

Exercise 9 — Personas

Forecasted Income and Standard of Living

Exercise 9 • Forecast Horizon: 2027–2046 • Final Exercise: Synthesis of Exercises 1–8

All figures presented in today's dollars. Inflation excluded per exercise parameters. Expenses held constant at 2026 levels unless life events dictate otherwise (Betty). Social Security payouts scaled per Exercise 5. Equity holdings per Exercise 7. Employment displacement per Exercise 2.

Persona 1 — Alice

Divorced, age 66 in 2026, retiring in 2027. Senior corporate manager, 30+ year career, earned >\$250K/yr for the past decade. Lifetime covered earnings well above the 35-year Social Security cap threshold (Exercise 3, Quintile 5). Savings: \$2M in a 401(k), approximately 60% equities / 40% fixed income. Monthly expenses: \$10,000 (\$120,000/yr). Statistical life expectancy: approximately 30 years from retirement.

Alice's Forecast (Selected Years)

| Category | 2027 (Age 67) | 2030 (Age 70) | 2033 (Age 73) | 2036 (Age 76) | 2040 (Age 80) | 2046 (Age 86) |
|----------------------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Social Security Income | \$45K | \$43K | \$38K | \$32K | \$25K | \$24K |
| 401(K) Distribution | \$75K | \$77K | \$82K | \$88K | \$95K | \$96K |
| Total Annual Income | \$120K | \$120K | \$120K | \$120K | \$120K | \$120K |
| Annual Expenses | \$120K | \$120K | \$120K | \$120K | \$120K | \$120K |
| 401(K) Balance Remaining | \$1925K | \$1659K | \$1320K | \$936K | \$810K | \$790K |
| Distribution Source | Bonds | Bonds | Bonds | Stock only | Stock only | Stock only |

Alice's Narrative

The good news first: Alice enters retirement in a strong position. Her high lifetime earnings translate to the maximum Social Security benefit tier — approximately \$45,000/year in 2026 dollars. Her \$2M 401(k) provides a substantial buffer. In 2027, her expenses of \$120,000/year are comfortably covered: \$45,000 from Social Security and \$75,000 drawn from bonds, leaving her portfolio largely intact.

The Social Security erosion begins gradually: Per Exercise 5, Alice's Social Security payout — anchored at Quintile 5 (\$45,000/year baseline) — begins declining as payroll tax revenue erodes from AI-driven unemployment. By 2033 she receives approximately \$38,000; by 2040 approximately \$25,000; and by 2046 approximately \$24,000. This means the annual distribution required from her 401(k) rises from \$75,000 in 2027 to \$96,000 by 2046.

Bond depletion occurs around 2036: With approximately \$800,000 in bonds and annual withdrawals escalating from \$75K to \$88K, the bond portion of her 401(k) is largely exhausted around 2035–2036. From that point, all distributions come from her equity portfolio, which has itself declined in value per Exercise 7 (Quintile 3 sensitivity, -34% by 2046 from 2025 levels). Her equity portfolio, worth approximately \$1.2M in 2027, falls to roughly \$790K by 2046.

The critical risk: longevity past 2046: Alice's forecast period ends at age 86 in 2046, with approximately \$790K remaining in equity — but she is drawing \$96,000/year from it (a 12%+ withdrawal rate). Under standard financial planning, a sustainable withdrawal rate is 3–4%. Alice will likely survive into her 90s, and at her withdrawal pace the portfolio could be substantially depleted in her late 80s to early 90s. Alice's standard of living is maintained through 2046 but faces real risk in the years beyond.

Bottom line: Alice navigates the forecast period without an income gap, but the combination of declining Social Security and rising 401(k) dependency — against a backdrop of falling equity values — represents a meaningful and accelerating erosion of her financial cushion. Her comfortable retirement is secured through the 2040s but is less comfortable than she expected, and the final decade of her statistical lifespan carries genuine financial risk.

Persona 2 — Gerard

Married, age 70 in 2026, retired for 5 years. Career in the Trades. Diligent saver with approximately \$200,000 in a 401(k), now held mostly in fixed income (approximately 85% bonds, 15% equities). Income sources: Gerard's own Social Security, his wife's Social Security, and annual 401(k) distributions. Combined household expenses: \$4,000/month (\$48,000/year). Wife assumed to be of similar age and retirement status.

Gerard's Forecast (Selected Years)

| Category | 2027 (Age 71) | 2030 (Age 74) | 2033 (Age 77) | 2036 (Age 80) | 2040 (Age 84) | 2046 (Age 90) |
|----------------------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Social Security (Combined) | \$38K | \$36K | \$32K | \$27K | \$21K | \$20K |
| 401(K) Distribution | \$10K | \$12K | \$16K | \$21K | \$19K | \$18K |
| Total Annual Income | \$48K | \$48K | \$48K | \$48K | \$40K | \$38K |
| Annual Expenses | \$48K | \$48K | \$48K | \$48K | \$48K | \$48K |
| Annual Shortfall | — | — | — | — | \$8K | \$10K |
| 401(K) Balance | \$190K | \$156K | \$111K | \$50K | \$19K | \$18K |

Gerard's Narrative

The baseline is tight from the start: Gerard's household begins retirement with no surplus. His \$38,000/year in combined Social Security income (Exercise 3, Quintile 3 baseline for a trades career plus spousal benefit) plus approximately \$10,000/year in 401(k) distributions exactly equals \$48,000 in household expenses. There is no buffer. Any reduction in income immediately creates a shortfall.

Social Security begins declining almost immediately: Per Exercise 5, Quintile 3 Social Security payouts begin declining from 2028 onward. By 2030 Gerard's combined SS has fallen to approximately \$36,000; by 2033 to \$32,000; by 2040 to \$21,000. Each dollar of SS lost must come from the 401(k), accelerating depletion of an already modest reserve.

The 401(k) is exhausted around 2038–2040: Gerard's \$170,000 in bonds is being drawn down at an escalating rate — from \$10,000/year in 2027 to \$27,000/year by 2040. The bond portion is exhausted around 2038. A small equity stake (\$30,000, declining with the market) covers one to two more partial years of distributions. By approximately 2040, the 401(k) is effectively depleted.

The income gap after 2040 is severe: Once the 401(k) is gone, Gerard's household income falls to Social Security alone — approximately \$21,000/year by 2040, falling to \$20,000 by 2046. Against fixed expenses of \$48,000/year, the annual shortfall is approximately \$27,000–\$28,000. At age 84–90, Gerard and his wife face a gap that cannot be bridged without family support, public assistance, or a material reduction in expenses.

The compounding cruelty: Gerard's situation illustrates the compounding stress identified across Exercises 5, 6, and 8. His Social Security declines (Ex. 5). The public services he relies on also shrink (Ex. 6). And the federal government's fiscal capacity to provide emergency safety net support deteriorates (Ex. 8). All three forces move against him simultaneously, from the same underlying cause.

Bottom line: Gerard maintains his standard of living through approximately 2038–2040, after which a severe and permanent income shortfall develops. His situation represents the most acute vulnerability in the persona set: a retiree with modest fixed savings, limited Social Security, no employment income, and no equity cushion — precisely the profile most exposed to the compounding effects modeled across this research series.

Persona 3 — Betty

Single, age 22 in 2026, graduating with a B.S. in Information Systems. Accepting a position with a big data and analytics firm. Beginning salary approximately \$75,000. Aspires to homeownership, family formation, career growth, and a retirement portfolio. Life events modeled: home purchase (2031, adding ~\$18,000/year in mortgage costs), family formation (2033, adding ~\$10,000/year), and education/activity costs for children (2038, adding ~\$5,000/year). Student loan repayment: ~\$4,200/year through 2036.

Betty's Forecast (Selected Years)

| Category | 2027 (Age 22) | 2030 (Age 25) | 2033 (Age 28) | 2036 (Age 31) | 2040 (Age 35) | 2046 (Age 41) |
|--------------------------------------|---------------|---------------|---------------|----------------|----------------|----------------|
| IS Sector Employment Retention | 100% | 92% | 74% | 52% | 33% | 30% |
| Expected Salary (Risk-Adjusted) | \$75K | \$78K | \$70K | \$56K | \$41K | \$47K |
| Annual Expenses (incl. home, family) | \$28K | \$28K | \$56K | \$56K | \$57K | \$57K |
| Annual Surplus / (Deficit) | \$23K | \$25K | (\$8K) | (\$18K) | (\$29K) | (\$25K) |
| Annual 401(K) Contribution | \$8K | \$8K | \$7K | \$6K | \$4K | \$5K |
| 401(K) Balance (Market Value) | \$8K | \$30K | \$49K | \$59K | \$67K | \$91K |

Note: 'Expected Salary' reflects Betty's gross income adjusted for the probability of employment in the Information Systems sector as that sector undergoes AI displacement per Exercise 2 (70% terminal displacement; front-loaded S-curve beginning 2027). '401(K) Balance' reflects market value of contributions compounded at the Exercise 7 equity trajectory for a young investor. Annual Surplus/(Deficit) reflects take-home pay (after 22% effective tax and 401(k) contribution) minus expenses.

Betty's Narrative

The early years look promising: In 2027–2030, Betty's career is on track. Her \$75,000 starting salary grows with merit increases and the Information Systems sector has not yet experienced material displacement. She earns approximately \$75,000–\$78,000 (risk-adjusted), builds a small 401(k), and has modest positive cash flow. Her student loans are manageable. This is the window her career guidance promised.

The sector warning signs emerge by 2031–2033: Exercise 2 identifies the Information sector as having the highest AI displacement exposure of any sector (70% terminal, front-loaded). By 2033, sector-wide employment retention has fallen to 74% of baseline. Betty's risk-adjusted expected salary falls to approximately \$70,000 (reflecting a blend of full salary if employed, reduced salary if downgraded, and probability of displacement). Simultaneously, her life expenses surge as she enters homeownership and family formation — from \$28,000/year to \$56,000/year. The household budget flips negative: a deficit of approximately \$8,000/year in 2033.

The crisis deepens through 2036–2040: By 2036, Information sector retention is at 52% — meaning roughly half of 2026 IS jobs no longer exist. Betty's risk-adjusted salary has fallen to approximately \$56,000. Her expenses remain at \$56,000+. The annual deficit reaches \$18,000 in 2036 and \$29,000 by 2040. She faces a binary choice: sustain her planned standard of living by drawing on savings or credit, or significantly curtail her lifestyle — home, family expenses, or both.

The retraining imperative: Betty's best path forward is aggressive retraining toward roles that are AI-complementary rather than AI-displaced. The roles most resilient within her field are those that require human judgment, client relationships, regulatory interpretation, and organizational leadership — the 30% of Information sector employment that Exercise 2 projects will remain. If Betty successfully pivots to one of these roles, her salary could recover toward her merit-increase trajectory. If she does not, the deficit trajectory shown above continues.

The 401(k) situation is deceptive: Betty's 401(k) shows a growing balance (\$91,000 by 2046) because contributions continue and the equity market — while declining — has not fallen to zero. However, this balance is growing slowly, and the annual deficit means Betty may be drawing on other savings to fund living expenses rather than accumulating wealth. At age 41 with \$91,000 in retirement savings and a 35-year runway to retirement, she is well below the trajectory needed for a comfortable retirement — particularly as Social Security will be materially reduced by the time she retires (around 2061–2065).

The homeownership and family goals are under severe pressure: Betty's aspiration to own a home, build a family, and have a comfortable retirement — the defining markers of middle-class stability — are not foreclosed, but they are

materially at risk. The timing of her career with the peak of AI displacement in the Information sector is deeply unfortunate. She is entering the workforce at the worst possible moment for her chosen field.

Bottom line: Betty's forecast is the most uncertain and the most consequential of the three personas. Unlike Alice and Gerard, Betty has time to adapt — but the window for adaptation is narrow and the penalties for delay are severe. She represents the generation that will live most fully inside the displacement window, for whom the promise of stable careers and building financial security through employment may be structurally unavailable without significant policy intervention or successful individual career reinvention.

Synthesis — What These Three Lives Tell Us

Across the full sweep of this research series, Alice, Gerard, and Betty each illuminate a different dimension of the same underlying disruption:

Alice illustrates the adequacy erosion of the retirement safety net. Even with maximum Social Security benefits and \$2M in savings, Alice faces rising financial risk as the proportion of her expenses covered by Social Security falls from 37% in 2027 to 20% in 2046. Her situation is manageable but considerably worse than she planned. Multiply her trajectory across the 13 million households in the upper-retirement quintile, and the aggregate wealth destruction is measurable in trillions.

Gerard illustrates the poverty-threshold breach for middle-income retirees. This is exactly the scenario Exercise 5 identified: a Quintile 3 retiree whose Social Security payout falls below the federal poverty line by the late 2030s. Gerard cannot supplement with earned income at age 84. He cannot return to the labor market. He has no equity portfolio of consequence. His survival beyond 2040 depends on family support, Medicaid (if it survives the cuts modeled in Exercise 6), or a material reduction in his standard of living.

Betty illustrates the broken promise to the next generation. The contract that prior generations relied upon — work hard, build skills, earn a stable income, accumulate savings, retire comfortably — is most at risk for those, like Betty, who are entering careers precisely at the moment when AI displacement is accelerating. Her chosen field is among the highest-displacement sectors in the analysis. Her income trajectory is being compressed at the same time her life expenses are expanding. She represents the cohort that will bear the greatest burden of this transition with the least institutional support.

Taken together, the three personas confirm what the macroeconomic analysis has shown across eight exercises: the AI and robotics transition, under the scenario modeled in this research, does not distribute its costs evenly. Those already in retirement with substantial savings (Alice) fare best but still face meaningful deterioration. Those in retirement with modest savings (Gerard) face acute hardship by the late 2030s. And those just beginning their working lives (Betty) face a structural environment that makes the formation of middle-class financial security considerably harder than it was for prior generations.

Caveats

¹ **Gross displacement only:** All prior exercises model gross displacement. New jobs created by AI and robotics industries could improve both employment levels and tax revenue beyond what is shown here, reducing the income and fiscal impacts for all three personas.

² **Policy response excluded:** Government interventions — retraining programs, UBI, benefit reform, tax restructuring — are not modeled. Such responses could materially alter the outcomes for Gerard and Betty in particular.

³ **Betty's individual path:** Betty's salary is modeled as the sector-average expected value of employment. An individual who successfully retrains and pivots to AI-complementary work could substantially outperform the average. The model shows the risk, not the ceiling.

⁴ **Longevity risk:** Alice and Gerard both face longevity risk beyond the 2046 forecast window. Gerard's 401(k) depletion before 2040 means his last decade depends on Social Security alone. Alice's 12%+ withdrawal rate on her remaining equity portfolio by 2046 carries serious depletion risk into her 90s.