U.S. Demographics, Impact on Markets, and Proposed Policies

Ashley Zhang (az244)

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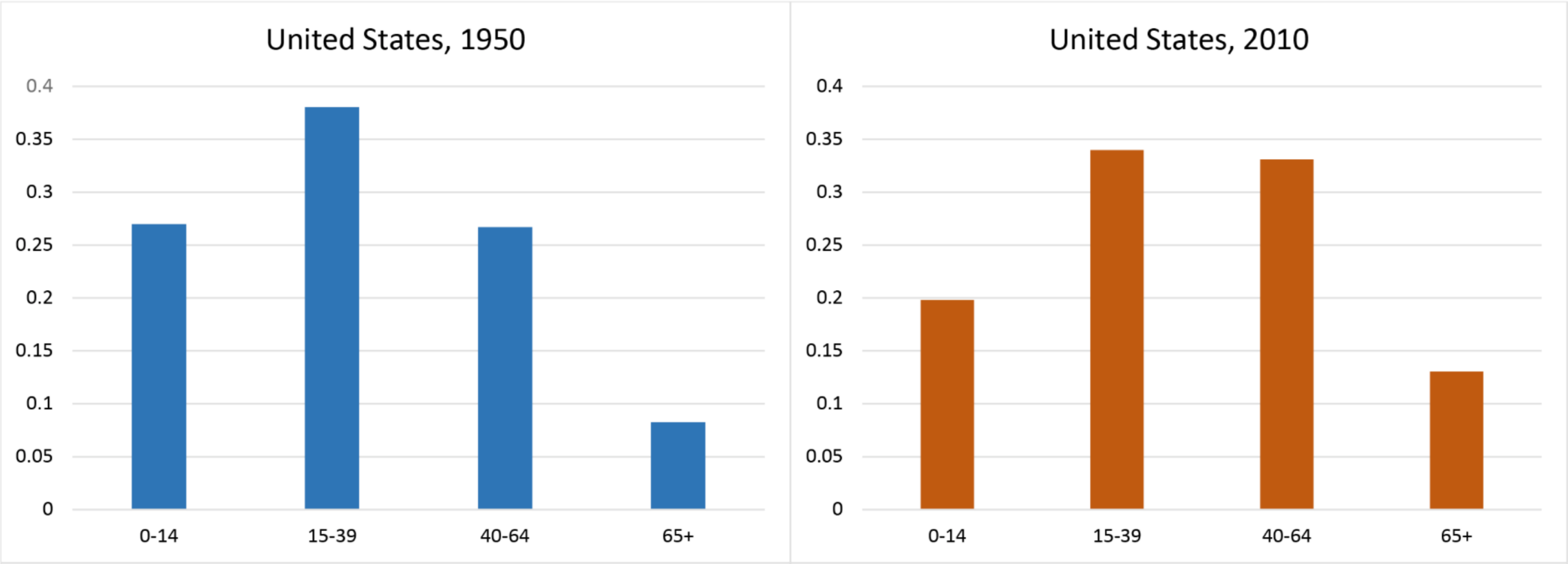
A Recent History of U.S. Demographics

- Post-WWII: 1946-1964: Baby Boom → Larger cohort size
  - Fertility rate jumps from 2.3% in 1930s to 3.6% in 1960s
- Advances in medicine and public health → Increased life expectancy
  - 1940s: Average man lives to <65 years old
  - 2016: Average person can live to ~78 years old
- Advances in contraceptives → Further control over fertility rate
- 1960s: Increase in female workforce participation (levels off)

<u>Retirement age has remained relatively constant</u>

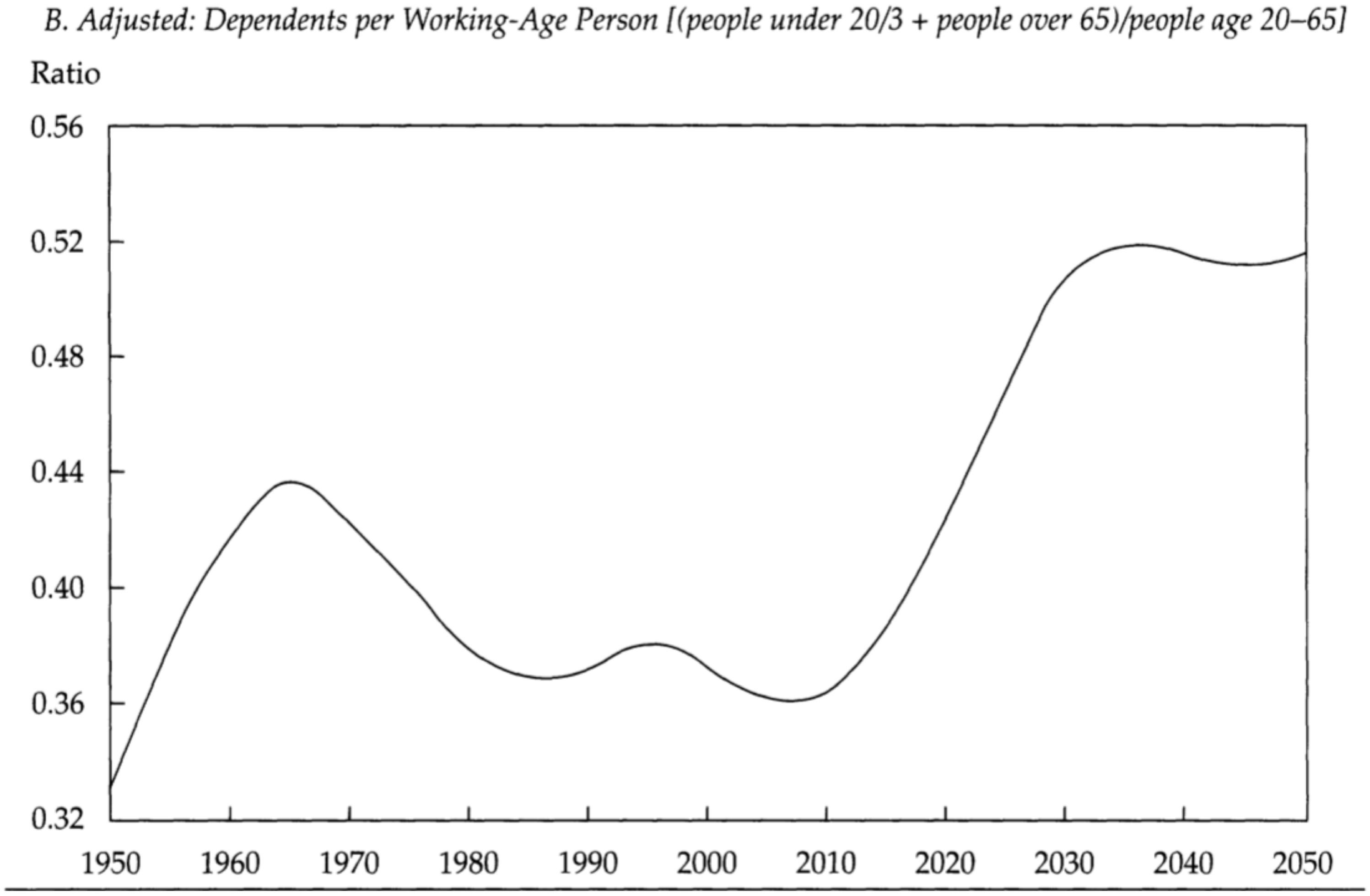
Demographic Change: Shifting Age Distribution

Population Shares of Age Group



Source: [*https://www.federalreserve.gov/econresdata/notes/ifdp-notes/2016/effects-of-demographic-change-on-gdp-growth-in-oecd-economies-20160928.html*](https://www.federalreserve.gov/econresdata/notes/ifdp-notes/2016/effects-of-demographic-change-on-gdp-growth-in-oecd-economies-20160928.html)

Adjusted Dependency Ratio: 1950-2050



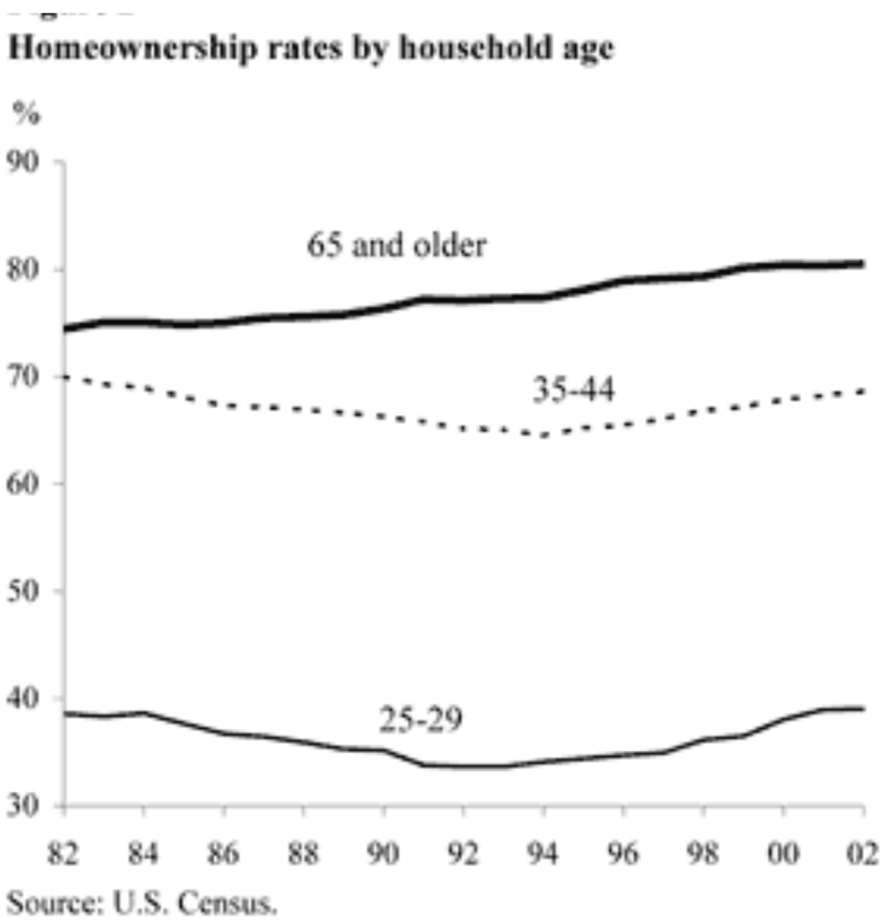
Source: "Demographics and Capital Market Returns" by Robert D. Arnott and Anne Casscells

Consequences on Markets

- Labor and productivity (not our focus)
- Consumption and savings life-cycle: Different age profiles are distinct in their economic behaviors
  - Demand in different industries
    - i.e.: Housing, medical services, education
  - Saving: People prefer consumption smoothing
    - Capital market

Housing Market: Key Features

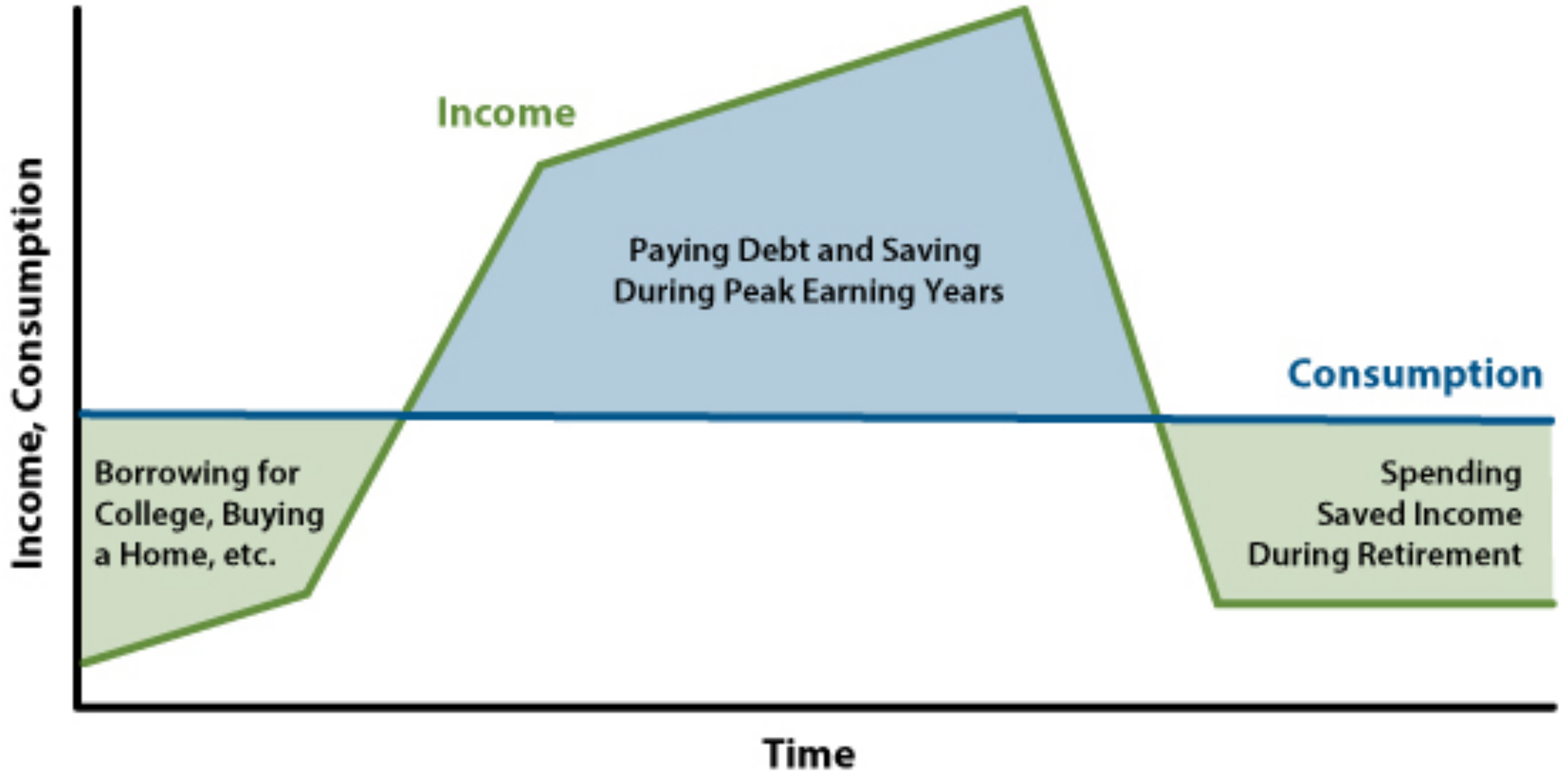
- Constitutes a large part of household wealth
- Houses are only available for sale in *<u>national</u>* market
- A *limited* basic need: All households require some form of residence, but the average household doesn't need *multiple*
- Non-uniform demand across age groups



Housing Market: Possible Predictions

- 2 extremes:
  - Forward-looking households and price elasticity
    - Anticipating the aging population (weaker future demand for housing), current prices decline
    - Lower prices →
      - Price-elastic households invest in more housing now
      - Price-elastic suppliers (builders) reduce their construction
    - Effect: Gradual and relatively smaller-magnitude price changes
  - Myopic households and price inelasticity
    - Effect: Relatively larger price changes and house price volatility
      - Households require larger discounts for consumption
- Conflicting literature and predictions on housing market

Life Cycle Theory of Savings



Source: https://research.stlouisfed.org/publications/page1-econ/2014/11/01/smoothing-the-path-balancing-debt-income-and-saving-for-the-future/

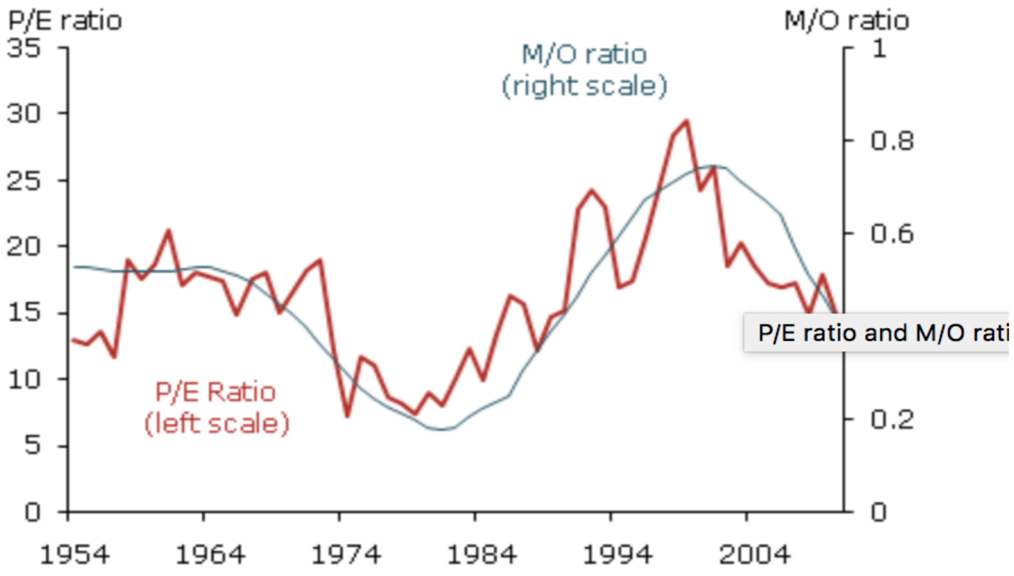
Capital Market: Key Features

- Retirees liquidate assets to pad retirement income and buy others
- More retirees than ever selling assets to proportionately smaller population of potential buyers
- Retirees expect to live longer → Must support themselves for longer
- Life cycle risk aversion hypothesis: Risk aversion increases with age
  - Non-uniform asset selling pressure:
    - Favor fixed-income assets (i.e.: TIPS)
    - Rely less on growth (higher-risk/reward) assets

Capital Market (cont.)

- Supply and demand shifts raise risk premiums

Figure 1
P/E ratio and M/O ratio



Source: [*https://www.frbsf.org/economic-research/publications/economic-letter/2011/august/boomer-retirement-us-equity-markets/*](https://www.frbsf.org/economic-research/publications/economic-letter/2011/august/boomer-retirement-us-equity-markets/)

Solutions and Possible Policies

- Demographics problem must be solved w/ “real” solution, not financial:
- Potential Solutions:
  - Improved productivity via technology
    - Case Study: Japan
  - Increasing/eliminating mandatory retirement age
    - Rises in acceptable retirement age acceptable as supply/demand drive retirement costs up
  - Increasing 3rd World Trade

Solutions and Possible Policies (cont.)

- Catering to elderly’s demands
  - Expanding markets towards older age groups’ favored goods/services
- Increased working-age immigration/retiree emigration
  - Unfeasible due to:
    - Massive scale of immigration/emigration required
    - Political barriers

Questions?

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