RETIREMENT DECISIONS AND FAMILY CHARACTERISTICS IN COSTA RICA*

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Abstract: Objective. The coverage of pension plans in Latin America is relatively low and so, people postpone retirement and decide to continue working. The aim of the paper is to analyze the family characteristics that predict the decisions of leaving the job market with or without pension benefits. Methodology. Data from CRELES, a longitudinal survey of the elderly with two cohorts were used. Results and conclusions. Among people aged 55 and older who were working at the baseline, 25% left the labor market, and 9% started receiving retirement money, even though some of them continued working. People who make informal cash transfers to family members are more likely to retire, especially earlier than others. Those who looked after children were more likely to stop working without a formal pension. There was no evidence that the spouse's working status was related to retirement decisions.

Key words: pensions, retirement, child care, informal transfers.

* La investigación forma parte de los proyectos "Medidas de bienestar y características de los hogares" y "CRELES Costa Rica: Estudio de Longevidad y Envejecimiento Saludable". En el primer proyecto, se desarrollan análisis secundarios de bases de datos existentes para investigar la relación entre características de los hogares y diversas medidas de bienestar entre niños y entre adultos mayores. El segundo proyecto consta de dos encuestas longitudinales en las que se entrevista a adultos mayores para investigar los determinantes sociales y biológicos del envejecimiento saludable en Costa Rica.

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DECISIONES DE JUBILACIÓN Y CARACTERÍSTICAS FAMILIARES EN COSTA RICA

Resumen: Objetivo. En América Latina la cobertura del sistema de pensiones es relativamente bajo, y así la gente pospone el retiro y decide continuar trabajando. El objetivo del artículo es analizar las características familiares que predicen las decisiones de dejar el mercado laboral con pensión o sin ella. Metodología. Se utilizaron los datos de CRELES, una encuesta longitudinal de adultos mayores con dos cohortes. Resultados y conclusión. Entre las personas de 55 años y más que estaban trabajando en la línea base, el 25% dejaron el trabajo; y el 9% empezaron a recibir pensión, aun cuando algunas de ellas se mantuvieron trabajando. Las personas que hacían transferencias monetarias informales a familiares tienen una mayor probabilidad de jubilarse, sobre todo en forma temprana. Aquellas personas que cuidaban niños tenían mayor probabilidad de dejar de trabajar sin pensión. No hubo evidencia de que la condición laboral del cónyuge estuviera relacionada con decisiones de retiro.

Palabras clave: pensiones, jubilación, cuidado de niños, transferencias informales.

INTRODUCTION

Retirement pensions are one of the main foundations of the Social Welfare Systems that appeared during the last part of the 19th century and the first half of the 20th century. Social Security programs "based on citizenship" (Lynch, 2006) were aimed at filling the gaps of the labour benefits provided by employers, because they looked to support groups with limited access to those benefits: children, women and the elderly. In Latin America, most of these systems were founded during the first part of the 20th century. In Costa Rica, being granted a retirement pension is one of the most important factors associated with the self-perception of well being among the elderly (Brenes, 2013). Nevertheless, in the Latin American region, the coverage of the retirement pension system is relatively low (Brenes, 2009; Mesa, 2012). The lack of coverage is due to job markets with large informal sectors and institutional barriers against certain social groups: low-

educated population, rural workers, or people with disabilities. Retiring or leaving work are not only decided individually, but also in a social context where family needs become important. The main goal of this article is to analyze the association between family characteristics and retirement decisions in Costa Rica, controlling for labour history and health status.

Retirement decisions and family context

The household is a key unit in the process of economic decision making, purchasing goods and services, and supplying labour, capital, and land for markets. From a microeconomic perspective, household type and dynamics can determine the way its members decide about their relationship with their jobs, like retirement decisions or other kinds of exits from the labour market. In the literature about the United States (U.S.) and Europe, there is an emphasis on how individuals may plan their retirement according to their spouses' characteristics or to the joint characteristics of the couple. As expected, the household's or the couple´s joint income level conditions age at retirement (Szinovacs and De Viney, 2000; Gustman and Stienmeier, 2004; Ogg and Renaut, 2007; Pienta and Hayward, 2002). This income level can be highly determined by the spouse's Social Security benefits after the husband retires (Kim and Feldman, 2000; Szinovacs and DeViney, 2000; Mastrogiacomo, Alessie and Lindeboom, 2004; O'Rand and Farkas, 2002). Additionally, from a non-monetary perspective, the desire of spending time together accelerates retirement decisions among couples (Gustman and Steinmeier, 2004; Coile, Diamond, Gruber and Jousten, 2002). Given this joint planning, it is expected that non-married individuals tend to work at older ages than married ones (Hokema and Scherger, 2016; Gómez and Miret, 2014; Ogg and Renaut, 2007; Szinovacz, DeViney and Davey, 2001).

Exits from the job market are closely related to informal monetary and non-monetary transfers. In the U.S. (Hokema and Scherger, 2016; Szinovacz, DeViney and Davey, 2001) and among Spanish women (Gómez and Miret, 2014), individuals who transfer money to children tend to delay retirement. In Italy, when retiree's income is higher, their adult children are more likely to live with them (Manacorda and Moretti, 2006), suggesting processes of intergenerational transfers within the household. In Asia, living arrangements are a relevant predictor of working at old age because children are expected to support their parents. In China, people entitled to pensions are less likely to live in intergenerational households. Additionally, in rural China, elderly who live alone are more likely to keep working (Pang, De Brauw and Rozelle, 2004), and those without children receive lower monetary transfers (Giles, Wang and Zhao, 2010). Pension income in Taiwan is associated with a lower probability of receiving money from kin, and with higher consumption by the pensioners and their children (Fan, 2010). Also in Taiwan, having National Health

Insurance increases the likelihood of retiring among men, but this marginal increase is lower if men have the support of adult sons (Hsieh, 2008).

The need of providing informal care to relatives predicts leaving a job earlier (Drobnic, 2002; Szinovacz and DeViney, 2000; Szinovacz, DeViney and Davey, 2001). In the U.S., O'Rand and Farkas (2002) find that wives delay their retirement if husbands have health limitations —but joint retirement is more common when wives face health problems—, but Dentinger and Clarkberg (2002) report the opposite. Men tend to classify their job exit as forced retirement if they have to care for their parents or have dependent grandchildren; women perceive that their retirement is forced when they have to care for spouses, but they do not have such perception when care is directed towards grandchildren (Szinovacz and Davey, 2005).

In Latin America, the relationship between household traits and retirement decisions is mediated by cultural contexts and the limitations of its institutions. Given that the persistence of the informal sector leads to low coverage of Social Security benefits for the elderly, the family serves as a safety net for those individuals who cannot claim for retirement pension or health insurance (Giménez, 2005; Murrugarra, 2011). Besides, some individuals rely on their kin for informal monetary and non-monetary transfers, such as care for children and old-age relatives. These informal transfers commonly translate into non-nuclear living arrangements —typically, multi-generational extended families—, which are more frequent than in industrialized countries (Saad, 2005). In Mexico, wealth at old age has a higher association with history of family formation than with employment decisions over the lifetime (Wong and DeGraff, 2009). In Peru, children living with grandparents entitled to pension have better school performance and experience higher school expenditure than children that do not reside with grandparents; in Brazil, there is higher school expenditure if children live with their grandparents, regardless of their pension income (Rentería, Turra and Queiroz, 2007). In Colombia, greater household size and being married increases the probability of retiring (Olivera and Zuluaga, 2014). The LSPS results from El Salvador suggest that the family is very important for the economic stability of households. If Salvadorans were faced with an emergency, 64 per cent of men and 70 per cent of women would rely on their relatives to provide money for dealing with the emergency. Additionally, 30 per cent of people who do not contribute to a retirement plan state that they would rely on their children for supporting their expenses at old age. The likelihood of needing such support is high given that a small proportion of the work force contribute to a retirement plan (Tablas, 2014).

As it is clear, there is fewer research about the relationship between household characteristics and retirement decisions in Latin America than in industrialized countries. The articles referenced above provide evidence about the importance and direction of this association in the region. Nonetheless, there is the need to investigate

more about how household traits are associated to labour market decisions among middle and old-age persons, within the context of relatively weak Social Security regimes (Murrugarra, 2011).

Retirement pension system in Costa Rica

Costa Rica is usually classified as one of the precursors of the Social Security Systems in Latin America, even though its own system was founded and consolidated later than those in other countries classified as such: Argentina, Uruguay, Chile, Brazil, and Cuba (Mesa, 2009; Mesa, 2012). Its National Pension System (NSP) is composed of a predominant regime —the Disability, Old Age, and Death (IVM, acronym in Spanish for *invalidez, vejez y muerte*) managed by the Costa Rican Social Security Fund (CCSS, acronym in Spanish *Caja Costarricense del Seguro Social*)— and other special regimes catering to particular groups: the Education Sector workforce, the Judicial Branch, or the Fire-fighters, among others funded by the centralized National Budget (Martinez, 2015; Price, Aschroft and Inglis, 2016). These regimes are part of the so called "first pillar". The "second pillar" is constituted by the Mandatory Complementary Pension Regime. Every worker has to contribute to both pillars, according to the Worker Protection Law enacted in 2000. A "third" pillar refers to the Non-Contribution pension (RNC, acronym in Spanish), a means-tested transfer from the Government to low-income and disabled populations who are not entitled to the contribution pension. There is also a "fourth pillar" based on voluntary complementary pensions —basically, and individual accounts system— managed by private firms; in this regime, persons decide the amount of money saved in their private accounts. However, the proportion of the labour force contributing to this regime is very low.

While the first pillar regimes are mostly public "pay-as-you-go" defined-benefit schemes financed partly by the National Budget, the second pillar funds are privately managed and based on defined-contribution accounts; due to this characteristic, Mesa (2012) labels the system as a mixed one. The NPS appears to be fragmented because of the multiple operators of the second pillar and the special regimes of the first pillar, but the system is relatively unified (Mesa, 2012), because most of the employees are enrolled in the IVM regime in the first pillar. According to official statistics, 45 per cent of the elderly population receive retirement pension and 20 per cent a non-contribution pension (Martinez, 2015). The CRELES dataset estimates that between 2006 and 2008, 63 per cent of the elderly population was receiving pension money. Additionally, 60 per cent of the labour force is contributing to the system (Mesa, 2012). In Costa Rica, pension coverage is relatively high compared to other countries in the region because the law mandates self-employed workers to contribute to the first pillar, even though not every worker actually does it (basically,

the informal sector). In the first pillar, workers affiliated to the IVM are entitled to a retirement pension at age 65 if they have at least 300 contributions; it is possible to apply for early retirement with a penalization, with 180 contributions and at age 60 for women or at age 62 for men. People can also start receiving the complementary pension at those same ages (Bertranou, Calvo and Bertranou, 2009); however, given that the second pillar was developed recently, there are currently few people entitled to it. The replacement rate for regular IVM contributors is 45 per cent. It is higher for the special regimes, in which workers can retire before age 65 depending on their number of contributions.

In 2016, for the IVM regime in the first pillar, employers contribute 5.75 per cent of the salary; workers, 3.50 per cent, and the Government, 1.25 per cent. Self-employed workers must contribute 10.50 per cent of their income (CCSS, 2005). The size of the contributions for the other special regimes are different. In the second pillar, employers contribute 3.25 per cent of the salary and workers, 1 per cent. Different authors have debated about the NPS sustainability because of the effect of population aging on pay-as-you-go systems, mismanagement of pension funds, and restrictions in the investment of the second pillar money (Badilla and Díaz, 2013; Bertranou, Calvo and Bertranou, 2009; Mesa, 2012; Rosero and Jiménez, 2012). However, it is important to highlight that the second pillar was funded to complement the potential reductions of the first pillar retirement pension.

METHODS

We used the two cohorts of the CRELES (Costa Rican Longevity and Healthy Aging Study). The first cohort —known as CRELES pre-1945— infers to the population born in Costa Rica in 1945 or earlier and were living in the country in 2004. The sample size at baseline amounts to 2827 individuals; 2364 people were interviewed during the second wave (16 per cent attrition rate, including deaths) and 1855 during the third wave (9 per cent attrition rate, including deaths). Fieldwork was conducted between November 2004 and September 2006 for the first wave; between October 2006 and July 2008 during the second wave; and between February 2009 and January 2010 for the third wave. The second cohort —known as CRELES retirement cohort— infers to the population born between 1945 and 1955 and residing in Costa Rica in 2010 (respondents' spouses were also interviewed but their information is not used in this analysis). The 2798 baseline interviews were conducted between January 2010 and December 2011. The second wave occurred between February 2012 and February 2014, and the fieldworkers interviewed 2478 individuals (attrition rate of 11 per cent); the main cause of losses to follow up was due to people who were not possible to find. Both sampling designs were probabilistic and in multiple stages,

where health areas were selected in the first stage, and adults in the last stage. Each fieldwork team was composed of one driver/supervisor and three interviewers in each car. The project had usually two teams during the first wave, and one team during the last wave. In the first two waves of CRELES-pre-1945 and in the first wave of CRELES-pre-retirement, fieldworkers collected blood samples by venipuncture in order to produce biomarker information, which is not used for this article.

There are several dependent variables. The first one is a dichotomous variable, where 1 is equal to receiving a retirement pension. This variable was later disaggregated into a polytomous variable that classified respondents in three categories: early retirement (ages younger than 64 years), retirement at normative age (between 64 and 66 years of age), and late retirement (age 66 or older). The normative age is defined as a range rather than as a single age (65 years according to the Retirement Pension Law) because the CRELES questionnaire does not allow to inquire about the exact age at retirement because there is a period of approximately one year and a half between two consecutive waves.

The other dependent variable is also dichotomous; it is equal to 1 if the person is working at baseline. We constructed a new polytomous variable that combines the two binary variables; it has 4 categories: keep working without a pension; leave the job without a pension; keep working with pension; and leave a job with a pension.

We estimated incidence logistic regression models to analyze the covariates associated with retirement decisions. Incidence models are equations that constrain the sample to individuals who have not experienced the event at baseline (or at the precedent wave). In this case, the constraint referred to people who were working and did not have a pension at baseline. Regarding the binary variables, incidence models were estimated among the interviewees that had the value 0 in the dependent variable for the first wave. We estimated incidence multinomial models to analyze the polytomous responses. These equations are equivalent to competing risks models because they model the transition from the baseline state (working without a pension) to any of the other three states.

The main set of covariates describes family characteristics. Some of them refer to informal family monetary and non-monetary transfer: whether the respondent provided child care, gave money to relatives, or received money from them. Instead of creating a household type variable with mutually exclusive categories, we created three binary variables related to household composition: presence of spouse, underage members or adult children in the household. Finally, there is another dichotomous variable on whether the respondent´s spouse is currently working (Gómez and Miret, 2014), to approach the concept of couple's constrains in retirement decisions. The other covariates were classified into 3 groups: demographic variables, health variables, and labour market variables. The first group is composed of sex, age, schooling, and foreign-born status. Health variables are: bad or regular self-rated

health (dichotomized from a 5-category variables), cognitive status based on a short version of the Mini-Mental test (Folstein and Folstein, 1975; Quiroga, Albala and Klaasen, 2004), and whether respondents receive help for Activities of Daily Living (ADLs) and Instrumental Activities of Daily Living (IADLs). Most of the labour market variables refer to the main job during the life course: salaried or independent worker, main occupation (classified as "Blue-collar and basic services", "White-collar, sales and professionals", and "Agriculture"). Besides there is a measure of experience defined as the years since the first job, a measure about self-reported financial status, and current labour income at baseline (deflated to real colones of 2006, the baseline for the Costa Rican Consumer Price Index).

RESULTS

Among the 1355 interviewees that had a job at baseline, 377 left the job without a pension, 70 started receiving pension money but kept working, and 90 stopped working and got a pension at the same time. Inferring to the population, we estimated that 25 per cent stopped working and 9 per centwere granted a retirement pension; only 5.3 per cent experienced both events at the same time (Table 1). This difference describes a common pattern in developing countries: being entitled to a retirement pension does not imply work cessation, nor vice versa. Additionally, among those who decided to retire with a formal pension, 58 per cent did it before the normative age (age 65, although this research includes 64 as part of the normative age, because of how the follow-up was designed). Only a third of the population retired at the age at which the law stipulates (Table 2). This figure is relatively low even if the decision of including age 64 as part of the normative age might have introduced a bias of underestimating early retirement.

Characteristics of the people who were working and were not receiving a pension at baseline were useful to understand the dynamics associated with retirement decisions (Table 3). They had a relatively low education level (mean schooling under 7 years), and a relatively high percentage of them reported bad or regular health (42 per cent). Most of them were independent workers, their mean experience amounts to 46 years, and near a third of them worked in jobs related to agriculture. These traits were evidence that the majority of Costa Rican elderly were confronted with barriers to Social Security benefits, which were historically intended to white collar workers at the beginning of the system. The high figure in the mean years of experience suggested that a majority of elderly people had needed to participate in the labour market for a long period of time because they had not been in compliance with the requirements for a formal retirement pension at the moment of the interview.

Table 1. Costa Rica: People age 55 and over working at baseline, according to labour status in subsequent waves (percentages weighted by the inverse of selection probability).

Received pension	Stopped working		
	No	Yes	**Total**
Absolute frequencies			
No	818	377	1,195
Yes	70	90	160
Total	**888**	**467**	**1,355**
Relative frequencies			
No	71.1	19.8	90.9
Yes	3.8	5.3	9.1
Total	**74.9**	**25.1**	**100.0**

Source: CRELES study.

Table 2. Costa Rica: People who retired during follow-ups, according to age at retirement (percentages weighted by the inverse of selection probability).

Age at pension	Absolute Freq.	Relative Freq.
Early retirement (before age 64)	48	58.4
Normative retirement age (between 64 and 66)	63	34.2
Late retirement (67 or older)	44	7.4
Total	**155**	**100.0**

Source: CRELES study.

Table 3. Costa Rica: People age 55 and older: Descriptive statistics of covariates at baseline (Standard deviations next to means) (Weighted sample).

Covariates		
Family Variables		
Per cent providing child care	20.5	
Per cent receiving informal family transfers	31.8	
Per cent provides informal family transfers	42.5	
Per cent of households (HH) with spouse	73.7	
Per cent of households (HH) with with underage members	41.1	
Per cent of households (HH) with adult children	65.7	
Per cent of households (HH) with spouse working	26.0	
Demographic variables		
Per cent women	29.2	
Mean age	59.0	(3.1)
Mean years of schooling	7.4	(4.6)
Per cent foreign born	6.8	
Health Variables		
Per cent reporting regular or bad health	42.2	
Mean of cognitive score	13.2	(1.6)
Per cent needing help for ADL/IAD	19.1	
Lifetime job characteristics		
Mean years of experience	46.3	(6.6)
Mean self-rated financial situation	3.5	(0.9)
Mean income (in 1000 colones)	608.1	(1442.1)
Per cent Independent workers	55.1	
Main job		
Per cent Sales, clerks, professionals	26.9	
Per cent Agriculture	29.1	
Per cent Blue collar and services	44.0	

Source: CRELES study.
Notes: ADL=Activities of Daily Living, IADL: Instrumental Activities of Daily Living

Among the family dynamics variables, the analysis highlights the importance of informal intergenerational transfers (either monetary or non-monetary). Thirty two percent of people were receiving money (mainly from relatives), and 42 per centprovided money to their kin. This latter figure agrees with the evidence from the aggregated data of the National Transfer Accounts (NTA) project that showed sizable transfers from the elderly to the younger generations (Rosero and Zúñiga, 2010). Additionally, near a fifth of people aged 55 years or older who were working were also delivering child care activities. In terms of household composition, most of the interviewees lived with adult children and their spouses, although only in 26 per cent of households the spouse was working.

For the multivariate analysis, we estimated two logistic regression models: the first predicted the probability of receiving a formal retirement pension in subsequent wave, and the second predicted whether the person discontinued working (Table 4). Family variables did not seem to predict formal retirement, although the odds ratio for people who provided money to their kin is sizable but non-significant. In the other equation, the odds of leaving the job market were 78 per cent higher for those people who provided child care than for those who did not. In this sense, child care became an unpaid work outside of the formal labour market. As related to gender division of labour, women were 4 times as likely to discontinue their economic participation than men, even though there were no statistical differences between men and women in retiring with a pension.

Additionally, according to both models, the odds of retiring formally were 83 per cent lower among independent workers compared to salaried workers. The odds of formal retirement were also lower for farmers than for blue-collar workers. Although CRELES data are not fit for operationalizing the informal sector of the economy, these results suggested informality was associated with access to Social Security benefits: farmers and self-employed were less likely to be entitled to a formal pension. It is also worth noticing that the probability of leaving a job was directly related to income but inversely related the self-rated financial situation scale; this implies that people who leave the job market might be well-off in terms of current income but might be facing economic pressures that were not necessarily related to one's income.

Table 4. Coefficients of logistic regressions of incidence of receiving pension money or of leaving labour market, 2004-2014.

Covariates	Retiring w/pension	Leaving job
	OR	OR
Family Variables		
Provides child care	0.71	1.78 *
Receives informal family transfers	0.95	1.03
Provides informal family transfers	1.71	0.76
HH with spouse	0.81	1.30
HH with underage members	0.62	0.93
HH with adult children	1.56	0.90
HH with spouse working	0.51	0.77
Demographic variables		
Women (Base=Men)	1.12	3.97 ***
Age	1.35 ***	1.13 ***
Years of schooling	1.03	1.00
Foreign-born (Base=Local)	0.55	0.67
Health Variables		
Bad or regular health (Base=Excellent/good)	1.43	1.18
Cognitive status index	0.99	1.03
Receives help for ADL/IADL (Base=Does not receive)	0.63	0.95
Lifetime job characteristics		
Experience	0.99	1.05 *
Self-rated financial situation scale	0.84	0.78 *
Income (in 2006 100,000 colones)	1.00	1.04 ***
Independent worker (Base=Salaried worker)	0.17 ***	1.09
Main job (Base=Blue-collar and services)		
Sales, white-collar, and professionals	0.85	1.47
Agriculture	0.37	1.09

Notes: *:p<0.05, **:p<0.01, ***: p<0.001
HH=Household
ADL= Activities of Daily Living; IADL= Instrumental Activities of Daily Living

Source: CRELES study.

Table 5. Multinomial logistic regression coefficients of incidence of pension and labour status. 2004-2014(Base= Keep working without retirement pension).

Covariates	Leave work /wo pension	Keep working with pension	Leave work with pension
	OR	OR	OR
Family Variables			
Provides child care	2.31 ***	1.61	0.54
Receives informal family transfers	1.25	1.69	0.68
Provides informal family transfers	0.68	1.97	1.29
HH with spouse	1.47	0.91	0.85
HH with underage members	1.01	0.90	0.45
HH with adult children	0.71	0.85	2.49 *
HH with spouse working	0.70	0.17 *	0.79
Demographic variables			
Women (Base=Men)	4.37 ***	0.71	2.85 **
Age	1.11 **	1.34 ***	1.45 ***
Years of schooling	1.00	1.02	1.04
Foreign-born (Base=Local)	0.74	0.68	0.41
Health Variables			
Bad or regular health (Base=Excellent/good)	1.15	1.37	1.43
Cognitive status index	1.09	1.24	0.86
Receives help for ADL/IADL (Base=Does not receive)	1.01	0.51	0.68
Lifetime job characteristics			
Experience	1.06 *	1.01	1.01
Self-rated financial situation scale	0.81	1.09	0.65
Income (in 2006 100,000 colones)	1.05 ***	1.02	1.01
Independent worker (Base=Salaried worker)	1.83 *	0.35 *	0.09 ***
Main job (Base=Blue-collar and services)			
Sales, white-collar, and professionals	1.75	1.24	0.70
Agriculture	1.58	0.68	0.18 ***

Notes: *:p<0.05, **:p<0.01, ***: p<0.001
HH=Household
ADL= Activities of Daily Living; IADL= Instrumental Activities of Daily Living

Source: CRELES study.

We estimated a multinomial logistic model where the dependent variable was a combination of the two variables analyzed before: pension entitlement and job cessation (Table 5). It is worth to notice that, due to the smaller number of cases in each category of the new polytomous variable, the statistical power to detect Odds Ratios significantly different to one diminished. The multinomial model underscored that child care predicted above all the transition towards economic inactivity without a pension; in other words, the decision of discontinuing work without securing retirement money was seemingly determined by the needs or compromises for informal support provided by the elderly person. The multinomial equations also suggested that retirement decisions were associated with household composition. Elderly Costa Ricans were more likely to move towards formal retirement when adult children were present at their homes; however, they were less likelyto formally retire and keep working when their spouses were also working. This scenario is relatively different from what happens in industrialized countries where formal retirement may also mean job discontinuation. In Costa Rica, if the spouse was working at baseline, the individual may apply to a formal pension but would still be working, probably in the informal sector. Gender divisions were also evident given that women were more likely to leave the job regardless of whether they were receiving pension money. Table 5 also confirmed that farmers were more likely to keep working (especially without pension money) and that salaried workers were more likely to be entitled to formal retirement without needing to continue working; independent workers were in general less likely to leave a job.

We estimated another multinomial logistic regression to analyze formal retirement timing, given the importance that early retirement has on the sustainability of the pension systems in Costa Rica. The dependent variable has four categories: early retirement, normative retirement age, late retirement —as defined in the methods section—, and no retirement, which is the base category (this model is also affected by low statistical power). From the family dynamics perspective, people who made money transfers tend to retire earlier than at the normative age. On the other side, people who were in charge of taking care of young children were less likely to retire late in life. There were no statistical differences in retirement time across household composition variables, although the Odds ratio of late retirement for those who lived with underage members is 0.21; it is likely that this Odds ratio was not significantly different to one because of limited statistical power. Additionally, as observed before in the other models, farmers and independent workers had lower odds of retiring at any age. Additionally, self-employed labourers had significantly lower odds of retiring, especially at early ages.

As a last remark, there was another covariate associated to retirement timing. People who reported bad health at baseline were more likely to retire late in life rather than early in life. This result seemed counterintuitive; but it might be associated to

the Social Security-related health insurance. Some Costa Ricans with barriers to formal retirement might need to keep working until old age to secure their health insurance until they get entitlement for formal retirement. In a separate analysis (not shown), people who were diagnosed with arthritis, osteoporosis or health diseases other than heart attacks (self-reported information) were more likely to have late retirements. Arthritis and osteoporosis are debilitating diseases with relatively low lethality; these conditions might require people to keep working for securing their treatments. More research is needed to explore this relationship.

Table 6. Multinomial logistic regression coefficients of incidence of retirement timing. 2004-2014 (Base= Keep working without retirement pension).

Covariates	Early retirement	Normative age retirement	Late retirement
	OR	OR	OR
Family Variables			
Provides child care	0.43	1.58	0.04 ***
Receives informal family transfers	1.35	0.85	0.19
Provides informal family transfers	2.67 *	0.79	1.69
HH with spouse	1.19	0.68	0.78
HH with underage members	0.71	0.59	0.21
HH with adult children	1.29	1.34	1.20
HH with spouse working	0.36	0.52	0.53
Demographic variables			
Women (Base=Men)	1.57	1.12	0.89
Years of schooling	1.05	0.98	1.10
Foreign-born (Base=Local)	0.71	0.64	0.02
Health Variables			
Bad or regular health (Base=Excellent/good)	0.86	1.43	6.97 ***
Cognitive status index	1.21	0.84	0.95
Receives help for ADL/IADL (Base=Does not receive)	0.63	0.54	0.32
Lifetime job characteristics			
Experience	1.07 *	1.06	1.31 ***
Self-rated financial situation scale	0.88	0.90	0.39 **

Income (in 2006 100,000 colones)	1.01	0.97	0.81
Independent worker (Base=Salaried worker)	0.17 **	0.29 **	0.24
Main job (Base=Blue-collar and services)			
Sales, white-collar, and professionals	0.76	1.40	0.82
Agriculture	0.22 *	0.60	0.90

Notes: *:p<0.05, **:p<0.01, ***: p<0.001
HH=Household
ADL= Activities of Daily Living; IADL= Instrumental Activities of Daily Living
Age was excluded from the covariate set because it is used to construct the dependent variable.

Source: CRELES study.

CONCLUSIONS

Family characteristics are important predictors of retirement decisions. In most countries, informal transfers are related to delaying withdrawal from the labour market (Drobnic, 2002; Gómez and Miret, 2014; Hokema and Scherger, 2016; Szinovacz, DeViney and Davey, 2001). In Costa Rica, non-monetary transfers —child care chores— predicted a higher probability of leaving a job, but not necessarily with formal retirement. In this sense, providing child care had a substitution effect according to which unpaid labour seemed more valuable to the families than direct income.

In Costa Rica, giving money away to relatives and acquaintances predicted a higher incidence of early formal retirement. This association has not been observed in other countries. In light of the findings, we could hypothesize that retirement decisions in Costa Rica were determined by family obligations towards kin. The stability of receiving pension money on a monthly basis might explain why people that provide money to relatives would prefer to retire, even if confronted with a reduction in their income because of the replacement rate. Nonetheless, we recommend further research to develop a deeper analysis with qualitative techniques in order to investigate the causal relationship between these variables.

The data did not show any clear evidence about the importance of the couple in decision making about retirement. Neither the spouse's labour status nor whether there is a spouse in the household were associated with exiting the job market. The only exception was that respondents whose spouses were still working had higher incidence of claiming pension money while still in the job market. The descriptive statistics showed that 5 per cent of elderly people who were working at baseline started receiving pension money and kept working. In Latin America,

labour participation of the elderly is more likely than in other regions because the pension money might not be enough for their economic well being. The informal sector is common for people who start receiving pension money but stay in the job market (Bertranou, 2005).

On the other hand, Costa Ricans living in households with adult children were more than twice as likely to retire formally without seeking for another job, than staying at work without a pension. Adult children appeared to be an important part of the elderly safety net. In this sense, the Costa Rican situation is more similar to other Latin American (Olivera and Zuluaga, 2014; Tablas, 2014) or Asian countries (Giles, Wang and Zhao, 2010; Pang, De Brauw and Rozelle, 2004), rather than to European countries where adult children might seem to rely more on their parents' retirement income (Manacorda and Moretti, 2006).

The other main covariates associated with retirement decisions were those related with the labour market, as expected. Salaried workers were more likely to retire, especially earlier than others. Farmers were also less likely of work discontinuation. These results emphasize that, even though Costa Rica has a higher Social Security coverage than other Latin American countries, a sizable fraction of the elderly population still faced barriers in obtaining access to social benefits, due that the Social Security system started aiming to urban families. Beside self-employment —typically part of the informal sector— might derive not only into less benefits for retirees, but also to problems in the system's actuarial sustainability. Additionally, the article also shows the high proportion of persons who receive the pension benefit before the normative age. Pension laws allow early retirement, but its high incidence may compromise the system´s sustainability (Rosero and Jiménez, 2012). Government regulators and the main pension funds managers should implement disincentives for early retirement, particularly for high income public employees.

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