Wealth, Reservation Wealth, and the Decision to Retire

This paper introduces the notion of a wealth level at which a household is indifferent between no one in the household working and at least one household member working. This "reservation wealth" is estimated for a sample of recently retired households using variables consistent with economic theory. The results are used to compare the reservation wealth theory with an alternative hypothesis, that the sample is simply random with respect to net worth.

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One way to study the dynamics of the retirement decision is to estimate the amount of wealth sufficient to induce a household into no longer having any of it's members work for pay, presumably living off savings.

The wealth of a household is defined to be the per-year value of an inflation-adjusting, life-guaranteed payout annuity that would cost the household's net worth. For single individuals, the term on this payout annuity is the standard life expectancy. For married couples, the term is the expected period of marriage plus the poverty threshold ratio for 1 versus 2 people, multiplied by the expected period of widowhood. By treating the term of the annuity in this way, the wealth measure used incorporates the notion of a decreased cost of living when one of the two household member dies. The formula to calculate wealth, then, is just the following...

$$V = \frac{N}{\left(1 - \frac{(1+r)^{m}}{r}\right) + \frac{b\left(1 - \frac{(1+r)^{w}}{r}\right)}{(1+r)^{m}}}$$

Where V = the wealth of the household (i.e. - the payout of the hypothetical annuity), N = net worth, m = the expected length of the marriage (m = single life expectancy for single individuals), w = the expected length of widowhood (w=0 for single individuals),b = the adjustment for widowhood, and r = the prevailing real interest rate.

A household is defined as working if any of the members are working or planning to work in the future more than a significant number of hours (around 10 hours per week) and is considered retired otherwise. It is then assumed that all households where no one works or has any intention of working in the future and where someone in the household recently retired has actual wealth equal to reservation wealth.

Using economic theory and practical considerations, A general hypothesis regarding reservation wealth and it's determinants is formulated: reservation wealth is expected to be positively correlated with the wages and education levels of household members, and negatively correlated with the health status of household members. Also, being a white collar worker should raise reservation wealth, being single should reduce reservation wealth, and having more dependents should increase reservation wealth.

If this group of recent retirees were a random sample of individuals with respect to net worth, we would expect some of these relationships to be different. Relationships under this condition will be the alternative hypothesis, that reservation wealth does not exist. If this were true, then we would expect that wealth for this group of recently retired households related to other variables similar to the population as a whole. This would mean that we would expect that the wages of the household members, being a white collar worker, good health, and years of education would have a positive impact on wealth. These predictions are identical to those from the reservation wealth model. Also, under the alternative, the age of household members should be positively related to wealth, especially since life expectancy goes down with age. Under the alternative we would also expect having dependents to be associated with having less wealth, and we would expect for single individuals, males would have higher wealth levels, due to having higher net worth and lower life expectancies, controlling for age. The only prediction from the alternative hypothesis that directly contradicts the reservation wealth model is the one concerning dependents.

The reservation wealth model was estimated using households from the 1983, 1986 and 1989 Survey of Consumer Finances (SCF) who were not working or planning to return to work full time *and* where someone had recently retired from full-time work. There were also minimum hours of work requirements so that it can be reasonably believed that the decision not to work was more or less voluntary. Wealth estimates were calculated using a real rate of both 2 and 4 percent. Life tables from the 1988 Vital Statistics of the United States were used to calculate expected years of life and marriage. Wealth was then regressed against the explanatory variables discussed above using OLS to test the reservation wealth hypothesis against the alternative.

Regressions were run for a number of groups using both interest rates: First, for married couples, differentiating individual characteristics as "male" and female;" second, for married couples, differentiating individual characteristics as those of the "more recent retiree" and "less recent retiree;" third, for single individuals; and last, for both single and married households, using only the individual characteristics of the most recent retiree. There were no significant differences in the results from using the 2 or the 4 percent real interest rate. Table 1 presents a summary of the signs that were expected on the regressions from the two competing alternatives, and the actual results. Wealth was indeed found to be positively correlated with wages, being a white collar, worker and education, and negatively correlated with health status and being single, as expected. The regression coefficient on the number of dependents was positive but insignificant at the 10% level for all regressions run. Also, while the age coefficient had a positive significant sign in all the regressions, the sign on the dummy variable for men in the regressions run on singles came up negative. This result, along with the sign on the number-of-dependents coefficient, at least gives some indication that this is not merely a random sample of households with respect to net worth.

Future research in the area of reservation wealth and retirement could be applied to any and all issues where future labor force participation needs to be estimated. In particular, research of this kind could be used to estimate the expected outcome of an early retirement offer. As the workforce ages, questions like these will begin to mean more and more to the strategic planning of any organization with respect to it's workforce.

Table 1
The Reservation Wealth Hypothesis vs. The Alternative, and a Summary of the Results

(Dependent Variable = Wealth)

Explanatory Variable	Sign Res. V	Alt	Result
Wage	(+)	(+)	(+)*
White Collar[d]	(+)	(+)	(+)*
Poor Health[d]	(-)	(-)	(-)*
Yrs. of Educ	(+)	(+)	(+)*
Single[d]	(-)	x	(-)*
# Dependents	(+)	(-)	(+)
Age	x	(+)	(+)*
Male[d]	x	(+)	(-)

[d] = dummy variable
x = the hypothesis makes no prediction with regard to the particular variable.
* = significance found at 10% level

Endnotes

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