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Delaying retirement in Spain

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ABSTRACT

We study the reform of the Spanish public pension system in a multiperiod, general equilibrium, overlapping generations model economy populated by heterogeneous households. Our households differ in their place of birth, in their age, in their education and, endogenously, in their employment status, in their wealth, and in their pension entitlements. They receive a stochastic endowment of efficiency labor units each period. And they face a disability risk and a survival risk. They understand the link between the payroll taxes that they pay and the public pensions that they receive. And they decide how much to consume and to work, and when to retire from the labor force. We calibrate this economy to Spanish data, and we use it to study the consequences of delaying three years the statutory retirement ages in 2010. We find this reform is sufficient to solve the sustainability problems that plague the current Spanish public pension system. Our model economy predicts that under the current rules, the pension system fund will run out in 2028 and in the reformed economy it will last until 2050. We also find that it is moderately expansionary, and that it improves social welfare from the year 2015 onwards. We conclude that policymakers should seriously consider delaying the statutory retirement ages in Spain sometime in the near future.

1. Introduction

The financial viability of pay-as-you-go pension systems is being questioned for two main reasons: the aging of the populations and the tendency of workers to retire younger. Consequently the retiree to worker ratios of many developed economies will increase substantially in the next few decades. And many of the current unfunded pension systems will go bankrupt. Another trend that affects the financial situation of unfunded pensions systems is the increased educational attainment of workers. This increase affects the sustainability of pension systems in two ways: because more educated workers pay higher payroll taxes during their working lives, and because they collect higher pensions when they retire.

The purpose of this article is to study the consequences for the Spanish economy of delaying three years the statutory retirement ages in the year 2010. We do so endogenizing the retirement decision and taking into account the demographic and the educational transitions, both of which are particularly severe in the Spanish case. We find that this reform extends the financial viability of the Spanish public pension system for 23 years, and that it improves social welfare from 2015 onwards.

The Spanish demographic transition. In 1997 in Spain there were 23 people aged 65 or older for every hundred working-age people. According to the projections of the Spanish *Instituto Nacional de Estadística*, by the year 2050 this number will

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have increased to no less than 56.[1] This change is due both to an increase in life-expectancy and to a substantial reduction in Spanish birth-rates. In 2004 the life expectations of Spanish males and females were 76.6 and 83.3 years. By the year 2050 these numbers are expected to be 80.9 and 87.0. In contrast, between 1957 and 1977 the average number of children per fertile woman was 2.8. Since 1980 this number has decreased continuously, and in 1998 it was only 1.16. As we show in this article, these demographic changes make the current pay-as-you-go Spanish public pension system completely unsustainable.

Early retirement in Spain. In 1970 the participation rate of Spanish male workers in the 55–64 age cohort was 84.2 percent according to Conde-Ruiz and Galasso (2003). By the year 2000 this rate had fallen to only 60.3 percent. This substantial decline was partly due to a reduction of the average retirement age of almost four years during the same period—from 65.2 years in 1970 to 61.4 in 1995 according to Blöndal and Scarpetta (1997). The tendency to retire early increases the retiree to worker ratios even further. And it places an additional financial burden on the Spanish public pension system.

The Spanish educational transition. In 1977 in Spain only about 9 percent of the working-age people had completed high school and only about 3 percent had completed college. Twenty years later, these shares were 24 percent and 13 percent. And in the year 2050 they are projected to be 38 percent and 24 percent, according to Meseguer (2001). This large educational transition has also large potential implications for the sustainability of the Spanish pay-as-you-go pension system.[2]

The model economy. We quantify the economic consequences of delaying retirement using a multiperiod, general equilibrium, overlapping generations model economy which is populated by heterogeneous households, and which we calibrate to Spanish data. Our model economy combines various features of similar model economies in the public pensions literature.

First, our model economy is populated by natives and immigrants as in Rojas (2005). This feature is important because in the last few years Spain has received large flows of immigrants that are projected to continue in the future.[3] These flows change the worker to retiree ratios and are potentially important for the sustainability of the Spanish public pension system. Second, our households differ in their education levels as in Cubeddu (1998). This feature allows us to model the Spanish educational transition and to study its consequences for the sustainability of the pension system. It is also important because early retirement behavior is strongly influenced by educational attainment.[4]

Third, our households face stochastic lifetimes as in Hubbard and Judd (1987). This feature allows us to consider the significant increase in life-expectancy projected for the Spanish economy, and to model the longevity insurance role of pension systems. Fourth, our households face an uninsurable idiosyncratic shock to their endowments of efficiency labor units as in Conesa and Krueger (1999). This feature allows us to account for the income and earnings distributions of the Spanish economy. It also helps us to account for the participation rates and the retirement ages of Spanish elderly workers.

Fifth, our households face the possibility of becoming disabled and receiving a disability pension. Rust and Phelan (1997) introduce this feature in a partial equilibrium model. We model disability pensions explicitly because they are an alternative route to early retirement in Spain.[5] Sixth, our households take into account the link between payroll taxes and pensions when making their consumption, savings, and retirement decisions as in Huggett and Ventura (1999). We model this feature because pension entitlements are a sizable part of the compensation of workers, and because they play an important role in the labor decision, specially towards the end of the working-life. Finally, our households decide optimally when to retire as in Sánchez-Martín (2001). This feature endogenizes the numbers and ages of workers and it allows us to account for the tendency of Spanish workers to retire early.

We also model many of the institutional features of the current Spanish public pension system in very much detail. Our model economy pensions replicate the Spanish payroll tax cap, the maximum covered earnings, the minimum and maximum pensions, the penalties for early retirement, the pension fund, and the disability pensions. In addition, the government in our model economy taxes labor income, capital income, and consumption. It spends in public consumption and transfers other than pensions, and it services a stock of public debt. Other important features of our model economy are that it replicates the Lorenz curves of the Spanish earnings and income distributions as reported in Budría and Díaz-Giménez (2006a). And that it accounts for many of the features of the retirement behavior of Spanish workers.

Reform. We study the consequences for the Spanish economy of delaying the first retirement age from 60 to 63 years and the normal retirement age from 65 to 68 years. We assume that this reform is implemented in the year 2010, and that it affects all current workers and disabled households.

Findings. We find that delaying three years the statutory retirement ages is sufficient to solve the severe viability problems that plague the current Spanish pension system. We find that, under the current rules, the Spanish public pension

[1] The population projections that we consider in this article correspond to the Hypothesis 1 of the *Instituto Nacional de Estadística*. This hypothesis depicts the most favorable demographic scenario for the sustainability of Spanish pensions because it assumes the highest inflows of immigrants and the smallest increases in life expectancy. Its details can be found at http://www.ine.es/metodologia/t20/t2030251h.htm.

[2] See Díaz-Giménez and Díaz-Saavedra (2006) for a detailed analysis of the consequences of the Spanish demographic and educational transitions for the financial viability of the Spanish public pension system.

[3] Under the Hypothesis 1 of its population projections, the *Instituto Nacional de Estadística* expects that approximately fifteen million immigrants will enter the Spanish economy between 2002 and 2050.

[4] See Blöndal and Scarpetta (1997).

[5] See Boldrin and Jiménez-Martín (2003) for an elaboration on this argument.