

# Expected Social Security Wealth Simulations and Generational Fairness of the Turkish PAYG System<sup>1</sup>

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## Abstract

As it evolves around the world, Social Security financed on pay-as-you-go (PAYG) basis increasingly becomes a Ponzi scheme due to aging populations. The main objective of Social Security is to insure seniors against an uncertain life span. However, as the probability of being a net loser rises for coming generations, this objective receives questions with increasing public confusion: how does Social Security affect lifetime wealth? How could one calculate expected financial terms of Social Security for households in different generations? This paper is the first attempt in the literature to calculate the aggregate social security wealth (SSW) series and the generational fairness of the public pension system for the first time for an emerging country, Turkey — that has the most generous social security system in the OECD region.<sup>3</sup>

Turkey has been undergoing the most severe recovery in its history after two subsequent economic crises in 1999 and 2001. The reforms led by IMF and the World Bank aim at structural changes in its traditional populist fiscal policies. The essential parts of these reforms are Social Security and Health Care in which there was no actuarial basis in many practices. According to the first and the only comprehensive study conducted by ILO in 1996, the Turkish social security system will face an immense cumulative deficit as a per cent of GDP by 2050, which is estimated to be 316%. However, there is no single study to measure the aggregate magnitude of wealth in financial terms generated by this generosity of the Turkish social security system relative to other non-pension wealth in the economy. Numerous studies in Turkey have been investigating problems in Social Security and possible solutions. While some researchers have been suggesting structural reforms, majority of proposed solutions are based on parametric adjustments in the system, perhaps because of their political feasibility. Studies that quantify the generational fairness of the Turkish social security are absent. A few hypothetical simulations based on the program's specifics are not able represent the “deal” that a typical individual *expects* from Social Security. Has this expected “deal” been declining or increasing from a representative household's perspective in different age cohorts and genders in Turkey? These are important topics in the literature not only because expectations in Social Security directly affect economic dynamics, but also the pay-as-you-go nature of the systems constitutes cumulating generational inequality and an unsustainable Ponzi scheme.

This study is the first of its kind for an emerging country, Turkey. By putting many assumptions, parameters, demographics, survival rates, and complex rules of the system together into a computer simulation, we generated the aggregate social security wealth series for the period between 1970 and 2003. These series show that the expected SSW is the biggest part of household

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<sup>3</sup> According to a new research by the OECD (Pension at a Glance, 2005), a new entrant in Turkey has \$74,000 average gross pension wealth with \$2,510 per capita gross national income, while the same numbers are \$183,000 and \$35,430 for the US in 2002. In addition, Turkey's gross replacement rate (87.2%) is the highest in the OECD region, which has 56.7% of the same rate as an average.

wealth and therefore should not be ignored by economists investigating a range of issues such as consumption and saving in Turkey.<sup>4</sup> We also used SSW simulations that cover the entire lifetime for finding the “deal” and the anticipated internal rate of return of a new participant to the system in different age cohorts. How an individual would perceive this “deal” at any period of his/her life is an open question. Calculations covering the entire lifetime require very complex techniques and periodic updates through time for an individual. However, if we compare new participants’ initial expectations, then the resulting trend for generations should be indicative of the *expected* generational fairness of the system. Our study shows that the implicit expected internal rate of return for different age-cohorts has a significant and declining trend in Turkey between 1970 and 2003.

These results suggest that the magnitude of the aggregate social security wealth and the massive distributional impact of Social Security on wealth are important factors for investigations and future reforms seeking solutions to the serious problems that Turkish social security system confronts today.

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<sup>4</sup> Aggregate SSW series are used to investigate the saving effects of social security in time-series and cross-section studies by Aydede (*Applied Economics*, Forthcoming and NFI Working Paper 2007-WP-16)