



The Hennepin County Aging Initiative

Research highlights: Aging, retirement assets and the economy

This synopsis of published research about aging, retirement assets and the economy was produced as part of Hennepin County's Aging Initiative. The Aging Initiative was created to help the county anticipate and understand the potential effects of changing age demographics for Hennepin County as an organization, and as a geographic and economic region, and to position the county to foster healthy aging for residents and clients through effective public policy.

More detailed discussion of retirement trends and their implications for the economy can be found in the Aging Initiative report on aging and the workforce.

Prepared by:

Research, Planning & Development
Sherrie Simpson, *Director*

Principal contributors:

Peter J. Bodurtha, *Pr. Planning Analyst*
Robert Hagen, *Admin. Manager*
Constance Osterbaan, *Research Manager*

April 2012

Top research findings

The following summary highlights key findings from the research about aging, retirement assets and the economy. A detailed discussion of the following nine items is included in the complete report attached to this summary.

1. Social Security is the most valuable retirement asset for most near-retirement Baby Boomers, especially for those at the lower end of the wealth distribution.
2. Retiring at age 62 results in up to 30 percent less annual Social Security benefits compared to retiring at the full retirement age.
3. Due to the importance of Social Security benefits to most retirees, late-career unemployment and other causes of unplanned early retirement are major threats to retirement security.
4. Housing is the second most valuable retirement asset for most near-retirement Baby Boomers. Its importance is greatest in the upper half of the wealth distribution.
5. Housing is typically saved as a hedge against emergencies, such as a health-shock in late life, or as a bequest to heirs.
6. Stock-related assets, including IRAs and 401(k)s, form a relatively small part of retirement assets for all but the wealthiest households.
7. Retirees do not spend down many retirement assets during the first 5 to 10 years of retirement. 401(k) distributions do not increase significantly until required distributions at age 70 ½.
8. The stock market crash of 2008-2009 had the strongest effect on wealthier, better educated members of the near-retirement population. Most of them will not recover lost stock and bond value. Results are mixed for other workers. Workers with fewer stock assets could make up for losses by delaying retirement and younger workers could make up losses by continuing to invest in the market, provided values continue to appreciate sufficiently.
9. Research is mixed about how aging demographics will affect asset values. Recent studies indicate that predictions of massive devaluations in stocks, bonds and housing are unlikely. However, there appears to be some agreement that the retirement of the Baby Boom generation will increase demand for less risky assets such as bonds.

Introduction

The aging of the baby boom generation, Americans born between 1946 and 1964, will have a profound effect on Hennepin County's economy and government finances. Much of the literature on aging and retirement finances focuses on parts of a financial life-cycle with essentially three stages:¹

I: Asset Accumulation

II: Retirement

III: Late-Life

Individuals accumulate assets during their working years, live off income from these assets in retirement and save the remainder for bequests or to pay for care in late-life. This report will focus on the first stage, asset accumulation.

When the oldest Baby Boomers turned 62 in 2008, the most common U.S. retirement age, Minnesota experienced a 30 percent jump in new retirees.² The increasing number of retirees will put substantial pressure on public finances at every level of government. Given these fiscal stressors, it is important to understand the work and asset accumulation part of the life cycle and their implications for workforce patterns and the economy.

Many of the findings presented in this document come from studies of national data. For

this reason, it is important to note important differences between Hennepin County, the state of Minnesota, and the United States as a whole. Hennepin County has a lower unemployment rate than the national average (5.3 percent³ vs. 8.3 percent⁴), higher median household income (\$60,800⁵ vs. \$51,222⁶), and a lower percentage of residents below the poverty line (12.5 percent⁷ vs. 14.4 percent⁸). As such, it is reasonable to expect that the economic security outlook for Hennepin County's retirees may be somewhat better than national averages predict. Furthermore, while Minnesota's business cycle closely follows fluctuations in the national economy, the regional economy is well-diversified, making it less vulnerable to market volatility and providing workers with a more stable environment in which to plan for retirement.⁹

Despite the region's relatively strong economic performance, it is important that national findings not be taken lightly. Hennepin County includes significant urban, suburban, and rural populations. This diversity makes Hennepin County a surprisingly apt microcosm of the state and country as a whole. Therefore, there is no reason to believe that national research findings will not be applicable to Hennepin County.

Retirement assets and the economy

Overview

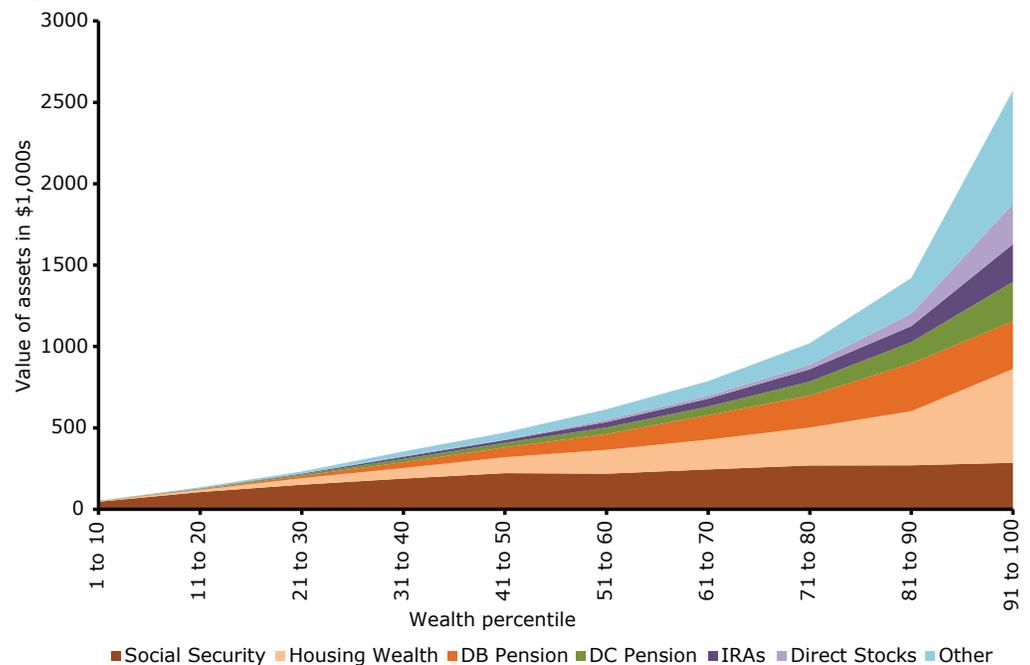
The value of assets accumulated during an individual's working life is a major determinant of financial security in retirement. For this reason, understanding saving patterns and the accrual of retirement assets is important for understanding how future retirees will finance their retirement.

Social Security is the most important retirement asset for most households nearing retirement. In 2006, households containing a leading edge Baby Boomer (b. 1948-1953) in the bottom 20 percent in terms of wealth had virtually no other retirement assets other than Social Security.^{a,10} The second most important asset was housing, which together with Social Security made up the

majority of assets for the bottom 70 percent of households in terms of wealth. After Social Security and housing, pensions and retirement accounts made up most of the remainder of retirement assets. Among these, defined benefit pensions were the most valuable for all wealth cohorts, with IRAs, direct stock holdings and defined contribution pension plans such as 401(k)s making up a relatively small percentage of holdings for all but the top 20 percent of the wealth distribution.

The clear implication is that Social Security and real estate are by far the most important retirement assets for most households. Furthermore, these assets are more important at the bottom of the wealth distribution where financial insecurity in retirement is more likely.

Figure 1. Asset distribution for households with one member born 1948-1953



Note: DC Pensions, IRAs and Direct Stocks may be directly exposed to the stock market. DB Pensions are exposed to the stock market, but employees do not directly bear risk.

Source: Gustman, Steinmeier and Tabatabai (2009).

Data source: Health and Retirement Study, 2006

^a Social Security is an annuitized asset linked to earnings. Although workers do not formally hold Social Security assets in a retirement account, a worker is entitled to a certain level of Social Security benefits based on years worked and earnings. Because of this link to earnings, this entitlement acts much like an accumulated retirement asset. Social Security benefits are calculated based on a method used in Kapinos (2008).

Social Security

Social Security is the most important asset for most current and future retirees. For leading edge Baby Boomers, Social Security makes up 26 percent of total average household wealth and 40 percent of median wealth.¹¹ According to recent research, Social Security payments prevent nearly half of elderly persons from falling into poverty sometime during retirement.¹²

Social Security income is based on an index of earnings from a worker's 35 highest earning years and age at retirement.¹³ The maximum benefit is \$2,513 per month for someone retiring at FRA in 2012 and there is technically no minimum benefit.¹⁴

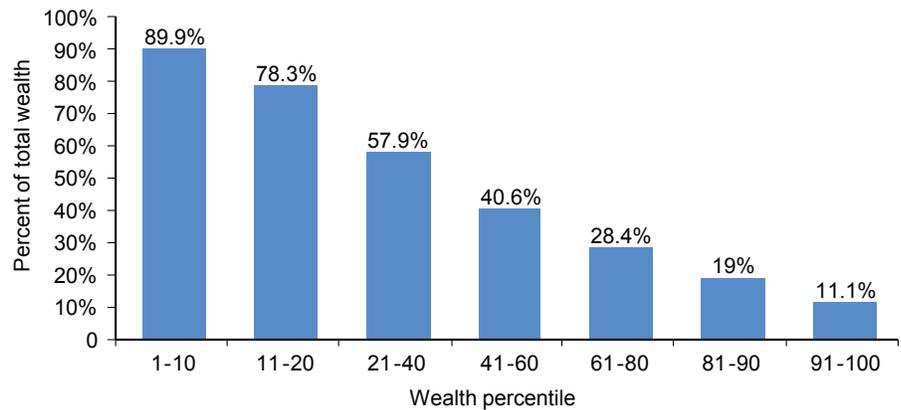
The Baby Boom generation faces changing Social Security eligibility regulations. For those born after 1937, the full retirement age (FRA) has increased by two months a year until it reaches 67 for those born in 1960 or later. Workers receive increased Social Security benefits for every month they delay retirement past 62 with increased incentives for delaying retirement past the FRA. These incentives are actuarially fair, however, meaning that a retiree with average life expectancy will receive the same amount

Table 1.

Age at retirement	Percent benefit reduction*
62	30.0
63	25.0
64	20.0
65	13.3
66	6.7
67	0.0

*For those born 1960 or later
Source: Social Security Administration

Figure 2. Average Social Security wealth as a percent of total wealth



Households with top and bottom 1% of total wealth are excluded.

Figure source: Gustman, Steinmeier and Tabatabai (2010)
Data source: HRS 2006

of Social Security payments during retirement whether they retire early or late. As a result, recent increases in the FRA to 67 may only result in later retirement for retirees who need to earn more money or place relatively little value on their leisure time.¹⁵

During the most recent recession, increased rates of applications for Social Security benefits at age 62 put the economic security of retirees at risk.^b Under current law, those whose FRA is 65 experience a 20 percent reduction in Social Security benefits if they apply for Social Security at age 62, while those whose FRA is 66 experience a 25 percent reduction.¹⁶ Such reductions may be acceptable for those who choose retirement to enjoy leisure time; but for those who do not choose to retire, but are forced to retire because of layoffs or poor health, these reductions represent major decreases in benefits for the rest of their retirement.¹⁷

Research indicates that the effect of unemployment rates on Social Security benefits is more important for retirement security than the effect of stock market swings on investment income. One study estimates that a one percentage point increase in the unemployment rate at age 62 results in a \$3,000 and \$2,040 reduction in annual income for unemployed workers in the lowest and middle thirds of the income distribution, respectively.^c The study also finds that the impact of these employment-related reductions in expected Social Security benefits in the bottom third of the income distribution are much larger than the impact of stock market losses for the top third.¹⁸

Decreases in Social Security income due to early retirement are compounded by inflation. The Social Security inflation index, the CPI-W, does not adequately account for the increasing cost of medical care, resulting in an inflation-adjusted

^b See Aging Initiative Report on Aging and the Workforce for more information.

^c Averaged across all workers in each third of income, a one percentage point increase in the unemployment rate results in a \$30 and \$21 reduction in annual Social Security benefits for the lowest and middle thirds respectively. However, Coile and Levine assume that this reduction is born entirely by those who become unemployed, leading to imputation of the \$3,000 and \$2,040 figures.

decline in benefits over time.¹⁹ As such, healthcare costs take up an ever-increasing part of a retiree's budget, leaving less and less room for other forms of consumption.^d

Because Social Security remains the dominant retirement asset for so many retirees, unplanned early retirement is one of the most important threats to economic security in retirement. However, long-term trends toward delayed retirement make it possible that financial security concerns related to early retirement will abate once economic conditions return to pre-recession norms, especially among higher skilled, higher paid workers. Unfortunately, this group has the greatest economic security to begin with, meaning that early retirement penalties for Social Security benefits put poorer workers in a doubly difficult position: they are the most likely to have to take early benefits and have the fewest resources to offset benefit reductions.

Real state as a financial asset

Baby Boomers still view housing primarily as a place to live and not as a source of retirement income. Even so, as the second most valuable asset after Social Security, home values are an important part of retirement asset accumulation.

The rapid decline in housing values since 2008 has raised fears about the economic security of retirees. Net housing wealth made up 22.3 percent of all wealth for the median household by wealth in 2006, and was over 20 percent of all wealth for

the top 60 percent of HHs by wealth.²⁰ In Hennepin County, housing values fell 19 percent between June of 2007 and 2008 and have yet to fully stabilize.²¹ While the loss of real estate wealth is a cause for concern, its impact on retirement security over the long-term may be smaller than other factors.

Most retirees do not spend down their housing equity early in retirement. Instead, they typically save it as a buffer against a health-related shock in later life or as a bequest to their children. Older Boomers are unlikely to cash in their home equity until at least age 70,²² seven to eight years after the average early Boomer is expected to retire. By that time, it is possible that many will have recovered at least a modest amount of the equity lost in the housing crash of 2008. For younger boomers, there remains even more time for their housing equity to recover.

Table 2.

Wealth percentile	Net housing wealth/total wealth (%)
1-10	5.8
11-20	9.5
21-40	17.8
41-60	22.5
61-80	23.0
81-90	23.4
91-100	22.4

2006 values. Households with top and bottom 1% of total wealth are excluded.

Source: *Gustman, Steinmeier and Tabatabai (2010)*.

Data source: *Health and Retirement Study, 2006*

Despite these positive findings, there is still some cause for concern. Between 2004-2009, the median wealth-holding

household containing a 45-54 or a 55-64 year old lost 45 percent and 50 percent of total wealth, respectively, with most of these losses occurring in real estate.

²³ Unlike stock prices, which have largely recovered, housing prices have remained stagnant with foreclosures contributing to excess supply.

Older boomers will have less time to recover housing equity than younger cohorts. Therefore, older boomers who experience health-related shocks early in retirement may face significant reductions in resources available for financing a sudden decline in health.

A recent increase in reverse mortgages is potential evidence of the increasing need to use house equity to pay for retirement. In a reverse mortgage, the bank gives the homeowner-borrower the value of his/her equity as a lump sum or in installments, less a transaction fee (which can be as high as 18% of the reverse mortgage). In return, the bank collects the value of the mortgage from the proceeds when the home is eventually sold. The most common form of reverse mortgages, the Home Equity Conversion Mortgage (HECM) is insured by the Federal Housing Administration (FHA) and comprises 90-99 percent of the reverse mortgage market.^{24, 25}

Reverse mortgages are an increasingly popular option because they both provide income and allow the borrower to stay in their home. However, fees can be excessive and it is clear that the market for reverse mortgages is still developing.

^d See the Healthcare section for more detailed analysis of healthcare, inflation, and Social Security benefits

Nationally, in FY 2010, only 80,000 reverse mortgages were underwritten, following over 100,000 in FY 2009, a tiny fraction of total mortgage activity. Both of these figures, however, represent significant jumps from pre-recession levels and reverse mortgages may play a progressively larger role in financing retirement, especially as life expectancy increases.²⁶

Pensions and investments

As the baby boom generation has aged, their employers have gradually moved away from defined benefit (DB) pension plans in favor of defined contribution (DC) pensions and 401(k)s. The histogram below shows that between 1983 and 2007, DC plans replaced DB plans as the dominant type of employer-provided retirement plan for U.S. workers.²⁷ DB plans typically pay a fixed monthly amount during retirement, penalizing participants who either work too long or leave the organization before they can maximize their pension payments. DC plans,

on the other hand, require employee control of contribution allocations and are portable from employer to employer. The portability of DC plans and the absence of penalties for working beyond certain ages provide incentives for employees to work longer, since contributing longer should increase the value of DC retirement plans.²⁸

The older a worker is, the less likely he or she will have a DC pension. In 2006, for instance, DB plans still made up about two-thirds of all pension holdings for older members of the Baby Boom Generation, those born between 1948 and 1953, who were still working.²⁹ Therefore, the transfer of risk and allied loss of retirement plans' value during the recession has had less of an effect on the pension savings of older Boomers.

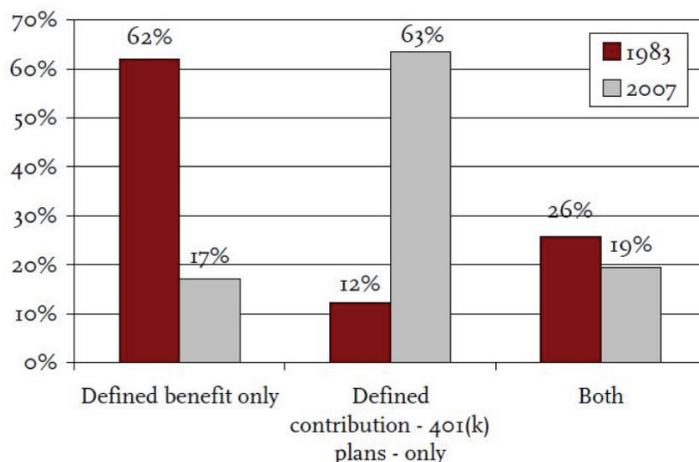
Retirees with DC plans faced exposure to the stock market downturn of 2008. Given the age distribution of participants in these plans, the employer-provided retirement plans of

younger boomers were more exposed to the downturn than those of workers closer to retirement. Despite increased direct exposure of retirement assets to stock market fluctuations, most current and future retirees do not own large amounts of stock-exposed assets, with losses heaviest among the wealthy.³⁰ Thirty-five percent of workers own no stock and stock holdings make up only 9.2 percent of all wealth at the median income.³¹

For those owning stocks, the news is not all bad. Research from 2009 projected that if the S&P 500 recoups half of its 2008 losses by 2017,^e most middle and low-income boomers born between 1951 and 1965 who continue to invest in the market will have made up for all stock losses. Furthermore, if the market recovers all of its losses by 2017, members of the 1946-1965 cohort who continue to invest in the market at pre-recession levels stand to make money off of the recession.³²

The situation is less sanguine for boomers at or near retirement at the time of the downturn. While older boomers are less likely to rely on 401(k)s than younger boomers, projections estimate that those born between 1941 and 1945 will be unable to recover their stock losses even in the most optimistic scenarios. The problem is particularly acute for the richest 10 percent who are projected to have lost as much as 35 percent of the total value of their stock portfolios in the downturn.³³

Figure 3. Percent of workers with pension coverage by type of plan, 1983 and 2007



Source: U.S. Board of Governors of the Federal Reserve System (2007) as cited in Munnell, Webb, and Golub-Sass (2009).

^e This calculation is made by measuring potential stock returns versus 2007 10-year projections. Recouping "half of 2008 losses" does not mean that the market returns to half of the 2008 high, but rather that total stock values in 2017 are half-way between 2007 projected values and projections adjusted for stock losses in 2008-2009. In other words, the findings describe difference-in-difference models where stock valuations grow faster than 2007 projections, yet from a lower starting point.

No matter what happens with the stock market, most workers could recoup losses by delaying retirement, provided they are not laid off. Workers from the middle and lower income quartiles could offset stock losses in a “no market recovery” scenario by working for an extra year or two.³⁴ Losses among the wealthiest cohorts would be too large to make up by working longer, though delaying retirement could shore up economic security. It is important to note that wealthier workers are more likely to have the opportunity to delay retirement than lower wage, lower-skilled workers, who are more likely to be pushed into retirement due to layoffs or poor health. Ironically, the workers who would benefit most from delaying retirement are the least likely to be able to do so.³⁵

Thus, while most of the news regarding equity prices is good news, it will do little to help those most at risk for economic security in retirement – middle and low-income earners, especially those who are recently retired or on the threshold of retirement.”^f

The “Asset Meltdown”

Economic life-cycle theories posit that younger workers prefer riskier, illiquid assets to maximize returns whereas retirees prefer safer, liquid assets for secure retirement income. Furthermore, retirees typically earn and consume less than their younger counterparts. For these reasons, an older population would, in theory, decrease the amount of overall demand for riskier assets such as stocks because they prefer

less risky investments and they have less money with which to pursue them. Lower demand for assets would result in lower asset prices, measured by some to be very large – described as an “asset meltdown.”

A seminal 1989 work by Gregory Mankiw and David Weil predicted that the Baby Boomers’ high earning years would artificially inflate real estate values prior to a “baby bust” that would occur when this cohort retires. Under this framework, retiring boomers would lower demand for housing, leading to projected asset devaluation as high as 47 percent within 20 years.³⁶ Further research has left the prospect of a real estate valuation melt-down on this scale in doubt. Studies point out that housing values in the 1990’s and 2000’s largely defied Mankiw and Weil’s projections, some suggesting that models did not take into account the interplay between mortgage interest rates and demographics.

This original asset meltdown theory has led to analyses of the effect of aging on all types of financial assets and has left the prospect of a full-fledged asset meltdown across asset classes unclear. On one hand, some studies find that the link between aging demographics and asset values may be overstated.³⁷ On the other hand, research appears to confirm the life-cycle hypothesis of asset allocation: when workers retire, they prefer safe investments.^{38,39} There are other factors that could also mitigate asset devaluation. Research has found that retirees do not quickly divest their asset holdings, but rather view them

as a buffer against late-life financial emergencies such as a health shock, meaning that retirement does not result in a major, immediate divestment from assets.⁴⁰ As a result, any decline in demand for assets will happen very gradually.⁴¹ Other economists estimate that gains in life expectancy for retiring boomers could sustain capital demand enough to compensate for an asset meltdown effect.⁴² Furthermore, while aging populations in Europe and the United States may put downward pressure on asset prices, demand for stable western assets in quickly developing countries with younger populations such as China and India may help to support asset prices.⁴³ Some proponents of this theory point out that original asset meltdown hypotheses only allow a limited role for international investment.^{44, 45}

The likelihood of an “asset meltdown” remains uncertain. Nonetheless, the growing opinion in the literature appears to be that initial fears of steep asset price declines overstated the potential problem, though life-cycle expectations about asset allocations may be more accurate.⁴⁶ If true, it means that while financial assets and housing may not plummet in value, the aging population may shift domestic demand toward safe, fixed-income-type assets (such as bonds), ultimately reducing their returns (when demand for bonds increases, their yield decreases).⁴⁷ In summary, the growing opinion in the literature appears to be that asset prices will continue to appreciate, though perhaps at slower rates as global demand, forward-looking

^f A more in-depth analysis of groups that are particularly vulnerable to financial insecurity in retirement is discussed in the report entitled “Retirement Security, Healthcare and Late-life.”

markets and the gradual nature of aging trends mitigate some, but not all, of the effects of an aging population on supply and demand.

Conclusion

Whatever its aggregate effect on the economy, the asset accumulation patterns of the Baby Boom generation will continue to have an important effect not only on asset markets, but also on the retirement security of an increasing number of retirees. While markets, particularly real estate, are important assets for many older Americans and deserve attention, in the end unemployment rates and any potential reforms to Social Security will have a far broader impact on the accumulation of retirement assets than market movement.

References

- 1 Poterba, J., Venti, S., and Wise, D. The Composition and Drawdown of Wealth in Retirement. *Journal of Economic Perspectives*—Volume 25, Number 4—Fall 2011—Pages 95-118.
- 2 Gillaspay, T. and Stinson, T. (2011). Minnesota and the New Normal. Retrieved from <http://www.amsd.org/docs/2011%20winter%20conference/Gillaspay%20Stinson%20ppt.pdf>
- 3 Metropolitan Council. Community Profile for Hennepin County. Retrieved from <http://stats.metc.state.mn.us/profile/detail.aspx?c=053>
- 4 Bureau of Labor Statistics, The Employment Situation – January 2011. U.S. Department of Labor. Retrieved from <http://www.bls.gov/news.release/pdf/empisit.pdf>
- 5 Metropolitan Council. Community Profile for Hennepin County. Retrieved from <http://stats.metc.state.mn.us/profile/detail.aspx?c=053>
- 6 U.S. Census Bureau. Median Income in the Past 12 Months (in 2010 inflation-adjusted dollars). 2008-2010 American Community Survey 3-Year Estimates.
- 7 Metropolitan Council. Community Profile for Hennepin County. Retrieved from <http://stats.metc.state.mn.us/profile/detail.aspx?c=053>
- 8 U.S. Census Bureau. Selected Economic Characteristics. 2008-2010 American Community Survey 3-Year Estimates.
- 9 Fitzgerald, Terry (2003). Business Cycles and Long-term Growth: Lessons from Minnesota. The Federal Reserve Bank of Minneapolis. Published June 1, 2003. Retrieved from http://www.minneapolisfed.org/publications_papers/pub_display.cfm?id=3371
- 10 Kapinos, K. with Brown, C., Nolte, M., Stolyarova, H. and Weir, D. (November 2010). Prospective Social Security Wealth Measures of Pre-retirees. Survey Research Center, Institute for Social Research. University of Michigan, Ann Arbor, MI. Version 4.0, November 2010. Retrieved from <http://hrsonline.isr.umich.edu/modules/meta/year/sswealth/desc/SSwealthP.pdf> as cited in Gustman, A., Steinmeier, T., Tabatabai, N. (2010). What the Stock Market Decline Means for the Financial Security and Retirement Choices of the Near-Retirement Population. *Journal of Economic Perspectives*, Vol . 24, no. 1, Winter 2010. Retrieved from <http://pubs.aeaweb.org/doi/pdfplus/10.1257/jep.24.1.161>
- 11 Gustman, A., Steinmeier, T., Tabatabai, N. (2010). What the Stock Market Decline Means for the Financial Security and Retirement Choices of the Near-Retirement Population. *Journal of Economic Perspectives*, Vol . 24, no. 1, Winter 2010. Retrieved from <http://pubs.aeaweb.org/doi/pdfplus/10.1257/jep.24.1.161>
- 12 Rank, M. and Williams, J. H. (2010). A Life Course Approach to Understanding Poverty Among Older American Adults. *Families in Society*, 2010, v. 91, no. 4, page(s) 338.
- 13 U.S. Social Security Administration. Your Retirement Benefit: How it is Figured. SSA Publication No. 05-10070, ICN 467100, January 2012. Retrieved from <http://www.ssa.gov/pubs/10070.html>
- 14 U.S. Social Security Administration. Maximum Social Security retirement benefit. Updated 02/09/2012. Retrieved from http://ssa-custhelp.ssa.gov/app/answers/detail/a_id/5
- 15 Kingson, E. and Brown, M. (2009) Are Age-62/63 Retired Worker Beneficiaries at Risk?, Center for Retirement Research at Boston College, Chestnut Hill, MA: 2009.
- 16 Kingson, E. and Brown, M. (2009) Are Age-62/63 Retired Worker Beneficiaries at Risk?, Center for Retirement Research at Boston College, Chestnut Hill, MA: 2009.
- 17 Kingson, E. and Brown, M. (2009) Are Age-62/63 Retired Worker Beneficiaries at Risk?, Center for Retirement Research at Boston College, Chestnut Hill, MA: 2009.
- 18 Coile, C. and Levine, P. (2009). The Market Crash and Mass Layoffs: How the Current Economic Crissi May Affect Retirement. National Bureau of Economic Research, Working Paper 15395. Retrieved from <http://economics.missouri.edu/seminars/files/2010/102210b.pdf>
- 19 Goda, G,, Shoven, J. and Nataraj, S. (September 2009). How Well Are Social Security Recipients Protected from Inflation? NBER Digest, Sep. 2009. Retrieved from <http://www.nber.org/papers/w16212>

- 20 Gustman, A., Steinmeier, T., Tabatabai, N. (2010). What the Stock Market Decline Means for the Financial Security and Retirement Choices of the Near-Retirement Population. *Journal of Economic Perspectives*, Vol . 24, no. 1, Winter 2010. Retrieved from <http://pubs.aeaweb.org/doi/pdfplus/10.1257/jep.24.1.161>
- 21 Hagen, B., Clausen, K., Lien, B., Selameab, T., Lieb, B., Mueller, R. (2008). Hennepin County Fiscal Stressors. Hennepin County Research, Planning and Development. October 2008.
- 22 Venti, S. F. and Wise, D. (2000). Aging and Housing Equity. The Pension Research Council. The Wharton School, University of Pennsylvania, Working Paper - 2000-14. Retrieved from http://www.nber.org/papers/w7882.pdf?new_window=1
- 23 Rosnick, D. and Baker, D. (2009). The Wealth of the Baby Boom Cohorts After the Collapse of the Housing Bubble. Center for Economic and Policy Research, Washington, D.C. February, 2009. Retrieved from <http://www.cepr.net/documents/publications/baby-boomer-wealth-2009-02.pdf>
- 24 Bogoslaw, D. (2010). Boomers' Shrunk 401(k)s Spark Interest in Reverse Mortgages. Bloomberg Businessweek, October 12, 2010. Retrieved from http://www.businessweek.com/investor/content/oct2010/pi2010107_409429.htm
- 25 Shan, H. (April 2009). Reversing the Trend: The Recent Expansion of the Reverse Mortgage Market. Finance and Economics Discussion Series Divisions of Research & Statistics and Monetary Affairs Federal Reserve Board, Washington D.C. Retrieved from <http://www.federalreserve.gov/pubs/feds/2009/200942/200942pap.pdf>
- 26 Bogoslaw, D. (2010). Boomers' Shrunk 401(k)s Spark Interest in Reverse Mortgages. Bloomberg Businessweek, October 12, 2010. Retrieved from http://www.businessweek.com/investor/content/oct2010/pi2010107_409429.htm
- 27 Munnell, A., Webb, A., Golub-Sass, F. (October 2009). National Retirement Risk Index: After the Crash. Center for Retirement Research, Boston College. October 2009, number 9-22. Retrieved from http://crr.bc.edu/briefs/the_national_retirement_risk_index_after_the_crash.html
- 28 Johnson, R., Butrica, B. and Mommaerts, C. (2010). "Working and Retirement Patterns for the G.I. Generation, Silent Generation, and Early Boomers: Thirty Years of Change", Urban Institute. Washington, D.C.: July 2010. Retrieved from <http://www.urban.org/uploadedpdf/412175-work-and-retirement.pdf>
- 29 Gustman, A., Steinmeier, T., Tabatabai, N. (2010). What the Stock Market Decline Means for the Financial Security and Retirement Choices of the Near-Retirement Population. *Journal of Economic Perspectives*, Vol . 24, no. 1, Winter 2010. Retrieved from <http://pubs.aeaweb.org/doi/pdfplus/10.1257/jep.24.1.161>
- 30 Congressional Budget Office (September 2009). Will Demand for Assets Fall When the Baby Boomers Retire? The Congress of the United States: Congressional Budget Office. Retrieved from http://www.cbo.gov/sites/default/files/cbofiles/ftpdocs/105xx/doc10526/09-08_baby-boomers.pdf
- 31 Gustman, Alan L., Thomas L. Steinmeier, and Nahid Tabatabai (2010). What the Stock Market Decline Means for the Financial Security and Retirement Choices of the Near-Retirement Population. *Journal of Economic Perspectives*, Volume 24, Number 1, Winter 2010. Pages 161–182. Retrieved from <http://pubs.aeaweb.org/doi/pdfplus/10.1257/jep.24.1.161>
- 32 Butrica, B., Smith, K. E. and Toder, E. J. (2010). What the 2008 Stock Market Crash Means for Retirement Security. *Journal of Aging & Social Policy*, 22: 4, 339 – 359. Retrieved from http://www.urban.org/uploadedpdf/411876_2008stockmarketcrash.pdf
- 33 Butrica, B., Smith, K. E. and Toder, E. J. (2010). What the 2008 Stock Market Crash Means for Retirement Security. *Journal of Aging & Social Policy*, 22: 4, 339 – 359. Retrieved from http://www.urban.org/uploadedpdf/411876_2008stockmarketcrash.pdf
- 34 Coile, C. and Levine, P. (2009). The Market Crash and Mass Layoffs: How the Current Economic Crissi May Affect Retirement. National Bureau of Economic Research, Working Paper 15395. Retrieved from <http://economics.missouri.edu/seminars/files/2010/102210b.pdf>
- 35 Gustman, A., Steinmeier, T., Tabatabai, N. (2010). What the Stock Market Decline Means for the Financial Security and Retirement Choices of the Near-Retirement Population. *Journal of Economic Perspectives*, Vol . 24, no. 1, Winter 2010. Retrieved from <http://pubs.aeaweb.org/doi/pdfplus/10.1257/jep.24.1.161>

- 36 Mankiw, G. and Weil, D. (1989). The Baby Boom, the Baby Bust, and the Housing Market. *Regional Science and Urban Economics* 19 (1989) 255-258. North-Holland. Retrieved from http://economics.harvard.edu/files/faculty/40_Baby_Boom.pdf
- 37 Poterba, J.M. (2004). The Impact of Population Aging on Financial markets". NBER Working Paper 10851, National Bureau of Economic Research, Cambridge, Mass. As cited in Brunetti, M. (2007). Population ageing, household portfolios and financial asset returns: A survey of the literature. CEFIN - Centro Studi Banca E Fianza. Working Paper No 1. Retrieved from <http://www.cefin.unimore.it/sites/default/files/mbrunetti.pdf>
- 38 Bakshi, G. and Chen, Z. (1994). Baby Boom, Population Aging, and Capital Markets. *Journal of Business*, 67, 165-202. As cited in Brunetti, M. (2007). Population ageing, household portfolios and financial asset returns: A survey of the literature. CEFIN - Centro Studi Banca E Fianza. Working Paper No 1. Retrieved from <http://www.cefin.unimore.it/sites/default/files/mbrunetti.pdf>
- 39 Yoo, P.S. (1994). Age Distributions and Returns of Financial Assets. Federal Reserve Bank of St. Louis Working Paper 2, available at <http://research.stlouisfed.org/wp/1994/94-002.pdf>. As cited in Brunetti, M. (2007). Population ageing, household portfolios and financial asset returns: A survey of the literature. CEFIN - Centro Studi Banca E Fianza. Working Paper No 1. Retrieved from <http://www.cefin.unimore.it/sites/default/files/mbrunetti.pdf>
- 40 Congressional Budget Office (September 2009). Will Demand for Assets Fall When the Baby Boomers Retire? The Congress of the United States: Congressional Budget Office. Retrieved from http://www.cbo.gov/sites/default/files/cbofiles/ftpdocs/105xx/doc10526/09-08_baby-boomers.pdf
- 41 Schich, S. (2008). Revisiting the Asset-Meltdown Hypothesis. DAF/CMF(2008)23/ADDI. Organization for Economic Cooperation and Development (OECD). Retrieved from <http://www.oecd.org/dataoecd/56/29/41668643.pdf>
- 42 Jahat, S. (2006). Baby Boom, Health Boom and the Future of Financial Markets. 6th Global Conference on Business and Economics. Retrieved from www.gcbe.us
- 43 Boersch-Supan, Axel and Ludwig, Alexander (2009). "Aging, Asset Markets, and Asset Returns: A View from Europe to Asia". Mannheim Research Institute for the Economics of Aging (MEA), University of Mannheim, Germany, National Bureau of Economic Research (NBER), Cambridge, Massachusetts.
- 44 Abel, Andrew B. Will Bequests Attenuate the Predicted Meltdown in Stock Prices When Bay Boomers Retire? The Wharton School of the University of Pennsylvania and the National Bureau of Economic Research, January 24, 2001. Retrieved from <http://finance.wharton.upenn.edu/~rlwctr/papers/0101.pdf>
- 45 Brooks, Robin (2000). What Will Happen to Financial Markets When Baby Boomers Retire? International Monetary Fund. Retrieved from <http://fmwww.bc.edu/cef00/papers/paper92.pdf>
- 46 Boersch-Supan, Axel and Ludwig, Alexander (2009). Aging, Asset Markets, and Asset Returns: A View from Europe to Asia. Mannheim Research Institute for the Economics of Aging (MEA), University of Mannheim, Germany, National Bureau of Economic Research (NBER), Cambridge, Massachusetts. Retrieved from <http://www.nber.org/programs/ag/rrc/09-10%20Boersch-Supan%20FINAL.pdf>
- 47 Brunetti, M. (2007). Population ageing, household portfolios and financial asset returns: A survey of the literature. CEFIN - Centro Studi Banca E Fianza. Working Paper No 1. Retrieved from <http://www.cefin.unimore.it/sites/default/files/mbrunetti.pdf>