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Employee Benefit
Research Institute

**Retirement Plans and Prospects for Retirement
Income Adequacy**

**2014 Pension Research Council Symposium:
Reimagining Pensions: The Next 40 Years
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EBRI's Retirement Security Projection Model®

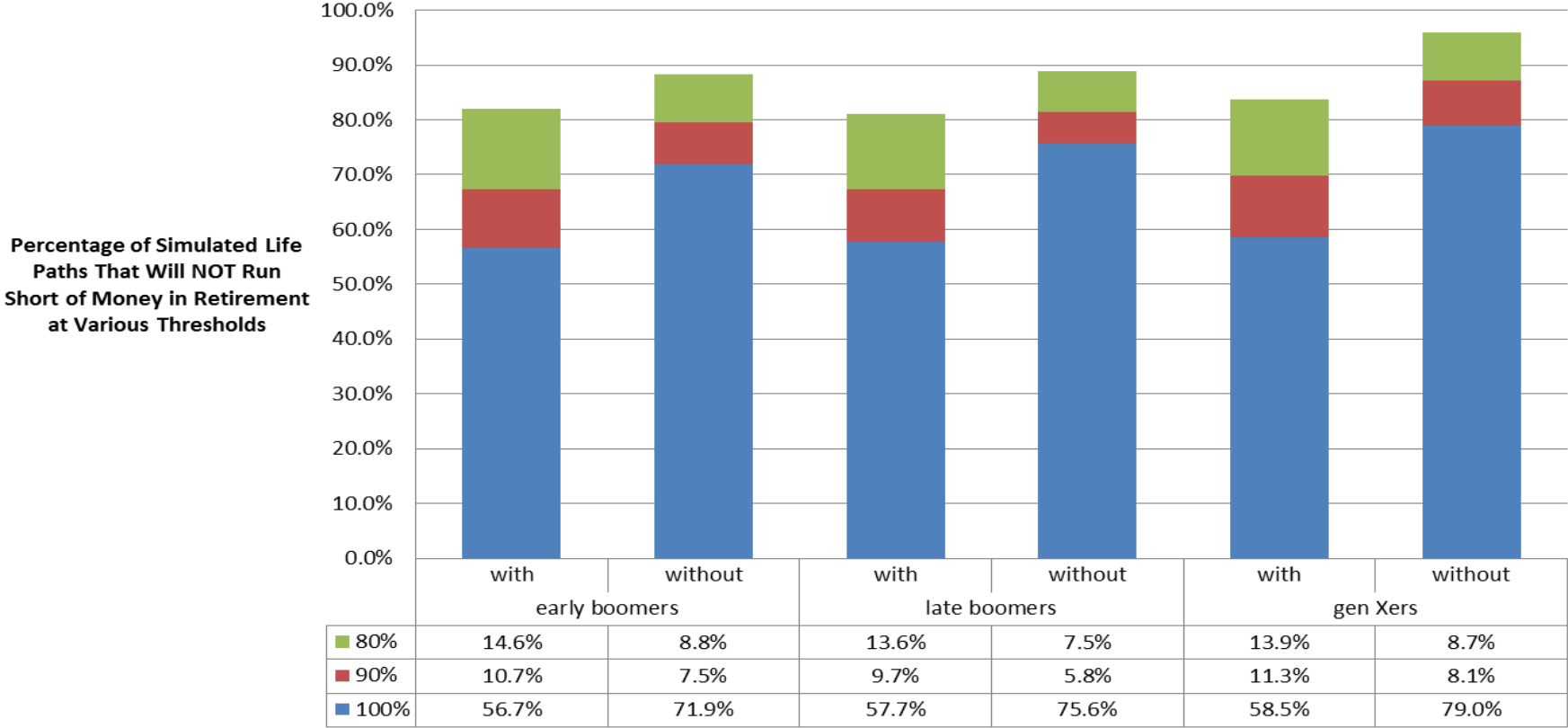
- RSPM grew out of a multi-year project to analyze the future economic well-being of the retired population at the state level
 - Expanded into a national model in 2003
- Given that the initial stakeholders of the model were interested in determining what percentage of future retirement cohorts would run short of money in retirement and when, the development of RSPM did not rely on a replacement rate target as a measure of success for several reasons:
 - No ability to tell when a household would run short of money in retirement
 - Very few households annuitize all (or even most) of their individual accounts in retirement
 - a replacement rate focus would overlook the potential longevity risk.
 - It does not typically account for post-retirement investment risk
 - One of the biggest obstacles in terms of maintaining retirement income adequacy for households who might otherwise have sufficient financial resources at retirement age is the risk of long-term care costs for a prolonged period.
 - As with the annuitization experience, in the real world few retirees have long-term care insurance policies that would cover the potentially catastrophic financial impact of this exposure.
 - Consequently, any attempt to incorporate this into a simple replacement rate threshold needs to be carefully assessed against actual implications.

RSPM details

- Accumulation phase
 - Simulates retirement income/wealth for Boomers and Gen Xers from defined contribution, defined benefit, IRA, Social Security and net housing equity
 - Pension plan parameters coded from a time series of several hundred plans.
 - 401(k) asset allocation and contribution behavior based on individual administrative records
 - Annual linked records dating back to 1996
 - More than 24 million employees in 60,000 plans.
- Retirement phase
 - Simulates 1,000 alternative life-paths for each household, starting at 65
 - Deterministic modeling of costs for food, apparel and services, transportation, entertainment, reading and education, housing, and basic health expenditures.
 - Stochastic modeling of longevity risk, investment risk, nursing facility care and home based health care.
- Produces a Retirement Readiness Rating
 - Percentage of simulated life-paths that do NOT run short of money in retirement

Figure 1

2014 Retirement Readiness Ratings™ With and Without Long Term Care and Home Health Costs , by Age Cohort

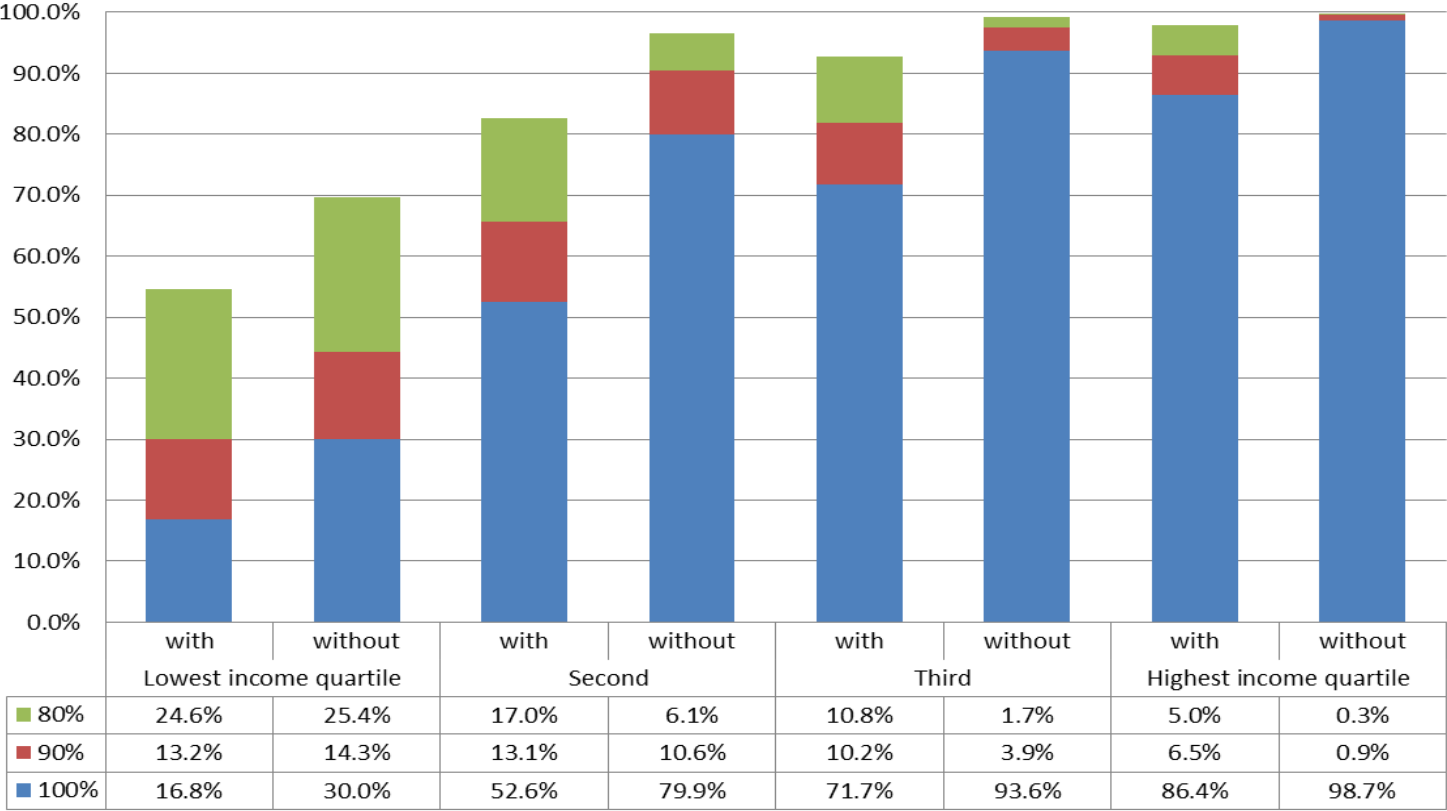


Source: EBRI Retirement Security Projection Model® Version 1995.

Figure 2

2014 Retirement Readiness Ratings™ With and Without Long Term Care and Home Health Costs , by Pre-Retirement Income Quartile

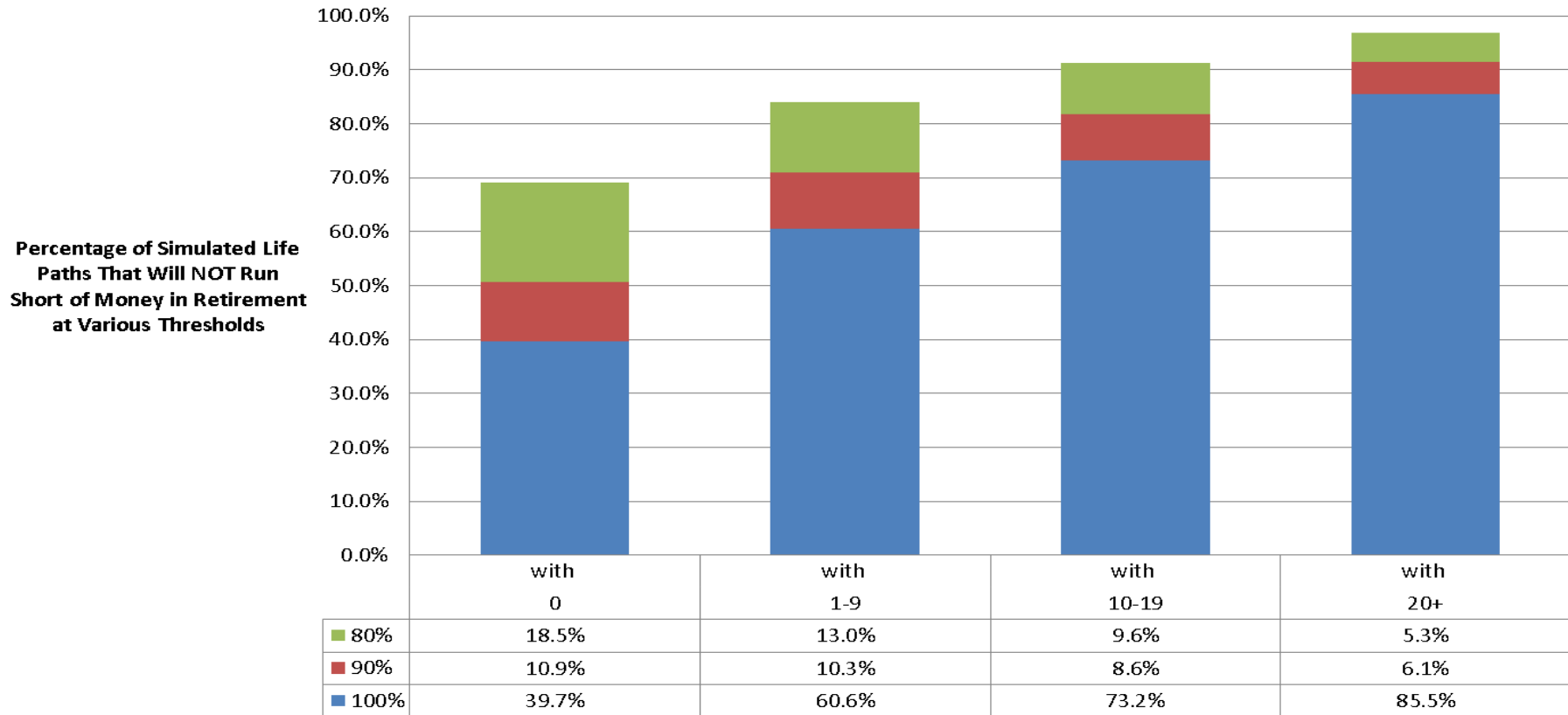
Percentage of Simulated Life Paths That Will NOT Run Short of Money in Retirement at Various Thresholds



Source: EBRI Retirement Security Projection Model® Version 1995.

Figure 3

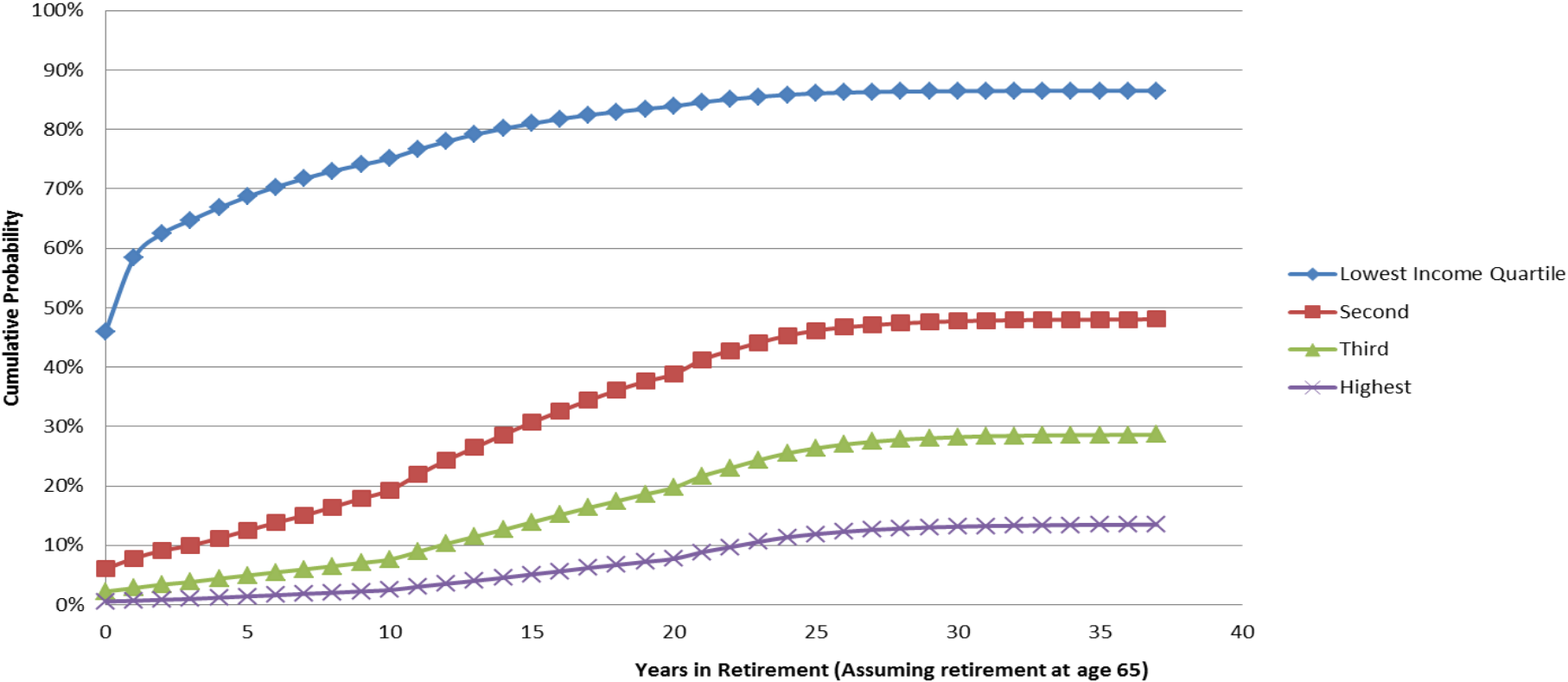
2014 Retirement Readiness Ratings™ With and Without Long Term Care and Home Health Costs for Gen Xers, by Future Years of Eligibility for a Defined Contribution Plan



Source: EBRI Retirement Security Projection Model® Version 1995.

Figure 6

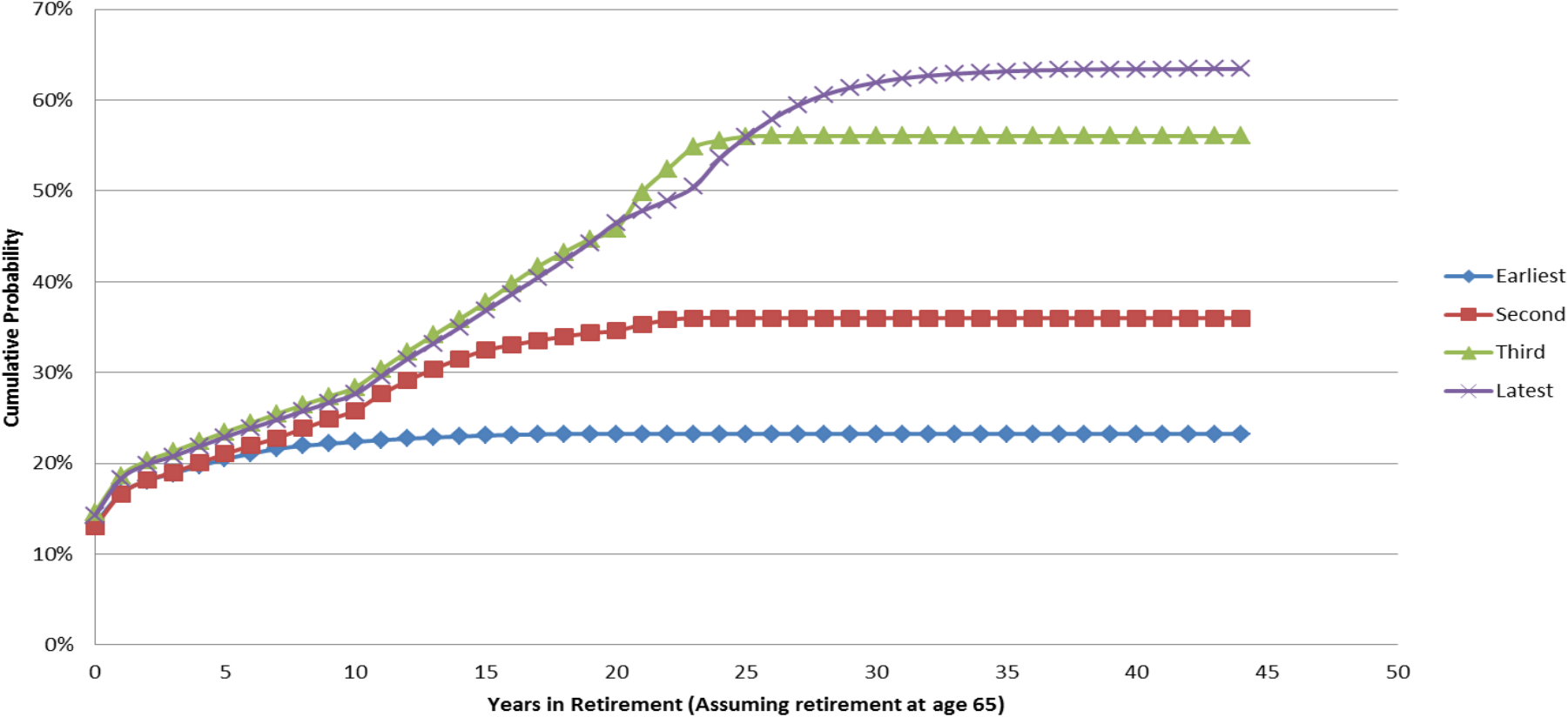
Years in Retirement Before Boomers and GenXers Run Short of Money,* by Preretirement Income Quartile:
Simulations with the 2014 version of the EBRI Retirement Security Projection Model®



Source: EBRI Retirement Security Projection Model® version 2030.

Figure 7

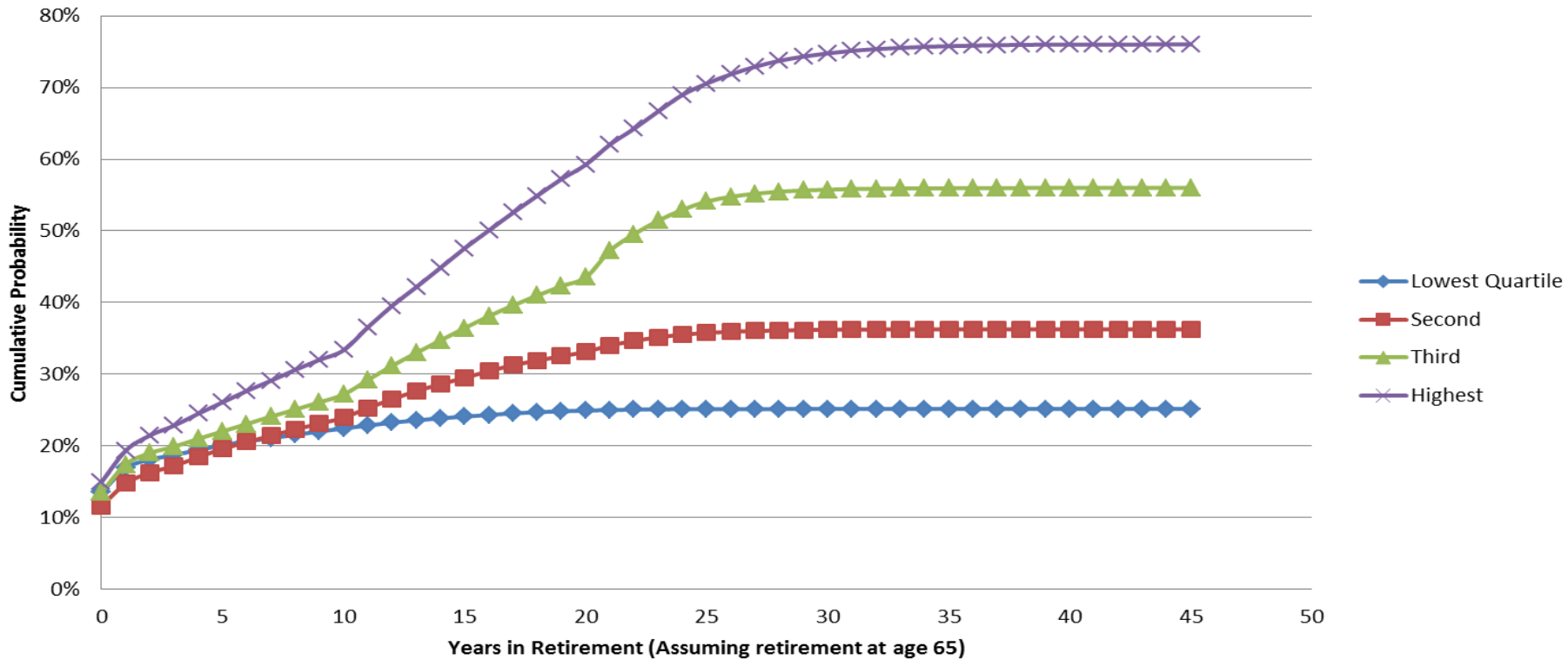
Years in Retirement Before Boomers and GenXers Run Short of Money,* by Relative Longevity Quartile:
Simulations with the 2014 version of the EBRI Retirement Security Projection Model®



Source: EBRI Retirement Security Projection Model® version 2030.

Figure 8

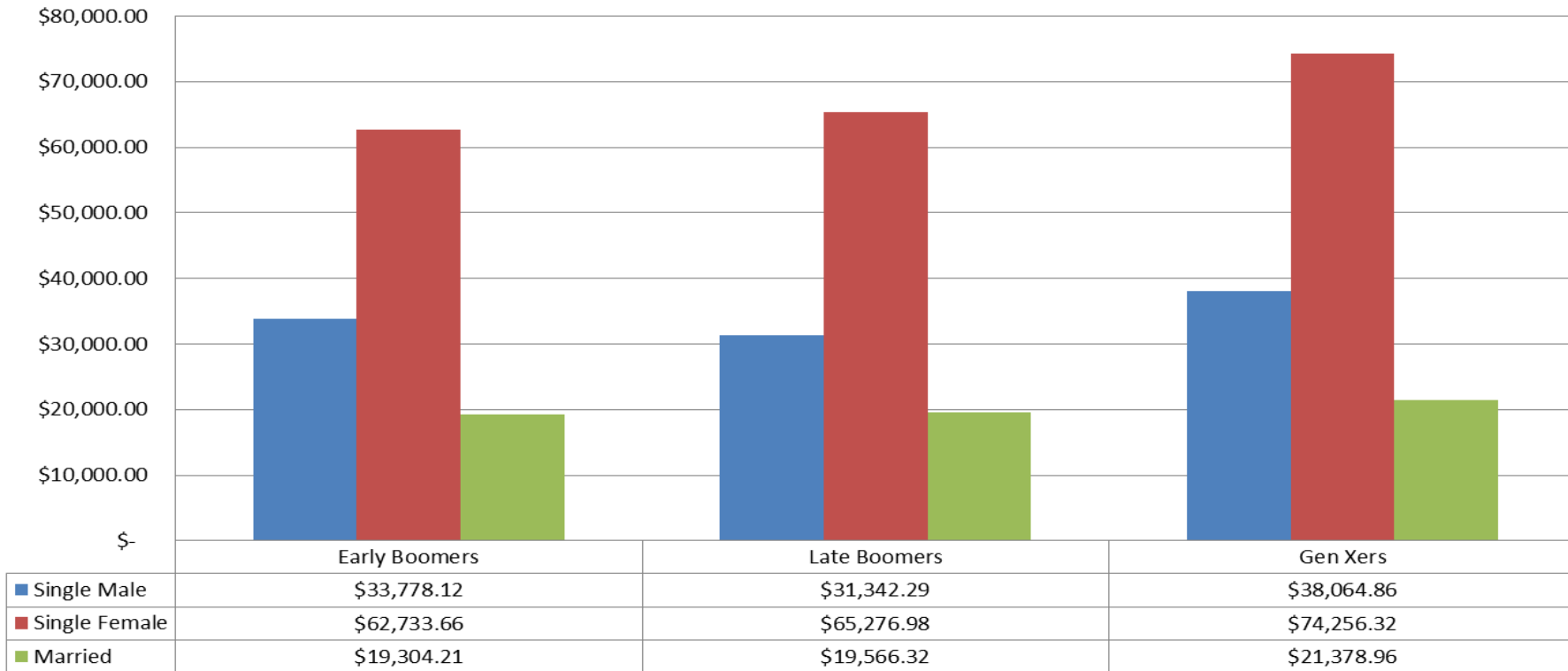
Years in Retirement Before Boomers and GenXers Run Short of Money,* by Quartile of Stochastic Health Care Cost: Simulations with the 2014 version of the EBRI Retirement Security Projection Model®



Source: EBRI Retirement Security Projection Model® version 2030.

Figure 9

2014 Unconditional Retirement Savings Shortfalls,* by Age Cohort, Marital Status, and Gender

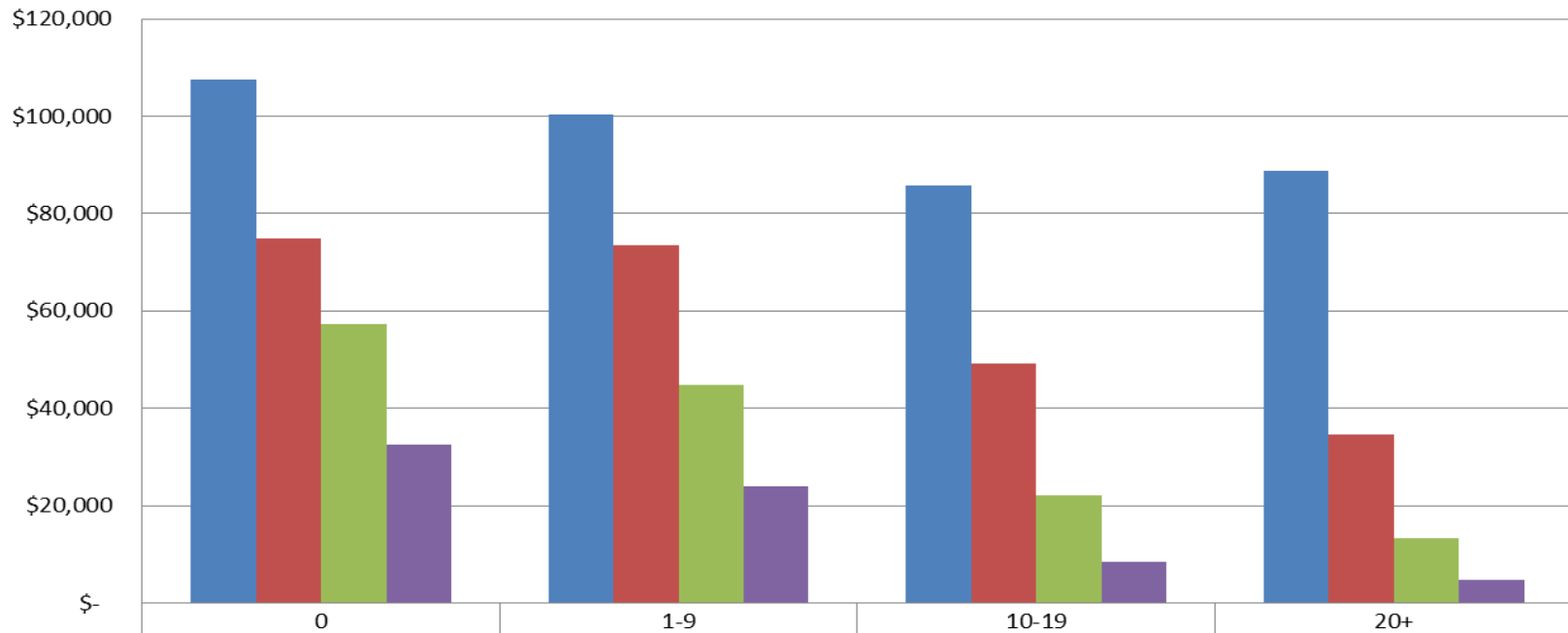


Sources: EBRI Retirement Security Projection Model® version 1955.

* The Retirement Savings Shortfalls (RSS) are determined as a present value of retirement deficits at age 65.

Figure 12

2014 Unconditional Retirement Savings Shortfalls* for Gen Xers, by Income Quartile and Years of Future Eligibility for Participation in Defined Contribution Plans



	0	1-9	10-19	20+
Lowest income quartile	\$107,519	\$100,326	\$85,647	\$88,857
Second	\$74,901	\$73,550	\$49,132	\$34,539
Third	\$57,179	\$44,821	\$22,201	\$13,310
Highest-income quartile	\$32,466	\$24,058	\$8,380	\$4,751

Sources: EBRI Retirement Security Projection Model® version 1955.

* The Retirement Savings Shortfalls (RSS) are determined as a present value of retirement deficits at age 65.

Probit Model for Retirement Readiness Ratings

- The top panel in Figure 4 of the paper uses a dependent variable defined equal to 0 if the household does not run short of money in retirement at a 100 percent of simulated expense threshold and 1 if it does.
 - The second panel uses a similar definition at a 90 percent threshold, while the third panel uses an 80 percent threshold.
 - Separate runs were used for single vs. married households
- The variables used in this analysis are defined as follow:
 - The tebla variables are dummy variables placing each household into age-specific income quartiles based on indexed career earnings similar to those used in the AIME calculations (without truncation at the upper end).
 - Tebla2 designates the second income quartile, Tebla3 the third income quartile and Tebla4 the highest income quartile. (Tebla1 designating the lowest income quartile was the omitted dummy variable).
 - Singlemale = 1 for males and 0 for females.
 - The pctink variable denotes the percentage of future years of work that are with an employer offering a defined contribution plan.
 - lend = the age of death (second death in the case of families)
 - LTC= the present value of long-term care and home health care costs (in thousands of 2014 dollars)
 - The age variable is the current age of the individual (older of the two individuals for married)

Probit results

- All coefficients statistically significant at 1 percent level
- All coefficients were the hypothesized sign except
 - lend at the 80 percent threshold
- TEBLA coefficients are monotonically decreasing

The percentage of deemed adequate income

- Defined as:
 - For those households not running short of money at the 100 percent threshold: 1+ (the individual account balance accumulated at the time all members of the household have died, divided by the accumulated value of the total retirement expenditures for the household); and
 - For those households running short of money at the 100 percent threshold: 1– (accumulated value of deficits generated at the time all members of the household have died, divided by the accumulated value of the total retirement expenditures for the household).
- Distribution in figure 13 of the paper
- OLS regressions in figure 14 of the paper
 - Same variables as the probit estimates
 - All estimates were the hypothesized sign
 - All significant at 1 percent level except lend for married households (t-value of 2.22)

Summary

- The presence of a defined benefit accrual at age 65 increases the percentage of not running short of money in retirement by 11.6 percentage points.
- One of the most important factors in determining whether Gen Xers would have sufficient retirement income is future eligibility for participation in a defined contribution plan.
 - The probability of not running short of money in retirement increases from 40 percent for those with no future years of eligibility to 61 percent for those with 1-9 years
 - Increases to 73 percent for those with 10-19 future years of eligibility
 - Increases further to 86 percent for those with 20 or more future years of eligibility
- A great deal of the variability in these values could be mitigated by appropriate risk-management techniques at or near retirement age.