



Universidad Nacional  
Autónoma de México



Programa  
Universitario  
de Estudios  
del Desarrollo  
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# Documento de trabajo

Family arrangements and  
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20

5 de agosto

2019

# FAMILY ARRANGEMENTS AND SAVINGS IN MEXICO: A LATENT CLASS APPROACH

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## **ABSTRACT**

Even though it has been widely recognized the importance of economic-dependence relationships in the households' capacity to build economic resources, in analyzing consumption and income in Mexico, economists have approached the subject empirically focusing (almost exclusively) on the individual's age in a life-cycle/permanent-income framework. However related an individual's age is to his or her living arrangements, it is our argument that this professional (economic) approach misses the opportunity to bring to bear decades of fruitful socio-anthropological knowledge regarding the crucial role that the number and characteristics of household members affect microeconomic behaviour. In order to bring family living arrangements into play, unlike existing studies that use a priori defined typologies, in this paper we statistically identify, through Latent Class Analysis, the most typical household structures in the Mexican Household Income and Expenditure Survey 2014. We then use these classes of family structures to show how taking into account particular socio-economic dependency-relations can help us better inform public policy, providing relevant heterogeneity analysis on the age profiles of savings in Mexico.

**JEL Classification:** J12, D14, C38

**Keywords:** Living Arrangements, Savings, Life Cycle, Latent Class Analysis.

## INTRODUCTION

The importance of profiling microeconomic behavior cannot be overstated. Starting with reliable information on income and consumption to assess living conditions and measure poverty, the analysis of households' budgetary allocations is fundamental to the design of development policy. This kind of knowledge has greatly informed the design of Conditional Cash Transfer (CCT) programs all over the world (Fiszbein & Schady, 2009), where knowledge of the asymmetrical role of women in maximizing the household welfare has specifically informed the cash transfer mechanism of virtually all CCTs, including the Mexican Progresa-Oportunidades-Prospera (Banegas González, 2011; Banegas, 2017)<sup>1</sup>.

From an empirical point of view, economists usually approach the profiling of consumption and spending following the seminal contributions of Modigliani and Brumberg (1954) and Friedman (1957) to the life-cycle and permanent-income models. Under this conceptual framework, intertemporal consumption and saving choices are set within a coherent optimization problem, where individuals maximize utility over time given a set of intertemporal trading opportunities (Attanasio & Weber, 2010).

This standard workhorse of microeconomics has dictated the empirical approach to analyze fundamental microeconomic behavior as researchers attempt to test the empirical implications of this theoretical framework. Intuitively, the life-cycle/permanent-income model implies that innovations to *permanent* income should be fully incorporated in consumption, while innovations to *transitory* income should not.

From the empirical point of view, bringing the life-cycle/permanent-income model to (household) survey data usually boils down to examining age profiles of income and consumption; that is, focusing exclusively on the household's head age. Even when family structure is taken into consideration under this framework (Attanasio & Browning, 1995), this usually means little more than profiling also per capita income and consumption or adjusting for the size of the household with adult-equivalent measures<sup>2</sup>.

Even though socio-anthropological studies have forcefully argued that the number and characteristics of household members affect determinately the types of economic-dependence relationships and the pool of economic resources available within the household (S. H. Chant, 2007;

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1 By the same token, socio-anthropological knowledge also allows to ponder the way anti-poverty initiatives have heavily relied on women as a conduit of policy, for this may add to already heavily feminized burdens of poverty-associated labor, time and expenditure (Chant, S. H. 2011). This is a crucial matter for public policy design, where instrumentalist efficiency cannot dictate design without social justice considerations.

2 Because of economies of scale in large households as well as differences in consumption needs of children and adults, adjustments are usually made to convert the number of household members into an estimated number of equivalent adults (See <http://www.oecd.org/eco/growth/OECD-Note-EquivalenceScales.pdf>).

Fontaine & Schlumbohm, 2000; Goldscheider, 1992; González de la Rocha, 1994; Selby, Murphy, & Lorenzen, 1990; Singh, 2002; Wong & Levine, 1992), unfortunately this has not permeated to empirical research in economics.

The economic literature on income and consumption in Mexico has not escaped this professional approach (Attanasio & Székely, 1999; Campos Vázquez & Meléndez Martínez, 2013; Mejía Guevara, 2008; Ponce, 2003; Velandia Naranajo & van Gameren, 2016) that has marked econometric-based empirical research. It is our argument that overlooking the explanatory power of economic-dependence relationships has missed the opportunity to draw from qualitative research to better our understanding of basic economic phenomena.

How to bring family living arrangements into play to assess the effect of economic-dependence relationships on the household's budgetary allocations (income and consumption), however, is bit of a puzzle in itself. This paper attempts to add to our knowledge on basic economic behavior by incorporating family structure as a relevant dimension into the analysis of these phenomena<sup>3</sup>.

Typically, previous survey-based research in Latin America has approached the analysis of family living arrangements through three overlapping typologies according to kinship (nuclear, extended, compound, non-familiar, monoparental, biparental, with and without children), cohort (generational, multigenerational, with and without elderly, with no middle generation or skip-generational) and life-cycle stage (initial, expansion, consolidation), with further breakdowns by sex of the household head, and sometimes quantiles of income distribution (Ullmann, Maldonado Valera, & Nieves Rico, 2014). All three typologies have proven fruitful to analyze and contrast household surveys in the region both across countries and through time. However, overlapping of all these different ways to slice household surveys, as a brute-force method to look at the distribution of households according to family arrangements, ends in a cross-tabulation of roughly a thousand cells. Indeed, no one proceeds in such a blithely way, but even going through these cells making informed guesses in a high-dimensional contingency table, looking for meaningful sizable contrasts, can result in an insurmountable task that only by sheer chance would make the most of between group variance, something Latent Class Analysis (LCA) works out as *modus operandi*.

In a sense, in this paper we propose a shift from an upstream to a downstream notion of empirical content for the survey-based family structure literature. Instead of starting from theoretical categories of family structure to operationalize a partition (exhaustive codivisional, mutually exclusive, classes) of the data, through LCA we look for statistically significant household structures in the Mexican Household Income and Expenditure Survey 2014 (ENIGH-2014), using the same raw demographic markers that different upstream approaches use. One way to think about this shift is in terms of engineering and reverse engineering. So far, survey research on

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3 Without a doubt, most Mexican households are family based.

family living arrangements in the region engineers partitions of the data from theoretical classifications through demographical markers, while LCA reverse engineers the partition from the same demographic markers.

LCA allows survey research to workout heterogeneity analysis, informed by all these demographical markers, more efficiently, breaking down average results into more informative subpopulations according to their grouping demographical attributes. With the added advantage of ending up with a probability model that dovetails nicely with causal inference (Morgan & Winship, 2014) and decomposition analysis (Fortin, Lemieux, & Firpo, 2011) much as propensity scores do (Guo & Fraser, 2014).

Specifically, we contribute to the analysis of family structure, and income and consumption in Mexico in two important ways. First, we contribute to the literature of family structure (living arrangements) in Mexico by statistically identifying the main household structures in the ENIGH-2014 data. Second, by breaking down the savings profile of Mexican households according to these estimated structures, we expand the literature on income and consumption of Mexican households showing the potential of an interdisciplinary approach that brings socio-anthropological knowledge to bear on the matter.

In short, we apply LCA to make the most of the survey-based empirical support of the interplay between several demographic variables and basic economic decisions, whose importance for family dynamics and social production and reproduction has been highlighted by social anthropology.

However, it is worth emphasizing here that this is not a paper about testing socio-anthropological theories regarding how family living arrangements interrelate with economic outcomes. That is, we do not use LCA to empirically test (corroborate or refute) qualitative research, but to put it to work in econometric-based empirical applications. From our point of view, the relevant question is not whether the qualitative research lives up to the survey, but whether econometric-based empirical analysis can reach out to qualitative research, through LCA, to an enlargement of our understanding of fundamental economic behavior.

The paper proceeds as follows. First we make explicit our theoretical framework briefly discussing how family structure can be seen both as cause and effect of the economic milieu. Next, we briefly introduce our Latent Class Analysis (LCA) approach to the matter. We then show the results of applying it to the ENIGH-2014 data, discuss the estimation results, and analyze the relationship between household structure and budgetary allocations (consumption profiles). We also contrast our results with the traditional life-cycle approach. The article concludes with a brief discussion of our findings and directions for further research.

## HOUSEHOLD LIVING ARRANGEMENTS AND ECONOMIC DECISIONS

### *Living arrangements and household structure*

Following the typical (statistical) definition, in this paper we look at the household as a group of people sharing both residence (occupying all or part of a dwelling) and the cost of meals (sharing resources to provide members with food) rather than by kinship. With this definition we exclude from our analysis other potentially relevant economic units that we may call multilocal households (Caces, Arnold, Fawcett, & Gardner, 1985). Groups of people that, despite ongoing emotional and economic ties, for reasons of job location, children schooling, or kin solidarity, live in separate households (indeed, sometimes even different countries). We can, however, look at these inter-household exchanges and estimate its importance: the flows of economic support from other households and migrant remittances.

In speaking of the term household structure, we include dimensions of living arrangements such as complexity (nuclear versus extended) and dependency (consumers relative to producers), but we do not include the locus of responsibility and authority beyond the self-declared household head, due to lack of information, despite the obvious connections between the dynamic behind the household-decision making and structure (F. A. Villagómez & Zamudio, 2000)<sup>4</sup>.

### *Household structure and fundamental economic behavior*

Previous work in economic anthropology in Latin America shows both as a feasible and fruitful approach regarding the household as the basic organizational unit of the struggle for survival (S. H. Chant, 1991; Goldscheider, 1992; González de la Rocha, 2001; Selby et al., 1990). There is an extensive literature –not reviewed here, see for further details Singh (2002)– on how economic events can act as centrifugal and centripetal forces shaping household structures. Ever since the seminal work of Russian economist Chayanov (1966 [1925]) in the 1920s on the relationship between the size and structure of peasant households and their economic performance, it has been recognized how economic decisions are crucially linked with a household's formation and breakdown, as well as changes in its composition (Cortés & Cuéllar, 1990).

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4 Without a doubt, both household and headship are problematic concepts which we do not discuss here. In most household surveys in the region, household members are free to name the head without reference to definitions requirements, apart from sharing the dwelling, the headship designation has no inherent content but is subject to various externally imposed interpretations. In ENIGH headship is defined as self- or proxy-reporting, most likely related to the person earning the major income, or who has the most influence over decisions on matters affecting the household as a whole. Of course, patriarchal traditions may lead to report men as heads irrespective of their earnings (or decision-making roles).

We can safely say that, in general, different joint living arrangements provide different access and diversity of resources (Sigle-Rushton & McLanahan, 2002). Depending on what other coresident individuals are willing (or able) to offer, proximity can allow for higher levels of both economic and emotional support. First of all, there are economies of scale to be expected from certain living arrangements that should ease the financial and temporal burdens of sustaining a household. Filial or kin solidarity may lead people, for example, to provide housing free or at a low cost, a substantial economic burden on the Mexican households' budget (estimated in 15% of the household's current income in 2014).

Furthermore, we can easily posit that multiple-adult households can devise strategies that allow gains from specialization or ensure against labor-market uncertainties. Particularly single parents who struggle to assume a dual role of caregiver and provider may find these strategies valuable (Lloyd, 1999).

Naturally, the benefits of any type of joint living must be weighed against the added costs of shared space, loss of privacy and sometimes even of autonomy. The risk of losing authority and autonomy as a result of choosing to cohabit is highly differentiated by gender (this is especially true for women in traditional societies). Of course, every benefit and cost is modulated by the type of relationships that bind co-resident individuals.

It is hardly news that economic considerations matter in decisions about forming, leaving, or joining a domestic group. In truth, people have only limited choice as to their families, but they do have much freedom to choose their households. Indeed, it is not without restraints that households are formed, expanded, reduced, and dissolved, but they vary with the business cycle more than might ordinarily be assumed (González de la Rocha, 1988).

As noted above, there are good reasons to think that types of household structures can mitigate or overcome situations of destitution or poverty. But also the reverse is true, demographic events can have an effect on economic decisions. Events like having a children too young or at too short intervals, becoming an orphan or a widow, losing a supportive member of kin, experiencing impaired health, all of these can have a deleterious effect on the household's economic prospects and leave them in poverty. Something of which sociologists are well aware (González de la Rocha, 1986).

On the basis of this theoretical outline, household structure may be as much a response to economic and demographic constraints and opportunities as a factor explaining them. In this paper we strive towards a deeper understanding of the nature of this relationship. Needless to say, the picture is complex, but researchers who want to study the basic economic decisions behind income and expenditure (savings) need to understand how the diversity of living arrangements work as causes and consequences of poverty and destitution.

If we want an accurate picture of the income, expenditure, or savings profile of individuals along their life course, economists need to shift their attention to living arrangements (household composition). This represents a challenge for economists, who continue to focus exclusively on the age of the household head and adult-equivalent measures.

### *Bringing family arrangements into play*

A natural way to incorporate living arrangements into the econometric-based research is to break down the data as the family structure literature in Latin America has done so far (Child Trends, 2015; Jacobsen, Mather, & Dupuis, 2012; Nava Bolaños, 2013; Ullmann et al., 2014). To keep things manageable, this literature is limited to a few demographic markers, typically found in household surveys –kin relationships, cohabitation, childbearing and the age of household members, with two or three levels each–, to work out several subgroup analyses that speak of a priori theoretical types of family structures (e.g. nuclear, extended, compound, monoparental, biparental, generational, multigenerational, life-cycle stage).

Though postulating specific family structures is the key part of a strategy that allows for international comparisons across significant cultural differences (Ullmann et al., 2014), this comes at the cost of not being able to consider richer sets of demographic variables and statistically estimate the significance of specific household structures according to their particular distribution at a given place and time.

In contrast with the family structure literature on the region, in this paper we estimate the best demographical partition (in terms of discriminating among groupings) of Mexican Household Income and Expenditure Survey 2014 (Encuesta Nacional de Ingresos y Gastos de los Hogares, ENIGH-2014), which is the main source of information on income and consumption at the micro level in Mexico, by means of LCA, instead of operationalize theoretical typologies. This tends to create classes in which the observations are similar to each other but different from those in other classes in terms of the variables included in the model.

Loosely speaking, we estimate a partition of the survey as the statistically significant cells of an n-dimensional contingency table, comprised of the n demographic markers included in the model. The result is a set of exhaustive codivisional (mutually exclusive) classes that, indeed, do not speak of a single a priori theoretical typology, as a male vis-à-vis female-headed household classification would, but of household demographical attributes whose multivariate frequency distributions (the interrelation of the model's variables) clump together in the survey.

The typology constructed using LCA, allow us to focus on only those combinations that actually do occur with statistical significance, rather than examining all combinations of the n constituent demographic variables that can occur, which easily becomes an intractable number.



It is through these constructed typology of household structures that we aim to build a bridge between the econometric-based empirical research and decades of thick, rich, and complex descriptions –social, demographical, ethnographical and anthropological knowledge– of the interplay of family arrangements with fundamental economic decisions.

### *Empirical Approach*

#### **Data**

Our objective is to use the demographic characteristics of Mexican households to identify the most significant household structures in the ENIGH-2014. In the ENIGH database, as with many other household surveys in the region, one person in each household is self-identified as the household head or “householder”, and the kin-relationship of all other household members is defined in relation to this person. For this analysis we used the following variables:

- Sex of the household head (householder).
- Age of the household head
- Presence of children less than 6 years old in the household
- Presence of children between 6 and 11 years old in the household
- Presence of children between 12 and 17 years old in the household
- Presence of children 18 years old and over in the household
- Presence of children 18 years old and over in the household that work
- Presence of the household head’s partner in the household
- Presence of nonfamily members (nonrelatives) in the household
- Presence of relatives in the household other than partners and children of the household head
- Presence of household head (or household head’s partner) ascendants in the household
- Presence of children’s partners in the household
- Presence of further descendants (grandchildren and great-grandchildren) in the household
- Presence of women under 41 years old as household head or household head’s partner in the household

Table 1 shows descriptive statistics of these variables in our database of 21,054 observations, representing 34, 021,241 Mexican households in 2014.

**Table 1. Demographic Profile of Mexican Households, 2014.**

<b>Variables</b>	<b>(%) Mean</b>	<b>Standard De- viation</b>	<b>Min</b>	<b>Max</b>
Sex (1 Man 0 Women)	75%	0.435	0	1
Age (Years)	49	15.535	14	97
Presence in the household of (1=yes/0=no)				
Children less than 6 years old	21%	0.408	0	1
Children between 6 and 11 years old	27%	0.444	0	1
Children between 12 and 17 years old	28%	0.448	0	1
Children 18 years old and over	38%	0.486	0	1
Children 18 years old and over that work	27%	0.444	0	1
Household head's partner	69%	0.461	0	1
Nonrelatives	1%	0.097	0	1
Other relatives	24%	0.429	0	1
Ascendants	4%	0.197	0	1
Children's partners	7%	0.257	0	1
Further descendants	15%	0.358	0	1
Women under 41	37%	0.4830	0	1

Source: Authors' own elaboration based on data from ENIGH-2014.

We use mostly categorical variables for data processing reasons. In recent years, LCA has been extended to include observable variables of mixed scale type (nominal, ordinal, continuous, and counts) and covariates, as well as deal with sparse data, boundary solutions, and other problem areas, but using categorical data has the advantage of making no assumptions about the distributions of the indicators other than that of local independence. In other words, by using categorical data, instead of assuming that the variables follow any particular distribution within the classes, as is done only for the householder's age, LCA lets the variables follow any distribution, as long as they are unrelated to each other (independent) within classes (Oberski, 2016), thus lowering the computational burden on the models facilitating their convergence.

All the selected variables are typically used in the family structure literature, only never at the same time. Focusing on women under 41 years old may seem unwarranted when demographic studies consider women with 49 years old still within fertile age range. However, the fertility rate of women over 40 is very low in the region.<sup>5</sup> Accordingly, we consider a lower reproductive threshold (40 years) in order to focus on the most common scenarios.

<sup>5</sup> According to Encuesta Nacional de la Dinámica Demográfica (Enadid) 2014, fertility rates fall from 38.1 births per thousand women in the 35-39 age group to 10 in the 40-44, and all the way to 0.6 in the 45-49.

## **LCA METHODOLOGY**

As stated above, our choice of LCA is based on the opportunity it provides to identify in our data homogeneous household structures (classes) based on a large set of demographic characteristics, usually used separately to examine a constellation of theoretical family structures, making the most of the ENIGH 2014 to assess the relationship between family structure and the household budgetary allocations.

Unlike cluster analysis, where there are no statistical indices and tests based upon which the number of clusters can be appraised, LCA groups cases based on their responses to a set of observed categorical variables.<sup>6</sup> LCA model-based approach to clustering, identifies clusters based on posterior membership probabilities, allowing for formal statistical procedures to assess the best number of clusters (Cortés & Vargas-Chanes, 2016). Details about the estimation and its implementation in Mplus (Muthén & Muthén, 1998-2015) can be found in Wang and Wang (2012) and Hagenaars and McCutcheon (2002). Appendix A provides the Mplus input code used in our estimations with a description of each statement.

## **PARAMETERS ESTIMATED**

The starting points for the classification are the observed demographical patterns of households across a set of variables. In a LCA, the relationships between the demographical profiles are explained by the presence of a priori unknown subpopulations (the latent classes). In other words, individual differences in observed household demographic variables are explained by differences in latent class membership, where each class shows a distinctive, class-specific response profile (Geiser, 2012).

Being our goal in using this type of analysis to estimate the number and size of the latent classes of which the population in question is comprised, it is important to note that the number of classes that is necessary to appropriately account for the observed response patterns is not a model parameter to be estimated. Instead, the number of classes in LCA is usually determined by means of certain fit criteria and model comparisons. Models with different numbers of classes are fit to the same data set. Using statistical indices, the fit of the models is compared. The model with the best fit is selected, if this solution is also proper and easily interpretable in terms of the estimated parameters (Heck & Thomas, 2015).

The mathematical model for LCA by means of which we estimate the response probabilities for each household's demographic characteristic given the latent class, and assign membership in the latent classes to households in the population can be expressed as follows.

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6 In contrast with nonparametric statistical approaches to grouping, such as cluster analysis, LCA is fundamentally parametric where classification results from fitting a probability model.

Let  $p(X_{vi}=1)$  denote the unconditional probability that a randomly selected household  $v$  obtained a score of  $X = 1$  on household demographic characteristic  $i$ ,  $i = 1, \dots, I$  (e.g., there is at least one children under six years old in the household). Then, this probability is

$$p(X_{vi} = 1) = \sum_{g=1}^G \pi_g \pi_{ig}$$

In this equation, the class size parameter  $\pi_g$  indicates the unconditional probability of belonging to latent class ( $g = 1, \dots, G$ ). The model estimates class membership for each observation. Therefore, the sum of all class-size parameters equals 1:

$$\sum_{g=1}^G \pi_g = 1$$

The parameter  $\pi_{ig}$  indicates the conditional probability of a score of 1 on item  $i$  given membership in class  $g$ :

$$\pi_{ig} = p(X_{vi} = 1 | G = g)$$

This probability is often referred to as a conditional response or conditional solution probability. The LCA model therefore states that an individual's response probability for item  $i$  depends on both the latent class prevalences and the class-specific response probabilities of the variable (Geiser, 2012). Note that the probability of observing a particular vector of characteristics follows by taking the product over  $i$ . The degrees of freedom are calculated as the number of possible household's demographic characteristics patterns minus the number of freely estimated parameters minus one. Parameter estimation is typically performed using an EM algorithm. More detailed descriptions of the LCA model can be found in Collins and Lanza (2013) and Hagenars and McCutcheon (2002).

## **DETERMINING THE OPTIMAL NUMBER OF LATENT CLASSES**

Since the number of latent classes in a LCA model is unobserved, it cannot be estimated directly from a given data set. Thus, the first step in our analysis is to determine the optimal number of classes to analyze. In determining the optimal number of latent family structures, following a common practice, we have fitted a series of LCA models, with increasing number of latent classes, comparing  $k$ -class model with  $(k-1)$ -class model iteratively.

Following Lo, Mendell, and Rubin (2001) and Cortés and Vargas-Chanes (2016, pp. 62-63), we have used several model fit indices and statistics to determine the number of household structures: log-likelihood; Bayes Information Criterion (Schwarz, 1978) and the Lo–Mendell–Rubin likelihood ratio. Also, we have examined the quality of latent class membership classification in each of the seven models looking at: A relative entropy criterion (Wedel & Kamakura, 2000), which is a rescaled version of (Celeux & Soromenho, 1996); the relative class size or the percentage of individuals in each class and the range of the probabilities to be assigned to a specific latent class households exhibit.

In addition, our choice was taken considering also the theoretical meaning and interpretability of the classes estimated in each model in the light of the accumulated socio-anthropological knowledge on the country’s demographics.

We have specified up to 7 latent classes.<sup>7</sup> Table 2 reports model fit indices and statistics that suggest the model with 5 classes as the better one, given that smaller values of information criterion indices (BIC) indicate better model fit, and the statistical significance of the LMR LR test. A significant p-value of the LMR LR test (e.g.,  $p < 0.05$ ) indicates a significant improvement in model fit in the k-class model compared with the  $(k-1)$ -class model.

**Table 2. Criteria for model selection with optimal number of latent classes.**

(1) Class	(2) -2xlog-L	(3) BIC	(4) Entropy	(5) Relative class size (%)	(6) Range of probabilities	(7) LMR LR test
1	405,456.99	405,557.48	-	-	-	-
2	364,779.87	364,980.85	0.875	44 - 56	0.96 - 0.97	$p < .01$
3	349,745.53	350,047.00	0.927	17 - 43	0.97 - 0.98	$p < .01$
4	341,930.67	342,332.62	0.943	16 - 39	0.95 - 0.99	$p < .01$
5	337,573.60	338,076.03	0.944	8 - 34	0.92 - 0.99	$p < .01$
6	333,366.83	333,969.75	0.907	10 - 28	0.89 - 0.98	$p < .01$
7	331,001.83	331,705.24	0.915	5 - 28	0.86 - 0.99	$p < .01$

Source: Authors’ own elaboration based on data from ENIGH-2014.

Note: The Table shows several model fit indices and statistics for models with different number of latent classes. The log-likelihood and Bayes Information Criterion in columns 2 and 3, a relative entropy criterion in the fourth column, the range of the relative class sizes and probabilities to be assigned to a specific latent class in columns 5 and 6 respectively, and the Lo–Mendell–Rubin likelihood ratio test p-value in the last column.

Also, the entropy value being the highest (.944) –values closer to 1.0 indicate better classification, entropy is consider adequately high for values 0.80 or greater (Clark, 2010)–, as well

<sup>7</sup> Due to non-convergence on the global maximum of the likelihood, we show no results for more than 7 latent classes.

as an acceptable rate of classification –a rule of thumb for acceptable class classification is when the probability of correct class membership assignment is 0.70 or greater (Nagin, 2005) – and size of the latent classes –in order to have a meaningful class classification, the relative size of each latent class should not be too small–, all of it suggest the 5 class model as the better fit. Equally important in the selection of the number of classes is their theoretical meaning in light of previous qualitative research on family arrangements. An interplay we address in the next Section.

## RESULTS

The classes obtained through LCA offer a sort of family map of Mexico, one that simultaneously relates a large set of socio-demographic markers usually taken separately to give survey-based empirical content to theoretical family structures. In contrast to previous family structure literature in Latin America, here we allow household structures to emerge from the correlation of theoretically relevant variables to assess the difference in their budgetary allocations, thus making the most of the survey’s variance to analyze this particular interaction.

Table 3 presents descriptive statistics of the main demographic characteristics (class predictors) by estimated class of household structure.

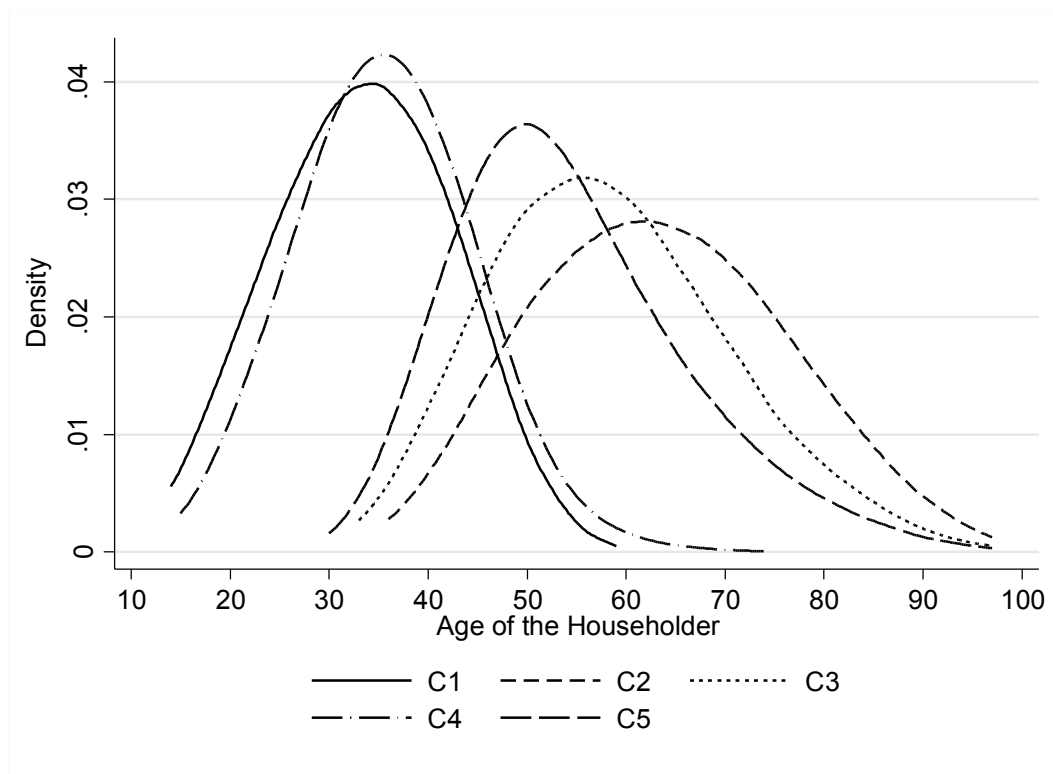
**Table 3. Demographic Profile of Latent Household Structure Classes, Mexico 2014.**

Variables/Classes	C1	C2	C3 (Mean)	C4	C5
Size of the class (relative to full sample)	8%	21%	16%	34%	21%
Household head (householder)					
Sex (1 Man, 0 Woman)	0.31	0.69	0.63	0.96	0.72
Age (Years)	33	64	58	36	54
<b>Presence in the household of (1 Yes, 0 No)</b>					
Children less than 6 years old	0.19	0.00	0.02	0.52	0.04
Children between 6 and 11 years old	0.35	0.01	0.07	0.57	0.15
Children between 12 and 17 years old	0.30	0.08	0.20	0.38	0.35
Children 18 years old and over	0.04	0.04	1.00	0.04	1.00
Children 18 years old and over that work	0.00	0.00	0.79	0.00	0.71
Household head’s partner	0.01	0.51	0.62	1.00	0.71
Nonrelatives	0.04	0.01	0.01	0.00	0.01
Other relatives	0.21	0.18	1.00	0.09	0.00
Ascendants (grandparents)	0.07	0.03	0.08	0.05	0.00
Children’s partners	0.01	0.00	0.45	0.00	0.00
Further descendants (grandchildren)	0.00	0.09	0.84	0.00	0.00
Women under 41	0.51	0.00	0.06	0.86	0.09

Source: Authors’ own elaboration based on data from ENIGH-2014.

First of all, our results indicate that the household head's age is indeed correlated with the living arrangements observed in our data (ENIGH 2014). This empirical fact lends support to the arguments behind most of the economic literature that focuses on the individual's age as a proxy for the changes in living arrangements and expectations along the life course of individuals. This correlation stands to reason, of course, since it is quite improbable, and in some cases biologically impossible, to live with your grandchildren at certain ages. However, there is more to that story, for the empirical analysis that implicitly assumes that most individuals go through roughly the same stages in a typical life course at roughly the same age, ignores the fact that people of the same age can live in quite different households, as suggested by the breakdown of the five living-arrangement categories described in Table 3 and the overlapping in the distribution of the householder's age in each class (see Figure 1).

**Figure 1. Distribution of Households by Householder's Age According to Class, Mexico 2014.**



Source: Authors' own elaboration based on data from ENIGH-2014.

The first column of Table 3, class 1 (C1), shows the smallest class estimated with approximately 8 percent of our sample (representing 2.7 million households). This class comprises lone-headship households, of which half of them are lone-mothers (two thirds of the class are female-headed). This class has the youngest household heads in average with virtually no children over 18 years old living with them –the age of majority in Mexico. Notably, over one fifth of the householders in this class were living with some other adult relatives (extended households). This stands in line

with a general conclusion from decades of socio-demographic research that estimates a greater likelihood of extension among female than male-headed households, whereby female heads (unpartnered women with or without children) have other relatives living in their homes (S. Chant, 1997; S. H. Chant, 2007; Esteve, García-Román, & Lesthaeghe, 2012; González de la Rocha, 1988).

Next in the householder's average age is class 4 (C4), this is the largest class with 34 percent of the data (10.8 million households). This is the class of (traditional) male-headed nuclear households, formed by a couple with dependent children. Nine out of ten households in this class have underage children and are still in a fertile age (the householder or the spouse being under 40 years old). This class has the highest proportion of children under six years old (52 percent compared to 19 percent in the first class). These are relatively the least complex households in terms of their structure, only 5 percent of them extends vertically to include the upward generation (parents of the householder or his spouse).

Next in size, in the fifth column of Table 3 is class 5 (C5) with 21 percent of the data (representing 6.6 million households). This is also the next class in householders' average age. Mostly man-headed and nuclear (7 out of ten households). In all of these households we find children over 18 years old, of which 7 out of ten have a job. However, unlike class 3, the households in class 5 do not extend vertically to include further descendants (grandchildren). In contrast, this is precisely the characteristic trait of class 3, which amounts to 16 percent of the data in our sample (representing 5 million households). Just like the households in class 5, in all of the households in class 3 we can find children of the householder over 18 years old, of which roughly 8 out of ten have a job. But, in stark contrast, in 84 percent of the households in class 3 we can also find grandchildren of the householder. These are relatively more complex households which have extended vertically downwards. It is important to note that only about half of the households with grandchildren include also a children's partner, which would suggest that half of the grandchildren in this households are being reared by a lone (non-coupled) parent.

Lastly, in the second column of Table 3 we find class 2. This class has the oldest householders in average with hardly any of their children living with them (one out of ten, and mostly underage). This second class puts together 21 percent of our sample (representing 6.7 million households). These are households utterly out of the fertile age, where we can find grandchildren only in one out of ten of them. Putting together children and grandchildren, in almost 2 out of ten of these households we can find an underage member.

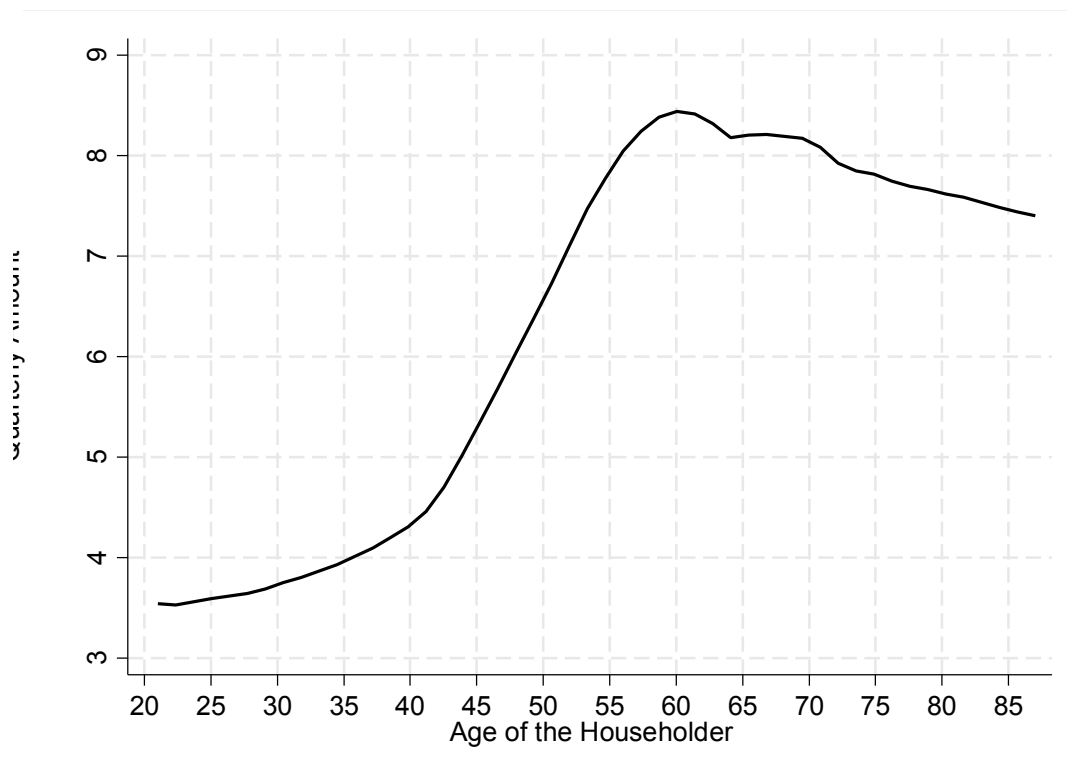
These results add greater detail on what's known to be happening on the region. Looking at the evolution of family structures in Latin America, Ullmann et al. (2014) showed the relative importance of extended families in Mexico since 1990 (exceeding 20% of all households) and the growing percentage of monoparental households (roughly 10% of the households in 2010). As noted above, our approach now allows us to look at the interplay of these same markers among



the most prominent living arrangements –the presence in the household of the householder’s partner and other relatives– with other indicators of the household’s structure. By looking at the corresponding rows in Table 3, we can further add that these tendencies mirror the fall in the percentage of nuclear biparental households, and that most of these extended households (3 out of 4) can be found in class 3, i.e., vertically extended households with a working middle generation. In this way, we can see (roughly) the same percentage of extended households reported by Ullman and colleagues, but distributed among classes 1, 2 and 3, adding the above description of this classes to the empirical knowledge of this particular structure.

It is important to note that, given that the ENIGH is not a longitudinal survey, we cannot classify households according to the evolution they have actually experimented through time, i.e. the life course of the householder; in other words, we cannot study budget allocations across classes of household histories or family structure transitions over time. Therefore, even though previous research (Campos Vázquez & Meléndez Martínez, 2013) were able to approach this longitudinal analysis using a synthetic panel, based on the birth dates of the household heads, to profile income and consumption along the life-course of individuals, we cannot follow their lead here since, in our approach, classes are comprised of households, not cohorts of householders.

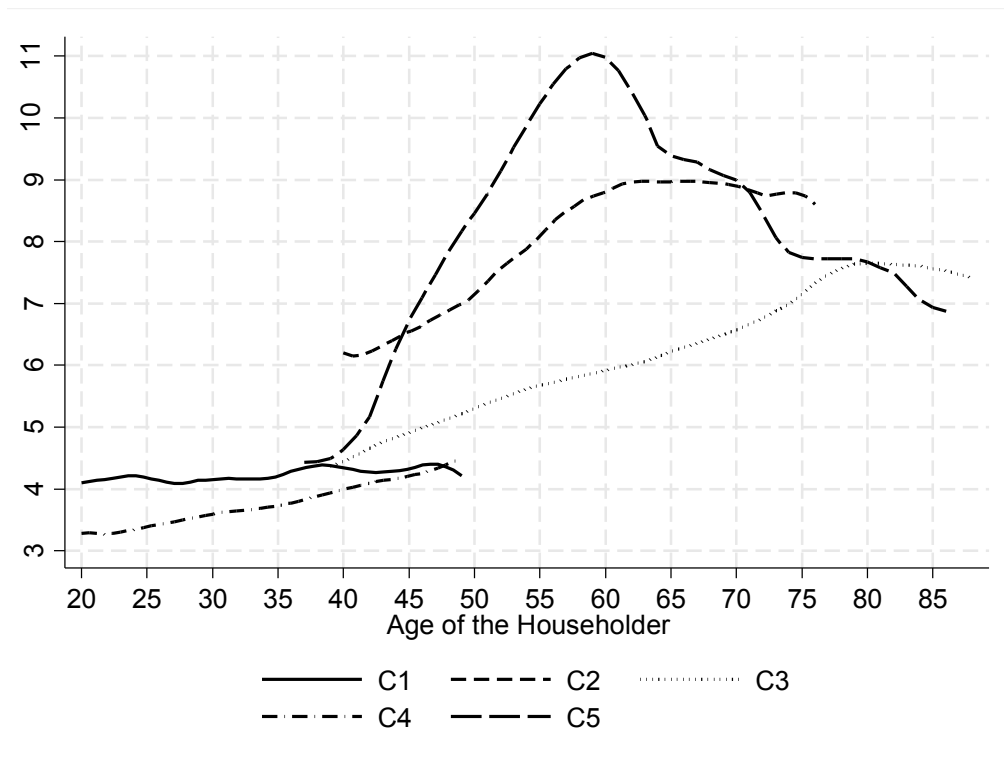
**Figure 2. Equivalent Monetary Savings Profiles, Mexico 2014.**



Source: Authors’ own elaboration based on data from ENIGH-2014.

Nevertheless, we can start analyzing the relationship between living arrangements and budgetary allocations cross-sectionally, looking at the savings profiles of the Mexican households broken down by household structure in Figure 3. There we see quite different stories impossible to gauge by looking merely at the household head's age (Figure 2), not even using equivalized measures to control for the size of the household to which the householder belongs—a remarkably similar profile can be found in Attanasio and Székely (1999).

**Figure 3 Equivalent Monetary Savings Profiles by Latent Household Structure, Mexico 2014.  
(Thousands of Pesos)**



Source: Authors' own elaboration based on data from ENIGH-2014.

## DISCUSSION

Tables 4 to 6 allow for deeper exploration of the classes attributes to have a better picture of the family living arrangements, while pointing out the variables that seem critical to the well-being of households with different structures, as they constrain and facilitate diverse sets of income-generating strategies among its members.

**Table 4. Socioeconomic Characteristics by Latent Household Structure, Mexico 2014**

Characteristics	Classes					NATIONAL
	C1	C2	C3	C4	C5	
Household size	2.6	2.0	5.9	4.2	3.8	3.8
Dependency ratio*	2.6	0.6	3.9	4.4	1.6	1.8
Education (householder)						
Less than Secondary	25.4%	62.8%	66.9%	30.7%	45.8%	45.8%
Secondary	26.7%	14.8%	19.9%	30.1%	24.4%	23.8%
Upper Secondary	47.9%	22.3%	13.4%	39.2%	29.8%	30.4%
Indigenous**	7.1%	7.5%	9.6%	8.3%	6.6%	7.9%
Size of locality						
100 000 or more inhabitants	55.2%	47.8%	49.6%	46.6%	54.9%	49.8%
From 15 000 to 99 999 inhabitants	16.3%	14.1%	15.4%	15.4%	13.1%	14.8%
From 2 500 to 14 999 inhabitants	10.9%	14.1%	15.9%	12.9%	12.9%	13.5%
2 500 or less inhabitants	17.6%	23.9%	19.0%	25.1%	19.0%	22.0%

\*Age-population ratio of those typically not in the labor force (the dependent part ages 0 to 14 and 65+) and those typically in the labor force (the productive part ages 15 to 64)

\*\* Indigenous language speaking population

Source: Authors' own elaboration based on data from ENIGH-2014.

**Table 5. Employment Characteristics by Latent Household Structure, Mexico 2014**

Characteristics	Classes					NATIONAL
	C1	C2	C3	C4	C5	
Household members						
Employed	1.1	0.9	2.5	1.6	2.1	1.6
Receiving income	1.8	1.6	3.6	2.3	2.6	2.4
<b>Householder</b>						
<b>Occupation</b>						
Non-manual Qualified	25.3%	17.7%	11.3%	20.9%	21.5%	19.6%
Non-manual Non-qualified	23.1%	15.6%	15.4%	13.5%	14.8%	15.2%
Manual Qualified	18.7%	13.4%	17.4%	21.7%	19.3%	19.0%
Manual Non-qualified	32.8%	52.7%	55.6%	43.1%	44.0%	45.6%
Contract labor	52.6%	41.4%	42.1%	50.6%	51.3%	48.8%
Social Security	36.4%	15.9%	19.3%	42.1%	28.1%	29.6%
<b>Spouse</b>						
<b>Employed</b>	-	35.4%	40.0%	48.6%	45.9%	44.8%
<b>Occupation</b>						
Non-manual Qualified	-	16.7%	9.2%	21.1%	17.5%	18.3%
Non-manual Non-qualified	-	28.1%	26.5%	26.5%	28.4%	27.1%
Manual Qualified	-	10.3%	13.1%	14.9%	12.3%	13.5%
Manual Non-qualified	-	44.8%	50.8%	37.1%	41.3%	40.7%
Contract labor	-	48.6%	40.3%	54.4%	47.4%	50.9%
<b>Activity (Unemployed)</b>						
Searching for Employment	-	1.0%	0.5%	1.6%	1.6%	1.3%
Retiree	-	7.9%	3.9%	0.1%	5.1%	3.1%
Domestic chores	-	85.5%	90.2%	96.5%	90.7%	92.4%
Study	-	0.6%	0.6%	1.0%	0.5%	0.8%
Disability	-	2.6%	2.9%	0.1%	1.6%	1.3%
Other Activities	-	2.4%	1.9%	0.7%	0.6%	1.2%

Source: Authors' own elaboration based on data from ENIGH-2014.

**Table 6. Quarterly Current Income by Latent Household Structure, Mexico 2014**

Components	Classes					NATIONAL
	C1	C2	C3	C4	C5	
Current Income	32,469	31,988	43,785	37,729	50,781	39,742
Equivalent Current Income	22,851	24,140	18,553	19,388	26,750	22,070
Cash Savings	5,764	10,817	13,730	7,203	15,440	10,582
Equivalent Cash Savings	4,210	8,144	5,777	3,772	8,233	5,969
<b>Equivalent Current Income Distribution (Deciles)</b>						
I	11.3%	11.6%	6.8%	12.4%	6.3%	10.0%
II	8.8%	11.5%	8.4%	12.0%	7.0%	10.0%
III	9.8%	9.6%	9.9%	11.8%	7.7%	10.0%
IV	9.9%	9.1%	11.0%	11.0%	8.5%	10.0%
V	8.9%	8.9%	11.9%	10.8%	8.8%	10.0%
VI	9.7%	8.5%	12.2%	9.5%	10.8%	10.0%
VII	9.1%	9.0%	12.4%	8.5%	12.0%	10.0%
VIII	7.6%	9.8%	12.1%	8.2%	12.5%	10.0%
IX	12.0%	9.9%	10.0%	7.9%	12.7%	10.0%
X	12.8%	12.3%	5.4%	7.8%	13.6%	10.0%
<b>Transfers</b>	8,402	9,571	7,158	2,570	6,547	6,081
Households with Transfers	73.3%	80.8%	78.6%	61.8%	65.9%	70.3%
Retirement Pensions	8.8%	25.7%	20.6%	1.8%	14.9%	13.1%
Scholarships	5.0%	1.0%	4.6%	4.2%	6.4%	4.1%
Gifts	31.9%	28.7%	23.9%	10.7%	14.3%	19.1%
Remittances	7.4%	6.2%	4.4%	2.1%	3.6%	4.1%
Government	17.2%	38.4%	40.0%	23.1%	26.2%	29.1%
In kind (Inter-households)	43.2%	44.0%	26.1%	30.5%	26.3%	32.9%
In kind (Institutions)	17.0%	23.5%	28.5%	23.8%	19.2%	22.9%

Source: Authors' own elaboration based on data from ENIGH-2014.

The first thing to note is that, younger households concentrate on lower income and expenditure deciles –class 1 and 4. In these cases it is clear that, for newly formed households, the accumulation of resources is quite difficult; the expansive phase<sup>8</sup> these families go through, characterized by the

8 Decades of sociodemographic research on the interplay of family arrangements with fundamental economic decisions in Mexico suggest the life-cycle of a household or domestic-cycle as a fruitful analytical framework. Proposed as a sequence of three well-defined phases, the first phase (the expansion phase characterized by growth through the birth of new members and larger consumer/worker ratio; that is, with more hungry mouths than income-generating workers) refers to the initial period of co-habitation for a couple when the female is still capable of reproduction, the children are young, and there are only two income earners. The second phase (consolidation, more economically balanced than in the expansion phase, largely because children are old enough to work and contribute to the household income and reproductive tasks) spans the period when the children living with their parents are grown-up enough to contribute to the household income. The last phase (dispersion, when members of the original household separate to form their own households) corresponds to the period when the grown-up children move away and set up their own households.

participation of children in the compulsory part of the school system, proves particularly taxing for these families (González de la Rocha, 1994; P. Villagómez, 2006). It makes sense that households with more children under 6 years old struggle more to build up their savings. Both classes exhibit the highest dependency ratio<sup>9</sup>.

However, even for these youngest classes their savings profile differs considerably: class 1 (lone-headship households) exhibits a higher savings rate and a more stable profile. In this case, the sex of the householder shows important differences between both classes: class 4 represents a kind of family that can be considered “traditional” in the region (even though it only represents a third of the households in the sample), male headed, biparental, nuclear and barely larger than average. Class 1, on the other hand, is mainly composed of small, lone-parent, young female-headed households which, in one out of five cases, accommodates extended family structures –the highest percentage of all classes, twice as much vis à vis those in class 4. As noted before, the absence of the householder’s spouse is the substantive difference between these classes. This shows that the economic performance of households with female headship is not necessarily worse than their counterparts headed by males; its smaller size and the presence of other relatives most likely act on their behalf. However, it stands out that only 15% of lone-mothers in class 1 live in extended households, suggesting that it may well be that female-headship can be seen as a function of income and that is likely to rise in prevalence with standards of living. Without denying the gendered complexity of poverty, our results point towards a diversity among women that deserves attention –see S. H. Chant (2007).

Also in classes 2, 3 and 5 we see marked differences in their savings profile. Thus, we have that households placed in greater income and expenditure deciles –classes 2 and 5–, have in common the fact of being at an advanced stage of the domestic cycle, which favors the presence of greater workforce –class 5– or, at least, tends to reduce the presence of dependents in school ages –class 2. These are typically nuclear households, with a size equal to or less than the national average (four members), whose structure allows them to maintain relaxed dependency ratios.

It is important to note, however, that it is class 5 that exhibits by far the largest capacity to build savings. The virtual absence of children under 6 years old coupled with the presence of an adult children of the householder as an additional wage earner makes the world of difference in terms of savings.

Between classes 3 and 5, in their capacities to build savings, is class 2. The eldest class in their average with the smallest households and (virtually) no children living with them. Over one third of these households are unipersonal, and one fifth live in a horizontally extended household; that is, with another adult other than their spouses. Also in a consolidated phase of the domestic cycle

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9 Age-population ratio of those typically not in the labor force (the dependent part ages 0 to 14 and 65+) and those typically in the labor force (the productive part ages 15 to 64).

is class 3, but, unlike classes 2 and 5, these are larger extended households in which the family procreated by the children of the original conjugal core added to the family unit. In this class, the increased labor force comes with a new younger generation of consumers (*vis à vis* producers), adding further restrictions to the household budgetary allocations.

In contrast to class 5, even though class 3 has basically the same prevalence of adult children as additional wage earners, the presence of grandchildren of the householder translates into the lowest saving rates and profile of the classes with middle age householders. This is the story of a different kind of lone-parents. The story of younger parents without partners that end up living with their respective parents rather than heading their own households. This may well be the case of embedded (concealed, disguised, submerged or hidden) households (sub-families) that the survey does not properly identifies as such.

Also important to note is that in these three classes -2, 3 and 5-, male headship is predominant, although around one third of the cases has a woman as the head of household. In any case, being similar in the former three scenarios, this variable seems to not mark a clear distinction.

As previously noted, there is indeed a close relationship between the age of the householder and domestic arrangements, the latter being also related to the capacity of families to generate income and build savings. However, the results show that this approach is insufficient to understand the economic performance of some family arrangements, mainly lone-parented or extended families, which combine features of different phases of the domestic-cycle affecting the relationship between suppliers and consumers.

This results also stand in line with previous research. Combining the analysis of three different typologies according to family structure (7 categories), life-cycle stage (6 categories) and generational composition (5 categories), with painstaking systematic intersections with female headship and vulnerability based on profound expert knowledge, Heidi Ullman and colleagues (2014) find that, around 2010, Mexican households with underage children exhibit greater vulnerability. By automating this exhaustive search, here we've shown these same survey regularities otherwise hard to come by, like the major generational composition and life-cycle stages of extended families that we get by looking at the differences among classes 1, 2 and 3. Also Landy Sánchez and Ana Scoto (2017), based on kinship relations, pointed out the particular vulnerability of multigenerational households, our class 3 by far. Here we can further add to their right description the most likely age composition of these households in the survey and, as discussed above, how it relates to their vulnerability in contrast with other sizable living arrangements in Mexico.

The further characterization of the classes provides even greater elements to understand how the socio-demographic features of households interact with other relevant aspects for their well-being. An important finding of this analysis refers to the labor force participation of the householder. The Mexican labor market is predominantly precarious, concentrated in occupations

of low qualification and remuneration, with high informality and labor instability, which reflects in the low percentages of population having access to labor contracts, health services and social security as employment benefits. Householders of older households tend to focus on these activities; however, younger, and more educated householders, even though they have larger presence in occupations of higher qualification and social recognition –the preponderance of the young female heads in class 1 draws attention–, they also work on manual activities in important proportions. The occupation of the householders’ partner, predominantly women, suggests a similar distribution of paid work, although considerably larger in activities related to personal services, sells or assistance on administrative tasks, notably feminized sectors (Table 5).

This economic milieu suggests that, while there are some differences between classes, the benefit that households get from their participation in the labor market relies on the number of household members fully participating and not so much on the quality of employment per se. As already noted, the domestic-cycle plays a critical role in this process, since the capacity of households to provide labor force depends considerably on the phase in which they are in, as well as other aspects of their structure and composition.

Another element that contributes significantly to the economic performance of households is the reception of transfers, whether public or private, monetary or in kind. In Mexico, seven out of ten households receive some kind of transfer that, on average, represents almost one third of their current income (Table 6). The estimated classes confirm the importance of transfers for certain family structures. This is the case of the eldest household head classes –classes 2 and 3– and the class that concentrates female headed households –class 1–; in these classes, transfers represent about 40 percent of the family income. However, the analysis of the composition of this kind of income shows that, in the case of classes 2 and 3, most of the transfers come from retirement-pensions, which is consistent with the age of the householders.

Meanwhile, main transfers in young female-headed households are gifts made by other households, and monetary donations –either from other households or private institutions.<sup>10</sup> This fact shows the importance of social networks of exchange, whether familiar or non-familiar, for these households. Interestingly, it should be noted that class 1 has the lowest percentage of households affiliated to social programs (17 %). This may be due to the difficulty experienced by some householders to participate in some programs that require their time and participation as part of the co-responsibilities that must be met by beneficiaries –see López and Salles (2006). In contrast, class 3, distinguished by containing households with larger families –even up to three generations–, has the highest percentage of perception of transfers from social programs and public institutions, accounting for ten percent of its quarterly revenue (Table 6).

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10 Of course, the link between the economic position of the household in which a person resides (income/ consumption) will be attenuated to the extent that the individual is economically linked to family members who reside in other households and carries economic entitlements or responsibilities.



This regularity is of consequence for Mexican social policy. In the scientific literature, it's been repeatedly pointed out how female-headed households, particularly lone mothers, may represent an important part of the population in need of social assistance (Ullmann et al., 2014) and nevertheless can't seem to find their way into social programs. Understanding household structures and how they condition the capacity to conform to social policy is crucial for policy design. Especially since it is usually the household the unit of intervention of social policy. Here too our results add to an already ample empirical evidence of the need to change the monolithic (traditional) household structure assumed by most public policy (Arriagada, 2007; Arriagada & Aranda, 2004; Lerner & Melgar, 2010).

As we can see, family well-being depends on both its own characteristics and the opportunities offered by the milieu. Particular family structures –not so young, with more suppliers than consumers– offer households more flexibility and capacity to adapt to economic conditions, but much of it hinges on viability allowed by the socio-economic context for different income-generating strategies take place (González de la Rocha, 2001). Again, here we can see that empirical approaches that focus exclusively on the age of the household's head, as proxy for the different living arrangements and expectation along the life course of an individual, may indeed provide an idea of the capacity of individuals to obtain the resources required to meet that individual's needs, but they miss the opportunity to readily use a set of variables that are important for the organization of families' subsistence, as they directly affect their structure and composition.

Remember that the profiles shown in Figure 3 do not correspond to the same households seen through time. Not even the same average householder as in pseudo-panels like the one used in Campos-Melendez (2012). Our analysis is cross-sectional on the whole. In this sense, we are not identifying classes of household life-cycles. For this we would need a different data source. Having said this, what can we infer in this context from the different slopes of the curves in Figure 3?

However important the households structure is in explaining the different savings profiles, Figure 3 shows that not all differences across households stem from different stages of the domestic-cycle. It is certainly interesting that the best-off class in terms of savings is the one with the pattern economists entertaining the life-cycle permanent-income hypothesis would expect: individuals accumulating when they earn and dis-saving when they are retired so they can maintain stable lifestyles. On the other hand, what class 3 households might be exhibiting is the same individual behavior in overlapping generations. Whereas in class 2 we might be looking at precautionary savings, a natural response to uncertainty regarding future income in a context where a significant part of an individual's income comes from governmental transfers (Velandia Naranajo & van Gameren, 2016).

Without a doubt, further research is needed with longitudinal data if we are to substantiate what at this stage is a little more than conjectures regarding the life-cycle/permanent-income

framework. However, we believe our point has been made: the simple fact that the same amount of money, may not mean the same, even for households of the same size and householders of the same age, once it is related to different dependence relationships among its members. The sooner the empirical research on fundamental economic behavior takes notice of this simple fact, the better our understanding of these important issues will be.

## **CONCLUSIONS**

Our argument is simple: integrating long-standing anthropological and sociological knowledge to bear on the study of basic economic behavior can yield high returns both in terms of empirical academic research and knowledge useful in the better design of public policies.

To back-up our claim, we have shown that explicitly including household structure in profiling households budget allocations in a life-cycle/permanent-income framework provides fruitful insights regarding the heterogeneity behind the usual national averages. This kind of heterogeneity analysis that stems from socio-anthropological knowledge is better equipped to inform public policy regarding its effect on the demand for economic and social support services of specific population groups. As we have shown, it is quite probable that basic economic decisions are highly contingent upon the dynamic of household structure, this represent an opportunity for public policy to intervene as family arrangements mediate between individuals and the market (Arriagada, 2007; Arriagada & Aranda, 2004; González de la Rocha, 2001; Lerner & Melgar, 2010) affecting the extensive and intensive margin of labor supply over time (S. H. Chant, 1991).

In making our point we have also shown how Latent Class Analysis –advanced Structural Equation Modeling (SEM) techniques in general– can help researchers to incorporate socio-anthropological knowledge into their econometric analysis. In particular, we see this as a fruitful way not only to engage in heterogeneity analyses, but also in making causal inferences, the bread and butter of program evaluation.

In summary, a simple take-away for practitioners would be that reaching out to qualitative research through LCA provides a new prism to workout heterogeneity analysis of macro-average results in econometric-based empirical research. Furthermore, there is cross fertilizing potential for both economic and socio-anthropological disciplines, as this might feedback into their conceptual endeavors. Through LCA, survey data can also inform empirical qualitative research. Discerning potentially generalizable relations between survey variables can be used heuristically to design case studies or stimulate imagination towards anticipating general problems and possible theoretical solutions, even arrive at a preliminary theoretical constructs fully integrating qualitative and quantitative analysis techniques. Note that with LCA, clustering and estimation of covariate effects on class membership can be conducted simultaneously. Allowing for less

passively classifications, deliberately seeking out configurations relevant for specific outcomes<sup>11</sup>.

This approach, some may argue, back steps the theoretical progress achieved through years of qualitative research, mixing up that which took so much time to disentangle, introducing noise into hard won concepts and distillation of ideas. We beg to differ.

First of all, we do not claim to give a more objective family picture of the Mexican society than that of other empirical –or otherwise– research. That is, we do not claim that by using LCA we have cleansed from all theoretical taint our empirical observations. By no means we propose to abrogate years of valuable empirical research on family arrangements in Mexico based on survey research. Rather, we use previous qualitative research quite extensively to inform our statistical models and interpret our results.

We propose LCA as a fruitful methodology to be included in the tool box of scholars engaged in finding econometric-based statistical relationships informed by qualitative research. A tool that will prove even more useful as we keep moving towards the “big data and fast computers” empirical research. We do recognize, however, that statistical research poses its own problems, sometimes confounding statistical with theoretical significance, and that this may lead empirical research astray. We believe to have avoided this danger zone here, but leave this for the scientific community to judge.

Regarding our contribution to the life cycle literature in Mexico, we admit our approach in this paper is based on a snapshot of a cross-section of Mexican households at a point in time and therefore cannot add to the empirical content of the life-cycle/permanent-income hypotheses. From here we can only conjecture how households actually move from one life stage to another. However, a different exercise could help us predict future stages given current stages through estimating transition probabilities with longitudinal data like Du and Kamakura (2006) who take advantage of the US Panel Study of Income Dynamics. A pending task for us to explore.

We see this LCA approach to heterogeneity analysis as an empirical solution to assess family structure effects on fundamental economic decisions. Especially since there seems to be no easy way for life-cycle modeling to swallow the dynamics of the domestic-cycle (Browning, Chiappori, & Weiss, 2014). Furthermore, this approach can be easily dovetailed with decomposition analysis (Fortin et al., 2011) to address causal inference questions.

For sure this is not the only way econometric-based empirical research can let itself be informed by socio-anthropological knowledge, but certainly is a wasted opportunity for the empirical life-cycle/permanent-income literature.

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11 A strategy not followed here given our interest in estimating household structure “passively” as baseline or calibration for a clearer contrast with previous research.

*Ethical approval:*

This article does not contain any studies with human participants or animals performed by any of the authors.

**APPENDIX A**

Table A-1 presents the Mplus input file for the latent class analysis carried out. The “CLASSES” statement specifies the number of latent variables. The “TYPE=MIXTURE” option of the “ANALYSIS” command specifies the finite mixture modeling with categorical latent variables that represent subpopulations where population membership is not known but is inferred from the data. The “NOMINAL” option is used to specify which dependent variables are treated as binary or unordered categorical variables in the model and its estimation (see the Mplus User’s Guide for a detail explanation).

**Table A-1 Mplus syntax for the Latent Class model**

Title: this is an example of a LCA with binary and continuous latent class indicators

List of variables shown below

factor\_hog : Factor de expansión del hogar

agehh : Edad del jefe del hogar

sexhh : Sexo del jh

chl6p : Presencia de hijos <6 en el hogar

ch6t12p : Presencia de hijos de 6 a 12 en el hogar

chl2t18p : Presencia de hijos de 12 a 18 en el hogar

chl8tp : Presencia de hijos mayores de 18 en el hogar

chl8tjp : Presencia de hijos mayores de 18 trabajando

chpartp : Presencia de parejas de hijos en el hogar

hhsp : Presencia de la pareja del jh

hnoparp : Hogares con no parientes

hparp : Hogares con parientes

hugp : Presencia de ascendientes del núcleo en el hogar

hlgp : Presencia de otros descendientes del núcleo en el hogar

ywhhvsp : Presencia de Mujeres en el núcleo menores de 40

Data:

FILE IS living\_arrangements.dat ;

Variable:

Names are

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