PAA 2007 Extended Abstract

Old-Age Wealth in Mexico: the role of early-life reproductive and human capital decisions

Rebeca Wong
University of Maryland

Deborah S. DeGraff
Bowdoin College

This paper examines the effects of early-life decisions regarding investment in human capital, family formation and work activities on wealth holdings of the elderly in Mexico, using the 2001 Mexican Health and Aging Study (MHAS) data. We will examine correlates of accumulated wealth across three cohorts, based on age in the year 2000: those aged 50 to 59, those aged 60 to 69, and those aged 70 or older. These cohorts have experienced enormous changes in social, economic and institutional context during their lifetimes, such that behaviors at certain ages or points in the life course may translate differently across these cohorts into effects on later-life wealth. In this abstract, we first describe this changing context, and then briefly discuss the theoretical foundation for our research, the MHAS data, and the proposed analysis.

Population aging is well underway in Mexico and is expected to accelerate in the coming decades. The observed changes in life expectancy in the last 65 years imply that mortality declined by more than 80 percent from 1930 to 1995. Life expectancy at birth for the year 2000 is estimated at 73.1 for men and 77.6 for women. The total fertility rate continuously declined since the mid-1960s, from 7.2 children per woman to about 2.5 in the year 2000 (Partida 1999). Unless there is an improbable increase in fertility or in old age mortality to offset this momentum, the percentage of the population aged 60 or older will increase from 4.4 percent in the year 2000 to about 25 percent by 2050 (Partida 1999). By way of comparison, 13 percent of the U.S. population was aged 60 and over in 1950 and is projected to increase to about 25 percent in 2025.

In Mexico, the social and political context in which the aging of the population is taking place is characterized by two dominant concerns. One, the traditional social order where the well being of the elderly depends on the younger generation is gradually shifting due to the rapid fertility decline and a transformation in living arrangements. Unlike developed countries, in which traditional living arrangements changed prior to aging, these transformations and population aging are occurring at the same time in Mexico (DeVos and Palloni 2002). Two, aging is occurring in a fragile institutional environment (Cutler et al. 2000), in which the proportion of the population protected by public health and social security systems has been and continues to be limited. According to the 2000 Mexican Population Census, about one-half of the population aged 65 or older has no health care coverage, while only about one-fifth receive an old-age pension (INEGI 2000). Social security systems are undergoing vast reform towards privatization that is expected to produce further reductions in access to social protection (Cruz-Saco and Mesa-Lago 1998; Klinsberg 2000). Thus, the highly compressed aging process in Mexico is taking place under changing intergenerational relations and a fragile institutional context with shrinking access to social security and health care.

The past institutional context for the elderly in Mexico is also characterized by rapid change. The MHAS cohorts (aged 50 or older in 2000) were born roughly between 1900 and 1950. They are survivors of a revolutionary war from 1910 to 1921, and witnessed the approval of the Constitution in 1917. The Ministry of Education was created in 1921, initiating around 1930 a period of gains in literacy rates, in particular in rural areas (Ham 2003). Still, in 1943, the general literacy rate was only about 50 percent, compared to 90 percent in 2000. The Mexican Social Security Institute (IMSS) was created in 1943, covering workers in the formal labor market. Around 1959, federal- and state-level workers and other decentralized organizations launched social security systems (Montes de Oca 2001). These institutions initially covered urban populations and generally offered health care services as well as old-age pensions to their beneficiaries. The Ministry of Health, which was also created in 1943, takes care of the uninsured population. All of these institutions supported a social and medical infrastructure that contributed to the major gains in mortality mentioned above. The political origins of these social institutions and their evolution, however, resulted in a system of unequal access to education and health care, with a large divide in the human capital and income of the population by social class and in urban *versus* rural areas that remains today (Ham 2003; Montes de Oca 2001; Secretaría de Salud 2004, Lozano et al. 1993; Parker and Wong 1997).

In economic terms, shortly after the political environment stabilized in the 1930s, Mexico nationalized oil refineries and launched industrial production. The agricultural sector subsidized the growth of industry, enabling the economic development of the country during the 1950s, particularly in large urban centers. Two important labor programs emerged: the *bracero* program exported male workers to the U.S. from 1943 to 1964, and the *maquila* program (assembly manufacturing for export) started around 1965, employing mostly young women. The country enjoyed industrial and oil booms during the 1960s and 1970s, ending with economic crisis that started around 1976 and became evident in 1982. The 1990s saw economic revitalization, and a transformation into a heavily service-oriented economy by 2000 (Ramirez 2000, Fleck 2001). In summary, the current generations of Mexicans aged 50 and older have lived through periods of dramatic change, not only in the social and technological transformation inherent in the demographic and epidemiological transitions, but also in the institutional, economic, and political context. Gradual changes and vast inequalities imply that the historical experience across age cohorts varies widely, but major intra-cohort differences exist as well.

Aging has been increasingly studied using a life-course perspective (Settersten 2003). According to this approach, late-life wellbeing is a result not only of current social and economic forces and individual resources, but also of all the life stages that preceded the late-life stage. This literature recognizes that aging is a process, and has concentrated in particular on the health aspects of aging. Health stock in this literature is considered a result of lifetime health-related investments, thus the approach includes early health status and conditions in models of old-age health (Hertzman 1994; Barker 1998; Elo and Preston 1992). These models also consider the role that lifetime occupation plays as a factor that erodes or reinforces health stock. A life-course perspective has also been adopted in the study of retirement behavior, where measures of early-life work experience and family formation are considered as determinants of late-life labor force participation (Henretta 2003; O'Rand and Henretta 1982). Another branch of the literature focuses on late-life wealth as the outcome, and considers earlier labor force participation and income as determinants of late-life economic wellbeing (Poterba et al. 1998; Smith et al. 2003).

The majority of this research, particularly that focusing on determinants of wealth among the elderly, has been conducted in high-income countries. Here we seek to apply this theoretical perspective in the context of a developing country that has experienced rapid change, and to examine factors reflective of that change such as family formation behavior, human capital investment and migration, in addition to measures of engagement in the labor force, as potential determinants of late-life wealth.

Data. The MHAS is a nationally representative, prospective panel study of Mexicans aged 50 and over in 2000.[1] The study design and content are comparable to the U.S. Health and Retirement Study (HRS). Interviews were sought with spouses or partners of sampled persons regardless of their own age. Data were collected on multiple domains of health; demographic traits, including marriage, fertility, and the migration histories of respondents, their parents and offspring; family networks and transfers exchanged; some aspects of work history; current income, assets, and pensions; and the built environment. States with high rates of out-migration to the United States were over-sampled. Baseline interviews were completed with about 15,000 respondents in 2001. These data are particularly useful for the purpose of the proposed research because the survey gathers retrospective information on labor force participation, including age at first employment, total years worked, main occupation and attributes of the work environment; and marriage including age at first marriage and details on the first and last unions. The survey also includes information on a variety of indicators of current economic well being such as income and wealth. The MHAS data include information for both persons in a couple; the 2001 sample contains roughly 4500 couples, 950 unmarried men, and 2800 unmarried women.

We select wealth as the outcome of interest in our analysis because it is a powerful indicator of late-life economic wellbeing. In particular in developing countries, where credit markets are not fully developed and institutional support for old age is scarce as has been mentioned, the population may be highly dependent on accumulated assets to provide for their old age consumption needs. Wealth in the MHAS was obtained from questions on an individual's or couple's gross value and debt on properties to live in or rent, businesses, vehicles, as well as the value of capital assets, debts, and other assets. Similar to studies in the U.S., such as the Health and Retirement Study, the use of brackets for economic values proved to be an effective method to recover non-response in the survey. On average, about 60 percent of a person's net worth in the MHAS is represented by their home, compared to 20 percent from businesses and other real estate, and 6 percent from capital assets and vehicles (see Table 1). We have found in previous work using MHAS data (Wong and Espinoza 2003; Wong, Palloni, and Soldo 2003) that the measure of wealth is externally and internally consistent, that it is a good indicator of economic wellbeing, highly correlated with current health and education, and performs better as an economic covariate than current income for this population.

Methods. In this paper, we present detailed descriptive analysis of the patterns of wealth among the elderly in Mexico, as well as estimate a preliminary multivariate model of the determinants of late-life wealth, controlling for indicators of the economic status of the household of birth. In both types of analysis, we are particularly interested in examining measures of early-life human capital, family formation and labor force behaviors. Because the structure of wealth is quite different for individuals who are married or in a union than for those

[1] The data and documentation are public use and can be obtained from www.mhas.pop.upenn.edu.

who are unmarried, and because we expect the effect of past behaviors on old-age economic outcomes to be vastly different for men and women, we shall separate the analysis for the following groups of the MHAS: married persons, unmarried men, and unmarried women. In addition, because of the rapidly changing social, economic and institutional context, we will conduct separate analysis for each of the three age cohorts as previously defined.

We also acknowledge that the measures of early-life behavior in which we are interested as potential determinants of late-life wealth, may be endogenous to the dependent variable. The concern is that the same attributes that determine, for example, labor force participation in young years can determine late-life assets accumulation. To the extent that such attributes are unobserved, models that include early-life labor force participation as an explanatory factor contributing to late-life wealth can be biased due to this unobserved heterogeneity. Very few studies of aging in developing countries address this potential source of bias (see Wong et al. 2003 for an exception). In this preliminary analysis, we also will not address this concern statistically. We are currently exploring for future analysis the use of aggregated data about the past context which can be linked to the MHAS data, that we hope will provide reasonable instruments to model the endogeneity of past behavior.

Turning very briefly to key explanatory variables, preliminary descriptive analysis indicates that age at first marriage, number of children ever-born, whether ever engaged in labor force work, and number of years worked per years of age, vary across age cohorts. Interestingly, regarding age at first marriage and number of live births, we find generalized differences across education groups to be more pronounced than across age cohorts. As expected, younger women and those with more years of education are more likely to have been employed over their life than are older and less-educated women. The fraction of years employed is larger for younger cohorts than for older ones, in particular for women with more than six years of education. This pattern differs for men and women, however. The percentage of life worked is greater for men with lower education. Thus we see substantial variation in these measures of early-life behavior both across and within cohorts, and we aim to explore how this variation affects late-life wealth.

We estimate multivariate models with the following measures for old-age wealth: 1) a log-wealth measure for a continuous dependent variable; and 2) a categorical wealth measure to capture the covariates of having high-wealth (highest tercile). We use these two specifications because net worth is highly skewed in the population of study. As explanatory variables, we include variables that capture: a) initial stock -- parental socioeconomic background, childhood health; b) human capital accumulations – education, c) family formation – number of children, age at first marriage; d) labor market activity – if ever in the labor market, age at first employment, number of years worked, main occupation, work benefits received, e) active-years investments – if the individual or his/her spouse were ever U.S. migrants. In additional models we include also the attributes of the adult children (if any), such as the highest education achieved by a child, whether any of the children is currently or has been a US migrant, and whether long-time co-residence with an adult child has occurred. These are all factors that can help explain the wealth accumulation among older adults in a developing economy.

The paper presents an overview of the strategies and options for wealth accumulation for older adults in Mexico; a description of the net worth patterns by the main covariates across the

groups defined by age and sex/marital status; the results of the multivariate models; and conclusions regarding whether the economic wellbeing of older adults in Mexico varies significantly across age cohorts and gender strata, and how the reproductive and labor market decisions impact old-age economic wellbeing as measured by wealth.

Table 1.
Individual Net Worth and Share of Assets by Type and Age Group, Education, and Sex/Marital Status
Individuals Aged 50 and Older. Mexico.

		NET WORTH				Share (%)			
		Absolute		Ratios		Housing	Business & Rents	Capital, Vehicles, Debt	Other
		Median	Mean	Median	Mean				
Age Group									
50-59	(n=5880)	94,234	192,808	100	100	61.5	20.4	6.6	11.5
60-69	(n=3824)	100,000	216,351	106	112	63.5	18.4	5.7	12.4
70 and olde	(n=2733)	62,626	185,712	66	96	66.3	17.9	5.0	10.8
Years of Edcuation									
0	(n=3096)	50,000	120,881	100	100	70.4	16.9	1.6	11.1
1-5	(n=3096)	76,087	153,080	152	127	62.0	21.7	3.6	12.7
6	(n=2236)	125,000	195,209	250	161	69.3	13.5	5.1	12.1
7 +	(n=2700)	205,000	412,978	410	342	58.2	20.8	9.9	11.1
Men									
Married	(n=4743)	97,133	184,473	100	100	60.8	22.0	6.7	10.5
Unmarried	(n=959)	80,000	253,479	82	137	62.2	20.1	6.7	11.0
Women									
Married	(n=3884)	94,319	185,237	100	100	61.2	21.4	6.4	11.0
Unmarried	(n=2851)	80,000	216,575	85	117	69.2	12.2	3.9	14.7
Total	(n=12437)	90,250	198,364			63.2	19.2	5.9	11.7

Source: MHAS 2001

Weighted data.Using imputed net worth. Net worth=Gross value minus debt in pesos
For unmarried persons, net worth is on own assets.
For married persons, net worth is based on own assets and spouse's assets, divided by two.

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