Dynamics of Economic Security among the Aging in Mexico: 2001–2012

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Abstract

Similar to other developing countries, population aging in Mexico has accelerated, raising concerns that economic disparities will widen even more. We use data from the Mexican Health and Aging Study for 2001 and 2012 to derive measures of economic security — income and its sources, and wealth and its components — and describe how they changed over time and varied across key characteristics. The database is unique for a developing country: longitudinal and spanning a relatively long time period, and nationally representative of older persons (n=12,400; ages 50+). We conduct descriptive analysis for the full sample, and for sub-samples defined by 'safety net' indicators, health status, and demographic characteristics. Given that this time period included crucial economic and social changes in Mexico, we derive period results, measuring differences across time in two cross-sections; and longitudinal results, capturing changes among individuals as they age. In-depth examination of income and wealth identifies important contributors to old-age economic security in Mexico; we confirm several expected patterns and provide first evidence about others. Older adults with low income and asset values in Mexico have less diverse income sources and asset types; real incomes of older persons decreased substantially, and their income and asset portfolios became less diverse over the period. With older age, Mexicans relied more heavily on transfers and family help, and less on earnings. Overall, limited safety net options and worse health conditions were associated with less robust and deteriorating economic profiles.

Keywords

aging; Mexico; economic security; safety nets; health; MHAS longitudinal data

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Introduction

The last two decades have witnessed the onset of rapid aging in many developing countries, including Mexico. The well-being of the growing population of older adults will depend heavily on their economic standing and degree of economic vulnerability. However, little is known about the economic security of the elderly in such countries, primarily due to a lack of data with a focus on older individuals (Barrientos and Mase 2012). This study utilizes a unique dataset, the Mexican Health and Aging Study (MHAS) whose respondents are age 50 or older, to provide a detailed quantitative description of their economic security. We focus on own income and assets – both the level and composition thereof – to capture the economic resources that older adults command, and relate these to their health status and safety nets (i.e., traits that can protect one's economic position; defined below) to assess their economic vulnerability. Our data cover 2001 to 2012, a period which included a global economic recession that impacted Mexico significantly, but also in which there were critical structural social changes that increased access to health insurance and to old-age pension income. The study design allows us to examine comparable age cohorts, using two national cross sections that span this period of change in Mexico. In addition, the study follows longitudinally the cohort that is aged 50 and older in 2001, allowing us to compare their baseline economic situation with the 2012 follow-up to measure changes in economic security associated with aging. To our knowledge, this is the first paper to document changes in economic conditions over more than a decade for a representative cohort of older individuals in a developing country.

After reviewing contextual changes in Mexico during the relevant period, we describe the data and methods of analysis. We then present three types of descriptive results: 1) baseline results; 2) differences across time in the cross-sections (i.e., period results); and 3) longitudinal results that track individuals as they age (i.e., cohort analysis). The period results characterize the socioeconomic environment in which individuals aged and, thus, provide context for interpreting the longitudinal results.

Our detailed characterization of economic security identifies important contributors to economic vulnerability in old age in Mexico, and how they change as older people age and the socioeconomic environment changes. We confirm expected patterns and shed new light on some previously unknown. We find that among older persons in Mexico, commonly vulnerable groups – women, the oldest, rural residents – have lower incomes and asset values. Moreover, we find similar patterns for those with limited safety net options and worse health conditions. A key additional finding is that those with lower income and asset values also tend to have less diverse income sources and asset types, contributing to even greater economic vulnerability. Furthermore, we find that from 2001 to 2012, a decade of profound socioeconomic change, real incomes of older persons decreased substantially and, exacerbating this trend, their income and asset portfolios became less diverse. As older Mexicans aged, they relied increasingly heavily on transfers and family help, and less on earnings, as expected. However, our focus provides additional insight as this pattern of deteriorating economic profiles tends to be more pronounced for those with weaker health and safety net attributes. Expansion of pension coverage during this time seems to have only partially offset the trends of decreasing income levels and diversity of income sources.

Background and Motivation

A large percentage of the world's population resides in developing countries that are experiencing rapid aging, yet, little is known about the economic position of the elderly in such societies.[1] In particular, empirical evidence regarding sources of economic support among older adults – e.g., income from employment, accumulated assets, financial transfers from family, institutional support – and how these adjust as people age, is lacking. In addition, while there is considerable evidence from industrialized countries regarding the positive effect of good health on the economic position of the elderly (see, for example, Cutler and Lleras 2006; Mackenbach et al. 2008; Smith 1999; Smith 2007), it is unclear whether such findings translate to a developing country context such as Mexico. On the one hand, the lack of well-developed social welfare institutions for the elderly (e.g., social security, health insurance), as well as underdeveloped financial institutions, suggest that health status, operating through one's ability to continue to earn income from labor, is likely to be an important determinant of economic well-being. On the other hand, the greater emphasis on familial support for the elderly in many developing societies may render health status less important to secure or maintain their economic position. Micro-level research in developing countries is lacking with respect to the potential impact of health status on the economic position of older individuals, and how safety nets such as family support affect this relationship. This paper, using descriptive quantitative evidence, lays a foundation for exploring these questions in Mexico.

Mexico is a large developing country that is aging rapidly and is characterized by vast social and economic inequalities (Iniguez-Montiel 2014; Lustig et al. 2013; Wong and Palloni 2009). The demographic transition is at a stage where both mortality and fertility are converging to low levels, with the population aged 50+ increasing from 13.1 percent in 2000 to 17.1 percent in 2010 (INEGI 2000, 2010a). Rapid aging is also evident in population projections, with the percentage aged 65+ expected to increase from 6 to 15 in just 25 years by 2026. For comparison, this same increase was experienced in the United States over 69 years (Kinsella and Phillips 2005). In Mexico, and in many other countries, the combination of rapid aging, insufficient economic development, and a high degree of inequality raises growing concerns that aging will present increasing vulnerability among older adults of subsequent generations and even wider economic disparities.

During the period covered by our analysis (2001 to 2012), Mexico experienced important changes in the macroeconomic and institutional environments. The strong ties with the U.S. economy resulted in large effects of the 2008 financial crisis. For example, Mexican GDP decreased by 7 percent in 2009, the sharpest decline in Latin America, with further contractionary effects from a 16 percent drop in migrant remittances (Villarreal 2010). By 2012, the level of remittances had not recovered to 2008 levels. These trends were exacerbated by the escalation of drug violence in parts of Mexico, resulting in a decline in foreign direct investment (Banco de Mexico 2016; Robles et al. 2013). In addition, key structural patterns that hinder economic growth continue including, for example,

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[1]See Barrientos et al. (2003) for a summary of evidence on the incidence of poverty among older individuals in developing countries, based on survey data and qualitative studies.

underdeveloped financial markets and institutions. This contributes to low savings and a limited ability to rely on financial assets for old-age security for a large fraction of the population (Murillo and Venegas 2011).

During the same period, the Mexican government enacted or expanded several social welfare programs, perhaps the most well-known of which is Oportunidades with its focus on early childhood health and education. Two other programs are especially of interest here, as they aimed in part at improving the well-being of the elderly population. In particular, 'Seguro Popular' (medical insurance) and 'Programa 70 y más' (pension for ages 70+) were introduced during this time and are especially relevant for this analysis. The former offers publicly-provided health insurance to those not otherwise insured (approximately half of the population prior to the new program), with no premium required of very low-income households (Comision del Seguro Popular 2013; Knaul and Frenk 2005; Knaul et al. 2012; Parker, Wong and Saenz 2015). 'Seguro Popular' was introduced on a limited basis in 2003, with coverage gradually expanding to all states. By 2012, close to 100 percent of the target had been achieved, with the program having affiliated approximately 53 million people of all ages. The 70+ pension program has a direct impact on income of older adults and its influence should, therefore, be more apparent in our analyses of economic security. The program began in 2007, with an initial focus on rural areas (SEDESOL 2013, 2015). Prior to the introduction of this pension program, only about one-fifth of the population aged 60 and older had access to formal retirement or pension plans through employment (SEDESOL 2013; Wong and Espinoza 2003). This program also was gradually expanded and covered nearly 90 percent of the population aged 70+ by 2012, at which time the monthly payment (not means-tested) was 500 pesos. In 2013 it was extended to ages 65+.

Within this context, this paper provides a detailed characterization of the income sources and asset profiles of older Mexicans, how they differ by key characteristics and how they change over time. We examine two national cross-sections of adults aged 50 and older, for 2001 and 2012, roughly spanning before-and-after these critical social and economic changes in Mexico. In this 'period' analysis, we are interested in examining how economic security differed across time for comparable demographic cohorts. We also perform detailed description longitudinally, following the cohort aged 50 and older in 2001, and examine changes over time in their economic vulnerability in relation to health and safety net characteristics.

We utilize a variety of descriptive statistics to document income and asset patterns. Regarding income, we are particularly interested in reliance on earnings from labor, as this source of income is likely to be greatly influenced by older age and health status. We are also especially interested in the role of help from family and whether it is changing over time, as this has traditionally been an important source of livelihood among the elderly in Mexico, as in many developing countries, and can help to offset the effects of declining health on one's standard of living. Regarding wealth, we are particularly interested in the distribution of wealth holdings by relative liquidity. Asset liquidity impacts the ability to respond effectively to shocks in the short run, including health issues, which in turn is likely to affect the economic position of older persons in the future. In addition, we highlight

productive assets that have the potential to contribute to income generation, thereby possibly lessening reliance on others for employment or family assistance in meeting financial needs.

Data and Methods of Analysis

The data derive from the Mexican Health and Aging Study (MHAS), a prospective longitudinal survey of a sample of older individuals (aged 50+), with study protocols and survey instruments highly comparable to the U.S. Health and Retirement Study (HRS). The study protocol includes interviews of the selected person and of his/her spouse (regardless of age). The MHAS includes detailed measures of various dimensions of health and functionality (self-reported conditions, tested cognitive functions, self-reported physical functions). Additionally, it includes information on employment history, financial support from/to family, income, pensions and assets, health care use and migration history, along with standard demographic and socioeconomic information. Income and asset measures are obtained separately for each individual; however, joint assets and income refer to the couple if applicable, for example joint home ownership and financial help from family. The first two waves of data were collected in 2001 and 2003, and the third wave in 2012. Because we are interested in describing changes that occurred over a decade, this paper uses Waves 1 and 3, which we refer to hereafter as Time 1 and Time 2. More details on the MHAS can be found in Wong et al. (2015).

The MHAS database is the first of its kind for a developing country: longitudinal data for a large sample of older persons, having national and urban/rural representation, with highly comparable content across waves, and with multiple panels spanning a relatively long time.[2] Additionally, it includes expansion factors which we use to weight all descriptive statistics to render them representative of the age 50+ population nationally. The MHAS is characterized by a very low attrition rate between panels, other than the expected sample loss due to death given the ages of respondents (discussed more fully below). Wave 3 augmented the sample of young cohorts in order to again be representative of the population aged 50 or older in 2012. Our analysis samples include 12,405 individuals for the 2001 cross-section, 13,946 for the 2012 cross-section, and 7,305 for the 2001–2012 longitudinal sample.

We derive measures of economic position – income and its sources, and wealth (net assets) and its components – for the older adults represented in the MHAS, and determine how these measures change between Times 1 and 2. The analysis is carried out for the full samples as well as for sub-samples defined by indicators of health status, safety net options and demographic control variables.

We group the variables into four categories:

- economic outcomes (income and wealth),
- safety net measures (education, health insurance [yes/no], number of children)[3],

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[2]Another important study of older populations in developing countries, the Ageing, Wellbeing and Development Study, collected longitudinal data from two panels of individuals ages 55+, in 2002 and 2008, in select locations of Brazil and South Africa (Barrientos and Mase 2012).
[3]Pension could also be considered a safety net. However, because it adds directly to income and, thus, is analyzed as part of the income measures, we do not treat it in the same way as other safety net variables (i.e., as a covariate).

- health status measures (functional limitations, presence of chronic diseases), and

- demographic control variables (age, gender, location of residence).

For income and wealth, we construct individual-level measures. In the case of couple households, we use the common approach of adding joint and individual assets or income and dividing by two in order to obtain individual-level measures (see, for example, Purcell 2012). The safety net measures are intended to capture traits that could protect the economic means of the aging. For example, higher levels of education could translate into better information and greater flexibility in adjusting to changing economic conditions. Access to health insurance can both help to maintain one's health as well as protect financial assets from health expenditures. A larger number of children increases the possible sources of financial and other forms of familial support. However, given that high fertility is often associated with poverty, it is *a priori* less clear whether this trait is a good safety net measure. Finally, we use the following measures to represent health status: 1) a dichotomous indicator for experiencing difficulty with at least one of the Activities of Daily Living (ADLs; bathing, eating, dressing, toileting, bedding), and 2) a count measure of the number of chronic diseases affecting the individual among: arthritis, diabetes, high blood pressure, cancer, stroke, heart attack and lung disease.

In previous work using the MHAS baseline data, these variables (or variants of them) have been used successfully, thus we are confident that these are reliable constructs (Aguila and Zissimopoulos 2013; DeGraff and Wong 2014; Gerst et al. 2011; Wong and DeGraff 2009; Wong and Espinoza 2003; Wong and Gonzalez 2010; Wong et al. 2007). Of particular relevance, highly detailed algorithms modeled after those used in the HRS are applied in each wave of the MHAS to impute income and asset variables when responses are missing.[4] Important to motivating our work, most previous studies using the MHAS that have included a focus on income and/or wealth have considered only total values, and have not examined the sources of income or components of wealth. An exception is Wong and Espinoza (2003), who examine patterns of income and wealth in the 2001 MHAS, including a breakdown of income sources and asset types by several characteristics. A limitation of our analysis is that the data do not include information about the income/assets of any other co-resident individuals. For example, while we know how much financial support, if any, is received from family members (regardless of where the family members reside), the income of co-residents likely impacts respondents' economic security even without the transfer of funds.[5]

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[4]A very small number of observations (much less than 1%) were dropped due to extreme income values (outliers). Regarding the imputation of income and wealth values, respondents were queried about each category of income (earned, business, pension, etc.) and of assets (home, vehicle, financial assets, etc.), and were first asked whether they had any of the income or asset. The non-response rates to these questions were very low (less than 2%). Those indicating non-ownership were assigned a value of zero, while those indicating ownership were asked about the values; any debt associated with the asset was subtracted. Those unable to provide exact values were further queried using the unfolding brackets methodology. Imputation was used both for those providing bracket values and those not providing any value. Using as an example the most commonly held asset, a home (owned by 75% of the sample), 63% of owners in 2001 provided an exact value of their home, another 28% provided the value through brackets, and 9% did not report a value. Overall, exact values were more often reported by those with lesser wealth; the rate of reporting exact values was similar for males and females. The imputation technique utilized the SAS-based IVEware, distributed by the University of Michigan and used by the Health and Retirement Study, as described in detail in Wong and Espinoza (2004) and Wong et al. (2016). Importantly, the methodology allows for the imputation of zero as a possible value. External consistency was assessed by comparing the wealth values with other sources for Mexico as summarized in Wong and Espinoza (2003).

[5]See, for example, Behrman and Parker (2013) for evidence that the PROGRESA/Oportunidades conditional cash transfer program in Mexico resulted in beneficial impacts among older individuals (ages 50+) co-residing in recipient households.

We construct measures for the following sources of income at Times 1 and 2: earned income (distinguishing between employment for others [referred to here as labor earnings], and self-employment/business income [referred to here as business income]), income from financial assets, income from property, informal financial transfers from family, pensions, and other forms of institutional support. Similarly, we construct measures for the following components of wealth (net assets) at Times 1 and 2: net worth (value minus debt) of financial assets, home (if owned), businesses, vehicles, other properties/land owned, and miscellaneous assets (material goods, jewelry, etc.). All monetary values are presented in real terms of 2001 Mexican pesos. Based on these measures, we derive descriptive statistics for Time 1 and Time 2 to characterize the distributions for total income and net asset values. In addition, we characterize at each time the share of each income source and asset type as part of the total, and the numbers of income sources and asset types per individual.

We first focus on the resulting distributions for the 2001 sample and how they differ with respect to health status, safety net options and demographic controls. These results establish a baseline for examining changes over time. Second, we conduct period analysis using the full cross-sectional samples in 2001 and 2012 to compare several of the income and asset measures across time periods for demographic groups (defined by age, gender and location of residence). The period analysis provides further context for the longitudinal investigation, giving a sense of how the larger socioeconomic context for older persons in Mexico is changing as distinct from the individual experience of aging over time.

The third part of the analysis exploits the longitudinal aspect of the data to conduct cohort analysis by examining the change over time for each of the income and wealth measures for the individuals present in both 2001 and 2012.[6] We track changes with aging in the level of total income, the relative share of alternative sources of income, the level of wealth, and the composition of wealth. For a selection of these measures, we analyze results for patterns according to indicators of health status, safety net options and demographic characteristics in the 2001 baseline. Changes over time at the individual level are a combination of the larger societal changes represented in the period analysis and the changes associated with individual aging in a static environment. By comparing the longitudinal and period results, we can roughly gauge whether these sources of change are reinforcing or opposing. In addition, we present evidence with respect to changes over time in the degree of inequality in income and asset distributions to assess if, with aging, certain individuals as characterized by safety nets, gained or lost ground relative to other older adults.

Results

Baseline Results: Income and Wealth at Time 1

Table 1 presents information on total income in 2001 and its distribution across income sources by key characteristics. Average total monthly income for the full sample is about 3,000 pesos, with a standard deviation more than three times the mean, reflecting the high

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[6]The sub-sample of individuals re-interviewed in 2012 is highly similar to the original 2001 sample across a variety of characteristics, though with the expected pattern of younger and healthier individuals being more likely to persist to 2012. For example, the average age of the full 2001 sample is 62.5, whereas the average age in 2001 of the subset of those re-interviewed in 2012 is 59.5.

liquidity. Also of interest is the relatively low importance of business assets for those with poorer health conditions, as measured by the number of chronic diseases. Standard deviations again suggest a fairly high degree of inequality for all groups.

Next, we examine diversity of income and asset portfolios, specifically, the degree to which older individuals in Mexico are dependent on a single income source (or report no income sources) versus a variety of sources, and similarly with respect to types of asset holdings. Table 3 shows that for the total sample in 2001 a single income source is most common (at 45.3%) and that nearly 13 percent report no income source.[9] We see somewhat greater diversity in the number of asset types, with two asset types being the most common (at 33.3%) and nearly one-third having no or only one asset type.

These general patterns hold for each sub-sample, but with some interesting differences by characteristics. For example, women are more likely than men to have fewer income sources and asset types, as are individuals with no schooling, experiencing problems with ADLs and, for income, those lacking medical insurance. In contrast, those in the highest schooling category are more likely to hold the largest number of asset types. The older group has a less diversified portfolio with respect to asset types, but results are mixed with respect to number of income sources.

Overall these patterns suggest less diversity in income and asset portfolios among groups at the lower end of the socioeconomic scale. Consistent with this finding is the fairly strong positive relationship in Table 3 between number of income sources/asset types and the total monetary value of income/assets. In other words, those who are economically better off according to the value of income and assets have more diversified economic foundations vis-à-vis income sources and asset types.

We also considered selected combinations of income sources or asset types (results not shown; available upon request). Those with no income source and those reliant solely on labor earnings are likely the most vulnerable in that such individuals either have no formal income source or are entirely dependent on others to hire their labor. Approximately 30 percent of the 2001 sample are in these two income situations, and their average incomes are substantially lower than for others. The importance of family is also clear with nearly one-third receiving at least some family support, as well as many in the No-Income category being dependent on family to meet basic needs. Groups that are less likely to rely on family for income (men, urban residents, the younger age cohort, the more highly educated) also tend to rely solely on labor earnings and have higher incomes. Regarding health characteristics, those who experience difficulty with ADLs or suffer from chronic disease are less likely to rely solely on labor earnings and are also less likely to report receiving income from family, though those with ADLs are still heavily dependent on family as suggested by the relatively large percentage with no income. In sum, these results suggest that those who are more employable or live where there are likely more employment options (men, younger, healthier, better educated, more urban), as well as those with fewer options

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[9]Most individuals reporting no income source reside with extended family who cover living expenses but do not provide any income. This category, thus, can be thought of as consisting largely of family support.

for help from family, are most likely to be solely dependent on earnings from employment by others.

Regarding asset type combinations, we highlight those with no productive assets (no assets or only housing), categories which also generally correspond to limited liquidity. Almost one-fourth of the total sample falls into these two categories, with total asset values, on average, that are much smaller than for those who possess some type of productive asset. There is a clear pattern of lower rates of ownership of productive assets among women, the older age group, and the less educated, but no clear pattern with respect to the other safety net and demographic variables. Ownership of productive assets is also less likely among those having difficulty with ADLs and those with several chronic diseases.

Period Analysis: Aggregate Differences between Time 1 and Time 2

The period analysis compares the cross-sections, representative of the population aged 50 and older for 2001 and 2012, using the full MHAS sample for each year. The cross-sections are highly similar with respect to average age (62.5 vs. 62.6) and percentage female (53.8 vs. 53.1). Not surprisingly, older individuals in 2012 are, on average, more educated and urban than in 2001 (4.0 vs. 5.9 years, and 46.6 vs. 49.4%, respectively). Regarding health characteristics, the 2012 sample appears somewhat less healthy as measured by difficulty with ADLs (9.0 vs. 14.3%), but perhaps healthier as measured by percentage with no chronic diseases (43.0 vs. 45.5%). Based on these cross-sections, we present the measures of economic security for comparable demographic groups, defined by age, gender and location at Time 1 and Time 2 to obtain a general sense of how economic conditions changed for older Mexicans.[10] For example, we compare results for urban women aged 50 to 59 in 2001 with the comparable group in 2012. This section briefly summarizes the overall picture that emerges from the period analysis; insights gleaned from comparing the period and longitudinal analyses are presented in the next section.[11]

Table 4 presents average real income and net asset values by period and demographic group. Overall, average income is lower at Time 2 than at Time 1 and average asset value is higher. [12] Given that any two groups being compared across time periods are comprised of different people, these results primarily capture changes in the larger social and economic environments rather than the experience of individuals aging over time.[13] The macroeconomic climate generally worsened between 2001 and 2012, while the similar social and demographic profiles of the two cross-sections suggest little difference in their income potentials. The exceptions here are the higher levels of education in 2012 which

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[10]Because the cross-section samples are considerably larger than the longitudinal sample, we distinguish between three age groups in the period analysis rather than two as in the cohort analysis.
[11]As mentioned in Note 8, all comparisons of mean income and asset values over time have been checked for consistency against differences in median values and other distributional characteristics.
[12]The decrease in average real income is consistent with National Household Income and Expenditure Surveys (INEGI 2002, 2010b and 2012) which show a very small decrease in average real household income for the population as a whole for this time period. We would expect such decreases to be greater for older individuals. The increase in asset value is driven largely by the fact that assets are comprised primarily of housing, and housing values increased substantially during this time (Sociedad Hipotecaria Federal 2016).
[13]Given the 11 years between surveys, none of the individuals in the 50–59 group at Time 1 are in that same age group at Time 2. The same argument holds for those aged 60–69 at Time 1. Only in the 70+ age group are some of the same individuals in the group at both time periods and, thus, mix individual aging with larger societal change. Even for the 70+, the two cross-sections are comprised of substantially different individuals at Times 1 and 2, both because of younger people aging into the group and the death of many who were aged 70+ in 2001.

could strengthen income potential, and the greater difficulty with ADLs which could weaken income potential.

We again see evidence of substantial inequality in the large standard deviations (relative to mean values) which, for income, suggest greater inequality at Time 2 than at Time 1.[14] The lower income levels at Time 2 are experienced by all demographic groups except for urban females aged 50–59, and the differences are statistically significant in all cases but two (less urban, females and males, aged 70+).[15] These differences mostly appear smaller (or not statistically significant) for the oldest age category, due in part to the expansion of the government pension program which, during these years, primarily focused on those aged 70+. In contrast, the larger real net asset values at Time 2 are experienced by all demographic groups, but appear less pronounced for rural males, and most pronounced for the oldest, urban categories.

Table 5 shows how the distribution of income sources among older Mexicans shifted from 2001 to 2012. Overall, business income and help from family were relatively less important sources of income at Time 2, while earned labor income and pensions plus other institutional transfers became relatively more important.[16] These differences are likely a reflection of the worsened macroeconomic environment placing pressure on small family businesses and family support networks in the later years, combined with the expansion of the pension program for those aged 70+, lessening the need for family support.[17] The smaller relative importance of business income and family support was widely experienced across demographic groups. Similarly, the greater importance of pensions plus institutional transfers applied to all demographic groups and was particularly pronounced for the oldest. In contrast, the greater importance of earned labor income in 2012 was limited to the younger ages who, on average, are better positioned in a weaker economy to find/keep a job and/or increase hours employed, and also do not benefit directly from Programa 70 y más.[18]

Table 6 provides comparable information regarding asset types in 2001 and 2012. Consistent with the income results, overall we see evidence of decreased relative importance of productive assets such as business and real estate assets at Time 2. In addition, while financial assets constituted a very small share of wealth in 2001, the share of these liquid assets is even smaller in 2012. These patterns are universal across demographic groups, though the decrease in relative importance of business assets in less urban areas is especially

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[14]We also calculated income and asset Gini coefficients using the 2001 and 2012 cross-sections. These results similarly suggest a high degree of inequality in 2001 for the population aged 50+ (income Gini .689; asset Gini .619), with a slight increase in income inequality (to .728) and a slight decrease in asset inequality (to .592) by 2012.

[15]While average income for urban females 50–59 was slightly (but significantly) larger in 2012 than 2001, median income for this group was substantially lower in 2012; thus, the increase in means was driven by extreme values while the bulk of the distribution was lower in 2012 than in 2001. Also, one group with a smaller mean income in 2012 (urban females aged 70+) had a statistically significantly larger (by 25%) median income in 2012. The bulk of this distribution was higher in 2012 than in 2001, in contrast to the other groups.

[16]Consistent with these findings, INEGI (2002, 2010b and 2012) show a decline in the relative importance of business income for the population as a whole during this time period. Also, in the MHAS samples, the percentage living with family declined slightly, from 77.7 in 2001 to 73.4 in 2012.

[17]Using National Household Income and Expenditure data for 2006 and 2008, Dorantes and González (2013) estimate that Programa 70 y más crowds out private transfers by 37%, primarily from family members.

[18]This is consistent with the findings of González and Pfutze (2014) who, using 2010 Mexican Census data, estimate that the pension program reduces the labor force participation of individuals aged 70+, with a stronger effect for men than for women, while not affecting the labor force participation of younger adults.

striking given its fairly large share at Time 1. This could be a reflection of decreasing importance of agriculture in the economy over time. The asset types with greater relative importance in 2012, overall and for most demographic groups, are non-productive assets such as housing.

Table 7 shows that Time 2 is also characterized by less diversity than Time 1 regarding number of income sources and asset types. For example, the percentages with more than one income source are 42.0 and 31.2 in 2001 and 2012, respectively. The number of asset types is also somewhat less heavily weighted toward the high end at Time 2. The pattern of less diversity of income sources at Time 2 relative to Time 1 is widely experienced across demographic groups, with the exception of women 70+. For asset types, the lesser portfolio diversity in 2012 was concentrated mostly among rural residents.

Cohort Analysis: Changes for Individuals from Time 1 to Time 2

In the longitudinal analysis we redefine the sample to include only those who were interviewed in both 2001 and 2012 in order to examine how their economic characteristics changed over time as they aged and the larger socioeconomic environment evolved. First we summarize total income and net asset values (in real terms) at Time 1 and Time 2 in Table 8, and their percentage changes over time. Income, on average, decreased by about 50 percent as people aged and macroeconomic conditions deteriorated. These changes are larger in percentage terms in the longitudinal cohort analysis than for the cross-sectional period analysis (−50.4% vs. −26.6%). This suggests that the experience of individual aging and changing macro conditions were, on average, reinforcing with respect to observed changes over time in individuals' income. Statistically significant income declines were experienced by all groups identified by their 2001 characteristics, with the exception of those having difficulty with ADLs or 3+ chronic diseases who experienced no significant change.[19] The younger age cohort experienced a larger decline on average than did those aged 60+ in 2001, consistent with the period results and, again, suggesting the role of the pension program in helping the oldest individuals offset the deteriorating macroeconomic environment. Percentage declines in income were particularly large for those without medical insurance at Time 1.

Regarding assets, overall real net asset value increased for these cohorts by about 113 thousand pesos (approximately 50%), on average, between Time 1 and Time 2.[20] These changes are slightly larger in percentage terms for the longitudinal analysis than for the period analysis (49.6% vs. 45.6%), again suggesting that the experience of individual aging and changing macro conditions were reinforcing, but perhaps with a less important role for aging here than with respect to income. The increase in asset values was widely experienced

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[19] Those with 3+ chronic diseases experienced a larger and statistically significant decrease in median income. The bulk of the distribution suggests a decrease in income over time.

[20] The increase in net asset value is partly an artifact of the method used to assign asset values within couples, which apportions half of the value to each spouse. If one spouse dies, the surviving spouse is assigned the full asset value in 2012, contributing to an increase in measured asset value over time. The asset values of respondents with unchanged marital status are not affected in this way. This group (about 85% of the longitudinal sample) also experienced an increase in net asset value, though of smaller magnitude (approximately 86 thousand pesos, or 35%), while the asset value of those who lost a spouse (about 13% of this sample) more than doubled. If assets were instead fully apportioned to each member of a couple rather than assigned at half value, the average increase in net assets from 2001 to 2012 for the total longitudinal sample is slightly larger (128 vs. 113 thousand pesos).

across groups, but was more pronounced for women (partly because they are more likely to be a surviving spouse), urban residents, the younger cohort, and those with some or completed primary education. While there is no appreciable difference by access to medical insurance for this measure, healthier individuals at Time 1 fared better over time than the less healthy as indicated by ADL status or those with no or only one chronic disease in comparison to those with two chronic diseases. Surprisingly, those with 3+ diseases at Time 1 also experienced a large percentage increase in average net asset value, though it continues to be relatively small in value for this group at Time 2.[21]

It is also worth noting that the pattern of decreasing income along with increasing asset value as individuals age is counter to what economic theory suggests and what is observed in many industrialized countries, where assets tend to be drawn down to help maintain income levels. The MHAS longitudinal cohort displays the opposite pattern, on average. Two factors likely account for this difference. First is the method of assigning asset values described above. Of greater interest, as discussed, is the fact that asset holdings among older Mexicans are heavily dominated by housing, which cannot easily and incrementally be converted to income. Indeed, while both housing and non-housing assets increased in real value over time, these increases were on average fairly large for housing (almost 107,000 pesos or about 75%) but relatively small for other assets (about 6000 pesos or 7%).

Table 9 shows that not only did average income decrease (in real terms) between Time 1 and Time 2, it also shifted noticeably in composition by source. This cohort had a minimum age of 61 and average age of 71.3 at Time 2, compared to 50 and 59.5 at Time 1, respectively, and depended much more at Time 2 on pension/institutional transfers and on help from family than at Time 1. As expected, given that the cohort is moving through their life cycle, eleven years later they are correspondingly less dependent on income from labor earnings or business, though labor earnings still constitute a non-trivial share (18.6%) of total income in 2012. In addition, income from financial assets continued to be a very small contributor to overall income. Interestingly, while comparison of the longitudinal and period results for pension and business income suggests reinforcing influences of individual aging and the changing economic environment, the changes in labor earnings and help from family in the longitudinal analysis are opposite the trends found in the period analysis. In other words, at the individual level as this cohort in Mexico aged, they relied relatively more on family and less on labor earnings to meet their income needs. While this pattern makes sense with older age in general, it runs counter to the overall shift in society regarding sources of income for older individuals as shown in the period analysis.

The increase over time in average real net asset value for this cohort is associated with an increased share for housing and miscellaneous assets, and decreased relative importance of productive assets (i.e., business assets, real estate, financial holdings). These results as a whole are also indicative of decreased liquidity of asset portfolios as individuals age. In

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[21]When examining specific chronic diseases at Time 1 (not shown), we see mixed results with respect to improved or worsened economic position at Time 2. Those afflicted with cancer at Time 1 are the only sub-set who experience a worsened economic position over time according to all of our measures: decreases in monetary values and less diversity, for both income and asset portfolios (all other chronic diseases are associated with at least a small increase in net asset value), and with a larger decrease in income than for most other chronic disease categories.

general, these results are again consistent with those from the period analysis, with calculated changes of similar or somewhat greater magnitude in the cohort analysis.

Table 9 also provides evidence of decreasing diversity of the economic portfolios of individuals as they age. The share of individuals with no income source increased by nearly 50 percent (from 10.4% to 15.5%) from 2001 to 2012, while the share with more than one income source decreased slightly. Similarly for number of asset types, the percentage at the low end (those with fewer than three asset types) increased (by about 16 percentage points in total), with a corresponding decrease in the share with 3+ asset types. There is generally little difference in these findings by characteristics. Comparing these results to those from the period analysis suggests that the effects of aging and the changing economic environment were reinforcing with respect to the decreasing diversity of asset portfolios, but were offsetting with respect to the diversity of income portfolios. That is, for decreasing income diversity, differences across time were relatively greater in the period analysis than in the cohort analysis. This finding is consistent with individuals aging into eligibility to receive pension income, which can act to lessen other aspects of aging and the changing environment that tend to decrease the diversity of income sources. Finally, additional analysis (not shown) indicates that approximately one-third (35.1%) of the longitudinal sample experienced a decrease over time in the number of income sources, with a larger percentage experiencing a decrease in the number of asset types (46.2%), while the percentages experiencing increases in these two measures were smaller (28.8% and 20.3%, respectively).

With respect to combinations of income sources (not shown), the percentage who rely solely on earned labor income decreased substantially with aging (from 20.3% to 3.8%), while the percentage receiving help from family increased by almost 13 points (31.2% to 44.0%). Regarding asset combinations, the share with no productive assets and limited liquidity (either no assets or only housing) increased from about 21 to 35 percent between Time 1 and Time 2.

In summary, the longitudinal analysis suggests that as individuals aged, average income declined substantially and net asset value increased substantially. These changes are larger in percentage terms for the longitudinal cohort analysis than for the cross-sectional period analysis (−50.4% vs. −26.6% for income; 49.6% vs. 45.6% for assets), suggesting that the experience of individual aging and changing macro conditions were reinforcing with respect to observed changes over time in individuals' income and asset values. In addition, with older age individuals became more dependent on pensions and family help as sources of income, and less dependent on earned income. Financial assets and financial sources of income continued to play minor roles as people aged. In general, the diversity of income and asset portfolios decreased with aging, even though net asset value, on average, increased. These longitudinal changes compared to those in the period analysis again suggest that evolving macro conditions and the experience of individual aging were reinforcing with respect to the decreasing diversity of asset portfolios. In contrast, the observed decreasing diversity of income portfolios in the longitudinal analysis was driven more by changing macro conditions than by individual aging, as the decrease in income diversity is more pronounced in the period analysis than in the cohort analysis. This observation is consistent

with an income-diversifying effect of the pension program as individuals age, which perhaps mitigated the effects of the worsening macroeconomic environment. Also of interest, while income support from family increased with aging, family help at the societal level decreased over time, as shown in the period analysis.

These trends generally were widely experienced across sub-groups of the population and, thus, provide an overview of how economic portfolios change over the life-cycle of older Mexicans. For some measures, but not all, these trends were more pronounced for those with worse health status at Time 1.

Finally, we explore somewhat more fully the degree of inequality in income and asset values, and changes therein over time, for the longitudinal sample. This analysis helps us to see if, with aging, certain individuals as characterized by safety nets, gained or lost ground within the group of older adults while structural changes took place in the larger society. We first use conventional inequality measures based on income and asset value quintiles, and then explore two safety net characteristics – educational attainment and medical insurance – to illustrate the complex nature of economic inequality. The large standard deviations and Gini coefficients presented earlier are suggestive of substantial economic inequality in Mexico. Figures 1 through 3 provide additional evidence by plotting the ratio of the percentage of total income (or asset value) accruing to a group, relative to the population share of that group. Ratios of 1 indicate equality (according to this measure), while ratios less than 1 indicate that the respective group has less than a proportional share of total income (or asset value), while ratios greater than 1 indicate the opposite.

The results in Figure 1, based on 2001 income and asset quintiles, clearly illustrate the high degree of inequality in both years, with this inequality being more pronounced for income than for assets. They also show decreased inequality for these cohorts as they aged, with those who were in the top (richest) quintile in 2001 losing shares of income and asset totals while each lower quintile gained shares. These results are consistent with evidence of high but declining income inequality in Mexico for the population as a whole during this time period (Iniguez-Montiel 2014; Lustig et al. 2013). However, the conclusion regarding inequality trends for the older population is less clear for groups defined by educational attainment (Figure 2). With respect to income, while those with no education experienced an increased share over time, the highest education group (more than primary) also experienced a gain in income share. Regarding asset value, while the highest education group experienced a decreased asset share and the middle two groups experienced gains, those with no education lost asset value share over time. With respect to medical insurance (Figure 3), while there is some inequality in asset values favoring those with insurance, it is not pronounced and does not change over time. In contrast, the degree of inequality in income with respect to medical insurance is larger than for assets in 2001, and becomes more pronounced by 2012. These examples illustrate that while there is a high degree of economic inequality among older individuals in Mexico, both its extent and its change over time differ substantially depending on the characteristics used to group the population and, furthermore, that inequality increased during this time period according to some measures.

Discussion

This paper is the first, to our knowledge, to provide detailed descriptions of the income and asset portfolios of older individuals in a developing country and changes therein over an extended period of time. Our descriptive analysis both confirms expectations and adds new insights with respect to these dynamics. The analysis covers 2001 to 2012, spanning important structural and social changes in Mexico such as the global financial crisis, increased availability of old-age pensions, and a move towards universal health insurance. For Mexico in 2001, smaller values of income/assets were systematically associated with less diversified economic portfolios vis-á-vis the number of income sources/asset types. Further, the baseline results suggest that the more economically marginalized or vulnerable – women, the oldest, rural residents, those with limited safety net options and/or in worse health – were likely to have smaller income and asset values, but also their economic portfolios were less diverse. Individuals with these traits generally relied more on financial support from family and less on labor earnings, and were less likely to own productive or liquid assets. The results also document the limited role of financial assets and income from financial holdings in Mexico.

The period analysis suggests that the combined influences of changing societal conditions and individual aging were mostly reinforcing in contributing to worsening economic profiles. Our results point to key influences at the aggregate level, both negative and positive, such as the deteriorating macroeconomic environment and the expansion of the old-age pension program. The greater reliance on pension income in 2012 suggests that the new program may have helped to offset other influences that reduced income levels and decreased the diversity of income portfolios.

Changes from 2001 to 2012 at the individual level reveal worsening economic conditions in several respects. As the cohort aged, incomes declined and income and asset portfolios became less diverse, even though net asset value increased. As expected with aging, individuals became more dependent on pensions and family help as sources of income, and less dependent on earned income. However, financial assets and income sources continued to play very minor roles. These trends were widely experienced across the population of older Mexicans and, for some measures, were more pronounced for those with worse health status in 2001. Notably, the greater dependence on family help as people age runs counter to the decreased importance of such income assistance evident in the period analysis, perhaps foreshadowing a further challenge in meeting the income needs of older Mexicans in the years ahead. Additionally, while labor earnings decreased in importance as these cohorts aged, they still constituted an important share of income in 2012 and also increased in relative importance in the period analysis, suggesting the potential for income insecurity due to worsening health status.

In sum, we identify a variety of sources of vulnerability with respect to income and asset values of older persons in Mexico, vulnerabilities which could, among other things, negatively impact the ability to cope with health shocks or gradually declining health. Beyond demographic characteristics often associated with economic vulnerability (i.e., female, oldest ages, rural residence), our results also point to limited safety net options

(particularly little or no education, lack of medical insurance, limited help from family), and worse health conditions as characteristics associated with less robust and deteriorating economic profiles. Furthermore, the limited diversity and liquidity of asset portfolios among older persons in Mexico is striking, although not surprising given the under-developed financial markets. This pattern contributes to economic insecurity and diminishes the ability to absorb adverse shocks, while also interacting with other vulnerabilities to reinforce inequality. The increasing availability of medical insurance and old-age pension support are forces that our results suggest have helped to lessen these vulnerabilities and inequalities, but wide disparities remain. Based on these descriptive findings, it would be valuable for future research to formally model the impact over time of safety net options and health conditions on the economic position of the older population in Mexico, and the role of expanded pension and health insurance coverage within these dynamics.

Acknowledgments

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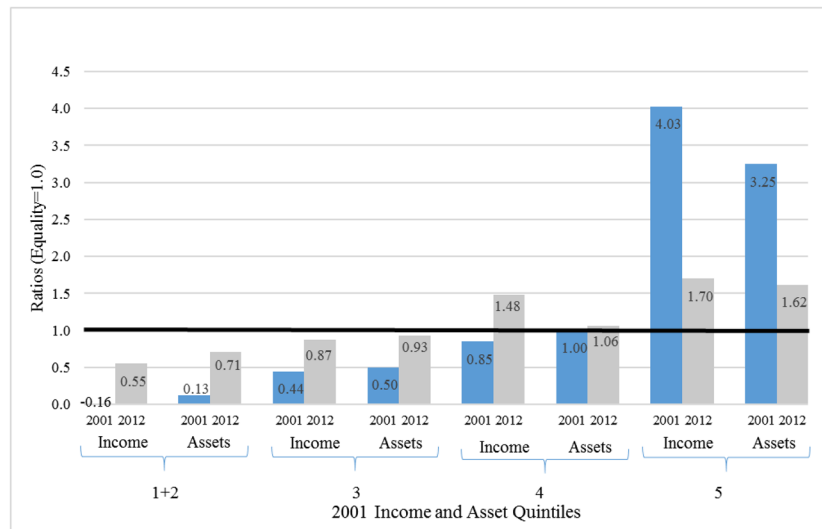
Figure 1.
Ratio of Income % and Asset % to Population Share by 2001 Income and Asset Quintiles,
Longitudinal Sample
Source: 2001 and 2012 Mexican Health and Aging Study, weighted statistics.
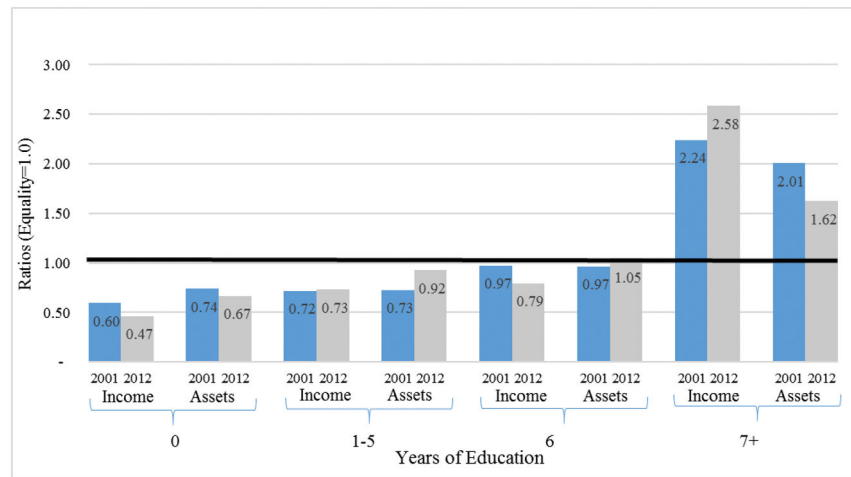
Figure 2.
Ratio of Income % and Asset % to Population Share by Education, Longitudinal Sample
Source: 2001 and 2012 Mexican Health and Aging Study, weighted statistics.
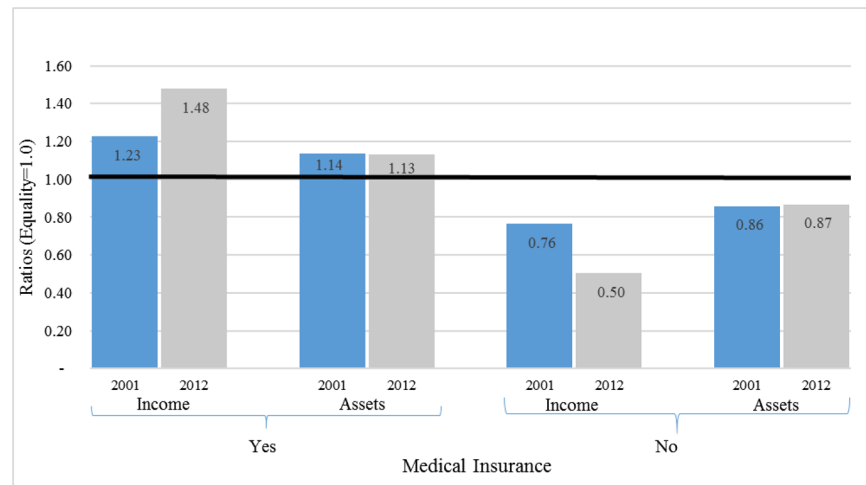
Figure 3.
Ratio of Income % and Asset % to Population Share by Medical Insurance, Longitudinal Sample
Source: 2001 and 2012 Mexican Health and Aging Study, weighted statistics.

Table 1

Total Monthly Income and Percentage Distribution of Income Sources by Key Characteristics for 2001 MHAS Sample [1,2]

Characteristics	Mean total income (monthly pesos)	S.D.	P value [4]	% distribution across income sources						
				Earned	Business	Pension	Transfer (not family)	Property rent	Financial assets	Family help
Total 2001 (n=12,405)	3,042	9,674		38.3	24.2	13.4	2.8	0.3	1.8	19.2
Gender										
Male	3,386	10,137		42.6	30.1	11.7	2.7	-0.2	1.8	11.4
Female	2,746	9,248	0.060	33.7	18.0	15.1	2.9	0.8	1.9	27.5
Urbanized										
Less	2,226	9,138		24.4	35.0	10.4	5.5	0.0	1.8	23.0
More	3,979	10,174	0.000	47.2	17.3	15.3	1.1	0.5	1.8	16.8
Age										
50–59	3,358	8,861		51.5	24.7	6.4	2.1	1.3	1.4	12.8
60+	2,769	10,315	0.000	24.5	23.7	20.7	3.6	-0.7	2.2	25.9
School years										
0	1,656	6,372		25.0	28.8	7.6	5.1	-1.1	0.3	34.3
1 to 5	2,397	9,959	0.021	30.2	27.9	8.4	4.1	0.7	0.6	28.0
6	2,838	9,351	0.011	35.2	28.2	15.5	2.7	-2.1	0.7	19.9
7+	6,726	12,596	0.000	50.2	18.4	18.3	1.1	1.5	3.7	6.9
Medical insurance										
Yes	3,740	9,864		42.5	16.4	19.5	2.0	-0.3	2.2	17.6
No	2,301	9,384	0.000	30.5	38.4	2.4	4.3	1.4	1.1	22.0
Activities of Daily Living (ADLs) [3]										
No	3,101	9,851		38.7	24.6	13.2	2.9	0.2	1.9	18.5
Yes	2,364	7,578	0.000	31.0	18.7	15.9	2.5	1.7	1.2	28.9
Number of diseases										
0	3,269	10,063		48.4	21.1	10.4	2.4	0.5	1.8	15.4
1	3,126	10,612	1.000	31.5	30.6	15.1	2.3	-0.2	2.0	18.7
2	2,849	8,639	0.226	25.6	21.6	17.9	3.4	1.8	1.9	27.7
3+	2,409	6,438	0.783	30.6	14.5	17.5	3.3	3.0	1.0	30.1

Source: Tabulations using the 2001 Mexican Health and Aging Study, weighted statistics.

Notes:

[1] Excludes individuals with indirect (proxy) interview, and those with incomplete information.

[2] For couple-households, each person of the couple is assigned the total joint value divided by two.

[3] 1 = Has difficulty with at least one ADL: bathing or showering, eating, getting into or out of bed, using the toilet, dressing. 0 = No difficulty with ADLs.

[4] The P values are for tests of significant differences in the unweighted mean values across categories of each characteristic.

Table 2

Total Net Value of Assets and Percentage Distribution of type of assets by Key Characteristics for 2001, MHAS Sample[1,2]

Characteristics	Mean total net value of assets (pesos)	S.D.	P value [6]	% distribution across type of assets						
				Housing	Business	Real estate	Financial assets	Vehicle	Assets not [3] listed	(−) Debts [4]
Total 2001 (n=12,405)	217,108	415,603		62.4	16.0	6.5	2.0	3.3	10.2	0.3
Gender										
Male	219,476	479,601		58.9	17.7	8.1	2.2	3.9	9.5	0.3
Female	215,075	351,482	0.998	65.4	14.5	5.1	1.8	2.7	10.8	0.3
Urbanized										
Less	187,766	403,109		55.9	25.9	8.0	1.3	2.0	7.2	0.2
More	250,803	427,023	0.000	68.0	7.5	5.3	2.5	4.4	12.7	0.4
Age										
50–59	214,661	421,437		60.8	16.6	6.9	1.7	3.8	10.6	0.5
60+	219,215	410,501	0.026	63.7	15.5	6.2	2.2	2.8	9.8	0.2
School years										
0	154,366	269,734		65.2	23.2	3.3	0.7	0.8	6.9	0.1
1 to 5	167,858	247,743	0.002	60.6	21.2	4.5	1.0	2.2	10.8	0.3
6	210,852	268,523	0.000	67.3	13.6	3.1	1.0	3.4	12.0	0.5
7+	419,404	762,452	0.000	59.8	8.7	11.4	3.9	5.5	11.0	0.4
Medical insurance										
Yes	239,876	474,816		67.2	9.1	6.1	2.5	4.1	11.4	0.3
No	192,563	338,250	0.000	55.9	25.3	7.1	1.2	2.1	8.6	0.2
Activities of Daily Living (ADLs) [5]										
No	217,280	412,133		61.9	16.1	6.9	2.0	3.4	10.0	0.3
Yes	217,256	452,665	0.000	67.7	14.4	3.0	1.4	1.9	11.9	0.3
Number of diseases										
0	219,715	421,962		59.5	17.8	6.6	2.1	3.9	10.4	0.4
1	218,738	365,130	0.907	60.3	17.0	6.9	2.1	3.3	10.6	0.2
2	240,459	545,405	0.048	70.8	11.4	5.1	1.3	2.1	9.5	0.3
3+	163,088	251,116	0.015	71.0	8.8	5.4	2.6	2.6	10.1	0.4

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Notes:

[1] Excludes individuals with indirect (proxy) interview, and those with incomplete information.

[2] For couple-households, each person of the couple is assigned the total joint value divided by two.

[3] Other assets not listed above.

[4] Other debts not mentioned, such as credit cards, medical debts, loans on life insurance or family loans.

[5] 1 = Has difficulty with at least one ADL: bathing or showering, eating, getting into or out of bed, using the toilet, dressing. 0 = No difficulty with ADLs.

[6] The P values are for tests of significant differences in the unweighted mean values across categories of each characteristic.

Table 3

Percentage Distributions for Number of Income Sources and Number of Asset Types, by Key Characteristics for 2001 MHAS Sample [1, 2]

Characteristics	% distribution for the number of income sources				% distribution for the number of asset types				
	0[3]	1	2	3+	0[3]	1	2	3	4+
Total 2001 (n=12,405)	12.7	45.3	31.8	10.2	7.0	24.6	33.3	23.3	11.8
Gender									
Male	9.5	45.1	33.6	11.8	4.5	21.5	34.3	26.1	13.7
Female	15.4	45.5	30.3	8.9	9.2	27.3	32.4	20.9	10.2
Urbanized									
Less	14.3	41.4	32.2	12.1	5.5	24.1	32.6	26.5	11.4
More	10.8	49.8	31.3	8.1	8.8	25.3	34.1	19.7	12.2
Age									
50–59	10.0	47.3	34.1	8.7	4.6	22.1	32.3	26.9	14.2
60+	15.0	43.6	29.9	11.5	9.1	26.8	34.2	20.2	9.8
School years									
0	19.7	42.3	28.8	9.3	8.9	31.4	34.3	20.3	5.1
1 to 5	10.9	45.2	33.5	10.4	6.4	25.0	34.6	24.8	9.3
6	11.4	50.0	29.9	8.6	6.9	20.6	34.7	26.4	11.4
7+	5.5	46.4	35.3	12.8	5.2	16.0	28.0	22.9	28.0
Medical insurance									
Yes	7.6	46.2	33.4	12.7	7.1	23.0	34.1	22.4	13.4
No	18.1	44.3	30.1	7.5	7.0	26.4	32.3	24.3	10.1
Activities of Daily Living (ADLs) [4]									
No	11.6	45.9	32.2	10.3	6.6	23.9	33.6	23.7	12.2
Yes	23.9	39.8	27.6	8.8	11.4	31.5	29.5	19.6	8.0
Number of diseases									
0	12.3	48.1	30.5	9.1	5.8	24.6	33.7	25.0	11.0
1	10.6	45.3	32.8	11.4	7.1	23.8	32.1	23.1	13.9
2	13.1	42.3	32.4	12.3	6.2	24.2	37.0	20.4	12.1
3+	12.0	41.1	35.4	11.4	13.6	26.0	28.6	24.1	7.7

Source: Tabulations using the 2001 Mexican Health and Aging Study, weighted statistics.

Notes:

[1] Excludes individuals with indirect (proxy) interview, and those with

[2] For couple-households, each person of the couple is assigned the

[3] The 0 category includes no income/no assets and income/assets with a negative balance. Categories 1+ count income sources/asset types with positive balances.

[4] 1 = Has difficulty with at least one ADL: bathing or showering, eating, getting into or out of bed, 0 = No difficulty with ADLs.

Table 4

Means and Standard Deviations of Income and Asset Value Distributions in 2001 and 2012, by Demographic Group, Full MHAS Samples [1, 2, 3]

Groups	Income			Assets		
	2001	2012	% Change 2001–2012	2001	2012	% Change 2001–2012
Total sample	3,042 (9,674)	2,231 (9,547)	−26.6 ***	217,108 (415,603)	316,043 (461,564)	45.6 ***
Less urban:						
Male:						
50–59 age	2,959 (9,261)	1,626 (9,478)	−45.1 **	199,508 (616,893)	234,224 (338,327)	17.4 ***
60–69 age	2,248 (6,353)	1,301 (7,070)	−42.1 *	177,054 (320,311)	238,567 (380,380)	34.7 ***
70+ age	2,060 (12,854)	1,399 (9,763)	−32.1	236,930 (483,552)	261,657 (503,726)	10.4 ***
Female:						
50–59 age	1,848 (7,637)	1,225 (8,418)	−33.7 **	173,658 (307,400)	269,540 (341,471)	55.2 ***
60–69 age	2,533 (11,530)	667 (8,408)	−73.7 **	170,254 (228,995)	247,946 (377,499)	45.6 ***
70+ age	1,529 (4,921)	1,018 (8,271)	−33.4	179,812 (299,439)	263,669 (388,127)	46.6 ***
More urban:						
Male:						
50–59 age	4,794 (8,967)	3,838 (11,452)	−19.9 ***	221,058 (356,671)	325,252 (533,859)	47.1 ***
60–69 age	4,143 (10,125)	2,774 (8,759)	−33.0 ***	277,646 (555,237)	377,183 (503,346)	35.9 ***
70+ age	4,356 (13,992)	2,500 (6,413)	−42.6 **	233,728 (477,473)	402,272 (508,999)	72.1 ***
Female:						
50–59 age	4,026 (9,303)	4,106 (12,618)	2.0 ***	261,367 (365,146)	376,295 (546,990)	44.0 ***
60–69 age	3,709 (10,595)	2,741 (10,256)	−26.1 ***	283,623 (515,183)	403,421 (470,869)	42.2 ***
70+ age	2,160 (9,779)	2,089 (3,695)	−3.2 ***	217,962 (319,492)	460,264 (543,742)	111.2 ***

Source: Tabulations using the 2001 and 2012 Mexican Health and Aging Study, weighted statistics.

Notes:

[1] Excludes individuals with indirect (proxy) interview, and those with incomplete information.

[2] For couple-households, each person of the couple is assigned the total joint value divided by two.

[3] Full MHAS Sample 2001=12,405 and 2012=13,946.

Statistically significant at: 1% ***; 5% **; 10% *

Table 5

Percentage Distribution of Total Income by Source in 2001 and 2012, by Demographic Group, Full MHAS Samples [1, 2, 3]

Groups	Earned		Business		Pension		Transfer (not family)		Property rent		Financial assets		Family help	
	2001	2012	2001	2012	2001	2012	2001	2012	2001	2012	2001	2012	2001	2012
Total sample	38.3	48.9	24.2	11.0	13.4	22.4	2.8	4.9	0.3	1.6	1.8	1.1	19.2	10.1
Less urban:														
Male:														
50–59 age	38.8	64.3	41.2	11.9	2.6	9.1	4.4	8.0	1.2	−0.3	1.6	1.4	10.1	5.6
60–69 age	23.1	29.1	32.1	14.4	17.8	29.3	4.7	8.4	−1.1	5.7	2.6	0.7	20.7	12.5
70+ age	8.7	6.9	50.2	25.4	12.3	31.5	10.9	16.8	−6.1	3.1	0.9	0.9	23.2	15.5
Female:														
50–59 age	37.6	51.9	24.4	−7.4	7.0	21.3	4.8	18.7	1.5	2.2	1.7	1.9	23.0	11.4
60–69 age	9.8	31.4	39.7	−60.2	11.2	53.9	4.9	18.9	−0.8	10.7	0.9	0.5	34.3	44.8
70+ age	6.3	2.1	12.6	−12.2	24.1	39.4	5.4	20.6	6.2	8.0	4.3	0.0	41.2	42.0
More urban:														
Male:														
50–59 age	64.5	71.9	22.9	19.5	4.7	4.7	0.1	0.4	0.4	0.9	1.2	1.2	6.3	1.4
60–69 age	52.2	44.1	17.4	20.6	18.1	28.2	0.6	0.7	1.0	−0.1	1.9	0.2	8.8	6.2
70+ age	25.4	18.6	29.5	4.1	28.9	59.6	1.4	3.4	−0.1	0.2	3.3	1.7	11.6	12.4
Female:														
50–59 age	52.9	59.4	16.8	16.4	9.7	14.0	1.3	0.8	1.9	1.3	1.4	1.4	15.8	6.8
60–69 age	32.6	49.9	6.4	9.1	27.5	29.3	1.4	1.2	1.4	0.0	2.7	0.4	28.0	10.1
70+ age	9.6	8.8	1.3	1.1	26.3	51.1	4.8	6.7	−8.7	2.0	1.8	2.7	64.9	27.5

Source: Tabulations using the 2001 and 2012 Mexican Health and Aging Study, weighted statistics.

Notes:

[1] Excludes individuals with indirect (proxy) interview, and those with incomplete information.

[2] For couple-households, each person of the couple is assigned the total joint value divided by two.

[3] Full MHAS Sample 2001=12,405 and 2012=13,946.

Table 6

Percentage Distribution of Total Asset Value by Type in 2001 and 2012, by Demographic Group, Full MHAS Samples [1, 2, 3]

Groups	Housing		Business		Real estate		Financial assets		Vehicle		Assets not listed [4]		(−) Debts [5]	
	2001	2012	2001	2012	2001	2012	2001	2012	2001	2012	2001	2012	2001	2012
Total sample	62.4	69.0	16.0	8.2	6.5	3.6	2.0	1.6	3.3	3.9	10.2	14.2	0.3	0.5
Less urban:														
Male:														
50–59 age	48.7	61.6	26.8	14.8	13.9	3.9	1.8	0.3	2.6	4.7	6.5	15.0	0.4	0.4
60–69 age	50.6	65.0	29.1	14.2	8.4	4.5	1.4	0.3	2.1	3.8	8.8	12.4	0.4	0.3
70+ age	61.2	66.7	25.4	16.0	6.4	2.3	1.1	0.6	1.3	2.7	4.8	12.0	0.1	0.3
Female:														
50–59 age	54.2	68.6	25.8	10.2	7.2	3.0	1.5	0.5	2.5	4.2	9.0	13.9	0.3	0.2
60–69 age	62.9	71.7	23.9	11.9	2.3	2.8	0.8	0.5	1.9	3.9	8.4	9.5	0.2	0.3
70+ age	61.7	72.1	23.7	13.5	8.1	2.7	0.8	0.3	0.6	0.7	5.2	10.8	0.0	0.0
More urban:														
Male:														
50–59 age	64.7	60.6	9.5	5.9	5.9	10.5	1.7	2.0	6.3	5.5	12.4	16.3	0.5	0.8
60–69 age	67.6	63.8	9.6	7.0	4.6	4.1	2.5	4.5	4.4	6.0	11.5	15.6	0.2	1.0
70+ age	61.0	76.0	2.1	5.4	9.5	2.3	6.0	1.1	7.2	2.7	14.3	12.7	0.1	0.1
Female:														
50–59 age	69.9	71.9	9.0	4.7	3.2	2.5	1.7	1.7	3.9	4.5	13.0	16.1	0.7	1.3
60–69 age	69.9	74.7	6.5	3.5	4.2	1.6	3.4	3.7	3.3	3.4	12.7	13.5	0.1	0.4
70+ age	72.2	76.9	2.5	2.8	9.3	1.8	1.8	1.0	1.5	1.4	12.8	16.2	0.1	0.2

Source: Tabulations using the 2001 and 2012 Mexican Health and Aging Study, weighted statistics.

Notes:

[1] Excludes individuals with indirect (proxy) interview, and those with incomplete information.

[2] For couple-households, each person of the couple is assigned the total joint value divided by two.

[3] Full MHAS Sample 2001=12,405 and 2012=13,946.

[4] Other assets not listed above.

(5)Other debts not mentioned, such as credit cards, medical debts, loans on life insurance or family loans.

Table 7

Percentage Distributions of Number of Income Sources and Number of Asset Types in 2001 and 2012, by Demographic Group, Full MHAS Samples [1, 2, 3]

| Groups | Number of income sources | | | | | | Number of asset types | | | | | |
| | % distribution for 2001 | | | % distribution for 2012 | | | % distribution for 2001 | | | % distribution for 2012 | | |
	0	1	2+	0	1	2+	0	1–2	3+	0	1–2	3+
Total sample	12.7	45.3	42.0	20.7	48.1	31.2	7.0	57.9	35.1	6.8	63.9	29.3
Less urban:												
Male:												
50–59 age	9.9	37.2	52.9	26.0	42.6	31.4	3.6	46.1	50.3	4.1	56.5	39.4
60–69 age	7.6	44.7	47.8	23.0	39.2	37.8	3.7	54.6	41.7	3.9	64.4	31.8
70+ age	18.6	37.0	44.4	12.3	40.9	46.8	4.0	66.2	29.9	4.2	72.6	23.2
Female:												
50–59 age	13.7	41.9	44.4	27.0	42.1	30.9	3.9	54.4	41.7	6.0	61.8	32.2
60–69 age	15.1	42.3	42.7	20.9	43.1	36.0	6.2	58.8	35.1	5.5	71.4	23.2
70+ age	25.4	46.8	27.8	12.0	39.2	48.8	14.5	67.4	18.1	12.3	75.1	12.6
More urban:												
Male:												
50–59 age	4.7	58.7	36.6	27.6	56.0	16.4	3.0	55.0	42.0	8.0	60.0	32.0
60–69 age	6.0	47.5	46.6	15.3	58.4	26.2	3.7	60.2	36.2	4.6	56.6	38.9
70+ age	13.3	42.8	44.0	10.4	51.4	38.2	13.2	59.7	27.2	4.9	72.3	22.9
Female:												
50–59 age	10.5	51.4	38.1	22.2	57.0	20.9	7.3	60.2	32.5	8.9	59.2	32.0
60–69 age	14.3	43.4	42.4	19.1	54.7	26.2	10.0	60.2	29.8	7.5	64.4	28.1
70+ age	21.8	46.3	31.9	13.8	45.3	40.9	24.2	63.1	12.7	13.2	71.2	15.6

Source: Tabulations using the 2001 and 2012 Mexican Health and Aging Study, weighted statistics.

Notes:

[1] Excludes individuals with indirect (proxy) interview, and those with incomplete information.

[2] For couple-households, each person of the couple is assigned the total joint value divided by two.

[3]Full MHAS Sample 2001=12,405 and 2012=13,946.

Table 8

Average Income and Asset Value in 2001 and 2012 by Key Characteristics, Longitudinal MHAS Sample [1, 2, 3]

2001 Characteristics	Average income		% Change 2001–2012	Average asset value		% Change 2001–2012
	2001	2012		2001	2012	
Total mean value (pesos 2001)	3,035	1,507	−50.4 ***	227,401	340,276	49.6 ***
Std. Deviation (pesos 2001)	(9,242)	(8,531)		(453,097)	(496,776)	
Gender						
Male	3,333	1,810	−45.7 ***	236,171	322,886	36.7 ***
Female	2,798	1,266	−54.8 ***	220,433	354,092	60.6 ***
Urbanized						
Less	2,241	914	−59.2 ***	192,905	267,150	38.5 ***
More	3,983	2,215	−44.4 ***	268,631	427,676	59.2 ***
Age						
50–59	3,165	1,447	−54.3 ***	217,680	338,930	55.7 ***
60+	2,860	1,587	−44.5 ***	240,507	342,090	42.2 ***
School years						
0	1,809	701	−61.2 ***	168,247	226,845	34.8 ***
1 to 5	2,181	1,101	−49.5 ***	165,425	314,814	90.3 ***
6	2,955	1,196	−59.5 ***	219,976	357,758	62.6 ***
7+	6,802	3,899	−42.7 ***	456,688	553,127	21.1 ***
Medical insurance						
Yes	3,727	2,227	−40.2 ***	258,673	384,186	48.5 ***
No	2,323	759	−67.3 ***	195,443	294,507	50.7 ***
Activities of Daily Living (ADLs) [4]						
No	3,037	1,429	−53.0 ***	225,313	342,175	51.9 ***
Yes	2,954	2,642	−10.6	260,082	312,097	20.0 ***
Number of diseases						
0	3,113	1,725	−44.6 ***	218,327	336,752	54.2 ***
1	3,015	1,205	−60.0 ***	231,026	345,704	49.6 ***
2	3,224	1,347	−58.2 ***	281,310	362,667	28.9 ***
3+	2,405	2,182	−9.2	148,445	263,930	77.8 ***

Source: Tabulations using the 2001 and 2012 Mexican Health and Aging Study, weighted statistics.

Notes:

[1] Excludes individuals with indirect (proxy) interview, and those with incomplete information.

[2] For couple-households, each person of the couple is assigned the total joint value divided by two.

[3] Sample includes only those individuals interviewed in both years (n=7,305).

[4] 1 = Has difficulty with at least one ADL.: bathing or showering, eating, getting into or out of bed, using the toilet, dressing. 0 = No difficulty with ADLs.

Statistically significant at: 1% ***; 5% **; 10% *

Table 9

Percentage Distributions for Income Sources and Asset Types in 2001 and 2012, Longitudinal MHAS Sample [1, 2, 3]

% distribution by income source	2001	2012	% distribution by asset type	2001	2012
Earned	41.7	18.6	Housing	62.5	73.2
Pension	10.8	44.4	Business	16.9	8.3
Transfer (not family)	3.2	8.9	Real estate	5.7	2.6
Business	26.4	0.9	Financial assets	1.6	1.1
Property rent	0.8	3.7	Vehicle	3.1	2.7
Financial assets	1.3	1.2	Assets not listed [4]	10.5	12.5
Family help	15.8	22.2	(−) Debts [5]	0.3	0.3
Total	100.0	100.0	Total	100.0	100.0

% distribution by number of income sources [6]	2001	2012	% distribution by number of asset types [6]	2001	2012
0	10.4	15.5	0	4.6	7.1
1	46.0	44.2	1–2	57.6	70.9
2+	43.6	40.4	3+	37.9	21.9
Total	100.0	100.0	Total	100.0	100.0

Source: Tabulations using the 2001 and 2012 Mexican Health and Aging Study, weighted statistics.

Notes:

[1] Excludes individuals with indirect (proxy) interview, and those with incomplete information.

[2] For couple-households, each person of the couple is assigned the total joint value divided by two.

[3] Sample includes only those individuals interviewed in both years (n=7,305).

[4] Other assets not listed above.

[5] Other debts not mentioned, such as credit cards, medical debts, loans on life insurance or family loans.

[6] The 0 category includes no income/no assets and income/assets with a negative balance. Categories 1+ count income sources/asset types with positive balances.