

The Geography of the Joint Family Structure in India: Between Demographic, Socioeconomic and Spatial Patterns

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Long abstract

Context and objectives

In spite of economic, demographic and social mutations, the traditional joint family remains a prominent institution in the Indian society (Gould, 1968; Kaur, 2019). Also related to a specific kinship system, the studies on the joint family as a residential unit have suffered from the problem of classifications (Kolenda, 1968). However, they did identify some common characteristics of the ideal joint household: it's an intergenerational living arrangement in which all married sons live under one roof. Thus, it implies the absence of neolocal residence for newly married sons and a strict patrilocal residence, married daughters must leave their natal home, once married, to join the household of their in-Laws. It should be stressed that while these norms are interconnected, they are not indivisible. For instance, a weakening of the horizontal extension could lead to nucleation from the point of view of the young couples, but not from the point of view of the elders, if at least one son remains living with them. Studies about the Indian joint family structure must take into account the full range of residential norms to investigate its prevalence and potential changes.

The literature on household structure in India, and more generally around the world, have long focused on the nucleation process. This is in fact a debate that is more than a century old. As early as the 18th century, Frédéric Le Play argued that the European stem family was disintegrating due to the industrialization of Western Europe (Ruggles, 1987). Goode (1963) generalized this approach to developing countries and implemented a modernization hypothesis regarding the evolution of family structure. According to this hypothesis, family systems around the world would converge towards a nuclear model with economic development. This economic development would affect traditional family norms through three phenomena: urbanization, industrialization/tertiarization and the expansion of secular education. These processes would reduce the interdependence between older and younger generations, developing the conjugal ties at the expense of intergenerational ties (Bongaarts, 2001; Ruggles & Heggeness, 2008). At about the same time, the demographic transition was linked to a family transition hypothesis (Tabutin & Bartiaux, 1984). According to this theory, the beginning of the demographic transition would be marked by the high prevalence of extended families, while the reduction in the pool of children, that accompanies the transition, will lead to a nucleation of families. Since then, many authors have nuanced or downplayed these demographic and modernization hypothesis but examining their processes remain crucial in the study of households structure evolution (Ruggles, 1987; Shah, 1996; Bongaarts & Zimmer, 2002).

In India, recent studies have shown that the process of household nucleation exists but have been relatively slow and thus that the joint household persists (Niranjan& al., 2005; Allendorf, 2012; Breton, 2021). These studies analysed particular socioeconomic and demographic characteristics that were related to the prevalence of joint households but could not take into account the underlying spatial effect behind them. The scale of analysis, at State level, was then too broad to capture it. Yet, socio-cultural spaces play a key role in shaping numbers of socio-economic and demographic disparities in India (Oliveau, S., & Guilmoto, 2005; McDougal & al., 2020). The social norms are indeed governed by a strong spatial inertia in their practices (Guilmoto, 2008).

The first objective of this paper is to describe the spatial pattern of the joint household structure. Based on its multiple residential norms, we will construct a composite index of the Joint Household Structure. This will highlight how these different norms interact with each other in the Indian space and form clusters in which the traditional family structure is more or less dominant. The second objective is to assess the relative importance of demographic and socioeconomic components to explain this spatial pattern. Econometrics spatial models will be used for this purpose. It will control the role of socio-cultural spaces on the residential practices in Contemporary India.

Sources and methods

This work is based on data from the fourth round of the National Family and Health Survey (NFHS-4) conducted by the IIPS (*International Institute for Population Sciences*) in 2015–2016. The aim of this survey is to provide estimates on fertility, mortality, and general family welfare. It includes 568 200 households spread throughout all states and union territories of India, allowing for the first time representative data for the 640 districts of the country. The measures of the joint household structure are derived from the micro-data processing on households composition described in this database. Data from the 2011 census is also used for explanatory variables.

The Joint Household Structure Index is based on four different measures:

- Intergenerational living arrangement: Share of people over 60 living with at least one married son.
- Horizontal extension: Share of the population living in a household with at least two married brothers.
- Non-neolocal residence: Share of married men aged 20–34 not living in a nuclear household.
- Patrilocal residence: Share of daughters-in-law among children-in-law.

These four indicators are normalized by a min-max rescaling, summed up and averaged to calculate a composite Index of Joint Household Structure.

This study uses standard geostatistics tools for the analysis of the maps. First, the Moran Index and the Local Indicator of Spatial Association (LISA) to measure global and local spatial autocorrelations, and reveal the spatial structure of joint household practices. Then, this study uses spatial econometric models to control for the effects of spatial dependence while examining demographic (population structure, marriage practice, and migration), socioeconomic (economic development, employment structure, gender gap in education and employment) and cultural (religion, caste, language) factors.

Initial findings

At first, the prevalence of each indicator of the Joint Household Structure index shows that its residential norms are still widely shared in India. The majority of persons over 60 reside with a married son and just one third of young married men live in a nuclear setting. The gender norm is even more pronounced: 96% of coresiding married children are sons, which implies a large domination of the patrilocal residence over the matrilocal. The latter is mostly found in some matrilineal territories (Meghalaya State and territory of Lakshadweep) although it is also less rare in South India. Cohabitation among married brothers is the only less prevalent norm, only 8% of the population lives in such households. However this apparent low figure stems from strong demographic constraints and hides an important life cycle effect.

The composite Joint Household Structure index offers a remarkable spatial distribution in many ways. First, it highlights important regional contrasts within the states (figure 1). Its spatial clusters often correspond to well-defined linguistic, historical or cultural regions. Second, the index created have a significant spatial structuring, which is even more important than that of its components. Highlighted by the LISA map (figure 2), the Joint Household Structure index appears to have a multipolar spatial distribution, distinct from the classic North/South dichotomy. The practice of the joint family residential norms is the most important in the patriarchal northwest India, but also in central Maharashtra, and in the Bhojpuri speaking region of Uttar Pradesh and Bihar. In contrast, the joint household structure index is particularly low in the North-East tribal States, in Tamil Nadu and in parts of Telangana and Andhra Pradesh.

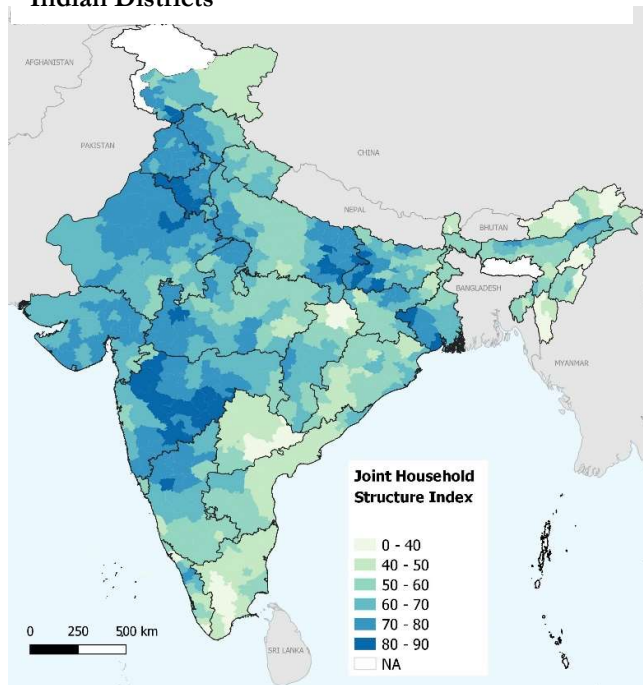
A classical linear regression (OLS) was first applied to explain the spatial distribution of the Joint household Structure Index. However this statistical modeling seems to be unsatisfactory. First, it explains only half of the observed spatial distribution. Second, error terms are spatially autocorrelated which means the model is inefficient. To correct this misspecification, a Spatial Lag Model (SAR model) is used in preliminary analysis. It includes an independent variable controlling the endogenous interaction. This model better fits our data

(Table 1). The spatial lag variable appears to have a significant effect for all the Joint Household Structure components. This means that residential norms of neighboring districts influence local residential practice in the given district, implying a diffusion process. Unfavorable economic conditions as the percentage of poorest households, the men illiteracy rate but also the proportion of disadvantaged class (Dalts and Adivasi) is negatively link to the norms of Joint household in Indian districts. It's also the case of women working in industry and service sectors while the effect of women working in agriculture is more ambiguous. Cultural markers, such as the proportion of Hindus and Indo-European speakers, keep a significant effect despite controlling for the spatial effect. The demographic component has a complex interaction with the Joint Household Structure. Higher proportion of women without sons negatively impacts the intergenerational arrangement and the patrilocal norms, due to the de-facto impossibility to achieve the ideal family form for elders. Conversely, the aging of the population does not affect these components but prevents young men to set a nuclear household.

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Figure 1. Joint Household Structure Index in Indian Districts



Moran Index : 0,696

Figure 2. LISAP map of Joint Household Structure Index

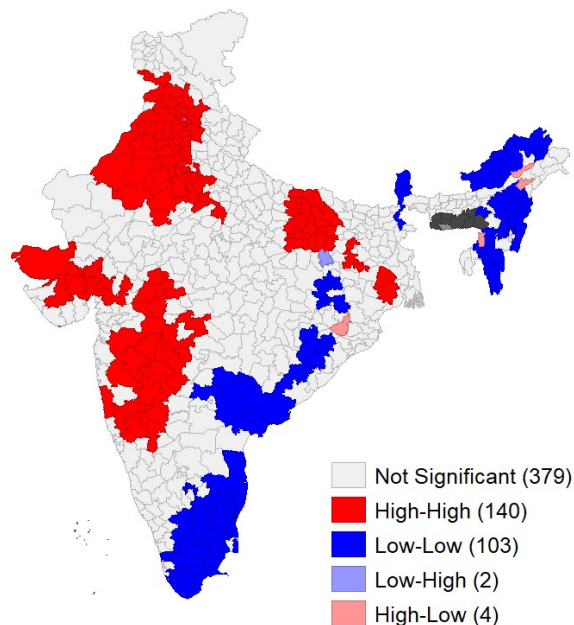


Table 1 OLS and SAR Regressions on Joint Household Structure Index and its components

	Structure (OLS)	Structure (SAR)	Intergen. (SAR)	Horizontal (SAR)	Non-Neo (SAR)	Patrilocal (Sar)
Percent of Women 40-49 without sons	-0.301**	-0.095	-0.194*	-0.036	-0.048	-0.195*
Percent of Elderly	0.779**	0.031	-0.471	-0.606	1.636***	-0.272
Child Sex-ratio (M/W)	0.283*	0.087	-0.03	0.128	0.109	0.133
Percent of wives of migrants	0.002	-0.058	-0.29***	-0.025	0.193**	-0.147**
Percent of Elderly Widows	-0.095	0.035	-0.087	-0.087	0.041	-0.037
Child Marriage	0.252**	0.095	-0.503	0.273*	0.068	-0.018
Urbanization rate	-0.024	-0.029	-0.036	-0.014	-0.001	-0.068*
Percent Poorest Households	-0.236***	-0.119***	-0.105***	-0.159***	-0.203***	-0.041
Share of Cultivator	-0.003	0.021	0.034	-0.013	0.004	0.077*
Share of workforce in Household Industry	0.804***	0.61***	0.366*	0.898***	0.718***	0.503**
Industrialization Ratio	-0.022	-0.018	-0.05	-0.029	0.072*	0.085**
Men Illiteracy rate	-0.312*	-0.354**	-0.462***	-0.32	-0.28	-0.342**
(Men Illiteracy rate) ²	0.006**	0.005**	0.09***	0.004	0.004	0.006**
Sex-Ratio illiteracy (W/M)	-0.003	-0.008	-0.001	-0.018	-0.01	-0.001
Share of women employed in Agriculture	-0.009	0.0125	-0.105**	0.105*	-0.009	0.059
Share of Women employed in other	-0.844***	-0.642***	-0.551***	-0.695***	-0.999***	-0.35**
Proportion of Hindus	0.445***	0.191**	0.229***	0.181	0.277***	0.157*
Proportion of (Hindus) ²	-0.003***	-0.001*	-0.001*	-0.001	-0.002**	-0.001*
Proportion of Dalits	-0.126*	-0.09*	-0.064	-0.109	-0.175**	-0.013
Proportion of Adivasi	0.007	-0.05*	-0.06**	-0.083*	0.013	-0.056*
Proportion of Indo-European language speakers	0.109***	0.025*	0.007	0.051*	0.008	0.089***
Rho		0.653***	0.667***	0.651***	0.587***	0.374***
Pseudo R ²	0.592	0.724	0.689	0.651	0.638	0.634

*** p<0.001, **p<0.01, *p<0,05