



## Full Length Article

## Myths, scientific evidence and economic policy in an aging world

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## ABSTRACT

The aim of this article is threefold: to show how important the communication of scientific evidence from the economics of aging is in order to demystify popular fallacies; to review where we stand in the more subtle mechanisms behind these fallacies and where more data and research is needed to fully understand the economics of aging; and to emphasize the link between theory, evidence, and political economy in the economics of aging.

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## Introduction

Many people are afraid of aging – understandably of individual aging, but also of population aging. The expected demographic change is called an “age bulge”, pension systems are “at the verge of collapse”, economic growth of “Old Europe” will “come to a halt for decades” and society is expected to end up in a “war between generations”. All this creates anxiety, while “active aging”, prominent e.g., in the European Union’s theme of the year 2012, is seen by many as a pure political euphemism.

Much of this negative attitude is generated by a set of myths about individual and population aging that are not backed and often squarely contradicted by evidence. Demystifying aging by juxtaposing the myths with sober scientific evidence on the challenges and chances of aging is, as we claim, therefore one of the most important tasks of the economics of aging and this new journal. This task is important since population aging requires adaptation through economic policy reforms which are frequently obstructed by such myths.

The aim of this article is therefore threefold: to show how important the communication of scientific evidence from the economics of aging is in order to demystify popular fallacies; to review where we stand in the more subtle mechanisms behind these fallacies and where more data and research is needed to fully understand the economics of aging; and to emphasize the link between theory, evidence, and political economy in the economics of aging.

Demystifying aging is doable since there is a growing body of data at the macro and micro level, some specific to certain countries, but many also internationally comparable. The international dimension is especially valuable since learning about aging requires variation in aging. For individual aging, we can compare respondents of different age in panel data. For population aging, however,

we need to compare countries and regions which exhibit different demographics. In some countries population aging has been going on for quite a while, resulting already now in high dependency ratios, e.g., Japan and the quintessential “Old European” countries, especially Italy and Germany. Then there are relatively young countries in which the speed of aging is dramatic, especially in Asia, notably China and Korea. Third, there are also countries where aging is not so dramatic, e.g., France, the United Kingdom, and the United States of America, mainly because these countries have maintained higher birth rates than the abovementioned Asian and European countries. One fruitful way to demystify aging in these younger countries is to simply look over the fence at older countries and to collect evidence what has happened in these countries – and what not. The cross-national perspective is of particular importance since time-series offer no comparison scenarios: the current demographic change is without precedent in history.

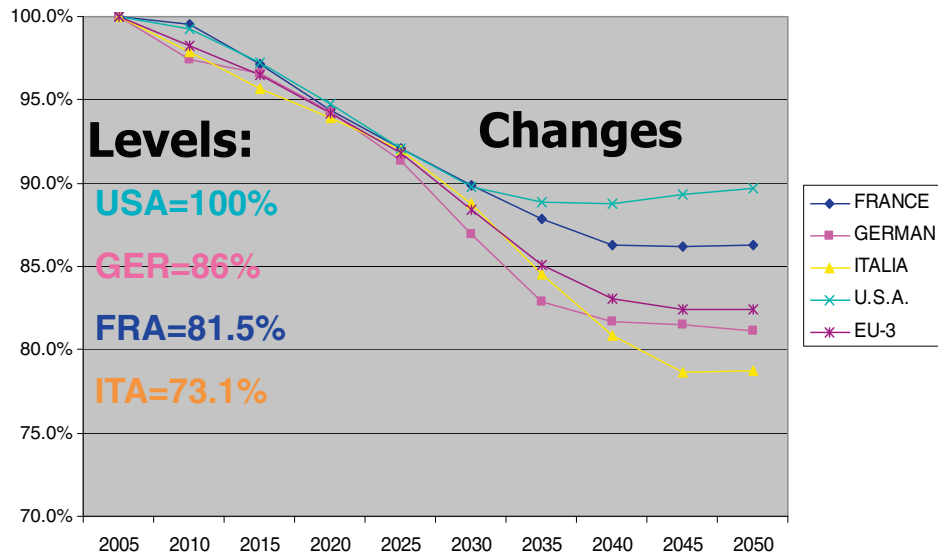
The article is structured by a set of popular myths. I set the stage at the macroeconomic level with the myth that aging economies are bound to experience stagnation or even decline in terms of living standards. This is not necessarily the case. Rather, the key conclusion is that the main danger of population aging is the lack of adaptation to a new demographic situation. The analysis of individual behavioral reactions and the political economy aspects of population aging should therefore be a primary objects of research in the economics of aging.

Many myths surround individual and social behavior and the potential to adapt. They form the body of this paper. Most of these myths are linked to misconceptions about health and productivity and the general economic and political ability of an aging society to function.

We find ample evidence that health at older ages has improved to support increasing labor force supply at these ages. There is even some evidence – although not uncontroversial – that health is positively related to active aging beyond current retirement ages. The evidence does not support the myth of quickly falling produc-

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**Fig. 1.** Working age population. Source: Own projection. Mortality based on a Lee-Carter decomposition using past mortality rate changes derived from the *Human Mortality Database* (2012); constant fertility rates (France: 1.89; Germany: 1.34; Italy: 1.29); and constant migration flows, based on the UN (2010) projection (France 100,000, Germany 150,000, Italy 135,000 net migrants p.a.).

tivity after youth. Finally, there is no evidence that older regions and countries have less of the intergenerational cohesion that is so important to make economic policy reforms feasible.

### Myth 1: Aging necessarily implies declining living standards

The macroeconomic core of population aging is the declining share of the working age population (WAP) in total population, see Fig. 1, here defined as the share of people between age 20 and 65, normalized to 100% in 2005.

The decline is large and shows dramatic differences across countries: it is more than twice as large in Italy as in the United States. Also France will experience a decline in its working age population, but much less so than Germany or Italy.

Since labor is the most important factor of production, the force of population aging on economic growth is, in a very rough first approximation, proportional to the decline of WAP. This is the main rationale for a bleak outlook on living standards, especially in countries like Italy and Germany.

On second view, however, the many versions of exhibits like Fig. 1 exemplify the lack of adaptation to an aging world rather than the likely outcome of the aging process. They symbolize the myth that aging necessarily implies declining living standards by falsely equating demography with economics. The quick conclusions drawn from Fig. 1 and its siblings presuppose a fixed labor supply and unchanged institutions, such as labor markets and pension systems.

Some indication for the room to maneuver is given by the levels indicated in Fig. 1. In Italy, for instance, not only the number of working individuals is decreasing quicker than anywhere else but Italy also has the lowest level of the employment rate: less than three quarters of the WAP are actually working compared to the US. Aggregate labor force participation is higher in France and Germany but still considerably lower than in the US. Convergence of the levels therefore implies less divergence of the changes.

More formally and building on the overlapping generations (OLGs) models of the Auerbach and Kotlikoff (1987) type, extended to a multi-country version (Börsch-Supan et al., 2006) with endogenous labor supply in a household context (Börsch-Supan and Ludwig, 2010), I will show how this room to maneuver can be

exploited along three lines: change in labor market institutions; change in pension systems; and behavioral reactions to those institutional changes.

Pension and labor market reforms lift current labor supply restrictions; they permit, e.g., later retirement by actuarially designed pension systems (e.g., Börsch-Supan, 2000; Gruber and Wise, 2004), make more female labor force participation possible by providing better day care facilities (e.g., Sundström and Stafford, 1992; Spiess, 2011), or enable students to enter the labor market earlier by better organized education systems.

Households are modeled to respond to the institutional changes by changing their working hours (the intensive margin of labor supply). Endogenous hours' supply may increase, e.g., if distorting social security taxes and contributions decline in the wake of pension reform. The opposite reaction is also possible. Endogenous hours' supply may decrease in response to an exogenous change of the number of working persons, e.g., if there is intra-household substitution between the number of persons working and the hours worked by each person. Moreover, older workers, now forced to work longer, may exploit part-time opportunities given by the pension system. In some countries (e.g., Finland and Germany) such opportunities have led to a very early transition to part time work with the perverse result that in some sectors hours supplied actually decreased in response to pension reform (Börsch-Supan and Schnabel, 1998; Hakola, 2003).

We embed such household reactions in a standard OLG economy<sup>1</sup>. Households optimize utility from leisure and consumption and accumulate or decumulate assets during their life-cycle. They earn labor income at working age and receive a pay-as-you-go (PAYG) pension in old age that is financed by contributions of the workers. Decumulating savings may increase retirement income, depending on the replacement rate of the PAYG pension system. Neoclassical firms produce output from labor and capital. For a start, we will assume an exogenous rate of technical progress but discuss endogenous productivity through health and education investments in the next section.

<sup>1</sup> Similar multi-country OLG models have been developed, among others, by Brooks (2003), Domeij and Floden (2006) and Attanasio et al. (2007).

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