

## FINANCIAL KNOWLEDGE AND FINANCIAL LITERACY AT THE HOUSEHOLD LEVEL

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Pensions and Social Security together account for half the wealth of those approaching retirement age. Thus one would expect knowledge of pensions and Social Security to play a central role in shaping the financial decisions made by those in their early to mid-fifties. In addition, recent studies confirm a link between numeracy and household wealth (Lusardi and Mitchell, 2006; Banks and Oldfield, 2007). Thus one would suspect there is a link between numeracy and knowledge of pensions and Social Security, so that, holding the influence of cognition on earnings constant, each plays a role in shaping the accumulation of retirement wealth.

To learn more about these potential relationships, we use the Health and Retirement Study to create a number of measures of knowledge of pensions and Social Security. We then demonstrate that knowledge of pensions is higher where the value of the pension is higher. Next we consider the relation of cognition to pension knowledge, with special emphasis on the role played by numeracy. Following that, we relate wealth held outside of pensions and Social Security to measures of cognition, including numeracy, to measures of knowledge of pensions and Social Security, and to wealth accumulated in the form of pensions. We consider the relationship to total wealth as well.

Our analysis generates some surprises and puzzles. A first puzzle is that most measures of cognitive ability, including numeracy, are not significant determinants of pension and Social Security knowledge. A second puzzle is that the amount of wealth a household accumulates outside of pensions and Social Security does not decline as the value of the household's pension wealth increases, income constant. The hypothesis set forth by earlier researchers is that pensions lead to greater understanding of the mechanics of saving and a greater appreciation of the need for retirement saving. This suggests that wealth held outside of pensions should be related to knowledge of pensions. But we can find no evidence in support of that relationship. A third and related puzzle is that knowledge of pensions has no effect on the relation of cognition to wealth. This leads us to conclude that numeracy does not influence wealth in whole or in part by affecting financial knowledge of one's pension plan, where financial knowledge of the pension then influences other decisions about retirement saving.

To be sure, many people do not have an incentive to understand their pensions and Social Security, even when reaching their early or mid-fifties. For some, their plans are not sufficiently valuable to pay much attention. For others, their retirement is assured due to a generous pension that does not require monitoring. Perhaps most importantly, for those approaching retirement age, the largest share of their pension wealth remains in defined benefit plans where typically there is little for an individual to do in order to increase retirement benefits.

We have tried a variety of specifications to ensure that the absence of a link between knowledge of pensions and Social Security and numeracy, and the knowledge variables and wealth, is not due to a particular specification we have adopted. We have tried specifications with and without pension wealth included as a covariate. If there is no link,

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we are left with a list of questions. Accepting the relation between numeracy and wealth, what exactly is the mechanism by which numeracy affects wealth? What calculations or behavior does numeracy affect that are not ultimately reflected in pension or Social Security knowledge? Shouldn't greater numeracy that leads to greater wealth accumulation also have created greater financial acumen, which is then reflected indirectly as increased knowledge of pensions? When the finding that those with pensions are motivated to accumulate higher balances outside of their pensions and Social Security was uncovered in the literature, it was argued that those with pensions learn from their providers about the need for retirement saving and perhaps increased their understanding of how wealth accumulation works. Yet knowledge of pensions and Social Security does not affect saving behavior. Why does numeracy play an important role in influencing saving, even holding income constant, while knowledge of pensions plays none?

These findings not only raise questions about the role of knowledge of pensions and Social Security in shaping retirement saving, but they also raise questions about the linkage between numeracy and wealth. Not whether there is one — the evidence supports the existence of such a link. The question is how it works. We had thought that one avenue through which numeracy influences wealth is through an effect on understanding of financial instruments. But no financial instrument is more crucial to retirement saving than pensions and Social Security. So we are left with the question, what is the channel through which numeracy affects wealth accumulated by the age of retirement? Our findings raise questions about the avenues through which cognition and numeracy increase retirement wealth. Accordingly, our analysis raises questions about whether the apparently robust numeracy-wealth relation provides a basis for designing policies that are aimed at increasing retirement saving by increasing numeracy or financial literacy.

Financial education would seem to be a straight-forward policy that would allow those with lower levels of numeracy to nevertheless save adequately for their retirement. The numeracy-wealth relation, which remains even after standardizing for the differences in earnings that result from higher numeracy, seems to suggest that those with higher numeracy have an easier time learning about financial instruments, risk and the need for, and the best ways to accumulate, retirement saving. But our findings suggest the numeracy-wealth relation may reflect something else. Perhaps numeracy reflects an unmeasured characteristic of the individual that cannot be learned, but does generate higher wealth. In that case, it will be much harder to design policies that both allow individuals to make their own decisions and to have minimal interference from the firm or government in shaping their choices. If nothing else, these findings suggest a good deal of caution is warranted before assuming that classes in financial basics, tutorials or other efforts to convey financial knowledge are likely to be successful in inducing appropriate saving habits, choices in the face of risk, or a proper approach to spending down assets after retiring. Although these policy initiatives may well ultimately encourage additional saving, each one should be carefully and rigorously evaluated on an individual basis before financial education and training programs are adopted on a significant scale.

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