remains a challenge, particularly given overall increased income inequality in the population documented by Piketty (2014) and others. Although public attention to rising income inequality has increased considerably, the distinctive impact of these trends across age groups, and implications for retirement income policy, has received much less

attention. Retirement income policy debates have focused less on inequality than on effects of population aging on benefit programs. However, age-specific impacts of growing inequality need to be better understood. In the present study, we examine this question, replicating an earlier study of inequality by age in the mid-1980s with data from the same source for 2010. We investigate evolving age profiles of inequality, examining changes in inequality both after age 65 and across the age spectrum.

The Cumulative Advantage Model

In a line of work beginning in the 1980s, Crystal and Shea utilized the term "cumulative advantage and cumulative disadvantage" to describe processes by which the effects of early economic, educational, and other advantages can cumulate over the life course (Crystal, 1986, 2006a, 2006b; Crystal & Shea, 1990a, 1990b, 2003b; Crystal, Shea, & Krishnaswami, 1992; Crystal & Waehrer, 1996). Initially, the process of diverging outcomes over the life course, leading to highly disparate late-life circumstances, was described as the "two worlds of aging" phenomenon (Crystal, 1982, 1986). In a series of papers beginning in 1990, Crystal and Shea (1990a, 1990b) introduced the term "cumulative advantage and disadvantage" to describe this process, in a theoretical model that described and examined the process of production of disparate life outcomes as one of iterative interaction of initial advantages and societal institutions over the life course. The term "cumulative advantage" has become a widely used shorthand for "cumulative advantage and disadvantage"; some authors use the "cumulative (dis) advantage" terminology (Bennett & Mohring, 2015). We use the "cumulative advantage" (CA) locution in the current paper, while noting that careful attention is needed to both sides of the advantage/disadvantage coin, and to a broader perspective on "disadvantage" than is reflected, for example, in studies focusing on the population below the traditional poverty line. Attention to broader distributional questions, such as the well-being of less-advantaged income quintiles, is important because many older people cluster just above official poverty status, and poverty lines do not take account of the contribution of assets to economic well-being.

The CA model focuses on the ways in which early-life advantages and disadvantages persist into late life, despite the many intervening contingencies and random life events. Indeed, rather than attenuating over time, economic effects of early advantages are often magnified over the life course (Crystal, 1982; Crystal & Shea, 1990a; Crystal et al., 1992). For example, careers available to the more-advantaged and better-educated differ even more sharply by their greater opportunities for growth in skills and compensation over time, and by benefits such as pension entitlement, than by their initial compensation.

Since 1990, multiple papers in the gerontological literature (e.g., Dannefer, 2003; Dannefer & Settersten, 2010; O'Rand, 1996) have explored the CA perspective, often

applying it to health and mental health outcomes. Studies have examined cumulative disparity in general measures of health and socioeconomic status (Deaton & Paxson, 1998; Pampel & Rogers, 2004; Ross & Wu, 1996; Willson, Shuey, & Elder, 2007); long-term effects of early obesity (Ferraro & Kelley-Moore, 2003); and disparate mental health outcomes (Shrira & Litwin, 2014). Indeed, CAs in health and in economic resources are intertwined (Deaton and Paxson, 1998; Ferraro & Shippee, 2009; O'Rand, 1996, 2002, 2003). For example, individuals with lower levels of schooling are several times more likely than the well-educated to experience work disability by their 50s (Crystal & Shea, 2003b), further contributing to late-life inequalities. In the United Kingdom, work by Kuh, Head, Hardy, and Wadsworth (1997) has shown that early educational achievement was strongly determinative of midlife earnings for women born in the early postwar period. Income inequality itself has also been argued to contribute to poor health outcomes; Ben-Shlomo, White, & Marmot (1996) found that the degree of socioeconomic variation within communities in England was predictive of lower life expectancy, and Wilkinson (1992) has argued that in the developed world, income distribution is a more important predictor of national life expectancy rates between countries than is simply mean income.

The term "cumulative advantage" has also been increasingly employed since the early 1990s in the broader sociological literature, taking on multiple meanings going beyond its original application to scientific careers by Merton under the label "Matthew effect" to a range of life course processes including cumulative disadvantages associated with early involvement in the criminal justice system; neighborhood concentration of poverty; and disparities in school quality (DiPrete & Eirich, 2006; Giudici & Pallas, 2014; Zimmer & House, 2003). DiPrete and Eirich summarize recent sociological theorization formalizing, via alternative mathematical specifications, alternative forms of CA processes. They note that although there was limited attention to the role of CA in the broader labor market before the 1990s, the theory has been applied in a number of more recent studies addressing wealth accumulation, gender and race disparities, and careers within corporations, among others.

Cumulative Advantage, Social Change, and Policy Choices

The CA model proposed by Crystal and Shea focused on persistent processes within individual life courses but also emphasized that these processes are moderated by changing societal institutions (Crystal & Shea, 2003a). The evolving gerontological literature on CA, however, has generally paid little attention to the role of social change. Reviewing this literature in 2003, for example, Dannefer noted, "It is no accident that the discussion of CAD here and elsewhere has been conducted with virtually no reference to the theme—so familiar in social gerontology and studies of the lifecourse—of social change. Rather, its

primary analytical task is to understand the relatively stable social processes that operate faithfully on each succeeding cohort" (Dannefer, 2003). Thus, the paradigmatic view of the CA process in the gerontological literature was seen as "a logic of obdurate social tendencies… that are quite resistant to change."

This tendency has often made analyses in the CA tradition uneasy partners with considerations of social change. As Riley and Riley (1999) noted in their work on cohort differentiation, inadequate attention to impacts of changing social structures has often led to the "fallacy of cohort-centrism: that is, erroneously assuming that members of all cohorts age in the same fashion as members of the cohort under scrutiny." As Riley has insisted, "Each new cohort, starting its life course at a unique point in time, has unique characteristics because of the particular historical events undergone…Hence the sequence of cohorts, marked by the imprint of history…is inextricably involved in societal processes of stability and change" (Riley, Johnson, & Foner, 1972). Thus, there is a need to stretch the conventional CA paradigm beyond its traditional focus on within-cohort processes in the context of underlying stable life course dynamics and examine empirically evolving age patterns of economic inequality. Understanding these changes provides needed context for policy choices and their likely impact in buffering or exacerbating disparities over the life course. In addition to examining changes in late-life inequality, it is important to examine evolving patterns of midlife inequality because many policymakers assume that it will ultimately be necessary to reduce Social Security benefits for the cohorts following the baby boomers, to bring the system into balance. These cohorts are assumed to have more opportunity to plan for prospective changes than currently retired individuals. However, because Social Security benefits constitute a major part of the total income stream for older individuals in the lower part of the income distribution, these individuals are likely to be particularly vulnerable to benefit changes. Thus, examining evolving patterns of inequality for midlife age groups that will constitute the older population in coming decades is critical.

Life Course Inequality in a Changing Economic Environment

In hindsight, the four decades following the Second World War were a time of broader distribution of the benefits of economic growth than either earlier or later periods. For example, Piketty (2014) and Saez (2013) used income tax data on the overall U.S. population to show that the income share of the bottom 90% was quite stable during the post–World War II period up to the early 1980s, and markedly greater than the pre-1940 period. Beginning in the 1980s and continuing to the present, however, there has been a steady increase in overall inequality, with the income share of the bottom 90% of the all-ages population estimated to have declined from the prevailing level of

the earlier postwar period (approximately 65%) to about 50%. After a slight dip in 2007–2009 during the recession, the trend to increased disparity resumed in 2010. By 2012, the income share of the top 10% slightly exceeded its previous peak in 1928, during the stock market bubble of the "roaring" 1920s (Saez, 2013). Thus, the mid-1980s period examined by Crystal and Shea (1990a) appears to have been one in which the forces driving inequality were somewhat moderated.

Although Piketty and Saez addressed the overall population rather than specific age groups or cohorts, they and other scholars have convincingly demonstrated the overall increase in income inequality in the population at large. However, there has been surprisingly little specific attention to the differential impact of these changes across age groups, the focus of the current paper. Given the general growth in inequality in labor market outcomes, what pattern of change would be expected in the retirement-age population? On one hand, the close link of retirement benefits to preretirement earnings histories in the United States, compared with many other developed countries (Mohring, 2015; Whitehouse & Disney, 2003; Wolff, 2003), would suggest that increases in old-age inequality would track those at preretirement ages. On the other hand, old-age inequality trends may have been buffered by safety-net benefits, and cohorts currently making up the 65+ population may have benefited from opportunities to establish the earlier part of their career trajectories in a less unequal era.

Some work suggests that the economic path for these cohorts has differed in favorable ways from that for younger households. For example, Wolff (2010) notes that wealth shifted from younger to older households over the 1983–2007 period; Wolff and Zacharias (2009) argue that both income and wealth were somewhat protected for the elderly relative to the nonelderly during that period. Thompson and Smeeding (2013) and Kenworthy and Smeeding (2013) argue that the late-2000s recession affected nonelderly more than elderly because income sources that predominate among the elderly, such as Social Security, were less severely affected than employment income. Ben-Shalom, Moffitt, and Scholz (2011) note that U.S. antipoverty programs have been increasingly directed toward the elderly (and the disabled) and away from the young. Reversal of earlier trends toward earlier retirement may have buffered the recession's impact on older people; Kenworthy and Smeeding (2013) find employment actually increased throughout the late-2000s recession among higher-skilled elderly, partly due to reluctance to retire.

However, growing disparity in economic outcomes by level of education can have cumulative effects over the life course (Crystal et al., 1992). Further, because wage and salary income is more fully reported in surveys than unearned income, old-age inequality can easily be underestimated if this factor is not accounted for. As well, the landscape of retirement institutions has been evolving, with fewer workers eligible for traditional defined-benefit pensions and an

increasing role of other vehicles such as individual retirement accounts (Johnson, Sambamoorthi, & Crystal, 2003). Thus, trends in late-life inequality, relative to other age groups, are subject to multiple, potentially countervailing societal changes.

Cumulative Advantage and Late-Life Inequality in the Mid-1980s

Examining late-life inequality in the mid-1980s, Crystal and Shea (1990a) examined inequality in economic resources across age groups and the role of specific income sources in these patterns, using Survey of Income and Program Participation (SIPP) data. SIPP elicits considerably more-detailed information on income than the Current Population Survey, and detail on asset holdings by type (U.S. Census Bureau, 2013). SIPP's large random sample of the all-ages population, repeated in a stable manner for decades, is a key source for analysis of long-term income-distribution trends.

Crystal and Shea noted that economic inequality had been widely assumed to narrow in the retirement years (Fuchs, 1984) because wage and salary income provides a declining share of overall income as individuals move from working to retirement life stages, whereas income from Social Security—designed to be at least modestly redistributional—provides an increasing share. However, they found income inequality was actually higher after age 65 than at any earlier age, with equalizing effects of Social Security more than outweighed by income from investments, pensions, and other sources. This finding held true across several income concepts, including the most comprehensive construct, which used the annuitized value of asset holdings to take account of the contribution of assets to economic well-being.

Design and Methods

In the present analysis, we replicate Crystal and Shea's analysis of 1983–1984 SIPP data with SIPP data from 2010 (U.S. Census Bureau, 2013), to examine how distribution of economic resources by age changed since the mid-1980s. We hypothesized that, despite the many changes since the earlier period, inequality would remain higher after age 65 than among nonelderly adults. We used data on all 67,998 individuals present for the full year of SIPP surveys in 2010. Following the methods used in Crystal and Shea (1990a, 1990b), we examined inequality across age groups, utilizing a summary measure of economic resources accounting for both the contribution of income and of wealth to overall economic well-being. This approach recognizes that economic well-being differs considerably between two individuals with the same realized income but greatly different levels of assets, even if the individual does not choose to realize income from assets in a given year.

The measure of economic resources for both time periods also takes account of household size and of underreporting of some income and asset types well known to occur in survey data, including SIPP. An underreporting adjustment factor was applied to each income and asset type, such that the aggregated total for the population is adjusted to match the best available independent estimates of the aggregate national totals. These included the National Income and Product Accounts, Internal Revenue Service and Survey of Consumer Finances asset estimates, and administrative data from the U.S. Department of Health and Human Services. Details are provided in the Supplementary Appendix. For each individual, we compute the sum of adjusted household income across sources, excluding asset-derived income (interest and dividends) to avoid double-counting with the annuitized value of assets component. This component reflects the amount that would be realized if assets were spent down each year to produce realized income based on life expectancy. For both time points, 70% (rather than 100%) of home equity is included in this calculation because home equity is not fully liquid. This also approximates the imputed rent value of home equity as well as the proportion typically accessible through home equity loans or reverse mortgages. Total household income, excluding asset-derived income, and including the annuity of wealth, is then adjusted for household size using the equivalency scales implicit in federal poverty lines (U.S. Census Bureau, 2010). We then compare age profiles of adjusted-income inequality in 2010 versus 1983–1984. We assess inequality with Gini coefficients and shares of income held by each quintile. The Gini coefficient measures the divergence of the income distribution from equality, on a scale from 0 (*all individuals have equal income*) to 1 (*all income is received by one individual*). Among those aged 65+, we examine percentage of each income source received by each quintile as well as the profile of each quintile's income by source, and the changing demographic profiles of the lowest and highest quintile.

Results

Figure 1 compares the Gini ratio for asset-adjusted household income for nine age groups in 1983–1984 and 2010. The upper dashed line shows the inequality level in 2010,
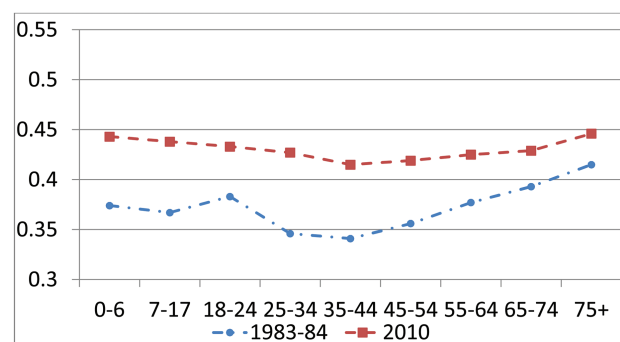

Figure 1. Gini coefficient by age, 1983–1984 and 2010.

and the lower dot-dash line the inequality level in 1983–1984. At both time points, inequality was not diminished after age 65, and indeed continued to be somewhat higher than in the prime working years of 35–54, although the differential was lower in 2010 than in the earlier period. The entire inequality curve shifted upward, with inequality higher at any given age in 2010 than in 1983–1984. In cross-sectional age comparisons, inequality increased further from the 65–74 to the 75+ age group. Across age groups, the lowest level of inequality in 2010 (age 35–44) was higher than the highest level in 1983–1984 (age 75+). The dip in Gini coefficients during prime working years was less prominent in 2010 than in 1983–1984, reflecting especially sharp increases in inequality within the working-age population.

The complementary lens of a cohort perspective provides further insight. To this end, Figure 2 adds diagonal solid lines that illustrate how each cohort experienced change in inequality over the 27 years between the repeated SIPP surveys. The diagonal solid lines connect the levels of inequality experienced in 1983–1984 and in 2010 for each cohort (those with approximately the same range of birth years). For example, the group aged 0–6 in 1983–1984 reached ages 27–33 in 2010; a diagonal solid line connects the inequality level for this cohort to the 25–34 age group in 2010. Although there is a slight misalignment at the edges of the age ranges, this provides a reasonable approximation for the cohort experience. The steepest slopes (sharpest increases in inequality) were experienced by the cohorts that reached ages 65+ by 2010 (born generally during the Great Depression and World War II) and those reaching ages 55–64 in 2010 (leading-edge baby boomers). These cohorts had experienced relatively lower levels of income inequality in their prime working year than experienced by prime working-age individuals in the current period, but then experienced sharp increases in inequality as they aged. In contrast, cohorts aged 25–54 in 2010 (generally, trailing-edge baby boomers) experienced a very high-inequality economic environment throughout their adult life, beginning at younger ages.

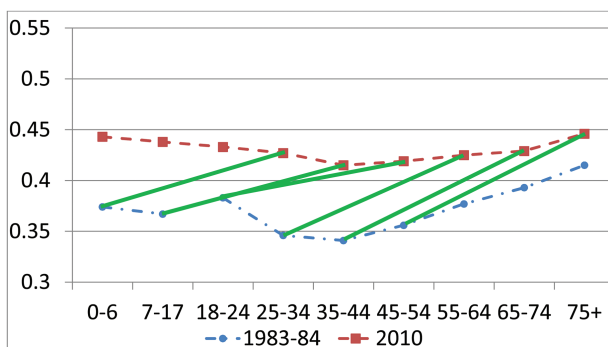Table 1 provides further detail on inequality across age groups and changes in inequality between 1983–1984 and

2010. The table shows Gini ratios and income shares of the bottom 40% and top 20% of the population. The bottom 40%'s share declined from 17% at ages 65–74 and 15% at ages 75+ to 14% in both age ranges, whereas the top quintile's share increased from 46% to 48% for those aged 65–74 and from 47% to 50% for those 75+. Gini ratios increased from 0.393 to 0.429 at ages 65–74, and from 0.415 to 0.446 for those 75+, strikingly high levels from a cross-national perspective (Whitehouse & Disney, 2003).

Tables 2 and 3 examine income trends by source, to shed light on factors driving change in income distribution. Table 2 examines the proportion of each income source received by members of each quintile. The top quintile received an increasing share of each income source over the time period, except for state and local pension income. They increased their share of Social Security income from 23% to 27%; of wage and salary income from 49% to 65%; and of private pension income from 37% to 41%. Although Social Security income is indeed more equally distributed than total income—thus exercising a moderately redistributive effect—high-income individuals nevertheless received more than twice the share of this source as the lowest quintile. The increase in the share of wage and salary income going to the top quintile may reflect increasing salary disparity as well as increased opportunities for successful, well-educated individuals to continue well-compensated work past age 65. Other research shows these individuals are much less likely than others to suffer preretirement-age work disability for health reasons (Bureau of Labor Statistics, 2014).

Table 3 shows the share of the overall income stream provided by each source in 2010, by quintile. (These results are shown only for 2010 as they were not calculated in the earlier analysis.) Although their share of Social Security income declined to 14%, the lowest quintile nevertheless depended predominantly on Social Security, representing 65.5% of their income. For the next lowest quintile, Social Security also represented a majority (50.4%) of income. These quintiles would clearly be disproportionately affected by potential future changes in scheduled benefit levels.

For persons in the highest quintile, the proverbial three-legged stool of retirement income (Social Security, pensions, investments) appears strong. This group received 18.1% of its income from Social Security and 9.9% from pensions, with annuitized assets equivalent to 40% of adjusted income. The top quintile also had an important "fourth leg of the stool," with 21% coming from wages and salaries. The stool for the lowest quintile has essentially has just one solid leg, Social Security. Supplemental Security Income (SSI) plays only a very limited role, accounting for 7.1% of income, whereas all other sources play only a modest role, with imputed asset income (primarily from home equity) at 12.3% of the total and wage and salary income at 5.4% of the total constituting the only other significant sources.

Table 4 shows the demographic composition of the upper and lower quintiles of elderly, and the total elderly

Figure 2. Cohort inequality change, 1983–1984 to 2010.

Table 1. Gini Coefficients and Income Shares of Quintiles by Age Group

	Age group								
	0–6	7–17	18–24	25–34	35–44	45–54	55–64	65–74	75+
Gini, 1983–1984	0.374	0.367	0.383	0.346	0.341	0.356	0.377	0.393	0.415
Gini, 2010	0.449	0.444	0.436	0.430	0.418	0.421	0.426	0.429	0.446
Income share of bottom 40%, 1983–1984	16%	17%	16%	18%	18%	18%	17%	17%	15%
Income share of bottom 40%, 2010	13%	13%	13%	14%	14%	14%	14%	14%	14%
Income share of top 20%, 1983–1984	42%	42%	43%	40%	40%	41%	43%	46%	47%
Income share of top 20%, 2010	49%	49%	48%	47%	46%	46%	47%	48%	50%

Table 2. Income Sources by Quintile

Percentage of income source received by quintile among 65+, 2010

	SSI	Social Security	Private pension	Wage and salary	Annuitized asset income	State and local pension	Total income
Quintile							
Lower	48%	13%	2%	1%	2%	2%	5%
Second	26%	17%	9%	5%	6%	8%	9%
Third	16%	20%	19%	11%	10%	19%	15%
Fourth	6%	23%	29%	18%	20%	27%	23%
Upper	4%	27%	41%	65%	62%	44%	49%

Percentage of income source received by quintile among 65+, 1983–1984

	SSI	Social Security	Private pension	Wage and salary	Annuity	State and local pension	Total income
Quintile							
Lower	70%	14%	2%	2%	2%	1%	6%
Second	17%	20%	11%	8%	7%	5%	11%
Third	8%	21%	23%	16%	13%	12%	16%
Fourth	3%	22%	28%	25%	22%	31%	22%
Upper	2%	23%	37%	49%	57%	53%	46%

Note. SSI = Supplemental Security Income.

population, in each time period. The upper quintile became increasingly male (50% to 56%); married or divorced (48% to 80%) rather than widowed or never-married; and increasingly college-educated (44% to 76%), with a dramatic decline in the proportion with only elementary education (16% to 1%). Self-rated health improved in both quintiles. For the lowest quintile, the proportion Hispanic doubled to 10% and the proportion with college education quadrupled, to 28%. The proportion divorced more than doubled, to 17%. Despite general increases in schooling, the lowest quintile continued to include significant representation (23%) of individuals with only elementary school education.

Implications

Economic inequality was higher in 2010 than in the mid-1980s, at every age. At ages 65+, the least well-off 40% shared only 14% of total adjusted income by 2010, suggesting that the "two worlds of aging" phenomenon (Crystal, 1982) persists, with even greater disparities between prosperous and penurious elderly. From an age perspective, inequality continued to be higher after age 65 than during the prime working years (ages 35–54), although the differential narrowed.

Implications are perhaps most clearly seen from a cohort perspective. As Figure 2 highlights, the cohorts constituting the elderly population in 2010 had experienced sharp life course increases in within-cohort inequality. Results highlight the economic vulnerability of those in the lower part of the 2010 income distribution among the elderly, and their reliance on Social Security. Although the general pattern of CA over each cohort's life course persisted, the process was more than simply a stable tendency over time. Rather, CA processes have evolved in a changing fashion from cohort to cohort as the external economic and social environment changes, generating an even steeper experience of increasing inequality

Table 3. Distribution of Income Sources

Percentage of income from each source by quintile among 65+

	SSI	Social Security	Private pension	Wage and salary	Annuitized asset income	State and local pension
Quintile						
Lower	7.1%	65.5%	1.5%	5.4%	12.3%	0.9%
Second	1.4%	50.4%	4.7%	12.5%	20.4%	3.1%
Third	0.5%	36.9%	6.8%	17.2%	24.1%	4.7%
Fourth	0.1%	29.8%	7.3%	16.4%	30.4%	4.8%
Upper	0.1%	18.1%	5.5%	21.0%	41.8%	4.4%

Note: SSI = Supplemental Security Income.

Table 4. Demographic Profile by Quintile

Characteristic	Upper quintile, 1983–1984	Upper quintile, 2010	Lower quintile, 1983–1984	Lower quintile, 2010	Elderly population, 1983–1984	Elderly population, 2010
Age						
65–69	34%	36%	25%	28%	33%	32%
70–74	24%	24%	29%	24%	28%	24%
75–79	19%	17%	23%	20%	19%	19%
80 and older	23%	23%	23%	28%	19%	26%
Mean age	73.7	73.4	74.4	74.7	73.3	74.1
Female	50%	44%	71%	68%	59%	57%
Marital status						
Married	68%	74%	30%	31%	54%	56%
Widowed	24%	16%	51%	39%	35%	28%
Divorced	2%	6%	8%	17%	5%	11%
Separated	0.4%	0.50%	3%	3%	1%	1%
Never married	6%	2%	8%	8%	6%	4%
Household composition						
Living alone	15%	16%	58%	56%	32%	31%
Mean household size	2.06	2.00	1.67	1.75	1.93	1.97
Health status						
Excellent	16%	17%	5%	4%	9%	9%
Poor	9%	3%	34%	12%	18%	7%
Race						
White	97%	93%	77%	74%	91%	85%
Black	2%	3%	21%	19%	8%	10%
Hispanic[a]	2%	2%	5%	10%	3%	5%
Education						
College	44%	76%	7%	28%	21%	49%
Elementary	16%	1%	53%	23%	33%	10%

Note: [a]Can be of any race.

within aging cohorts than would have been the case in a more stable environment. More recent cohorts have experienced declining job opportunities for less-educated workers; an increasingly services-oriented economy with fewer well-paying industrial jobs bearing good benefits; decreased family stability in lower-income social strata; and an increasing trend for higher-status men and women to marry one another, among other changes. Structural shifts in retirement income systems, such as the move from defined-benefit to defined-contribution pension arrangements, have also impacted retirement prospects of lower-wage workers (Gonyea, 2007).

For retirement income policy, perhaps the most salient findings concern the cohorts who were in their prime working years in 2010. Compared with those at similar ages 27 years earlier, these individuals experienced a "winner take all, devil to the hindmost" economic experience to a degree not been previously seen in the United States since the 1920s' "Gilded Age" (Piketty, 2014). By midlife, these cohorts experienced substantially higher income

inequality than for individuals at midlife in the 1980s, presaging very high levels of inequality in their retirement years. Particularly striking is that by 2010, the proportion of total adjusted income received by those in the lowest 40% of the income distribution had declined to 14% in each of the three midlife age groups, those aged 35–44, 45–54, and 55–64, who will reach retirement age in the coming decades.

Our results further indicate that members of both the lowest and second-lowest quintiles among those 65+ relied on Social Security for the majority of their support, even when accounting for annuitized assets—a pattern unlikely to change for upcoming cohorts reaching late life. These cohorts would bear the brunt of most Social Security "reform" proposals, as they are assumed to have sufficient planning time to adjust to reduced future benefits. However, the high level of inequality they are already experiencing raises serious questions regarding the ability of those in the lowest two quintiles to absorb reductions without serious threat to income adequacy. Projected shortfalls in the Social Security trust fund and other competing claims on constrained federal tax revenues (which declined from 28.4% to 25.4% of GDP between 2000 and 2013, 28% below the OECD average) place continuation of current-law benefit levels at risk (OECD, 2014). Proposals to close the gap through revenue enhancements—for example, extending Social Security payroll taxes farther up the income scale—have met strong opposition. Given constrained federal revenues, maintaining current benefit levels will be challenging. In considering alternative solutions to Social Security financing dilemmas, it is important to consider likely impacts on those in the lower part of the income distribution.

Given the disparate health trajectories identified by studies in the CA tradition, lower-income quintiles would also likely be disproportionately affected by potential Medicare and other health care cost containment initiatives shifting costs and financial risks to patients, such as recurring proposals to move toward "defined-contribution" models. Persistent late-life inequality provides important context on recurring "generational equity" debates that still often pit age groups against one another in struggles over "entitlements" as though they were homogeneous groups, with little attention to inequities *within* age groups.

Past longitudinal studies (e.g., Crystal & Waehrer, 1996) have documented the tendency toward increasing inequality within each cohort as it moves through the life course, similar to the pattern observed in our current results, suggesting that the high-inequality cohorts currently in midlife will likely experience further increases in inequality as they enter old age. In addition to wage stagnation, other societal changes, such as evolving patterns of family structure, portend additional stress for these cohorts, especially less well-off members, as they age. For example, increasing proportions have remained unmarried, with marriage and divorce trends diverging by education (Cherlin, 2010). From 1999 to 2010, suicide rates for adults aged 35–64 increased

by 28.4%, while remaining stable for other age groups (CDC, 2013). National Health Interview Survey data indicate that after a substantial decline in self-reported poor/fair health at midlife in the 1980s and early 1990s, this trend subsequently reversed (Martin, Freedman, Schoeni, & Andreski, 2009). Younger cohorts are also carrying more educational debt, even as college education has become a near-necessity (though far from a guarantee) for reaching the higher quintiles. Although retirement income prospects are bright for those in the top quintile of these cohorts, less-advantaged quintiles likely face a more difficult financial future.

Overall, results support the continued relevance of the CA perspective in understanding economic well-being over the life course and into late life. Increases in inequality observed among members of each cohort as it has aged, and persistently high inequality in late life, speak to the continuing pattern by which early advantages and disadvantages have effects that persist, and indeed are magnified, over the life course. These results are not, however, best understood as a simple story of CA as a stable life course phenomenon operating in the same fashion for each cohort. Rather, they demonstrate features both of persistence and change. The pattern of overall outcomes emerges through the interaction of individual life course processes on the one hand, and economic and institutional environments and structures including retirement income systems on the other (Crystal, 1982; Crystal & Shea, 1990a; O'Rand, 1996; Riley and Riley, 1999). Differing retirement income systems can create quite different patterns of outcomes, as illustrated in the varied patterns of late-life inequality across nations (Crystal & Siegel, 2009; Siegel et al, 2009; Whitehouse & Disney, 2003).

Within nations, secular change in economic and institutional environments generates changing inequality patterns over time. This highlights the need to take social change into account in understanding CA processes, and in evaluating public policies' roles in buffering market forces. Policy choices, including those for retirement income programs, taxation, and health care and higher education financing, interact with the evolving economic environment and life course processes to determine the degree of economic security experienced by older people.

In sum, patterns of inequality from the mid-1980s to 2010 demonstrate both continuity and change. Inequality continued to increase within each cohort as it ages, with particularly steep increases among the Depression-era, war-baby, and leading-edge baby boomer cohorts. Cross-sectionally, the profile of inequality by age shifted upward, with a lower slope between the working and retirement years because of the very sharp increases in inequality experienced in the cohorts that will constitute the older population in coming decades.

A limitation of the results, as with most survey-based research on income inequality, involves the challenge in fully capturing the extreme right-hand tail of the income distribution.

SIPP provides a broad picture of developments in income distribution in the population, but capture of income and

assets for those in the very top of the income distribution is likely incomplete, as with most other available survey data sets. Given well-documented increases in income and asset concentration at the very top of the distribution, under-capture of this group might result in underestimation of the trend toward increased late-life inequality.

Bringing age and cohort perspectives to the issue of rising inequality has important implications for both theory and policy. From a theoretical perspective, the current analysis highlights the importance of understanding CA processes in a dynamic framework that takes account of social change. The evolving pattern of inequality demonstrates aspects both of stability—in the persistent influence of CA processes contributing to widening disparities in outcomes over each cohort's life course—and change, in the evolving influence of disruptive developments in the economic and social environment. These latter forces contribute to increasingly disparate labor market outcomes generally, and to increasing disparities in postretirement income, in a retirement income system in which retirement resources are closely linked to preretirement earnings and asset accumulation.

From a policy perspective, results highlight the importance of carefully considering impact on lower-income elders as changes in retirement income and health financing policies are considered. For the cohorts who will make up the 65+ population in the 2020s and beyond, the net balance of forces favoring a more equal distribution of retirement-age income—such as the moderately redistributional U.S. system of Social Security retirement benefits—and of those favoring inequality, has shifted toward the latter. Those in the lower part of the income distribution will face increased economic pressure at the same time that population aging puts new pressure on "entitlement" programs such as Social Security and Medicare. As policy options to address these pressures are considered, it is important to bring to the debate a gerontologically informed perspective that takes account both of the CA processes leading to high late-life inequality, and the impact of economic changes that further exacerbate the challenges of inequality for current and upcoming cohorts of older people. This perspective highlights the continued and, indeed, increased importance of safety-net policies for the large cohorts approaching their retirement years, even as population aging places increased pressures on these institutions.

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Supplementary Material

Please visit the article online at http://gerontologist.oxford-journals.org/ to view supplementary material.

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