Revista Iberoamericana de las Ciencias Sociales y Humanísticas

RICSH

ISSN: 2395 - 7972

https://doi.org/10.23913/ricsh.v12i23.310

Artículos científicos

Envío y recepción de transferencias informales en personas envejecidas dentro del contexto mexicano

Sending and receiving informal transfers in elderly people within the Mexican context

Enviar e receber transferências informáis em idosos no contexto mexicano

Asael Ortiz-Lazcano
Universidad Autónoma del Estado de Hidalgo, México
lazcano@uaeh.edu.mx
https://orcid.org/0000-0001-5422-7153

Resumen

En este artículo se analiza el comportamiento de las transferencias informales en personas envejecidas del contexto mexicano. El objetivo de este trabajo fue investigar las características sociodemográficas que diferencian a las personas adultas mayores que envían y que reciben transferencias informales. Método: la investigación es de corte cuantitativo; la fuente de información fue la Encuesta Nacional de Envejecimiento en México (ENASEM), publicada por el Instituto Nacional de Estadística y Geografía (INEGI) en el año 2012. Se eligió trabajar con este año porque los niveles de atrición en las encuestas de 2015 y 2018 alcanzan hasta 30% de error en algunas edades, generando problemas de interpretación de resultados. Resultados: los datos revelan que 46.4% de la población en México de 60 años y más ha recibido transferencias en los últimos dos años, aunque estas no son cada mes o cada cierto periodo de tiempo. Se observan diferencias importantes entre las personas envejecidas que envían transferencias económicas y aquellos que reciben transferencias económicas. Conclusiones: las personas adultas mayores que realizan transferencias en el contexto mexicano son principalmente hombres, menores de 70 años, tienen dos hijos como máximo, refieren tener una buena situación económica, no reciben transferencias gubernamentales, tienen ahorros y son pensionados. Por el contrario, las personas adultas mayores

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que reciben transferencias principalmente son mujeres, que no viven en pareja, que tienen 3 hijos o más, cuya situación económica es referida como precaria, no son pensionadas, tienen 70 años o más y reciben transferencias gubernamentales.

Palabras clave: envejecimiento demográfico, distribución por sexo, distribución por edad.

Abstract

Introduction: this article analyzes the behavior of informal transfers in elderly people in the Mexican context. **The objective** of this work was to investigate the sociodemographic characteristics that differentiate older adults who send and receive informal transfers. **Method:** the research is quantitative, the source of information was the National Survey on Aging in Mexico (ENASEM), published by the National Institute of Statistics and Geography (INEGI) in 2012. We chose to work with this year because the levels of attrition in the 2015 and 2018 surveys reach up to 30% error in some ages, generating results interpretation problems. **Results:** the data reveals that 46.4% of the population in Mexico aged 60 and over has received transfers in the last two years, although these are not every month or every certain period of time. Significant differences are observed between older people who send financial transfers and those who receive financial transfers. **Conclusions:** older adults who make transfers in the Mexican context are mainly men, under 70 years of age, have a maximum of two children, report having a good economic situation, do not receive government transfers, have savings and are pensioners. On the contrary, older adults who receive transfers are mainly women, who do not live with a partner, who have 3 children or more, whose economic situation is referred to as precarious, are not pensioners, are 70 years of age or older, and receive government transfer.

Keywords: demographic aging, distribution by sex, distribution by age.

Resumo

Este artigo analisa o comportamento das transferências informais em idosos no contexto mexicano. O objetivo deste trabalho foi investigar as características sociodemográficas que diferenciam os idosos que enviam e recebem transferências informais. Método: a pesquisa é quantitativa; A fonte de informação foi a Pesquisa Nacional sobre o Envelhecimento no México (ENASEM), publicada pelo Instituto Nacional de Estatística e Geografia (INEGI) em 2012. Escolhemos trabalhar com este ano porque os níveis de desgaste em 2015 e 2018 chegam a Erro de 30% em algumas idades,

gerando problemas de interpretação dos resultados. Resultados: os dados revelam que 46,4% da população do México com 60 anos ou mais recebeu transferências nos últimos dois anos, embora não sejam todos os meses ou em determinados períodos de tempo. Observam-se diferenças significativas entre os idosos que enviam transferências financeiras e os que recebem transferências financeiras. Conclusões: os idosos que fazem transferências no contexto mexicano são principalmente homens, com menos de 70 anos, têm no máximo dois filhos, relatam ter uma boa situação econômica, não recebem transferências do governo, possuem poupança e são aposentados. Pelo contrário, os idosos que recebem transferências são maioritariamente mulheres, que não vivem com o companheiro, têm 3 filhos ou mais, cuja situação económica é referida como precária, não são reformados, têm 70 anos ou mais e receber transferências do governo.

Palavras-chave: envelhecimento demográfico, distribuição por sexo, distribuição por idade.

Fecha Recepción: Julio 2022 **Fecha Aceptación:** Enero 2023

Introduction

The process of human aging, in a biological sense, is irreversible and, although it occurs during a large part of man's life, it is in its final stage when it produces both physical and mental dysfunctions that force the elderly to depend on the beings that surround them. . Talking about human aging refers to various meanings ranging from medical, physiological, philosophical and social; This work focuses on the sociodemographic perspective. In the history of humanity, its growth in absolute numbers has been very low; It was not until the 18th century that, in Europe, there was a significant rise in the increase in life expectancy and, inherently, a demographic growth was created. Later, in 1950, there was another important increase, which has continued steadily to this day. For this reason, it is possible to affirm that man had not reached, as a whole, such high levels of life expectancy as is now known in the 21st century; Nor has a large number of aging populations been known in the world, as is now the case.

Demographic aging is guided by the classic demographic transition theory, although now the European world is witnessing a second demographic transition, which undoubtedly creates and recreates changes in population structures, economic activity and, above all, demographic aging itself (Kaa, 2002). The classical demographic transition theory was formulated by the Bureau of Population Research based in Princeton, England; It is the result of the abstraction of previous works on the future that was warned of the population of Europe and the Soviet Union. This work was published in 1944 by the United Nations Organization (UN), where, according to Euro-

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Western postulates, the demographic transition was raised as the transition from a state of population equilibrium with high fertility and mortality, to another with low mortality and fertility; all this after a certain time and parallel to a process of socioeconomic development (Wrigley and Schofield, 1984). On the other hand, the aging process throughout history and in the world has been diachronic in its variables and complex, affecting different areas of the daily life of families, but also impacting the economic, social and political areas of the nation states. Worldwide, European countries took around 200 years to carry out the process of the so-called demographic transition theory, which has as one of its reverberations the aging process of the population. In the case of some Latin American countries, such as Mexico[1], the demographic transition lasted barely 35 years, with all the discussions that this entails; but the aging process that is glimpsed in a few years will be acute, impacting areas such as the economy and the family.

One of the first thinkers of demography that began with the analysis of the aging of the population was the French Jean Claude Chesnais, who argued that the fourth phase of aging occurs when the decrease in mortality has effects on the number of people of older ages. advanced, since in the rest of the population the levels of mortality are very low. He stated that if fertility continued to decline or if it remained at the levels of that time, there would be a reduced number of children and an abundant group of old people, that is, the young would be replaced by the old (Chesnais, 1990, p. 34). . For this reason, Chackiel defined the aging of the population as the result of the evolution of the decrease in mortality, the decrease in fertility and an associated increase in life expectancy, which generates a gradual process of population aging. (Chackiel, 2004).

Demographic aging in Mexico

Demographic aging is one of the most relevant features of the populations of the 21st century, associated with the changes that began in the two preceding centuries and that gave rise to this phenomenon, bringing with it significant changes in the economy, in population structures , in demographic dynamics and in the way of life of societies. This generalization of aging is increasingly observable in many parts of the world; Most of the nations face these challenges of the demographic change marked by the increase of older adults. These changes in population structures and demographic dynamics have had an impact on the field of health, social security, educational contexts, family arrangements, the labor market, as well as many other scenarios of social life. Demographic aging, as has been mentioned, is present throughout the world and will generate more and more transcendental changes with impacts in all scenarios (Table number 1).

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The phenomenon of population aging is the result of a gradual increase in people aged 60 and over, compared to younger groups, as a result of what is referred to by the classic demographic transition. The criterion established by the majority of the countries of Latin America, old age begins at 60 years of age; With the implications that demographic aging has generated in various areas, it has been discussed to increase said age. This has been a position adopted by the Economic Commission for Latin America (CEPAL) since the beginning of the 2000s. (CEPAL, 2006; p. 14).

Table 1. World aggregate: absolute and relative aging population and median age, 2015-2050.

Area	Population aged 60 and over (thousands)			Percentage of the population aged 60 and over			Median age (in years)		
	2015	2030	2050	2015	2030	2050	2015	2030	2050
Total	900,906	1,402,405	2,091,966	12.3	16.5	21.5	29.6	33.1	36.1
Africa	64,447	105,387	220,341	5.4	6.3	8.9	19.4	21.2	24.8
Asia	507,954	844,487	1,293,710	11.6	17.2	24.6	30.3	35.4	39.9
Europe	176,513	217,220	242,001	23.9	29.6	34.2	41.7	45.1	46.2
Nort America	74,589	104,799	122,679	20.8	26.4	283	38.3	40.4	42.1
Latin America	70,922	120,959	200,031	11.2	16.8	25.5	29.2	34.5	41.2
Oceania	6,481	9,553	13,204	16.5	20.2	23.3	32.9	35.1	37.4

Source: Own elaboration with data from UN (2015) World Population Aging.

Even aging has been understood in different ways, for example, the one that must be pursued with a better quality of life, as stated by Settersten and Hagestad (2015), who consider that there must be better living standards for the elderly, ranging from health, food, entertainment, to family and economic processes (Settersten and Hagestad, 2015). For Harper (2014), there are multiple challenges of demographic aging, which include health, social security, education, socio-cultural activities, family life and, without a doubt, the labor market. For Harper, all this has an impact on the type of life of the elderly person, highlighting that health plays an important role in the quality of life of the elderly, but these variables are not dissociated from each other, on the contrary, interrelated (Harper , 2014).

In the Mexican context, population aging has its antecedents in the 20th century, where it presented vertiginous changes in its demographic dynamics. This process brought with it the

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decrease in mortality and fertility rates and demographic and economic growth; however, over time, demographic aging has been appearing constantly. There are significant structural changes looming; For example, the National Population Council (CONAPO) highlights profound transformations in the structure by age and sex of the population, for example, the decrease in the absolute and relative weight of children between the ages of zero and 11, which in 2018 they constituted 26.5 million (21.2%) and in 2050 it is expected to decrease to 21 million (14.2%). Another significant fact is the decrease in adolescents and young people between the ages of 12 and 29, which will go from 39 million (31.2%) in 2018 to 34.5 million (23.3%) in 2050. Another change is the increase in adults between the ages of 30 and 59 years old that will go from 46.3 million (36.9%) in 2018 to 59.3 million (40.0%) by 2050. These changes in the demographic structure will cause aging to increase significantly, a population that will represent 25% of the national aggregate in 2050 (CONAPO , 2018).

This scenario undoubtedly implies that beyond the institutional aspects, reorganizations and different family dynamics are also visualized, since there will be changes in residential arrangements, framed by the increase in households with people aged 60 and over, including households one-person (CONAPO, 2018).

An item to highlight are health services, from training of its human resources to modifications of its infrastructure; as well as attention to the prevalence of diseases characteristic of this age group, mainly chronic-degenerative diseases. Undoubtedly, the number of people with conditions of disability and dependency will increase; requiring more resources for the provision of care for people in this age group (González, 2015).

In the Mexican context, it is observed that demographic aging is heterogeneous and unequal. The demographic conditions, although similar, are not the same for the different entities. In the national aggregate, demographic aging was estimated for 2010, according to census data, of 30.25 older adults for every 100 inhabitants under 15 years of age. However, in entities such as Quintana Roo, Chiapas, Baja California Norte and Baja California Sur, the ratio of adults ranged from 16 to 24 older adults per hundred children and adolescents. On the contrary, in Mexico City, this ratio reached 51.8 older adults for every 100 minors in the mentioned ages (Zúñiga and García, 2008).

However, demographic aging is dynamic and progresses; therefore, according to data from the 2020 Population and Housing Census, the national average increased to 47.7 in 2020. According to data from the National Institute of Statistics and Geography (INEGI) of the 2020

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Population and Housing Census, states such as Chiapas, Quintana Roo, Aguascalientes, Baja California Sur and Tabasco show an aging rate below 40 older adults for every hundred children under 15 years of age. On the contrary, entities such as Yucatán, Sinaloa, Colima, Morelos and Veracruz reached 50 older adults for every hundred children under 15 years of age. Mexico City presented an index of 90.2, the highest in the national aggregate (INEGI, 2021).

But this heterogeneity includes social, economic, labor and health differences that determine how to deal with diseases. Therefore, what is referred to by Ham is very appropriate, who considers that the study on old age can be organized into three large areas: health care, economic security, as well as social and family relationships. (Ham, 2011).

Old age and transfers, theoretical elements

As previously mentioned, population aging is a phenomenon of global interest. Leiton-Espinoza refers to the fact that, in the year 2025, there will be a number of aged people of 15% (1,200 million) in the world and it will reach 2,000 million in the year 2050, which will constitute 25% of the world population. This trend also extends to Latin America and the Caribbean, which in the year 2025, this age group will be 15% (around 100 million) and by 2050 it will increase to 25% (183.7 million); This population increase will occur mostly in developing countries. In Mexico, the aging process is gradual; in 2015 there were 13.4 million older adults and, by 2050, the National Population Council forecasts that 30% (27.7 million) of the population will be over 60 years of age (Leiton-Espinoza, 2018).

For this reason, the study of the elderly and the transfers they receive are mandatory studies, since there is a profile of the elderly in Mexico that must be analyzed due to demographic, economic, health and social pressure. Specifically, for the national aggregate, the demographic profile of the elderly is to have a low level of education, perform marginal jobs, very few of them have pensions or retirements, a significant number of them are working as a salaried worker, even with more than 40 hours worked per week. According to data from the 2015 Intercensal Survey, in Mexico there are 10.5% of the population aged 60 and over, which is equivalent to 12,523,090 people. Of them, 46.3% are men and 53.7% women; Regarding marital status, 60.2% live as a couple, either in legal or consensual unions (INEGI, 2015).

Regarding the place of residence, 24.2% of the elderly live in localities with less than 2,500 inhabitants, known as traditional rural areas, 13.9% reside in localities of 2,500 to 14,999 inhabitants, 8.8% live in localities of 15,000 to 49,999 inhabitants, while 4.7% are located in towns

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with 50,000 to 99,999 inhabitants; finally, 48.5% live in cities with more than 100,000 inhabitants. It is possible to conclude that, globally, 24.2% of older adults do so in rural areas of the Mexican context, while three out of four (75.8%) reside in urban areas, although one out of two (48.5%) prefers cities with more than 100,000 inhabitants (INEGI, 2015).

In percentage terms, the elderly in Mexico belong to the following age groups: 55.3% from 60 to 69 years, 30.1% from 70 to 79 years and 14.6% from 80 years and over. Regarding entitlement, 13.9% have no right to any health service, while 35.2% had the right to Seguro Popular, which translates into a significant lack of protection for one in two elderly people. According to the 2015 Intercensal Survey, 25% of older adults self-register as belonging to an indigenous group. 19.7% of older adults (PAM) in Mexico do not know how to read or write, not even a message, so their level of schooling is very low. 22.7% have no schooling, 49.4% have some year of complete or incomplete primary school, that is, three out of four have primary level studies and less. 9.8% have completed or incomplete high school studies and 18.1% have high school studies and more (INEGI, 2015).

These data allow us to know the economic and income situation of the elderly in Mexico, which is very limited. This is reflected in the following employment data: 25.9% are salaried, 2.2% are self-employed, 33.5% do household chores, 18.2% are retired or pensioners, 7.1% have some physical or mental limitation that prevents them from working and 13.1% do not work. With regard to salaries, the data is evident: 10% of the elderly receive less than $500.00 (five hundred pesos 00/100 MN) monthly, 25% receive less than $2000.00 (two thousand pesos 00/ 100 M.N.), while 50.1% of the elderly receive less than $3800.00 (three thousand eight hundred pesos 00/100 M.N.) per month.

Reviewing these data, it can be seen that the transfers received by older people are very important for their subsistence, whether these are formal transfers, that is, money sent by federal, state, or even municipal programs. But informal transfers are also important, which are those that family members send to the elderly.

Guidotti-González and Aidar, in a study carried out in the city of Montevideo, found that in Uruguay older adults have important roles in the family, intergenerational exchange of goods, with a two-way dynamic, actively and financially supporting their relatives. . The dynamics of transfers involving the older adult population is evidenced as a two-way flow, especially among older adults who live alone or with their spouse. The differences by sex show that men have a more

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pronounced tendency to provide money and women to provide services and childcare (Guidotti-González and Aidar, 2012).

Villegas, Montes de Oca and Guillén, supported by the National Survey of Family Dynamics (ENDIFAM), found that support exchange networks given by family, friends, neighbors and the community are a strategy used for survival, mainly in the unprotected groups. This explains how the most vulnerable groups can survive, taking into account that in Mexico in 2005 close to 50 percent of the population aged 65 and over did not have access to health institutions; and approximately 80% did not receive pension or retirement income. Among the results, the help in two types is highlighted, the one they receive and the one granted by the people according to the age group, which demonstrates how the family appears in support when the elderly people need it. Although there is a difference when comparing the help received and given to the elderly, it is observed that for the group between 60 and 69 years of age, the help they provide is still greater than what they receive in daily activities, the situation it changes in the group of 70 to 79 years, while in the last group that of 80 and over increases in terms of aid received; and the help granted by the elderly is less (Villegas, Montes de Oca y Guillén, 2014).

Peláez and Ferrer had as findings in their research that in most developing countries, the maintenance of the elderly is largely carried out by exchanges with the family, this support is bidirectional. Older adult women take care of the grandchildren, the home and receive economic support, and is complemented by the lack of a social protection network for the elderly. In poor families, the home of the oldest people becomes the home of the children and grandchildren, the grandmother attends to the needs of the family and this guarantees an income to ensure the minimum living conditions (Peláez and Ferrer, 2001).).

Murad carried out a study on the co-residentiality of adult children with the elderly. He found that one of the key points of this arrangement is the variety of benefits that can be obtained, from emotional, psychological and physical support to economic support, including informal transfers. Therefore, older adults who do not live with a partner tend to receive more assistance than those who are married, although married older adults tend to provide more assistance to their children. In general, married children are less supportive of their parents than unmarried children in terms of informal transfers (Murad, 2003).

Brenes carried out comparative work in Latin American countries and focused on two of them, Mexico and Costa Rica. His findings show that the majority of Costa Rican and Mexican older adults report having a regular or bad financial situation, highlighting that 80% of Mexicans

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aged 60 or over report a precarious economic situation. Poverty among the elderly in Mexico increases as age increases, while in Costa Rica it is the other way around, since the economic situation improves with age. In Costa Rica, pension income reaches close to 70% of the population, while in the Mexican case only 17% of the population has this income.

For this reason, the transfers in Mexico, according to Brenes, are important, given that there is no labor income from a pension, and a large number of elderly Mexicans are still working. Therefore, transfers become essential to define the well-being of the elderly. For Brenes, the transfers in Mexico are complex to understand, since they are the main source of income for the PAM, but they are also very unstable because they depend on the economic conditions of the children, who in average figures have a very limited economic situation (Brenes, 2013).

On the other hand, Cervantes, in an investigation carried out in the State of Mexico, concludes that the formal labor market for the elderly is reduced, pensions are scarce and those who have them receive very little income. This forces the elderly to opt for formal and informal transfers to survive. However, formal support is limited and with very meager amounts. It is impossible for these amounts to cover their needs, which means that the members of the household are the main source of help for the elderly. He concludes that, although it is a legal obligation to care for aging parents in Mexico, support within homes is reciprocal, since older adults also provide various types of help. (Cervantes, 2013).

Welti, In a study carried out in Mexico, he found that the population of older adults that receives a pension from social security is very low, only one in four people aged 65 or over is a beneficiary. For this reason, assistance programs have been implemented through which the Federal Government or the State Governments make monetary transfers to the elderly. At the federal level, it is estimated that 42.4% of this population receives benefits from these programs. It also concludes that, among the elderly, as age increases, the number of those who receive transfers of resources from other households increases, which represents ten percent of people aged 65 or over in this country. However, this percentage reaches 14% among people aged 85 or over, according to data for Mexico from the National Survey of Demographic Dynamics (ENADID) in 2014 (Welti, 2018).

Madrigal-Martínez, in an investigation carried out in the state of Mexico, found that salary income is decreasing in the elderly, even below the amounts from pension income. This forces them to work full days, even so the economic situation they live in is not very flattering. Another of its results shows that social support, also called formal transfers, serves to build economic

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security for the elderly population of Mexico and is very important despite being limited and insecure (Madrigal-Martínez, 2010).

A work by Díaz-Tendero shows that the State's exercise in the area of economic security is limited for insured workers, who have had to contribute through a formal system. However, no matter how small, there are a large number of people without this benefit, which is why, for Díaz-Tendero, intergenerational economic solidarity is required for uninsured workers, who are those with the lowest income level. In order for their life to be actuarially and financially viable, the principles of reciprocity must be given in the family, and it requires that the transfers sent by the relatives be the support of the poorest workers, with this they can live in a decent way, since the family is a nodal point of support for the elderly (Díaz-Tendero, 2015).

On the other hand, Montes and Hebrero (2005) conducted a study in the state of Guanajuato on intergenerational transfers to older adults. They confirm that transfers made by the social security system have an urban bias and that formal transfers from the federal government are oriented to less urbanized areas, particularly rural areas. Despite formal transfers, the economic and health needs of the elderly persist and this leads their relatives to make informal transfers of an ascending nature (Montes and Hebrero, 2005).

In an investigation by Jasso-Salas, Cadena-Vargas and Montoya-Arce, who sought to know the differences in socioeconomic and spatial inequality in the state of Mexico, they show that the metropolitan areas and the municipalities that comprise them present lower degrees of marginalization. They also have lower degrees of aging and, as the size of the population decreases, marginalization and the rate of aging increase. This shows that the social benefits are located in large cities, since their results allow them to affirm that social development policies, whether federal, state and/or municipal, implement social programs focused on reducing the social gap, through formal transfers (Jasso-Salas, Cadena-Vargas y Montoya-Arce, 2011).

Rosero and Zúñiga, Those who sought to know intergenerational transfers in Costa Rica, report that 64% of the Costa Rican population enjoys a pension, which can be contributory or non-contributory. The role of the Costa Rican government is crucial in financing pensions for the elderly, while the responsibility of children and young people depends to a large extent on transfers from parents. They conclude that older adults do not generally represent a burden for their families. On the contrary, they make more transfers than they receive, even at very old ages. In fact, asset income and savings are surprisingly high and increase with age, up to around age 70. For them,

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there are three possible ways to finance the life cycle deficit, which are: a) public transfers, b) private transfers, and c) asset reallocations.

The public transfers that refer to pensions are paid by the system that the current young worker pays the pension of the aged worker, and in the future, this young worker will receive the payment of his pension from new workers. Private transfers take place mainly among family members and indicate the direction of economic flows between generations, highlighting that parents transfer significant amounts of resources, since the Costa Rican pension system allows elderly people to generate savings. The third source of financing is the reallocation of assets, which do not imply transfers between generations, and which refers to the sale of movable and immovable property, inheritances, among other items, and which allows the elderly to have financial support (Rosero and Zúñiga, 2010). These analyzed works allow us to have a research scenario regarding old age and formal and informal transfers to understand more clearly the Mexican scenario that will be analyzed later.

Materials and methods

In this paper, the 2012 National Survey on Aging in Mexico (ENASEM) was used as a basis. This survey is part of a series of studies that began in 1992 worldwide with the Health and Retirement Study (HRS) office in the United States, and in 2001 the first edition was carried out in Mexico. Subsequently, similar exercises were carried out in England, the European Union, Costa Rica, Korea, Brazil, among other countries, which makes ENASEM a survey applicable in different parts of the world, thus allowing comparability, although with certain limitations. ENASEM is a longitudinal survey, also known as a panel survey, which has been carried out in Mexico by INEGI in the years 2001, 2003, 2012, 2015 and 2018. It was decided to work with ENASEM 2012 because the levels of attrition in the years 2015 and 2018 can reach up to 30% in some ages, which generates errors in the interpretation of the results (Orozco-Rocha, Wong and Michaels, 2018).

The selection unit for this study was people aged 60 or over, and data collection was carried out from October 1 to November 23, 2012. The sample consisted of 20,542 people, classified into two types of sample: the first corresponded to people interviewed in 2001 or 2003 who were followed up, with a total of 14,283 individuals; and the second was an additional sample obtained from the 2012 National Occupation and Employment Survey (ENOE), with a total of 6,259 people (INEGI, 2012). Data collection was carried out through direct interviews, and when the study subject could not answer or had already died, a substitute informant was interviewed.

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For the present work, the information of the first section will be addressed, specifically the section that was applied to the people of direct interview. These people were also approached in 2003 and include the new people who have been taken for 2012. From the second section, which is the basic questionnaire, section "A" referring to sociodemographic data will be taken into account, which will provide the characteristics of older adults who are receiving transfers from their children or grandchildren. Section "G" help and children will also be used, in which information will be obtained from older adults who are receiving financial or in-kind transfers and their frequency. (INEGI, 2013).

Binary logistic model

To carry out the analysis of transfers in older adults, the binary logistic regression model was used. This model is part of the set of non-parametric statistical methods and is suitable when the response variable Y is dichotomous. Binary logistic regression is one of the most widely used statistical-inferential techniques in contemporary scientific production, and it is considered to be a very kind method, since it is possible to work with various variables, with the only requirement of converting them into dummy or dummy variables. (Montoya and Correa, 2017). These new variables, artificially created, take values of zero and one. This leads to regression models in which the parameters lend themselves to natural interpretations (Damodar and Dawn, 2010).

The identification of the best logistic regression model is done by comparing models using the likelihood ratio, which indicates from the sample data how much more likely one model is compared to the other (Bocco and Herrero, 2009).

For the present case of analysis, receiving economic transfers or sending economic transfers will take the value of 1 for those who receive transfers or send transfers, depending on the model being worked on. The dependent variables are sex, age, place of residence, receiving a pension, marital status, salaried work, hours worked, having property, cars, among other variables. It is feasible to create an algebraic expression that shows the possible behavior of sending or receiving transfers.

$$P (Y=1 \dashv |x)=e^{(\beta iXi+\beta 2X2+\cdots\ldots+\beta nXn)}/(1+e^{(\beta iXi+\beta 2X2+\cdots\ldots+\beta nXn)})$$

Where P (Y = 1 | x) represents the probability of the event occurring and the second term of the equation refers to the explanation of the variation of the dichotomous dependent variable.

Considering that the logistic function can be expressed by the first term, as the quotient between the probability that the event occurs and its complementary as the probability that the event does

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not occur. That is why the dependent variable is considered as a probability ratio, giving rise to the following expression:

$$P/(1-P)= e^{(\beta iXi\beta 2X2+\cdots\ldots+\beta nXn)}$$

Therefore, the ratio P / (1 - P) will be the "relative risk" of each of the independent variables. When the relative risk of an explanatory variable is less than one, it means that said variable represents a protection factor for the event of interest to occur. If the risk that accompanies the variable is greater than one, it means that said variable represents a risk factor for the event of interest to occur (Bacchini et al., 2018). The coefficients βi of the model are calculated using the maximum likelihood procedure. According to this logic, iterative calculations are carried out with the purpose of maximizing a value that assumes the value one when all the elements are correctly classified (Bull, Lewinger and Lee, 2007). Finally, for the estimation and creation of the binary logistic regression model, the statistical package SPSS version 22 was used. (Méndez y Cuevas, 2022).

Results

Below are some of the results obtained from the variable of transfers received by people aged 60 and over in the Mexican context, using the ENASEM 2012 survey database. Initially, it is observed that 46.4% of the The population aged 60 and over in Mexico has received transfers in the last two years, although they may not be constant every month or every certain period of time, while 53.6% have not received transfers from their children or grandchildren. Of the total number of older adults who receive transfers from children or grandchildren, women receive more transfers and larger amounts, and they benefit more than men, since 60.9% of them said they had received transfers, while only 39.1% of men responded in the same way, a significant difference in favor of women of more than 21.8 percentage points.

Analyzing the transfers received according to the size of the locality, and including the total population, that is, PAM that receive and do not receive transfers, there are important points that stand out according to table number 2.

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Table 2. Transfers received according to the size of the locality, 2012.

Level	Total	They did receive transfers	They did not receive transfers
Total	100.0	46.4	53.6
100,000 inhabitants and more	45.7	19.9	25.8
From 15,000 to 99,999 inhabitants	13.1	6.4	6.7
From 2,500 to 12,999 inhabitants	13.6	6.3	7.3
Less than 2,500 inhabitants	27.6	13.8	13.8

Source: own calculations, using the expanded sample of the survey ENASEM, 2012.

Analyzing the localities in the rural-urban classification in the national context, as is traditionally done, it could be concluded that of the total number of older adults, 32.7% of the transfers received occur in localities with 2,500 inhabitants and more (urban), while that only 13.8% of the PAM that received transfers reside in towns of less than 2,500 inhabitants (traditional rural areas).

However, when disaggregating by size of town, it is possible to distinguish that in towns with 100,000 inhabitants and more, known as medium-sized cities, are the places of residence of the elderly where a greater number of transfers are received, followed by transfers. localities reputed to be rural, with 2,499 and fewer inhabitants. Another point that stands out is that in traditional rural areas, the percentage of older adults who received transfers is identical to the percentage of older adults who did not receive transfers. But in the other localities, the percentage of PAM that does not receive transfers is slightly higher, compared to those that do receive them.

These results are consistent with what was described by Montes and Hebrero, when they refer that formal (governmental) transfers in Guanajuato have an urban bias, since when adding these transfers, they would reach more than 70%, concentrating on localities with 100,000 inhabitants and more. (Montes and Hebrero, 2005). In this same sense, the results of Jasso-Salas, Cadena-Vargas and Montoya-Arce validate this data, since they found that, at the state level of Mexico, the support of government transfers, whether federal or state, also are directed mostly to urban areas (Jasso-Salas, Cadena-Vargas y Montoya-Arce, 2011).

On the other hand, a correlation of variables was carried out between receiving transfers and whether the entity of residence is classified with high migration; however, a very low negative

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correlation is observed, practically null (-0.008), that is, the entities with the highest reception of economic transfers to the elderly do not occur in entities with a high migratory index.

Reviewing the information on transfers by age group from 60 years onwards, in the first group from 60 to 69 years old it is observed that they receive transfers amounting to 41.4%, which differs from the result presented in a first work by Montes de Oca and Hebrero, as well as in a second investigation by Villegas, Montes de Oca and Guillén, in both cases it is affirmed that the youngest older adults have less need for transfers because they are entering the aged group and it is very likely that their Economic conditions allow them to survive with little external help (Montes de Oca and Hebrero, 2005; Villegas, Montes de Oca and Guillén, 2014).

In a second age group, from 70 to 79 years, fewer transfers are received than in the first group, with 38.3%, that is, one in three older adults in this group has monetary transfers. Aboderin, who carried out work on family support in various latitudes, concludes that in some places the children have stopped supporting the parents, and to a certain extent it is a responsibility of the state. However, in some less developed countries, greater support from children to parents is observed, mainly in urban areas, due to the appearance of chronic degenerative diseases in older adults. Aboderin has found that in some countries support for older adults is decreasing significantly, which seems similar to the Mexican case, in addition to the fact that, as observed in the data referred to from the Intercensal Survey, there is a lack of protection for older people in regarding a health service that allows them to face their different illnesses (Aboderin, 2005).

Finally, in the last age group, adults aged 80 years and over are the ones that receive fewer transfers, since this percentage only amounts to 20.3%. When reviewing the types of localities and the transfers received, it stands out that the largest transfers are polarized in medium-sized cities (100,000 inhabitants and more) and in traditional rural areas (2,499 and less inhabitants), which is reproduced in all localities, since as age increases, the transfers from children and grandchildren to the elderly decrease in percentage terms.

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Tabla 3. Transferencias recibidas según grupo etareo de edad y tamaño de localidad, 2012

Age group	Total	100,000 inhabitants and more	15,000 to 99,999 inhabitants	2,500 to 14,999 inhabitants	Less than 2,500 inhabitants
Total	100.0	42.6	13.8	13.8	29.7
60-69	41.3	18.3	5.6	5.0	12.4
70-79	38.3	16.2	6.0	5.5	10.6
80 and over	20.3	8.0	2.2	3.3	6.8

Source: own calculations, using the expanded sample of the ENASEM survey, 2012.

Table 3 shows that, as Montes de Oca and Hebrero have described, as age increases, resources for transfers increase due to the situation of the PAMs, which seems to be corroborated by the data from ENASEM, 2012 (Montes de Goose, 2005). Regarding the residence of the children who grant the economic transfers, it is observed that the children who do not live in their parents' home are the ones who provide the most support in this area. When reviewing the elderly by age group, it is observed that non-resident children support older adults in the 70 to 79-year-old group more.

Another important result is the one obtained by correlating the transfers received with the number of children, since 90% of the PAMs receive transfers if they had and currently live with 3 or more children, while those who did not have children or have 1 o 2 children proportionally receive 10% of transfers, which validates that the number of children is important to receive economic transfers.

As for the transfers made by the elderly to their relatives, they are much lower in the Mexican case. Only 12.9% of PAMs make transfers, and when differentiating by sex, 7.3% of men and 5.6% of women make this type of support. It is noteworthy that 37.0% of the people who make transfers are not united, while 63.0% live with a partner. When disaggregating this information according to the type of locality, it is observed that 53.6% of the transfers from older adults to their children or grandchildren are in areas of 100,000 inhabitants or more. They are followed, with 25.1%, by rural areas with 2,499 inhabitants or less, and later, 2% are in towns with 2,500 to 14,999 inhabitants, while 9.3% are concentrated in towns with 15,000 to 99,999 inhabitants.

Another interesting fact is that of the total PAM, 55.7% of the elderly have no investments or assets, and 44.3% reported having savings, properties and/or investments.

With regard to the number of children currently living of the older adults who make transfers, it is important to observe that those PAM that did not have children, or currently have

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one or two living children, make transfers by 13.2%, while those Parents who currently have more than three living children make a greater number of transfers, reaching 86.8%, which shows an important support relationship.

This relationship between receiving transfers and sending transfers is interesting, since 46.4% of the elderly did not give or receive any type of financial support. 7.2% did not receive any transfer, but did support their children and/or grandchildren, 40.7% of the elderly received transfers, but they did not give transfers, and finally, 5.7% gave transfers and received transfers.

Another fact that stands out is that 47.2% of the elderly in Mexico are survived by at least one parent, and of the total PAM, 40.1% have helped their parents financially in the last two years, which shows that the Family is a vertebral support, even among PAM, even more so when government support is reviewed.

It is noteworthy that of the PAMs that have government support, 80.5% did not transfer resources to their children or grandchildren, while 18.5% of the people who receive government support made transfers.

Finally, it is worth mentioning that of the older adults who have received an inheritance or some economic resource from the sale of goods, 32% have made transfers to their children or grandchildren. Despite the aforementioned, when asked the PAM about their perception of their economic situation, 81.9% mentioned that their economic situation was bad, while 18.1% commented that it was good.

Discussion

Next, it is intended to identify, through the binary logistic regression model, the profile of the people who receive transfers in Mexico, of those who send transfers and of those who receive inheritances or money from the sale of movable and immovable property.

Logistic model of linear regression of PAMs that send transfers

Next, the discussion of the results of the binary logistic regression model that was carried out based on the dependent variable "sending monetary transfers by the elderly" will be shown.

The method of analysis is the binomial logistic model, which uses the transfer of financial resources as a dependent variable. Independent variables include age, children born who are still living, whether they receive government transfers, the sex of the elderly person, whether they have

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investments, the marital status and economic situation of the elderly person, among other variables. For this purpose, the best fit model previously discarded some variables without relevant contribution, such as living in a highly marginalized state, working, requiring assistance to get dressed, helping their parents, having their own home, having cars, land , investments, among other variables.

Based on the theoretical support and the methodological development, the transfer of economic resources by the PAMs is expressed as follows: let Y be a binary dependent variable with two possible values: 0 and 1. Let Y be a set of k independent variables, (X1, X2, ..., Xk), observed in order to predict/explain the value of Y. The objective is to determine:

P [Y = 1/X1, X2, L, Xk] a P [Y = 0/X1, X2, L, Xk] = 1 – P [Y = 1/ X1, X2, L, Xk]

To do this, the model P [Y = 1/X1, X2, L, Xk] = p (X1, X2, L, Xk; ß) is built, where the logit model is a binary logistic regression model:

p (X1, X2, L, Xk; ß) = G [ßX1, + L + ßk Xk] donde G(x) = ex / 1 + ex

The logistic model assumes that the phenomenon data is case-specific, where each independent variable has a unique value. The null hypothesis of this type of model is that there is no relationship between the independent and dependent variables (Bocco and Herrero, 2009).

It is observed that the value of the significance of the variables that are not in the equation is less than 0.05, which allows us to observe an equivalent to chi square, validating the result obtained. Subsequently, in the omnibus tests of the model, all the values are below 0.05, which generates its validity. Table 4 shows the betas and their explanation. According to Bacchini et al, the equation is as follows:

$$\delta (x) = 1 / 1 + e^{-(ßo + ß1X)}$$

$$\delta (x) = 1 / 1 + e^{-[-1.556 +(- 0.536) + (- 0.350) + (0.478) + (0.251) + (-0.355) + (0.697) + (0.429)]}$$

Thus, with a confidence level of 0.95 and a significance level of 0.05, the present model resulted in 58.75% of the variability of the data, that is, the equations explain 81.5 % the probability of occurrence, obtaining a moderate R.

Thus, the elderly people who make transfers are mainly with the following profile: they are preferably men, under 70 years of age, have a maximum of two children, report having a good economic situation, do not receive government transfers, have savings and are pensioners.

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Table 4. Binomial logistic model: Older adults who send economic transfers, 2012.

	B	E.T.	Wald	gl	Sig.	Exp(B)
Recode_age_	-0.536	0.112	23.134	1	0.000	0.585
Children born alive	-0.35	0.137	6.53	1	0.011	0.705
Economic situation	0.478	0.113	17.754	1	0.000	1.613
Sex	0.251	0.107	5.466	1	0.019	1.285
Formal transfers	-0.355	0.154	5.321	1	0.021	0.702
Savings, investments	0.697	0.106	43.548	1	0.000	2.008
Pensioner	0.429	0.111	14.85	1	0.000	1.536
Constant	-1.556	0.156	99.128	1	0.000	0.211

Variable(s) introduced in step 1: Age_recodif_2, Children born alive, Economic situation, Sex_2, Transfers, Savings_investments, Pensioner.

These results are partially consistent with what Guidotti-González and Aidar worked on, who found that in the city of Montevideo the dynamics of transfers involving the elderly population is evidenced as a two-way flow, highlighting the difference between the male sex. Men are characterized by a more pronounced tendency to provide money, while women to provide services and childcare (Guidotti-González and Aidar, 2012). In this case that is being analyzed, it fully coincides with the affirmation of these authors, resulting in the fact that in the Mexican case, transfers by older adults come from younger older adults, that is, between the ages of 60 and 69. years. In addition, these people said in the survey that they are financially well off, preferably have a pension, have savings and investments, and also mostly have up to two children. This result is also partially consistent with what was described by Rosero and Zúñiga, who report that elderly people in the Costa Rican system have the capacity to support the family in a bidirectional way, since they have assets and pensions. (Rosero y Zúñiga, 2010).

Logistic Model of Linear Regression of PAMs that Receive Transfers

Next, the results of the binary logistic regression model that was carried out will be discussed, based on the dependent variable "receiving monetary transfers from the elderly".

It is observed that the value of sig. of the variables that are not in the equation is less than 0.05, which makes it possible to observe an equivalent to chi square, validating the result obtained. Subsequently, it is possible to obtain in the omnibus tests of the model that all the values are below 0.05, which validates the model. Table 5 shows the results obtained.

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Table 5. Binomial logistic model: Older adults who receive economic transfers, 2012.

	B	E.T.	Wald	gl	Sig.	Exp(B)
Sex	-0.323	0.066	24.01	1	0.000	0.724
Civil status	-0.124	0.067	3.49	1	0.049	0.883
Children born alive	0.451	0.088	26.038	1	0.000	1.569
Economic situation	-0.164	0.075	4.825	1	0.028	0.848
Pensioner	-0.59	0.076	60.557	1	0.000	0.554
Recoded age	0.392	0.063	39.291	1	0.000	1.48
Formal transfers	0.251	0.076	10.864	1	0.001	1.285
Constant	-0.598	0.097	38.231	1	0.000	0.55

Variable(s) introduced in step 1: sex, civil status, children born alive, economic_situation, pensioner, recoded age, formal transfers.

According to Bacchini et al, the equation is as follows:

$$\delta\,(x) = 1 / 1 + e^{-(ßo + ß1X)}$$

$$\delta\,(x) = 1 / 1 + e^{-[-0.598 + (-0.323) + (-0.124) + (0.451) + (-0.164) + (-0.590) + (0.392) + (0.251)]}$$

Thus, with a confidence level of 0.95 and a significance level of 0.05, the present model resulted in 58.85% of the variability of the data, that is, the equations explain 81.5 % the probability of occurrence, obtaining a moderate R.

It can be concluded that older adults who receive transfers are mainly women who do not live with a partner, have 3 children or more, have a poor economic situation, are not pensioners, are 70 years of age or older, and receive government transfers. In other words, to receive transfers, older people are 1.4 times more likely to receive economic support if they are women, and this support is directed more to PAM who live without a partner. A family with three or more children is 1.6 times more likely to receive transfers. If the PAM reports not being financially well off, they are 1.2 times more likely to receive an informal transfer. If you are not a pensioner, you are 1.8 times more likely to receive a transfer from your family. If you are 70 or older, you are 1.5 times more likely to receive a transfer.

Conclusions

The present work achieved the proposed objective, which was to identify the demographic characteristics that identify the PAMs that send transfers, and to know the characteristics of the PAMs that receive informal transfers. The profile of older adults in Mexico who make transfers was obtained, who are preferably men, under 70 years of age, have a maximum of two children, report having a good economic situation, do not receive government transfers, have savings and are pensioners.

This profile coincides with what has been found in other investigations, where PAMs have transfer dynamics that show a bidirectional flow. It also coincides that elderly people in the Costa Rican system have the possibility of bidirectionally supporting their family, since they have assets and pensions.

On the other hand, the profile of the PAMs that receive transfers is of women who do not live with a partner, have three or more children and receive government transfers. This result shows that there are PAM that are economically unprotected, despite receiving government transfers, so they need the financial support of their family.

According to Welti, the population of older adults that receives a pension from social security is very low, so one way to solve these needs is through informal transfers from the family. Although the model did not include people with a pension, it did include those PAMs that receive formal or government transfers. Finally, it is important to highlight that support exchange networks between family, friends, neighbors and the community are survival strategies used by vulnerable groups, and are translated into the transfers received by the PAMs.

Study limitations

This work has been developed from a quantitative perspective, it is clear that from a subjective perspective the results may vary when analyzing microsocial elements.

Strengths of the study

It is a quantitative work, which demonstrates the profile of older adults who send and receive informal transfers in Mexico.

Study areas of weakness

No se realizó la construcción de todo tipo de transferencia que reciben las personas envejecidas en México.

Future lines of research

After concluding this work, the analysis of the transfers in older adults by residence entity in the Mexican context remains pending, in addition to seeking other sources of information to include topics such as healthy living or other variables that impact the resources sent to the aged people.

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