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What is the Relation between Public Pensions and Private Savings?

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Pension systems where current
pension benefits are financed by current
revenues, also known as pay-as-you-go
systems, are vulnerable to demographic
changes such as increased longevity and
declining fertility. In part because of
lower birth rates in the United States, a
2014 Social Security Board of Trustees
report projects that by 2033, the costs of
Social Security programs will increase
so that revenues will pay for only about
77 percent of scheduled benefits (U.S.
Government Printing Office 2014).

To deal with such demographic
changes, over the past 20 years many
European countries, including Italy,
Poland, Sweden, and Germany, have
reformed their pension systems (see,
for example, Szczepański and Turner
[2014]). A common theme of pension
reforms has been to change the design
of future pensions in order to encourage
people to work longer and save more
for retirement. Such reforms provide
an opportunity to estimate whether, in
response to lower future pensions, people
save more on their own, or, equivalently,
to answer whether pay-as-you-go public
pensions crowd out private saving. The
public pension crowd-out is an important
policy parameter, because it tells us how
much people would save on their own if
Social Security benefits were lowered.

The 1999 Pension Reform

To answer whether public pensions
crowd out private saving, in a recent
Upjohn Institute working paper,
Lachowska and Myck (2015) study
Poland's 1999 pension reform, which
created a setting similar to a "quasi-
experiment." The reform lowered future
pension benefits but had a different
impact on individuals, depending on their
year of birth. Individuals who were older
than 50 at the time of the reform were not
directly affected. However, those who
were between 30 and 50 years old at the
time of the reform will receive pension
benefits computed according to a less
generous postreform pension formula.

Figure 1 shows the median
replacement rate, defined as the ratio of
the first pension benefit of the head of
household to his or her last preretirement
salary, before and after the reform for the
cohorts affected and unaffected by the
reform. Prior to the reform, many could
expect a replacement rate of about 60
percent. After the reform, the replacement
rate for the cohorts unaffected directly by
the reform remained the same; however,
the replacement rate for the cohorts
affected by the reform fell by about 20
percentage points. We use the arbitrarily
set cutoff at age 50 to identify whether
this drop in pension generosity led to an
increase in the private saving rate.

Figure 1 Median Replacement Rate Before and After the Pension Reform
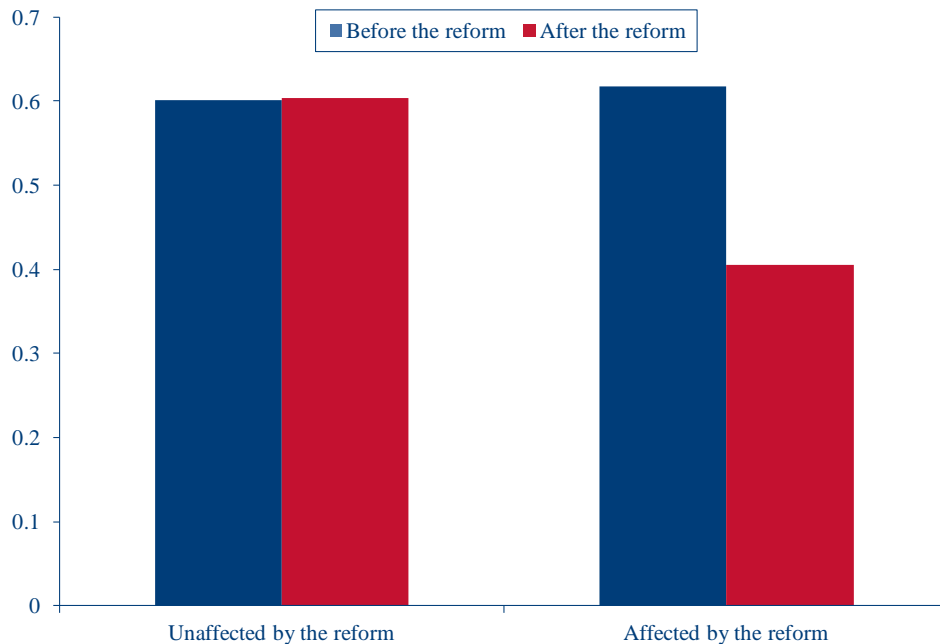
NOTE: Replacement rate is defined as the ratio of first gross pension benefit to last gross salary of the head of the household.
SOURCE: Authors' calculations using BBGD 1998 and 1999.

We want to stress that this quasi-experimental variation is valuable because a person's future pension benefits depend on one's earnings, and the determinants of earnings are in turn likely to be correlated with how much one saves. Hence, because of unaccounted-for confounding factors that affect both earnings and savings, simply comparing the savings of somebody with a high future pension to the savings of somebody with a low future pension may not isolate the effect of pension on saving. However, by comparing the saving rate before and after the reform and across similarly aged people—some of whom were affected by the reform and some of whom were not—we can identify the effect of the change in pension generosity on the saving rate.

Methods

To estimate the responsiveness of private savings to pensions, we use data from the Polish Household Budget Surveys for years 1997–2003. We begin by estimating multiyear "difference-in-differences" regressions comparing household saving before and after the 1999 reform for the cohorts affected and unaffected by the reform. These comparisons tell us how much the saving rate changed because of the reform. In a second step, we estimate the change in PLN (Poland's currency) of the private saving rate for a change of 1 PLN in pension wealth—that is, the public pension crowd-out. To do this, we compute what the pension wealth would have been under the prereform and postreform legislation and relate this variable to saving. As before, we use the fact that the 1999 pension reform changed the amount that similarly aged people could expect to receive in public pensions.

Figure 2 shows the point estimates from a multiyear difference-in-differences regression using the saving rate as the dependent variable. The point estimates show the difference in the saving rate of the households affected by the reform relative to the saving rate of households unaffected by the reform and relative to year 1998—the year preceding the pension reform. In order to interpret the point estimates

as effects of the reform on the saving rate, we should not see any statistically significant differences in the rate between the households affected or unaffected by the reform in the years preceding the reform. If we do, we would worry about preexisting group and time trends in saving rates that would confound the estimated effect of the reform. However, in the years following the reform, we expect to see an increase in the saving rate of the households whose expected pensions were reduced by the reform.

We see from Figure 2 that in 1997, relative to the unaffected households and relative to the year 1998, there was no statistical difference in the saving rate of the cohorts later affected by the reform. That the saving rate in 1997 is not different for the cohorts affected and unaffected by the 1999 reform strengthens our claim that differences in the saving rate between the cohorts observed after 1999 really are an effect of the reform. The saving rate tends to increase over time in the years following the reform for the cohorts whose pensions were reduced relative to the cohorts who were unaffected by the reform and relative to the prereform saving rate. This suggests an effect of the reform in the expected direction. The magnitude of the estimated effects on the saving rate in Figure 2 is between 0 and less than 5 percentage points, which is a large increase, given that the average saving rate in our data is about 2 percent and the median saving rate is about 9 percent.

Key Findings

How does the change in the saving rate reported in Figure 2 relate to the degree of public pension crowd-out? In our working paper (Lachowska and Myck 2015), we report the following key findings:

• Our analysis shows that public pension crowds out private saving by about 0.24 PLN for each 1 PLN.

• For older cohorts (born between 1949 and 1953), middle-aged cohorts (born between 1954 and 1968), and people with a higher education, we find a large and statistically significant crowd-out ranging between 0.45 and 1.0, which

Figure 2 Estimated Effect of the 1999 Pension Reform on Saving Rate
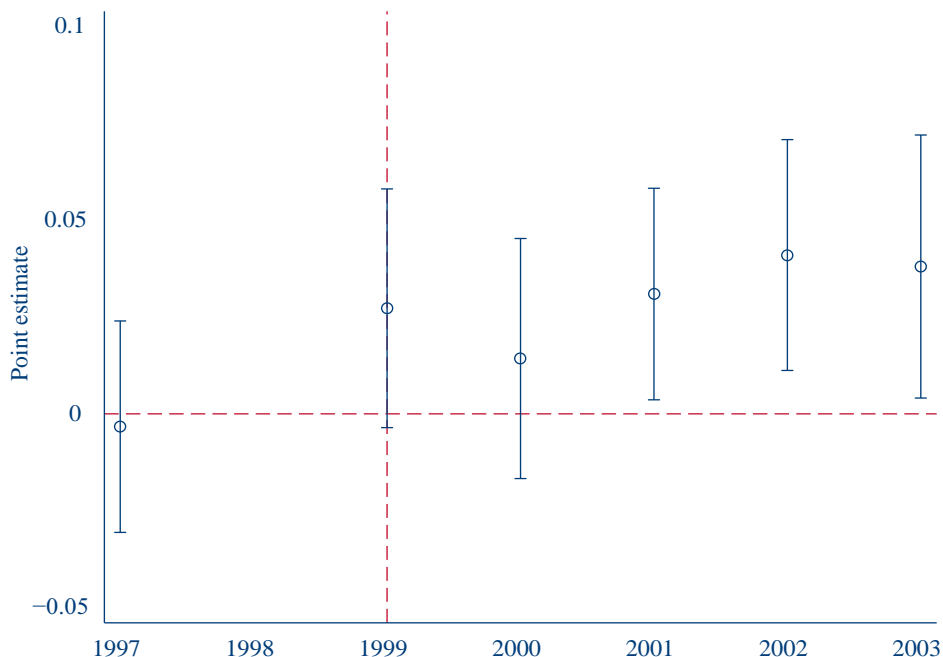
NOTE: The figure shows point estimates from a multiyear difference-in-differences regression of saving rate on an indicator for whether the household is affected by the reform, i.e., whether the household is "treated," six-year dummies, and an interaction term between the year dummies and the "treated" dummy. The figure presents the interaction point estimates over time. The omitted categories are year 1998 (the year just before the reform) and the cohort born 1937–1948 (the cohort unaffected directly by the reform). The regression uses robust standard errors clustered by year of birth, and the figure presents 95 percent confidence intervals. The dashed vertical line indicates the first year of the reform.
SOURCE: Authors' calculations using BBGD.

implies that, for these groups, private saving and pensions are close to perfect substitutes.

• Younger cohorts (born after 1968) and lower-educated households display much smaller public pension crowd-out.

Policy Implications

A crowd-out of 0.24 suggests that public pensions displace a sizable part—about one-quarter—of private savings. However, compared to other recent studies, our estimate of crowd-out is at the lower end of the range of existing estimates.[1] Also, our subsample analysis reveals that this crowd-out is not uniformly distributed in society, but rather is concentrated among certain types of households. If the goal of pension reforms is to increase private saving, policymakers should be aware of the heterogeneity in the responsiveness

of saving to pension reforms. Simply put, some households might increase their saving in response to benefit cuts, while other households might not save enough.

We speculate that the nonresponse among the younger households could be due to liquidity constraints, incomplete information, or uncertainty about how enduring the 1999 reform would be. For young people, building up a stock of wealth might simply be a question of time, and as they age they may accumulate more saving. However, the lack of a savings response observed for the less-educated households is worrisome and echoes the findings of the financial literacy literature. The concern is that by remaining passive and not adjusting their saving, these households are at risk of having a low standard of living in retirement. One policy conclusion from the passive behavior of the low-educated households is that all households do not behave according

to the predictions of the classical life-cycle model; therefore, limited financial literacy should be taken into consideration when designing pension reforms.

Note

1. For example, Attanasio and Brugiavini (2003) report a range of effects between 0.30 and 0.70; Attanasio and Rohwedder (2003) report the crowd-out to be between 0.65 and 0.75; and Bottazzi, Jappelli, and Padula (2006) estimate it to be 0.70.

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