

Optimising Accumulation and De-accumulation in Long-term Savings Plans

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Life-cycle Investments and Occupation

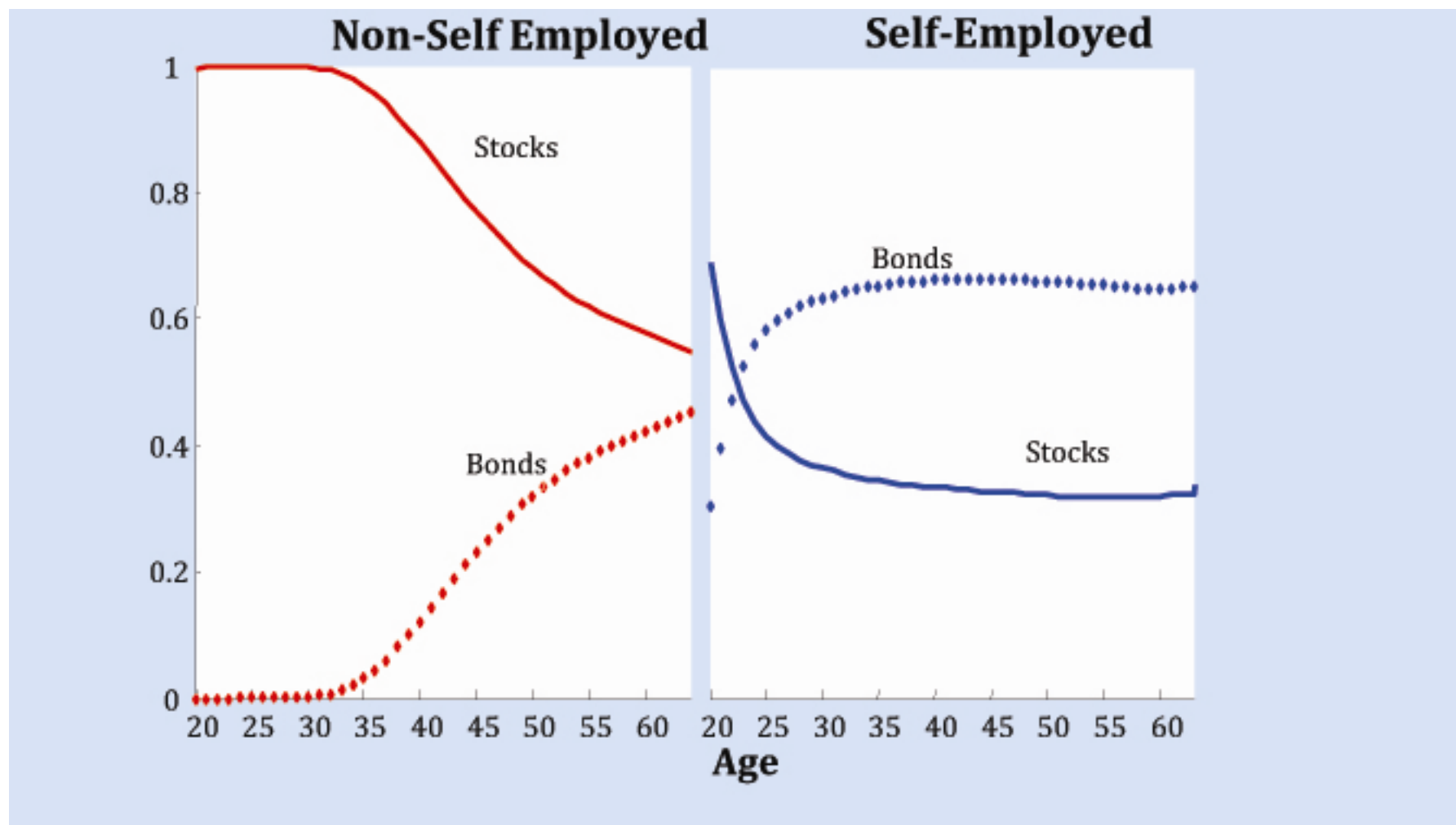
- Life-cycle as default investment option for DC pension schemes
 - “age rule” for stock investments, invariant to occupation: 100-age
- Design of life cycle default could be improved by tailoring it to occupation
 - Why occupation instead of other characteristics?
 - Age profile radically changes with occupation
 - Several pension plans already occupation-based
- Occupation identified by
 - wage risk: variance of labour income shocks
 - L non-self employed, M for self employed
 - correlation: between permanent labour income shocks and stock returns
 - L for trade; M for construction

Campbell and Viceira, 2002; Heaton and Lucas, 2000

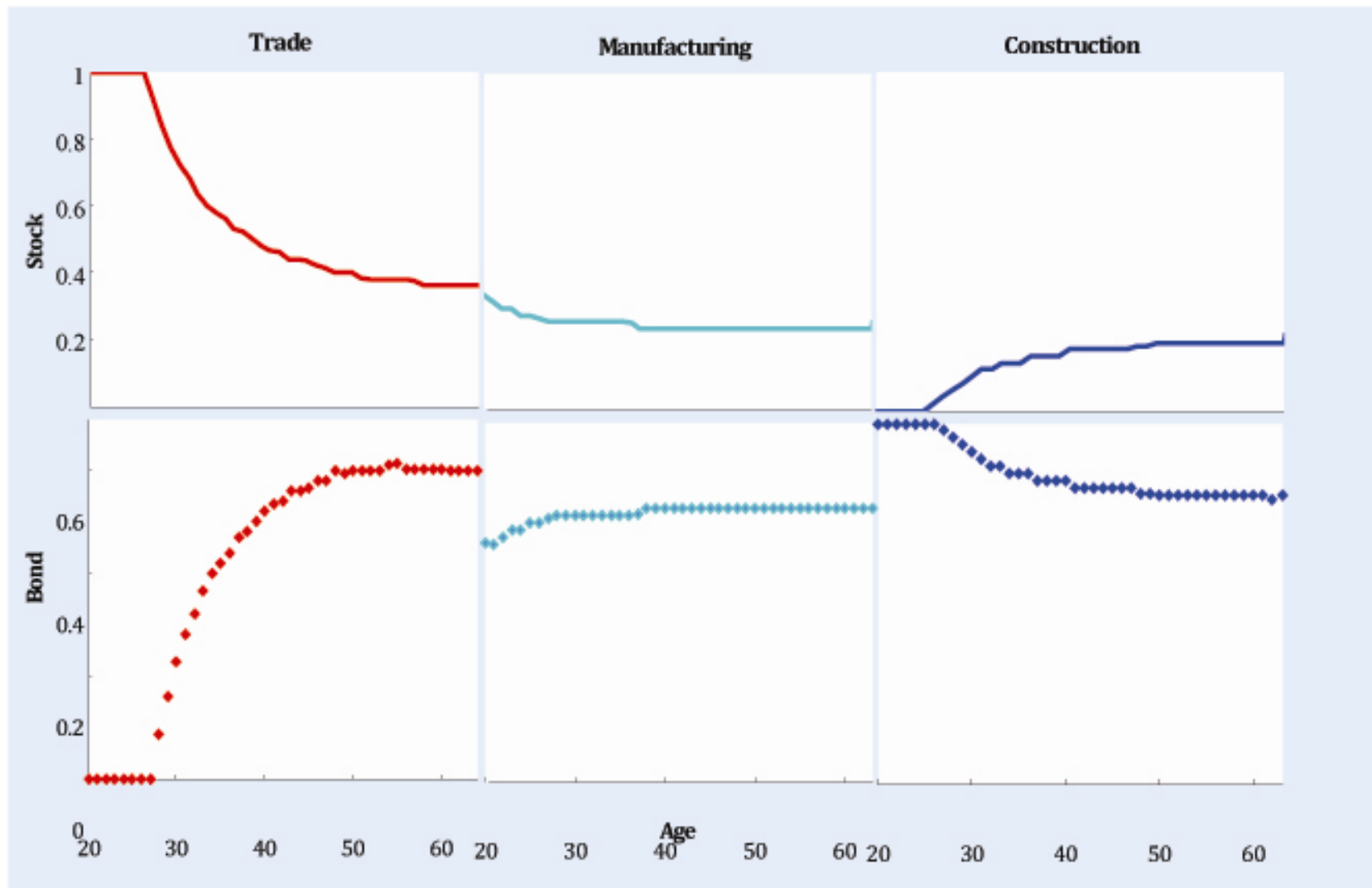
Profile for stock investment

- Profile is decreasing in age, as in age rule, with Low wage risk and Low risk aversion
 - For given age and risk aversion, stock investment very sensitive to occupation-related risk and hedging possibility
 - As in Bodie Merton Samuelson (1992), Viceira (2001), Cocco Gomes Maenhout (2005)
- Profile is **flat (upward sloping) in age** with
 - Moderate wage risk and Low correlation
 - Moderate risk aversion and Moderate correlation
 - Bagliano et al. (2009)
 - Alternative shape and rationale in Benzoni et al. (2007)

Low Risk Aversion: Increase in Wage Risk and Correlation



Moderate risk aversion and Low wage risk: increase in correlation



Other occupation-related dimensions affecting stock investment

- Flatter life-cycle profile, given occupation, more likely in **developing countries**
 - higher wage risk, given occupation, associated with higher gdp volatility and lower job protection
 - higher wage-stock correlation, given occupation, if regulation restricts international diversification
- **career history**
 - workers invest more in stocks, when they have higher human capital – relative to financial wealth - as a hedge against adverse financial shocks
- **replacement ratio** offered by first pillar at retirement
 - the lower RR, the higher optimal savings and the lower is stock investments
 - lower replacement ratio reduces heterogeneity across workers' investment strategy both in accumulation and decumulation phase
 - through RR, labour income impacts on pension income during last years of life