

Amrita Center for Economics & Governance
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~~Working Paper 1/2015~~

A ~~behavioural~~behavioral analysis of intergenerational filial piety and functional care

What drives parental cohabitation among rural households in India?

Partha Gangopadhyay and Shyam Nath

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What drives parental cohabitation among rural households in India?

by

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Abstract

In this paper we develop a simple theory in a household bargaining environment and generate direct evidence from the survey of one of the poorest villages of India to highlight a common thread that runs through these poor households to understand the precise determinants of parental cohabitation. Households with cohabitation opportunities are postulated to be rational economic agents with a focus on output ~~maximisation~~[maximization](#) in the first stage and then moving to consumer welfare ~~maximisation~~[maximization](#). We find support for both economic factors and social norms in creating and perpetuating filial piety as an informal institution that promotes old-age care among poor.— Our work lends support to some of the existing notions and challenges some of the dominant ideas on why parents fail to fall back on their children for filial care even in traditional societies.

Keywords: Informal old age care, logit, intergenerational bequests, cohabitation, India

JEL Classification: C25, D10

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Working Paper 2/2015

1. Introduction

It has been a persistent social arrangement in developing countries, especially in the Indian subcontinent, that the ~~old-age~~elderly care pivots on what is usually known as filial piety. In filial piety, the elderly ~~expect~~ the old-age care to be provided by their children as most elderly parents used to live with their children in the last millennium (see Frankenberg, Chan and Ofstedal, 2002). Filial piety refers to the social custom of intergenerational cohabitation within the same ~~household~~, in which the informal old-age care is ~~given—handled~~ by a child, which is an important informal institution/arrangement. ~~This situation ensues from the paucity of since neither the public pension systems and unavailability of is well-developed nor retirement benefits and safety nets—are available—for their elderly population in less-less-advanced economies. There is no gainsaying to the fact that the informal custom of filial piety is becoming-less-popular-amongdespised by the urban dwellers of Asian and third-world countries, yet Nevertheless,~~ the poor and rural households ~~still-relylean~~ on their family ~~ties,ial~~ kinship, social networks and intergenerational cohabitation as a major source of old-age care.

India has its fair share of difficulties, ~~in this domain, where with ageing in which~~ filial piety ~~still-assumes has~~ a ~~major-dominant~~ role ~~to play~~ in providing ~~relief and reassurance to its ageing old-age-carepopulation~~. In the recent past, unprecedented demographic

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transitions took place in India with serious implications for old-age care: first and foremost, India is home to the fastest growing population of the elderly ~~people of our~~across the globe (United Nations, 2002). Within a half-century duration, In India from 1951 to 2001, the ~~number of elderly, population, in India, went shot~~ up from 19 million to 77 million, ~~which is expected and projected~~ to ~~reach hit~~ the 170 million mark by 2025, ~~and will re-~~double againing by 2050. From 2000 to 2050 the world population of the elderly will have a three-fold increase while the elderly population will have a ~~5 fold~~5-fold increase. Secondly, rapid increases in the elderly population will create several challenges for the economy and a major challenge will be how to provide an adequate living arrangement for them.

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The ageing problem is further complicated by a paucity of pension schemes and a near absence of social security, safety nets and health schemes for the elderly. Thirdly, the old-age care in traditional societies of Asia was universally provided to parents by their children even a decade ago by intergenerational living arrangements. Yet the onslaught of economic transformation of traditional societies - accompanied by high growth rates, changing literacy rates, ~~urbanisation~~urbanization and ~~modernisation~~modernization, lower fertility; and improving health facilities and lower mortality rates - has permanently changed the old-age care as more and more elderly people are living by themselves in India and other developing economies of Asia. Finally, as confirmed by our village study, more and more rural societies are facing daunting tasks with regards to old-age care as the traditional arrangement of intergenerational cohabitation has been supplanted by modernity even in Indian villages. The institution of cohabitation is gradually being pushed to the background as kinship ties weaken and the nuclear family becomes a norm with decreasing physical support and financial resources for the elderly parents~~-.;~~

Despite being a serious form of informal institution in the developing world, there is little theoretical foundation to the institution of intergenerational cohabitation as a means to provide old-age care. It is widely held that intergenerational cohabitation derives from an unknown and unseen bargaining among family members, yet the family bargaining process has remained relatively unexplored. In this paper we provide a rudimentary model to capture the family bargaining, or negotiation, process for

determining whether elderly parents of a household will be able to receive intergenerational cohabitation. In order to provide a theoretical salience to the problem of intergenerational cohabitation, this paper develops an interactive framework to explain the evolving living arrangement in a typical rural family in India. From the survey data of a poor Indian village, we explore the socio-economic factors and cultural norms that can perpetuate the institution of cohabitation as a provider of old-age care.

In this work, we develop a model of household negotiations that has features at least broadly consistent with the [stylised/stylized](#) facts that [characterise/characterize](#) a poor and rural household. We retain the core assumption of the analytic literature that intergenerational cohabitation is motivated by both economic rationales and social norms. However, we argue that cohabitation is distinctive in the specific types of economic and social arrangements within a household and its neighborhood on which the negotiations pivot and that this has consequences for the optimal [organisation/organization](#) of the cohabitation. In the Section 2, we set out a model of cohabitation in which elderly parents and their children negotiate on the cohabitation arrangement. In Section 3, we consider how the model lines up against the [stylised/stylized](#) facts extracted from a village survey in India. We then consider an implication of the model and our findings for old-age care in traditional societies in Section 4. We conclude in Section 5.

2. Economic rationale for filial piety

In the existing literature, we note two dominant models that explain cohabitation as forcefully argued by Takagi, Silverstein, and Crimmins (2007): first and foremost, cohabitation is often driven by “needs” of a household – including parental needs. The specific “needs” include economic needs as well as old-age related needs arising from the demand for care from the elderly parents. On the other hand, intergenerational cohabitation is also actuated by cultural norms that are “value-driven traditions”. In earlier work, for advanced economies, cohabitation is modelled as a decision-theoretic problem for a household in which family members participate in a negotiation process as in Bernheim, Shleifer and Summers (1985), Altonji, Hayashi and Kotlikoff (1992). From Horioka (2002) we know that members of a household may not have a mutuality

of interests that create different motives for different family members¹. Against this backdrop, this paper presents a pioneering model to help understand (unobserved) household negotiations over living arrangement in the context of a poor and rural family from a developing economy.

In economic theory the cohabitation decision is shaped to a larger extent by the private gains and costs incurred by the children to share their household with their elderly parents. The economic model posits that elderly parents and their children share households because outside options are somewhat limited while household economic activities, such as farming and fishing and small businesses, revolve around household-specific skill, assets and work processes that can meaningfully employ several generations at different stages of the production process. In this environment, the economic motive is either sharpened or blunted by cultural needs of a household. One can therefore reformulate the economic model of cohabitation as a model of (unobserved) household bargaining in which elderly parents and their adult children engage can hammer out a living arrangement to suit their specific objectives, which will be a configuration of mutual best responses. The resultant and observed living arrangements will be an outcome of these unobserved interactions between parents and children². In what follows we offer a comprehensive model of production for a poor and rural household to [characterise](#) equilibrium filial piety. From the model we explain the various economic factors and social norms that influence the decision to arrange an intergenerational cohabitation. From the village survey we will test the findings of our analytical model.

2.1 A simple model of household production with cohabitation decision

¹Children may strategically choose to cohabitate with their elderly parents considering inheritance or free childcare for their children. Children may also like to continue as “kids” in the shared household and take advantage of the free rent and other financial benefits from their elderly parents.

²Inheritance motives and customs also impact on children’s incentives and thereby dictate intergenerational cohabitation. Modern economics literature has identified the strategic bequest motive (Bernheim *et al.* 1985). However, such motives are more dominant among wealthy parents, as they are likely to reward their children by giving considerable wealth to their old age care takers. In poorer societies such motives are nearly absent.

We start off with a simple model of family production and then introduce intergenerational cohabitation in a constructive fashion. For the purpose of ~~production~~production, we assume multiple stakeholders within a household and also posit stakeholders that are from different generations to suit the purpose of our model as a model of intergenerational cohabitation. We assume that there are two stages in economic activities of a typical household: in the first stage, the household members successfully bargain over the available family ~~inputs-resources~~ – like land, water, ~~labour~~labor, ~~fertiliser~~fertilizer, tilling devices, and seeds-etc.– and in the second stage, the family members sell their produce.????? It is further assumed that production and consumption decisions are sequential in nature, to avoid the problem of simultaneity (Singh, Squire and Strauss 1996). That is, production decisions are taken first with a view to ~~maximisem~~maximize output and income, and ~~then~~followed by consumption decisions ~~follow~~to ~~maximisem~~maximize household welfare.

Comment [GS2]: Recommend all assumptions/suppositions be clearly stated in one place, and reuse them as needed in context.

Comment [GS3]: incoherent

Comment [GS4]: incomplete unclear

~~Now it is to be noted that i~~In the second stage, ~~as~~ the production ~~output~~ has already been ~~realised~~realized, household members ~~now~~engage in negotiations, more often haggling, at a household level with a *middleman* (called a ‘Forà’ in indigenous Bengali language) for ~~determining-determination of~~ the price at which their products will be sold to the middleman. It is ~~common-conventional~~ that each household has developed a long-term relationship with a middleman family, over ~~multiple~~ generations. It is usually in the backyard of the household that the second stage negotiations over prices, between the middleman and household members, take place. ~~This priceese~~ negotiations resembles the ~~classic-case-of~~ Bertrand model, where household members have an incentive to outbid each other while the quantity has been pre-committed at an earlier stage. From the pioneering model of Kreps and Scheinkman (1983), we know that this two-stage ~~structure-enterprise~~ of production and selling activities ~~will~~ give rise to a Cournot outcome. Thus, we simplify our model to adapt to a Cournot ~~characterisation~~characterization of the economic activities, at the household level.–.

Comment [GS5]: citation?

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We suppose that a typical household or family dynasty has two children or wards, who control production and consumption of two distinct units of family production. Let us ignore parents ~~for the time being~~. We also assume that the wards sell their ~~apportioned~~

Comment [GS7]: This is ambiguous without a clear reference to the task or project at hand.

share of the production output in a market, for which the demand function is postulated as

$$q = [1 - (p/9)] \quad (1)$$

where,

q is defined as ?????????? and

p is defined as ??????????.

This is the usual-traditional Cournot model of production, which we adopted from the above two-stage production pre-commitment, concomitant with Bertrand pricing. It is further assumed that these wards have constant marginal costs C_i for Ward i , $i=1, 2$. We assume that $C_1 < C_2$, and label the cost difference as Δ , so that

$$\Delta = (C_2 - C_1) \quad (2):$$

This cost difference/asymmetry determines the market share and profits of each ward. The economic profits of these wards from the Cournot-Nash equilibrium are as follows:

$$\Pi_1^* = (1 - c_1 + \Delta)^2 \quad (1a)$$

$$\Pi_2^* = (1 - c_2 - \Delta)^2 \quad (1b)$$

Let us take-assume that Ward 1 (eldest son/child) is more efficient, i.e., $\Pi_1^* > \Pi_2^*$. From Wakabayashi and Horioka (2009), we know that Asian households, especially Indians and Chinese, have a special relationship with the eldest sons of their respective families, which incentivizes them to bequeath their scarce resources in favour/favor of their eldest son. However, the specification of Ward 1 as the eldest son is not necessary for our model.

We now assume that parents have retired/retired, and they arrive in the same household by switching their production unit and start competing with their wards as a Cournot rival. We posit that the Parental unit, called Parent hereafter, has a constant marginal cost of production C_3 . We examine cohabitation possibilities between Ward 1, Ward 2, and Parent, as the Parent and wards start competing with each other. It is possible that Ward 1 and Ward 2 merge into a single family (collusion), the merged entity with the marginal cost C_1 engages in Cournot competition with Parent. The Parent in this event is excluded from the collusion. We represent the cost difference,

$$(C_3 - C_1) = \Delta_1. \quad (x)$$

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' c_1 and c_2 ' are undefined [lower case C]

Comment [GS10]: The rationale behind this conclusion is unclear

Comment [GS11]: Ambiguous without a clear reference to what has been presented earlier.

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Comment [GS12]: Uncoherent given the previous paragraph

Comment [GS13]: Ambiguous – parent implies male or mother or both?

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Comment [GS15]: the instant in time or an event that triggers the Start needs to be clarified.

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The profits from the Cournot-Nash equilibrium of the newly emerged family structure are the following:

$$\Pi_{1,2}^* = (1 - c_1 + \Delta_1)^2 \quad (1c)$$

$$\Pi_3^* = (1 - c_3 - \Delta_1)^2 \quad (1d)$$

Equation (1c) gives the returns of the merged siblings or wards, while (1d) gives the financial returns of the Parent.

We examine the incentives for Ward 1 and Ward 2 to form a common family, or cohabitation alliance. It is a very restrictive form of cohabitation that we consider in this paper, that is, the cost of production of the new entity is the lower of the cost of production. We first consider the possibility that $C_3 > C_2$. Suppose the two Wards and their Parent decide not to cohabit together, then there are three production units that compete with each other. We label the cost difference between Ward 2 and Parent as Δ_2 , $\Delta_2 = C_3 - C_2$. The profits of these three production units from the Cournot-Nash equilibrium are as follows:

$$\Pi_1 = 9(1 - c_1 + \Delta_1)^2 / 16 \quad (2a)$$

$$\Pi_2 = 9(1 - c_2 - \Delta_1 + \Delta_2)^2 / 16 \quad (2b)$$

$$\Pi_3 = 9(1 - c_3 - \Delta_1 - \Delta_2)^2 / 16 \quad (2c)$$

A simple comparison will give us the incentives for exogenous cohabitation alliance formation between Ward 1 and Ward 2.

Observation 1: The wards – following On the appearance of their Parent as a competitor, – the wards have an incentive to form a cohabitation alliance with each other, and not to cohabit with their Parent, if $C_3 > (2C_1 + 3\Delta_1 - 1)$.

Proof: Ward 1 and Ward 2 have incentives to cohabit if the value represented by equation (1c) > the value represented by equation (2a). That is,

Comment [GS16]: Incoherent, unclear

Comment [GS17]: Of which entities

Comment [GS18]: Ma or Pa – does it matter? – need to clarify or a step-Parent, and what if it is a joint family household?

$$(1 - c_1 + \Delta_1)^2 > 9(1 - c_1 + \Delta + \Delta_1)^2 / 16 \quad \text{---(2d)}$$

Simplification of (2d) yields the result. ??????

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2.2 Endogenous formation of cohabitation alliance and cohabitation equilibrium

With two wards and a combined unit of parent, there are three distinct forms of cohabitation – Ward 1 and Ward 2, Ward 1 and Parent, Ward 2 and Parent. Assuming $C_1 < C_2 < C_3$, and retaining the previous symbols we label the cohabitation returns/profits of Ward 1, Ward 2, and Parent by $\Pi_{i,j}^*$,

Comment [GS20]: Same questions on Parent, as noted for section 2.1

Comment [GS21]: This should be obvious, as long as the symbols are not re-defined!

$$\Pi_{1,2}^* = (1 - c_1 + \Delta_1)^2 \quad (3a)$$

$$\Pi_{1,3}^* = (1 - c_1 + \Delta)^2 \quad (3b)$$

$$\Pi_{2,3}^* = (1 - c_2 - \Delta)^2 \quad (3c)$$

Comment [GS22]: So, eqn 3(a) = eqn 3(b) ???

From these values, we know $\Pi_{1,2}^* > \Pi_{1,3}^* > \Pi_{2,3}^*$.

Comment [GS23]: Questionable as (3a) = (3b) ???

Thus, both Ward 2 and Parent have an incentive to form an alliance with Ward 1, whilst whereas Ward 1 has an incentive to cohabit with Ward 2 and not with Parent.

Observation 2: Ward 2 and Parent have an incentive to cohabit if $C_3 < (1 + 2C_2 - \Delta)/3$.

Proof: Ward 1 and Ward 2 have an incentive to cohabit, if $\Pi_{1,2}^* > \Pi_2$: Substituting (3b) and (2b) yields the result.

Comment [GS24]: Incomplete incoherent, unclear What result?

From Observation 1 and Observation 2, we offer the first result on endogenous formation of cohabitation.

Economic motive

Proposition 1: Assuming $C_1 < C_2 < C_3$, Ward 1 and Ward 2 will cohabit if,

$$C_3 > (1 + 2C_2 - \Delta)/3 > 2C_1 + 3\Delta - 1 \quad \text{---(4a)}$$

(4a)

Ward 2 and Parent will cohabit if,

$$(C_3 < 2C_1 + 3\Delta - 1) < (1 + 2C_2 - \Delta)/3 \quad (4b)$$

There will be no cohabitation if,

$$(1 + 2C_2 - \Delta)/3 < C_3 < 2C_1 + 3\Delta - 1 \quad (4c)$$

Ward 1 and Ward 2 will cohabit if,

$$2C_1 + 3\Delta - 1 < C_3 < (1 + 2C_2 - \Delta)/3 \quad (4d)$$

Since $\Pi_{1,2}^* > \Pi_{1,3}^* > \Pi_{2,3}^*$,

Proof: Comparisons of equations (2a), (2b) and (2c) with equations (3a), (3b) and (3c) respectively will yield the result.

We now consider the case in which $C_1 < C_3 < C_2$. That is, Parent is more efficient than Ward 2. Let us label the cost difference as: $(C_3 - C_1) = d$, $(C_2 - C_1) = d_1$, $(C_2 - C_3) = d_3$. The returns or profits of these three units of production, from the Cournot-Nash equilibrium are:

$$\Pi_1 = 9(1 - c_1 + d + d_1)^2/16 \quad (5a)$$

$$\Pi_3 = 9(1 - c_3 - d + d_2)^2/16 \quad (5b)$$

$$\Pi_2 = 9(1 - c_2 - d_1 - d_2)^2/16 \quad (5c)$$

The returns from pair-wise cohabitations are

$$\Pi_{1,3}^* = (1 - c_1 + d_1)^2 \quad (6a)$$

Comment [GS25]: Incomplete, unclear

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Comment [GS28]: Is something different? Should this be 'd₁, d₂ and d₃' instead of 'd, d₁ and d₃'??

$$\Pi_{1,2}^* = (1 - c_1 + d)^2 \quad (6b)$$

$$\Pi_{2,3}^* = (1 - c_3 - d)^2 \quad (6c)$$

While $\Pi_{1,3}^* > \Pi_{1,2}^* > \Pi_{2,3}^*$, we now offer the result for endogenous cohabitation.

Proposition 2: Assuming $C_1 < C_3 < C_2$, Ward 1 and Parent will cohabit if

$$d < C_1 + [(1 - C_1 + d_1)/3] \quad (7a)$$

That is,

$$C_3 < (1 + C_1 + C_2)/3 \quad (7a')$$

Ward 2 and Parent will cohabit if

$$C_3 > (3C_2 - C_1 - 1) \quad (7b)$$

Ward 1 and Ward 2 will cohabit if

$$C_3 > (3C_2 - C_1) \quad (7c)$$

There will be no cohabitation if

$$(1 + C_1 + C_2)/3 < C_3 \quad (7d)$$

$$(3C_2 - C_1) < C_3 \quad (7e)$$

Proof: These results are derived from the above return or profit functions.

Result 1: There will be no filial care provided by children to their parents if the following conditions hold:

$$C_3 > \{(2C_1 + 3\Delta - 1), (1 + 2C_2 - \Delta)/3\} \text{ and } \{(1 + 2C_2 - \Delta)/3 > (2C_1 + 3\Delta - 1)\} \text{ for } C_1 < C_2 < C_3 \quad (8a)$$

Comment [GS29]: To avoid confusion, [per SI/IEEE numbering should be in sequence, without skipping] this should be '7b'

Comment [GS30]: Due to the prior comment, all the subsequent numbering will have to be changed

$$C_3 > \text{Max} \{(3C_2 - C_1), (1 + C_1 + C_2)/3\} \text{ for } C_1 < C_3 < C_2 \quad (8b)$$

The reversal of the inequality will ensure that the filial care will be provided by one or both wards. Our finding is that the main condition-prerequisite for filial care is propelled by the relative productiveness of parents with respect to their wards' productivity.

Non-economic factors

Result 2: The impact of customs, traditions, and norms can be introduced-expressed in many possible ways numerous forms. In our model, the simplest way to introduce norms, in the economic calculus, is to introduce a factor σ (< 1), such that the modified conditions for the equilibrium involving no filial love will be given by:

$$\sigma C_3 > \{(2C_1 + 3A - 1), (1 + 2C_2 - A)/3\} \text{ and } \{(1 + 2C_2 - A)/3 > (2C_1 + 3A - 1)\} \text{ for } C_1 < C_2 < C_3 \quad (8a')$$

$$\sigma C_3 > \text{Max} \{(3C_2 - C_1), (1 + C_1 + C_2)/3\} \text{ for } C_1 < C_3 < C_2 \quad (8b')$$

Note that σ softens the role of pure economic factors in determining-the determination of why children neglect their elderly patents parents, in their old age where σ measures the adverse impact of breaking the custom or traditions of looking after one's parents on children's utility or welfare. Note that the household will choose the filial love equilibrium if the inequalities are reserved.

For our empirical analysis we express (8a') and (8b') as the following:

H^* is the custom-weighted, net-benefit from cohabitation to-with the household, then the Household-household chooses cohabitation equilibrium if:

$$H^* > 0 \quad (8c)$$

There is no cohabitation equilibrium if:

$$H^* \leq 0 \quad (8d)$$

Comment [GS31]: Redundant, confusing

Comment [GS32]: As noted previously for eqn. (7a), similar re-numbering is required for the se and any subsequent eqns. of a similar designation

Comment [GS33]: Resolved?

Comment [GS34]: Needs re-numbered

Note that (8d) implies the same condition as (8a') and (8b')₋.

3. Empirical strategy, ~~data~~data, and findings

In the previous section we have ~~characterised~~characterized the equilibrium outcome of the unobserved bargaining, or negotiation, process of a household about the optimal arrangement of the old-age care of parents. For each household, from a village survey in India, we obtain the observed outcome of the implicit bargaining process, as described above. The outcome, which is the end state of an unobserved negotiation among family members, is either positive ($H^* > 0$) or negative ($H^* \leq 0$). If $H^* > 0$, we posit, the parents and the children of the household choose some form of cohabitation as an optimal arrangement. We call the positive value of H^* as the “success” of the parents to enforce cohabitation on their children. In a similar vein, a negative value of H^* will represent a failure for parents to ~~achieve work out~~ cohabitation arrangements with their children. We call the non-positive value of H^* as the “failure”₋.

Comment [GS35]: Survey has been mentioned in many sections – likely to confuse the reader whether one or how many surveys were don and where? It would be helpful to clarify by cross-references, for readers to get the true picture of the study approach.

Comment [GS36]: To recommend specific section or sub-sections be provided as cross-reference, instead of such vague notes.

Comment [GS37]: This sounds harsh – use some neutral term like secure or ensure compatible/agreeable

On the basis of the generated data on the values of H^* , each household can be ~~dichotomised~~dichotomized into either a success or failure, and we then apply the standard logistic equation to understand the probability of success of parents by using a set of socio-economic indicators ~~characterising~~characterizing a household and social norms. These are called Regressors, R . The dependent or response variable K is the presence/absence of success for a household, ~~which is~~ dichotomous in nature. The dependent variable is either, $K = 1$ (for success) or $K = 0$ (for failure).

Comment [GS38]: Children gave some role too!, , so this can be deleted.

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We assume that H^* of a household is positive with a probability π , when π is the probability of success, which means $H_i^* > 0$.~~T;~~ this will imply that the dependent variable $K = 1$. Note that $(1 - \pi)$ is the probability of failure, or ($H_i^* \leq 0$).~~I;~~ in other words, the dependent variable $K = 0$. Labelling R as the vector of predictors the logit equation is written as:

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$$\text{Logit}[\pi(R)] = \ln\left(\frac{\pi(R)}{1 - \pi(R)}\right) = \alpha_0 + \sum_1^n \alpha_r R_r \quad (9a)$$

~~Where where~~ $\mathbf{R}$ is a vector of Regressors, with R_r as the r^{th} component of vector $\mathbf{R}$, $r=1,2,\dots,n$ ~~and~~; other details will be discussed later. The goal of logistic regression is ~~to correctly~~to correctly predict the category of outcome (success or failure), for parents of ~~each household~~each household, using the most parsimonious model. To accomplish this goal, a model ~~is~~was created that includes relevant predictor variables, from a household's socio-economic characteristics, and social norms that are useful in predicting the response variable. In other words, our goal is to discover the relationship between the success of parents and socio-economic characteristics of the household and various social norms.

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3. 1 Data and empirical results

Data and background of regional poverty

Between December 2008 and ~~January 2009~~January 2009, a we ~~conducted a~~ household survey ~~was conducted on~~in Raghunathpur, a village³ ~~consisting comprised~~ of 279 households in the State of West Bengal, India. Due to apparent inconsistencies between reported information against ~~municipal~~ recorded ~~ed~~ informations, we ~~needed to delete~~ data for 32 households ~~was deleted~~. Thus, we have selected 247 households for our intensive survey. The village is one of the poorest villages of India and South Asia. It is located close to the Indian region riddled with the left-wing *Naxalite* violence in India.

Comment [GS39]: citation

Both the intensity and the incidence of rural poverty are quite stark ~~in~~across most regions of South Asia, ~~which is the~~ home ~~of to~~ 51% of the world's poor. Despite its impressive economic performance, India still has concentrated pockets of ~~serious~~severe rural poverty. Agrarian poverty has unleashed ~~severe~~several forms of conflicts and unrest in some parts of India, which came to be called left-wing extremism, or *Naxalite* movement in India. A total of 83 districts in nine States - Andhra Pradesh, Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Maharashtra, Orissa, Uttar ~~Pradesh~~Pradesh, and West Bengal - have been identified as *Naxal*-hit. ~~In The 2010, the~~ 20th Anniversary edition of the *Human Development Report* of the UNDP introduced the

Comment [GS40]: citation

Comment [GS41]: undefined acronym

³For administrative purposes Indian states are divided into districts, and then blocks and each block comprises a group of villages. The district existed uninterrupted during the 200 years of colonial rule and evidence is there it has been a very old and continuing human settlement for over a millennium. In 1956 Indian states were reorganised along linguistic lines, which has little impact on this nearly homogeneous village in terms of linguistic diversity.

new concept of the multi-dimensional poverty index (MPI), for ~~measuring assessment of~~ the extent and the intensity of poverty ~~in 2010~~. According to the MPI, there are more poor people in these ~~se eighty three~~~~eighty-three~~ districts of ~~the~~ eight Indian states than in the entire sub-Saharan Africa – ~~410 m~~ rural people live in poverty in these Indian states. The war-ravaged African nation – the Democratic Republic of the Congo – and the central Indian state, Madhya Pradesh, have nearly identical levels of poverty. Most of the Indian poverty, or its source, in ~~the eight states~~, is rural while ‘rural poverty’ and ‘violent and costly conflicts’ in India are almost synonymous⁴.

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Study location and key political and socioeconomic characteristics

~~The name of the village is~~ Raghunathpur ~~village that~~ is centrally located in the Mayureshwar-I Block of the Birbhum District, in the Indian State of West Bengal. The village is in the Gram Panchayat of Kanachi and the ~~Mouza~~ is Raghunathpur. The total population of ~~the this~~ Block is 139,677, ~~as~~ per the 2001 Census. Mayureshwar-I is adjacent to the Mohammed Bazaar that has one of the largest concentrations of backward villages as per the ~~NREGP~~ project of the Indian government. The village occupies ~~almost the a~~ central position in the district and has an average ~~level of~~ economic ~~condition status of in~~ the region⁵. ~~The Block is one of the eight blocks and two municipalities of the Rampurhat sub-division of the district Birbhum.~~ In 2009, this Block ~~came to be was~~ merged with ~~the~~ Mayureshwari-II block, to form an electorate ~~only strictly~~ for a specific ethnic group, (SC) in the ~~national Indian~~ elections, as a component of the Bolpur ~~Loksabha~~~~Lok Sabha~~. This is also an interesting change in the political landscape, which will have a ~~far-reaching~~~~far-reaching~~ impact on the economic development of the block in the future ~~days~~. The Block shows a great polarization of its political beliefs. In the state assembly election of 2006, the Block’s 100,000 votes were divided between the left-wing parties (60%), while the ultra-right-wing parties like ~~BJP~~ captured 29% of the ballots. After the re-definition of electoral boundaries, in the national election the Mayureshwari-I block with about 100,000 voters ~~were was~~ merged with the larger electorate of Bolpur, with ~~1 m~~ voters. In 2009, in the Bolpur

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⁴In these eighty three districts the Indian ~~security~~~~armed~~ forces have been carrying out the security operation known as “the Operation Green Hunt”, which claimed over 10,000 lives of civilians and security personnel during the last five years.

⁵ The village and the block of Khoyrasol, which regularly occupy headlines of the national media for starvation deaths of peasants, lie to the southwest of Raghunathpur at the extreme ~~tip~~ of Birbhum.

constituency, 54% votes were cast in ~~favour~~favor of the Marxists, 40% votes cast in ~~favour~~favor of the centrist Congress party, while a paltry 7% for the right-wing BJP.~~—~~. What is interesting to note is that the voting pattern of Mayureshwari-I, before its merger, displayed a strong preference for the right-wing BJP, which was absent from their merger partner Bolpur⁶. Other socioeconomic variables of the village are provided in the descriptive statistics. The Indian state of Jharkhand lies to the North and Western parts of the village, ~~—which is—~~ at the confluence of the resource-rich Chotanagpur plateau, and the fertile alluvial plane of the Ganges. About a dozen rivers have their origins at the Plateau and flow towards the east. They are furious during the monsoon season (June-October), but shrink during the dry seasons. Cyclical rotations of droughts and floods have caused perpetual problems for the agrarian community of the region.

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The district of Birbhum abounds with prehistoric sites, from the Stone Age through ~~to~~ the Chalcolithic Age. There are two well-researched stone-age settlements in the entire Eastern India, with a 400_m people; ~~and~~ both of them are in the adjoining districts of Bankura and Birbhum. Before the Christian ~~era~~era, the process of *Aryanisation* started with the advent and consolidation of two ~~organised~~organized religions, Jainism and Buddhism, in the very region. Several pre-Christian era pilgrimage places and Jain/ ~~and~~ Buddhist monasteries are located in the region, which are unfailingly visited by millions of devotees of these two religions. In the early Christian ~~era~~era, the region belonged to the mainstream Indian empires of the Mauryas. In the 7th Century, ~~the~~ details of the region were recorded in the travelogue of the famous Chinese ~~traveller~~traveler, Xuan Zhang. The Mughal era exercised ~~a~~ nominal control over the ~~region~~Theregion. The current administrative unit of the Birbhum district was formed in 1787, by the British East India ~~Company~~Company ~~mainly~~ for ~~exploiting~~exploitation of the local mining and forestry resources. The British occupation of the region triggered a significant rebellion by the tribal people of the region, during 1855-56 against the mighty British Raj. The 1855-56 rebellion speaks ~~a~~volumes about the nature of the freedom-loving locals, which subsequently led to the creation of a new district, ~~comprising~~comprised of the

⁶It will be interesting to discover if their electoral preferences for candidates will have any impacts on the allocation of public projects in the Mayureswari-I block after 2009. In other words, can ethnicization really impact on local (un)development? The answer to the question will depend on the availability of the future data from our ongoing projects in the Mayureswar-I block.

tribal people, in the Western part of the former Birbhum district. The region is desperately poor and close to the [epicentre](#) of the left-wing violence in India. The [impoverished](#) village appears [to us just](#) as an average village of the region, with deep poverty and backward communities living in extreme poverty. The pre-monsoon [average](#) water level of the village is [in the range of 5-to 7 m](#); post-monsoon water level rises to [0- to 3 m](#). The soil texture is clay loam. The nearest power sub-station is at Mollarpur.

Tables 1 and Table 2 report key characteristics of the village. Data indicate that the village has 279 households - [consisting-constituted](#) of 1155 members with 50.3 percent males and 49.7 percent females - of which sixty-eight percent have [small/marginal](#) landholdings. Thirty percent belong to the upper castes and seventy percent to the historically disadvantaged scheduled castes ([SC](#)) and [scheduled](#) tribes ([hereafter SC/ST](#)), whilst the basic literacy rate in the village is 93.7 percent. The presence of scheduled tribal people (ST) is noticeable with ten percent share in the village population.

Table 1. Key characteristics of the village surveyed

Total households	279
Fraction of small farmers	63.6%**
Fraction of households (SC/ST)*	70%
Fraction of households (Upper castes)	30%
Self-reported literacy rate	93.7%
Average age	26 years
Workforce (13- to 60-years) years	397*, 396
Self-reported underemployed	44*, 245
Main occupation	Cultivation
People engaged in cultivation	181*, 57
Next occupation	Laborer
Laborer	56*, 39
Total arable land	641.38 Bighas
Percentage of land under double cropping	9.6%
Main irrigational infrastructure	Rainwater
Total no of students	133
Gender break-up of students	49.4%*, 50.6%
SC/ST students	76%
Higher caste students	24%
Primary school students	53.9%
Junior secondary students	31.6%
Students in secondary and above	6.7%
Private tuition	35.2%
School drop-outs	
- Primary	29.%*, 19.3%
- Junior secondary	33.5.%*, 43.5%

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- Secondary and above	0.9%, 9.9%
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Note: *: Male, **: Landholding less than 9 “Bighas”; SC*: Scheduled Caste, ST: Scheduled Tribe.

Source: Survey data.

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Table 2. Relevant household variables for empirical analysis

Economic Variables	Social Norms	Bargaining Power
<i>SIZE</i>	PED	F
<i>PCI</i>	CED	M
<i>PCL</i>	CASTE	

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Note: Size: Household size; PCI: Per capita income; PCL: Per capita land; PED: Parental education; CED: Children’s highest education; Caste: caste category (upper, SC, ST); F: Employment status of eldest daughter in law; M: Elderly parent / father’s income or employment dummy.

Source: Survey data.

Important determinants of intergenerational cohabitation

The theoretical model ~~establishes~~ established that ~~both combined effect of~~ economic factors and social norms, ~~will~~ collectively determine the cohabitation decision in a household. The complexity of the problem is that economic factors and social norms mix together to create the precise conditions described in Result 1 and Result 2 for a successful cohabitation arrangement within a household. A greater difficulty is that some of these factors and norms are not ~~fully~~ quantifiable. There are also missing variables that ~~impact on~~ affect the bargaining process for ~~determining arriving at~~ the cohabitation decision within a household. ~~So~~ So, we are extremely careful in choosing variables and mostly follow the existing work for the choice of explanatory variables or regressors, R. We choose and label the following variables for the logit analysis.

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Economic variables

Household Size (*SIZE*)

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Household size is a noisy indicator, of the number of children that is expected to positively influence the probability of cohabitation of elderly parents with their children, as highlighted by ~~the~~ studies ~~conducted~~ in other countries – for ~~examples~~ example, Bian *et al.* (1998), Burch and Mathews (1987), and Martin (1989), among

others. The larger the number of surviving children, the better are the chances of the elderly parents to cohabit, though the presence of free-rider problem is also noted in households with several adult children (see Konrad *et al.*, 2002). Thus, the household size is a variable that has mutually opposite effects on cohabitation: on the one hand, it is widely held that it is likely that when there are more children, at least one of them will take care of the elderly on the collective property. On the other hand, the motive of free-riding can deter the cohabitation outcome. It will be an interesting empirical question for us to assess/appraise the dominance of these opposing effects. It is expected in the rural households that free-rider problem will be weaker, since as intergenerational cohabitation can prevent fragmentation of land-holdings. It is important in In poor rural societies like India's, the intergenerational cohabitation and the institution of joint family will preserve the critical mass of land size necessary for agrarian production. In other words, the intergenerational cohabitation is a means to prevent further fragmentation of land holdings. So, we expect that the family size will have a positive influence on the retention of cohabitation chances.

Per Capita Income (*PCI*)

We use this as an imperfect indicator of the economic status of the elderly parents. However, the PCI reflects the economic status of household and not exactly rather than the status of elderly parents. From past studies have verified we know that the PCI lowers the probability of cohabitation, as parents can have more economic freedom to arrange their own living. At the same time, in rural households, the cost of separate living arrangement is very high due to the participation of production structure, in which parental participation is important. So as the per capita income rises, the benefits from of cohabitation rises. Nevertheless, the net effect of PCI is unclear.

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Per Capita Land (*PCL*)

PCL is another indicator of the economic status of the elderly parents. While it is true that PCL reflects the economic status of households, it does not exactly truly indicate the status of elderly parents. Nevertheless, we use this as an imperfect indicator. From past Previous studies it is observed that PCI lowers the probability of cohabitation as parents can have more economic freedom to arrange their own living. At the same time, in rural households, the cost of separate living arrangement is very high due to the participatory

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production structure, in which parental participation is important. Therefore, as the per capita income rises, the benefit from cohabitation also rises. So, the net effect of PCI is unclear.

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Cultural variables/social norms

Parental Education (PED)

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The education level of the elderly plays an important role in determining their living arrangements. The existing literature highlights the possibility that the higher the educational attainment of elderly parents, the lower will be their need for cohabitation and there should be an inverse association between PED and cohabitation (see Bongaarts and Zimmer, 2001; Pal, 2004; Martin, 1989, and; Shah *et al.*, 2002). However, contradictory findings are usually reported in these studies, as the chances of cohabitation are higher among those families with higher levels of education in Africa, Asia, Latin AmericaAmerica, and the Caribbean islands.

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In our paper, we posit that the PED is also an indicator of household tradition, or historical norm, about parental investment. A tradition of parental investment can create additional social capital in a family, which can thereby positively influence the cohabitation decision. In other words, if elderly parents have higher (lower) levels of education, the previous generation - now deceased - has invested larger (smaller) resources in the education of their children as bequests. Thus, the larger (smaller) the intergenerational bequest, PED, the larger (smaller) will be the social capital in a household. So, we expect that PED will bear a positive relationship with the probability of cohabitation. A positive impact of PED on chances of cohabitation will be taken as an indicator of the presence of cultural norms in cohabitation decision.

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Children's Highest Education (CED)

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The highest educational attainment of children is an indicator of the parental investment by the current elderly parents, which is expected to increase the chances of cohabitation by increasing social capital in a household. However, higher levels of education for children can adversely impact on cohabitation chances by making children more independent and modern in their attitudes so that they don't do not want to follow the traditional norm of intergenerational cohabitation. In other words, the

parental investment by the elderly has already been sunk and their children can behave opportunistically since the custom of reciprocation might not be economically meaningful. Thus, a positive impact of CED on chances of cohabitation will be an indicator of the presence of cultural norms in cohabitation decision—.

Caste (*CASTE*)

In Indian villages it is of great ~~interests~~interest to assess the role of caste in determining the living arrangements, because the caste variable has both economic and cultural significance and neighborhood effects. First of all, we use a discrete variable to represent caste in our empirical study: *CASTE* = 1 for general or upper caste, *CASTE* = 2 for scheduled caste (SC) and *CASTE* = 3 for scheduled tribe (ST). As the value of *CASTE* increases (decreases), the socio-economic status of the household declines (rises). So, we expect to have a negative relationship between *CASTE* and the probability of cohabitation of a household. On the other hand, *CASTE* has special neighborhood effect in the (Indian) village context, due mainly to spatial segregation of specific castes (SC/ST) into specific geographic regions of a village. The spatial segregation is further enhanced by caste-based politics and caste-based social and economic interactions. As a result, from the neighborhood effect, we expect a negative relationship to emerge between *CASTE* and the probability of cohabitation—.

The overall impact of *CASTE* on living arrangement of elderly will depend on the relative strengths of the opposing forces.

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Other variables reflecting bargaining power in family negotiation

The model of implicit bargaining about the cohabitation arrangement, as is widely postulated in the extant literature, posits elderly parents on one side and their adult children on the other side, who negotiate over the optimal living arrangement for the elderly parents. As is well known, the bargaining outcome depends on the bargaining power of negotiators. The relative bargaining power of parents depends on their social and economic status vis-à-vis their children's. In the existing literature, the ownership of land and the size of land holding are important determinants of the economic status of the elderly. Other economic variables, such as monthly per capita expenditure and per capita income, can influence the living arrangements of the elderly (see Schrorder-Butterfill, 2003, 2005; Rosenzweig and Wolpin, 1985). Yet the main problem with

economic variables is that they signify the household status and not the status of the elderly. As a result, empirical results concerning the economic rationale for cohabitation are inconclusive (see Cameron, 2000). In what follows, we introduce two new indicators, which have not been used in the literature, that directly convey information about the bargaining power of the elderly vis-à-vis their children's.

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Economic Status of the Eldest Daughter-in-law: An Employment Dummy (*F*)

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In societies with patriarchal and primogenital cultures - as in many Asian nations, such as Japan, India, and China - the eldest son plays a very special role in family negotiations (see Wakabayashi and Horioka, 2009; Yamada, 2006; Ng and DaVanzo, 1999). Children's/sons' earnings, or earning potential, are often considered as one of the determinants of cohabitation, though there is little empirical support to the role of children's earnings for cohabitation (Cameron, 2000). In cohabitation arrangements, it has been hypothesized that the wife of the eldest son in a household plays a pivotal role since household chores are female-centric tasks and an increased kinship distance, especially caused by the patrilineal system that promotes daughter-in-laws' daughter-in-law's cohabitation in husbands' households, accords a special role to the economic status of a daughter-in-law (Schroder-Butterfill, 2005; Rosenzweig and Wolpin, 1985). We introduce a dummy variable *F*, for the first time in the literature, to characterise her economic status in a household as an ingredient for the decision on optimal cohabitation arrangements: the dummy variable '*F*' takes a value of one (1) if she works and '*F*' is zero (0) if she does not.

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Elderly Parent/Father's Income or Employment Dummy (*M*)

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We introduce a dummy '*M*' that takes a value of 1, if the elderly father of a household has earnings, or employment. The parental earnings, or employment, directly signal the economic status of parents within a household. The dummy '*M*' takes a value of zero, otherwise. In developing nations, it is increasingly stressed that adult children can economically benefit from the living arrangement with elderly parents. For instance, in rural Indonesia Schroder-Butterfill (2003, 2005) noted that nearly fifty percent of elderly parents who cohabitated with an adult child earned a significant component of

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household incomes. Arifin (2006) found that in living arrangements with their adult children, Indonesian elderly parents both in rural and urban areas are more likely to retain their head-of-household status due to employment/income.

4. Empirical Results

There are a few quick observations. First, the regressors have interesting and economically meaningful effects on the odds of elderly parents of a household to have intergenerational cohabitation. Secondly, it is ~~also~~ noteworthy that the effects of some of the regressors are ~~also~~ statistically significant. Thirdly, ~~together the cumulative effect of all these~~ regressors have a significant influence on the ~~probability-likelihood~~ of cohabitation, since the LR statistic is 100 with a p value of about zero. ~~Though the conventional measures of goodness of fit is not meaningful - McFadden's R², being based on log-likelihood kernels, is a less common pseudo-R² variant - reflects the goodness of fit to be encouraging (0.3).~~

We have obtained two sets of logit estimation – the first one, reported as Model A in Table 3, does not have any interaction term. The second, reported as Model B in the same table, has two interaction terms (F*CED) and (F*CASTE). The comparison will reveal interesting insights. ~~Regardless of interaction terms, the SIZE variable enhances the likelihood of cohabitation, which indicates that the free-riding effect is dominated by the traditional effect that the larger the number of surviving children the better will be the chances of the elderly parents to cohabit with adult children. The SIZE variable is statistically significant. The education of parents (PED), as expected, has a positive impact on the cohabitation outcome and is marginally significant in statistical terms. All other variables have economic significance, as reflected in their signs, supporting the predictions of the bargaining model - though most of them carry less than marginal significance in statistical terms, except the dummy variable F. Without any interaction term, the dummy variable F has a positive impact on the parental cohabitation with the adult children. However, it changes sign as we use the two above-mentioned interactions, (F*CED) and (F*CASTE). The F variable is statistically significant.~~

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Comment [GS66]: all numerical values need to be appended by measurement units; if not required, that fact should be self-evident or stated explicitly in the paper

Comment [GS67]: is this the same variable used in eqn. (1) ? If so, it is very confusing, and one of them needs to be changed. If not, we need to define this term, and fix the problem of same symbol for 2 different purposes.

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Comparing the results of [models](#) models, A and B in Table 3, there are significant differences.— Without the interaction terms, *CASTE* and *CED* are not statistically significant at the 5_% level; but, with interactions both have become significant. Both of them have a negative influence on the likelihood of intergenerational cohabitation as an arrangement for old-age care. The most interesting results with interactions are two-fold: first of all, *F* has a negative impact on parental cohabitation with adult children, and the effect is statistically significant. Secondly, the interaction terms (*F***CED*, *F***CASTE*) are positive and statistically significant. The first interaction term (*F***CED*) implies that ~~the~~ [there](#) larger—will be [a greater](#) ~~the~~ likelihood of intergenerational cohabitation, if the wife of the first son works, [and the larger is](#) the education of the first son (*CED*) [is higher](#). The second term (*F***CASTE*) implies that the employment opportunity of the eldest daughter-in-law positively impacts the intergenerational cohabitation, for lower castes.—

Table 3. [Parameter estimates](#) Estimates of the logit model [parameters](#), without and with interaction terms (Dependent variable: [PC](#))

Explanatory Variables	Model A (without interaction variables)	Model B (with interaction variables)
<i>CED</i>	-0.0181 (-0.3919)	-0.12404** (-2.4168)
<i>PED</i>	1.5421* (1.7205)	1.7782* (1.6146)
<i>F</i>	0.5974** (2.0014)	-2.2813** (-2.2465)
<i>CASTE</i>	-0.0385 (-0.1250)	-1.0285*** (-4.2442)
<i>PCL</i>	0.0082 (0.2886)	0.0221 (0.3953)
<i>M</i>	0.3441 (1.3866)	0.3411 (1.4081)
<i>SIZE</i>	0.3822*** (3.2834)	0.3206*** (2.8849)
<i>PCI</i>	3.36E-05 (1.4404)	6.17E-05 (1.3898)
<i>F</i> * <i>CED</i>		0.1883** (2.5035)
<i>F</i> * <i>CASTE</i>		0.9747** (2.3943)
Sample size	247	247
Obs with Dep=0	118	118
Obs with Dep=1	129	129
AIC (Akaike info criterion)	1.0517	1.0776
Schwarz criterion	1.1795	1.2197
McFadden R-squared	0.2929	
LR stat [p-value]	100.15 [0.00]	

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NOTE: *, **, ***, +: represent significance at 1%, 5%, 10% and 11%, respectively. Constant term is not reported.

Source: Estimated

Finally, a more potent interpretation of the results is in terms of *odds*, which are calculated, by taking the antilog of the slope coefficients and presented in Table 4. Thus, in terms of the most important variables, we note that a ~~one-year~~one-year increase in parental education corresponds to 5.92 times increase in the *odds* of elderly parents to be in a living arrangement with their adult children. We also note that an increase in family size by one member, or elderly father's gainful employment/income, will correspond to 1.4 times increase in *odds* in ~~favour~~favor of elderly parents (achieving intergenerational cohabitation). The interactive term shows that for lower caste households, employment of eldest son's wife (F) ~~will~~corresponds to a 2.65 times increase in *odds* in ~~favour~~favor of elderly parents achieving intergenerational cohabitation with their adult children. As observed from our model, a ~~one-year~~one-year increase in the highest education of the children ~~will~~corresponds to 0.88 times decrease in *odds* for parents ~~being~~living in cohabitation. Similarly, overall, the employment/income opportunity of the wife of the eldest son (F) ~~will~~corresponds to 0.10 times decrease in *odds* for parents. The marginal effect of a lower ~~CASTE~~ will correspond translates to 0.35 times decrease in *odds*.

Table 4: Marginal effects on odds of intergenerational cohabitation

Selected Variables	Marginal effect
CE D	0.8833
PE D	5.9197
F	0.1021
CA STE	0.3576
P CL	1.0224
M	1.4066
S IZE	1.3779
P CI	1.0001
F * CE D	1.2072
F * CA STE	2.6504

Source: Computed

5. Conclusion and Policy Implications

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Modern industrial societies ~~rarely rely on~~ deride intergenerational cohabitation as an altruistic mechanism for informal old-age care. In industrial societies, the bond of filial piety of children towards their old parents has been on a perceptible decline, since parents can directly, or indirectly through the public pension system, support themselves in their old age. A complete reversal of role of filial piety in old-age care has been observed for developing countries, where most elderly parents have little economic means to support themselves in their old age, ~~which is further complicated~~ exacerbated by the near absence of the public old-age support system ~~from~~, within their horizon. The problem is believed to be poignantly precarious for poorer households in poorer countries of Asia, as the ~~bargaining-brokering~~ position of old parents vis-à-vis their children, in the family ~~decision-discussions~~ of living arrangements, has been steadily deteriorating.

In this article, we have set out a simple model of intergenerational cohabitation, in which the decision-making on living arrangements are ~~negotiated-deliberated~~ in an implicit bargaining framework. ~~Though-Albeit~~ the objective of the household ~~in the implicit bargaining~~ is economic, the outcome is strongly influenced by traditional social factors and cultural norms ~~and traditions~~. We have derived the precise conditions, which will enable elderly parents ~~to~~ strike an arrangement of cohabitation with their adult children. The violation of these conditions will imply that elderly parents will need to ~~organise~~ plan for their old-age care outside their households—. In order to assess evaluate the ~~theoretical-proffered model~~ model, we ~~undertake-undertook~~ survey of a remote village, ~~survey~~ in India, to examine the factors that influence the household bargaining negotiations over cohabitation arrangements.

Comment [GS77]: repetitive

Comment [GS78]: questionable claim as the data size is small, and only a single village in a remote area was investigated. Besides, different family structures were not included: widowed parent, joint family,...

We thereby make several contributions to the extant literature, and ~~advance-augment~~ the ~~existing literature~~ domain knowledge by (1) developing an analytical model focusing focused on the implicit bargaining over cohabitation arrangements, in order to identify causal effects of economic factors, household characteristics and social norms; (2) employing a wide range of variables that represent norm-weighted economic benefits of cohabitation for a household; (3) introducing new variables to ~~characterise~~ characterize the relative bargaining power of elderly parents and their adult children, hitherto neglected in the literature. Our work ~~lends support to~~ upholds some of the existing

notions ~~and, while challenges disputing~~ some of the dominant ideas on why parents fail to fall back on their children, for filial care ~~even~~ in traditional societies. With the growing aging population and economic limitations, the welfare policy implications of the analysis are severe.

Comment [GS79]: Needs to be clarified – analysts from multiple domains need to be involved.

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