Demand for Insurance and Within-Kin-Group Marriage: Evidence from a West-African Country

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Abstract

We ask whether parents have incentives to marry their daughters to a male member of the kin group (e.g. to marry her endogamously) in order to better insure against adverse income shocks. Exploiting original panel data from a household survey collected in Senegal in 2006/2007 and 2011/2012, we find that daughters' endogamous marriage helps their parents' household to better smooth total food consumption when the shock is at the individual level (illness of daughters' parents) but not when shocks are commun to a group of households. In that case, total household food consumption drops to a higher extent when parents married their daughter endogamously, although, thanks to eased adjustments of household size, household food consumption *per capita* is similar. Our results indicate that parents' demand for insurance can explain part of their demand for marrying endogamously their daughter and extend the literature on interlinkages between marriage decisions and demand for insurance.

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1 Introduction

The interactions between market failures and a number of the institutional features of land, credit and labor markets in developing countries have been examined in depth in the economic literature (Braverman and Stiglitz (1982), Eswaran and Kotwal (1985), Coate and Ravallion (1993), Besley et al. (1993)). However, relatively less is known about the role of market failures in shaping individual decisions regarding marriage and that of their children. In this paper, we investigate the extent to which within kin-group-marriages in West Africa can be explained by parental demand for insurance.

Preference for within-kin-group marriage has been found in many West-African societies in anthropological (Goody (1976), Lesthaeghe (1989)) and medical work (for a recent review, see Bittles (2012)).[1] However, exact figures are harder to come by, and the determinants and consequences of these marriages have seldom been studied in this region. In contrast, with a prevalence rate varying between 40% (Yemen) and 58% (Saudi Arabia), the practice of within-kin-group marriage has been widely-analyzed for societies in the Middle East and Northern Africa.[2] Generally involving two parallel first cousins, its consequences on children's health have attracted much attention (Bittles, 2012).

In Senegal, the practice of within-kin-group marriage is also widespread. According to our original nationally-representative data (described below), between 2006/2007 and 2011/2012 one half of individuals who married did so with a member of their extended family. This is the first time that this measure has been established in Senegal. In contrast to what is found in Northern Africa and the Middle East, these preferentially involve cross-cousins, with the preferred marriages being between a man and the daughter of his maternal uncle or the daughter of his paternal aunt.

The literature has identified two major motives for within-kin-group marriages: property retention within the family and repayment for past matrimonial debts. In this paper,

[1]The measure is generally calculated using the interviewee's declaration about whether they are related to their spouse.

[2]See for instance Al-Awadi et al. (1985), Al-Gazali et al. (1997), Jaber et al. (1997), Bittles (2002), Bener and Alali (2006).

we argue that within-kin-group marriages are also observed in Senegal because parents wish to marry their children and insure against adverse income shocks.

In Senegal, marriage is an important determinant of one's social status, yet men's marriage has become increasingly difficult (Antoine et al., 1995). As within-kin-group marriages are easier to arrange[3], the demand for marriage (from parents, or from sons themselves) may explain the demand for within-kin-group marriages. In parallel, demand for insurance is high in Senegal. But there is little formal insurance because of information assymetry and kin-group-based insurance is also far from perfect (De Weerdt et al., 2014). Members of the kin group may want to invest in strategies that increase other members' incentives to help them when they are in need. We believe meeting the kin group's demand for a bride may be one strategy. Indeed, by meeting the kin group's demand for a bride, parents of daughters may notably foster altruistic behaviors or reciprocity expectations among members of the kin group, and therefore the kin group's incentives to help them in case they are in need.

Our hypothesis is thus that parents' households better smooth their consumption when a daughter married someone in the kin group (hereafter endogamously) than when she marries outside of the kin group (hereafter exogamously).

Using panel data from the 'Pauvrete et Structure Familiale' survey, a nationally-representative household survey (hereafter, PSF) collected in Senegal both in 2006/2007 and 2011/2012 (de Vreyer et al., 2008), we test whether parents' households who recently experienced a shock at follow-up better smooth their consumption if a daughter married endogamously between the two waves of interview.[4] Using data on monetary and non-monetary transfers, we also document channels of a differentiated consumption smoothing effect.

We find that daughters' endogamous marriage helps their parents' household to better smooth food consumption (total and per capita) when the shock is at the individual level

[3]As we will show in the descriptive analysis, men marry at a younger age when they marry a member of the extended family. The brideprice received by women is also lower when they married a kin.

[4]Actually between baseline and a year before the follow-up interview to insure that shocks at follow-up occur after the marriage.

(illness of daughters' parents) but not when the shock is at the household level. In the latter case, *total* household food consumption falls to a higher extent when parents married their daughter endogamously. However, food consumption *per capita* is smoothed similarly.

We believe these findings are consistent with our hypothesis: when the shock is at the individual level, the better smoothing effect of a daughter's endogamous union arises from kin-group-based insurance rendered more efficient by the strengthening of links between members of the kin group. In case of household level shocks, notably covariate, link reinforcement does not protect total food consumption but it helps, by easing adjustments of household size, to protect food consumption per capita. We find no smoothing effect on parents' consumption of their sons' endogamous marriage. This is expected since the advantage of arranging an endogamous marriage for sons is to marry them faster.

Estimating a model which includes fixed effects for parents' households and for survey-round, our results account for the effect of unobserved fixed characteristics potentially correlated with consumption trend, shock occurrence, and the decision to marry a daughter endogamously. However, their causal interpretation may still be challenged by a differentiated flow of wealth at baseline. We discuss the robustness of our results to estimation models aiming at accounting for such a difference. We also discuss competing explanations for our results.

The current paper is related to three strands of economic literature. The first concerns the determinants of consanguineous marriage in developing countries. Considering the marriage market in Bangladesh, Joshi et al. (2009) suggest that consanguinity and dowry payments should be substitutes in a context where the parents of both the groom and the bride are expected to invest in their child's marriage but where the patrilocality norm leads the bride's parents to potentially limit their support to the married couple. Using other data from Bangladesh, Mobarak et al. (2013) show that consanguineous marriages fall following a positive wealth shock, and suggest that consanguineous marriage is a means of smoothing dowry payments over time (and after marriage) for liquidityconstrained households. The second strand relates to how insurance needs shape parents' decisions regarding their children's marriage when formal insurance schemes are only nascent. It has notably been suggested in rural India that parents marry their child to a spouse who is purposely located far from where they live (but a member of the same sub-caste group) in order to better cope with the adverse effects of exogenous locally-correlated income shocks (Rosenzweig and Stark, 1989). Corno et al. (2016) examine the impact of local economic conditions on the probability of child marriage for young women in Africa and India. While droughts increase early marriage in Africa, they reduce it in India. This difference in the effect of drought on marriage can be explained by the direction of the traditional marriage payments in each region (the brideprice in Africa and the dowry in India). The third strand pertains to how the demand for insurance shapes individual economic decisions, beyond marital arrangements (see Dercon (2002) for a summary). This is also echoed in a more recent literature on the relative advantages of different social groups, such as religious groups, in managing individual and correlated risks.[5]

This paper makes two contributions to the empirical literature on marriage in developing countries. First, it provides detailed information on the current practice of endogamy in marriage using nationally-representative data from a West-African country. Second, it combines original data on consumption and transfers to evaluate whether and how a daughter's endogamous marriage leads her parents to smooth differently shocks.

The remainder of the paper is organized as follows. Section 2 describes the data, reviews potential motives for endogamous marriages and presents our hypothesis. Section 3 describes the empirical model. Section 4 presents the results regarding consumption smoothing and some robustness analysis. Section 5 discusses the potential channels through which a daughter's endogamous union improves her parents' consumption smoothing and competing explanations. Last, Section 6 concludes.

[5] See for instance Chen (2010) for an application in the context of Indonesia, and Dehejia et al. (2007) in the context of the US.

2 Context and Hypothesis

2.1 Data

2.1.1 The PSF Survey

We use data from the PSF Panel Survey collected in 2006/2007 and 2011/2012 (de Vreyer et al., 2008)[6]. The first wave consists of 14 450 individuals in 1750 households drawn randomly across 150 census districts. The second wave includes 3022 households and 28 376 individuals. In 2011-2012, 84% of individuals were identified and re-interviewed. Amongst the 16% of individuals who were not found, one quarter had died and 15% had migrated internationally.

These original data are particularly suited for our analysis. First, they provide detailed information on family background and marriage characteristics for each individual. To identify whether a marriage is endogamous or not, the information we use is whether an individual declares his/her spouse belongs to his/her kinship.[7] Second, as they collect information on household level food and non-food expenditures and individual level transfers over the year preceding the interview, they allow us to consider households' insurance with respect to consumption and the role of monetary transfers as a smoothing mechanism.

2.1.2 Samples

We count 153 origin-households in the PSF data where a parent married a coresiding daughter in 2006 for the first time between the first wave of the interview and a year

[6]Momar Sylla and Matar Gueye of the Agence Nationale de la Statistique et de la Demographie of Senegal (ANSD), and Philippe De Vreyer (University of Paris-Dauphine and IRD-DIAL), Sylvie Lambert (Paris School of Economics-INRA) and Abla Safir (now with the World Bank) designed the survey. The data collection was carried out by the ANSD.

[7]Thus, our measure is based on a self-declared information. This may raises some concerns about its accuracy but we show below that it correlates with characteristics of the sibship of the individual's parents according to patterns described by anthropologists.

preceding their follow-up interview (Table 1).[8] In this sample, 52% of parents' household married a daughter endogamously.[9] At follow-up, two origin-households made of two parents splitted. Therefore, at follow-up, we count 155 households of parents. This sample will hereafter be referred to as sample of *households of daughters' parents*.

[Table 1 HERE]

A second sample is made of the parents' daughters. There are 169. This sample will hereafter be referred to as *daughters sample*.

2.2 Motives for within-kin-group marriages

2.2.1 Review of existing hypothesis

The literature has identified two major motives for within-kin-group marriages: property retention within the family and repayment for past matrimonial debts. We first discuss the relevance of these motives for our context.

Parallel-cousin marriages and property retention Some authors have argued that within-kin-group marriages can be explained by the wish to keep accumulated property within the family (see for instance Rosenfeld (1957)). In contexts where this demand is high and where Koranic law applies (Barth, 1954; Murphy and Kasdan, 1959), patrilateral parallel cousin marriages are more likely to be observed. As under Koranic law girls receives only half the inheritance of boys, the marriage of two cousins who are the children of two brothers (parallel cousins) maximizes the retention of property within the family (more than the marriage of two cousins who are the children of a brother and a sister, e.g. two cross-cousins).

[8]We restrict the sample to parents having married a daughter aged between 11 and 35 years old in 2006. We exclude marriages that occurred in the last year before the second interview to ensure that shocks the year preceding the second interview happened after the daughter's marriage. We also drop observations for which baseline household consumption per capita is outside the range of the mean +/− 3 standard deviations (calculated at the whole sample level). This removes 13 observations.

[9]In households with more than one daughter married (15 households), we measure whether at least one daughter married endogamously. Interestingly, only in one of these households, a daughter married endogamously and another one exogamously.

In Senegal, where 96% of the population is Muslim,[10] cross-cousin marriages, not parallel cousin marriages, are the dominant within-family marriages (Diop, 1985).[11] Property retention within the family is therefore unlikely to lie behind all of the demand for Senegalese within-kin-group unions. We confirm this in a more direct way in Table 2. Based on the daughters sample, we compare households' assets (among other characteristics) depending on whether the daughter married endogamously or exogamously. We find that daughters who married endogamously are more likely to belong to households who own cattle and who have inherited their house. However, none of these differences remains significant when we account for other differences in a model estimating the probability to marry endogamously by OLS (two last columns of Table 2).

Cross-cousin marriages and repayment of past matrimonial debts Following the analysis of structural anthropologists, and notably of Levi-Strauss (1971), cross-cousin marriages can partly be interpreted as the counterpart of past matrimonial exchanges. For instance, a brother who agreed to give his sister in marriage to some man can later ask that his sister's daughter marries his own son. The sister's husband, by accepting to give his daughter in marriage, honors the debt he has incurred towards his brother or family-in-law when he married (Diop (1985), p.83). Testing this mechanism requires particular data that we do not believe exist for West-African countries and is unfortunately beyond the scope of the current paper.

2.2.2 Patterns of endogamous marriages in Senegal

Interestingly, our data suggest that the preferred configuration for cousin-marriage in Senegal is when the cross-cousins are the children of parents' half-siblings, and especially

[10] As indicated in the official report on the last country census (2013).

[11] Among the Wolof, one of the major ethnic groups in Senegal, the daughter of a maternal uncle is also called the 'golden spouse' (Diop, 1985). In Figure 1, the cross-cousin who can marry the girl identified by the red diamond (who is the reference point in the figure) is identified by a blue circle. Marrying the daughter of a maternal aunt or the daughter of a paternal uncle is considered as incestuous and is therefore forbidden. The former is considered as a sister as she shares the same blood. The latter is also considered as a sister, as she shares the same name and totems.

of mothers' ones.[12] As indicated in Table 3, daughters' endogamous marriage is positively correlated with the number of mothers' half-brothers sharing only the same father (and if the mother is absent, with the number of fathers' half-sisters sharing only the same father). [13] Having half siblings is fairly common in Senegal due to polygamy (siblings often share only the same father). This configuration may be preferred as it helps to maximize the mixing of the genetic capital while enabling marriage within the kin group.[14]

As marriage is patrilocal, sons of mothers' half brothers are likely to be located further away. This may partly explain why daughters who marry endogamously marry further away. Indeed, according to Table 4 which describes characteristics of endogamous and exogamous marriages, marrying endogamously is positively correlated with moving to another district (called 'arrondissements' in Senegal, which are equivalent to UK counties or French départments). [15]

Beyond the role of the maternal sibship composition, few other baseline characteristics are correlated with a daughter's probability to marry endogamously. According to Table 2, marrying endogamously is positively and significantly correlated with having Koranic education, living in a rural area, living in a household exploiting farmland, owning cattle, whose head received a Koranic education and where both parents are coresiding members. The number of siblings sharing only the same mother is also lower, indicating that the probability to marry endogamously is higher if daughters' mothers have not

[12]In Figure 2, the cross-cousins who are preferred to marry the girl identified by the diamond are identified by stars.

[13]The sample corresponds to daughters sample. Data on sibship characteristics is available only for household members. When at baseline the daughter has only one parent coresiding, we measure her stock of potential spouses by the number of siblings her mother has (respectively her father has) if the mother (respectively the father) is the coresiding parent. When at baseline the daughter coresides with both parents, we measure the stock of potential spouses in two manners. In a first measure, the stock is mainly determined by the characteristics of the mother's sibship as it accounts for the sibship characteristics of the mother whenever she is present, and of the father when the mother is absent (six first rows of the Table). In the second measure, the stock is mainly determined by the characteristics of the father's sibship by accounting for the sibship characteristics of the father whenever he is present, and of the mother when the father is absent (six last rows of the Table).

[14]The likelihood of an endogamous marriage increases with the number of mothers' half-sisters sharing only the same mother (and if the mother is absent, with the number of fathers' half-brothers sharing only the same mother). Their number is however relatively low.

[15]The PSF data being geocoded, we can calculate the distance between the household at baseline and at follow-up. We also show in Table 4 that this distance is higher when the daughter has married endogamously.

experienced a divorce or a widowhood (note that daughters' fathers are also more likely to be alive). The living standard of households with a daughter having married endogamously, measured by consumption per capita in log, is also lower on average. This also explains why transfers received and sent (at the household level, per capita) are of lower amount. To summarize, a daughter is more likely to marry endogamously if she belongs to a poorer and more traditional household.

Estimating a daugher's probability to marry endogamously by OLS (column 3 and 4 in Table 2), characteristics that remain significantly associated with the decision of interest are whether her household is located in a rural area (positively), whether her household's head received some formal education (negatively), and whether her mother experienced widowhood/divorce in the past (negatively).[16] A daughter is less likely to marry endogamously if her household's head works as an independant in the agricultural sector (compared to if he works as an employee or if he is retired), and if the house has been purchased (compared to if the household members are tenants of the house). Note that daughters are more likely to marry endogamously if their own parents also married endogamously. This could indicate a preference for endogamous marriage that transmits through generations. However this difference does not hold once we control for the set of other baseline differences.[17]

[TABLE 2 HERE] [TABLE 3 HERE] [TABLE 4 HERE]

[16] Characteristics are all measured at baseline, that is before the daughter's marriage, in order to limit any bias due to reverse causality. We consider two sets of explanatory variables: in a first one, measures of household wealth are measures of long-term wealth; the second set adds measures of household size, consumption and level of transfers (sent and received) which are more sensitive to past recent shocks. Results are qualitatively similar between the two models.

[17] All correlates are computed on the sample of daughters which corresponds to daughters who married between baseline and one year before their *parents' follow-up interview*, aged between 11 and 35 and who were coresiding with a parent at baseline. Results would be qualitatively similar if correlates were described on the sample of daughters corresponding to all daughters having married between baseline and *their follow-up interview*, aged between 11 and 35 and coresiding with a parent at baseline. These results are not shown but available upon request.

2.2.3 Our hypothesis: demand for insurance

Nowadays, in Senegal, marriage is a major event for both the individuals who marry, as it determines entry into adulthood (e.g. the man's right to intervene in family/community matters and the woman's mobility (Dial, 2008)), and for their family, as indicated by the demand for large visible wedding celebrations even in relatively poor communities.

However, men's marriage has become increasingly difficult (Antoine et al., 1995). Where the family of the groom (or the groom himself) is expected to pay a brideprice to the bride's family and provide a comfortable housing for the couple, this difficulty may have risen following the 1993 devaluation and the rapid rise in urban population density. In this context, as cross-cousin marriages are easier to arrange, the demand for marriage (from sons themselves, or from their parents) may explain the demand for cross-cousin marriages.[18] In our data, the brideprice received by the bride is lower when she marries a male in her kin group (see Table 4).[19] Men also marry at a younger age when they marry a member of the extended family. Looking at men who married for the first time between the two waves of interview, men marry on average at age 29.3 when they marry someone outside of the kin group and at 27 when they marry someone within the kin group. The difference is significant at the 5% level. Measuring the average age at first marriage for cohorts of men born between 1950 and 1970, we find that the average age at first marriage increases over time for men who marry someone outside the family and is stable otherwise (see Figure 3).

In parallel, when demand for insurance is high but there is little formal insurance, within-kin-group marriages are attractive as they facilitate *future* monetary and non-monetary transfers between family members when one member is in need. In Senegal, as elsewhere in Sub-Saharan Africa (Baland et al. (2016), Akresh (2009), Ferrara (2010)),

[18]The demand for cross-cousin marriage may reflect difficulties in marrying one's son for the first time and the difficulty of finding him a second wife. In Senegal, polygyny is widespread, and is associated with higher social status (Diop, 1985).

[19]The brideprice dominates payments made at the occasion of marriages. We observe very few transfers from the bride's to the groom's family. The difference remains significant at 15% when we account for baseline difference in household's consumption (column 4).

the extended family group is an important provider of informal insurance, and we expect stronger ties between members to reinforce the group's efficiency in providing insurance.[20]

Combining the parents' demand for insurance and for brides, we hypothesise that parents whose daughter has married a male member of the kin group benefit in the form of improved insurance from the kin group, notably because having facilitated the marriage of a male kin member contributes to foster altruistic behaviors and/or reciprocity expectations. Parents whose daughter has not married a male member of the kin group while there is a demand for a bride face the risk that the kin group's incentives to help in case of need weaken. This may not be costly if they have alternative means to insure themselve (formal insurance, savings, alternative networks made of co-workers, friends, etc.).[21] It may not be costly also if the daughter's exit from the kin group is associated with parents receiving a compensatory transfer upon her marriage (recall that daughters who married exogamously received a higher brideprice).[22] Therefore, a better smoothing from a daughter's endogamous marriage may be driven by kin-group-based insurance outperforming alternative means to insure, or by kin-group-based insurance outperforming the smoothing effect of the saved transfer received upon daughter's marriage (if any). [23]

We expect a better smoothing from a daughter's endogamous marriage especially when shocks are idiosyncratic. When shocks are spatially correlated, the extent to which having a daughter married to a kin helps parents to better smooth their consumption depends on whether the kin group itself is affected by the shock. If the kin group providing

[20]The long-lasting and inter-linked nature of family relationships provide a first set of incentives to enforce informal insurance (Coate and Ravallion (1993) and Ligon et al. (2002)). In addition, altruism within the family is expected to reinforce mutual help. However, family insurance appears to be incomplete (De Weerdt et al., 2014), opening the door to strategies to improve the family's efficiency as an insurance provider.

[21]An additional assumption is that the efficiency of these alternative means to insure does not weaken with time, which is a reasonable assumption for formal insurance and savings.

[22]If parents wish to provide a daughter as a bride to a male kin member hoping to improve kin-group-based insurance but the kin group does not demand for a bride, then the marriage (if made), whatever its type, is not expected to provide additional insurance. If such parents are equally distributed between our two groups of parents, this should have no incidence on our estimate.

[23]We can also hypothesize that members of the household with whom the daughter lives, once married, may be less tempted by shirking when their help is requested by the daughter's parents, because the daughter's moving-in improves information exchange between her two households. However, only two third of daughters of our daughters sample have left their parents' household to join the one of their husband or in-laws (see Table 4).

insurance is located on average further away than alternative insurance networks, then an endogamous marriage may also be more efficient in smoothing locally covariate shocks. Recall that daughters are likely to marry the sons of maternal half uncles when they marry endogamously and that these sons (and their father) are likely to be located further away. If maternal half uncles are major insurance providers, then descriptive statistics suggest that this network is not on average geographically close. This reduces the risk that a locally covariate shock affecting the parents' household affects them too. But we do not know how this average distance between parents' household and the kin group expected to provide insurance compares with the one between parents' households and any alternative insurance network. Yet, this difference may ultimately determine which network will perform better than the other one in smoothing a locally covariate shock. If shocks are nation-wide, then no network is a priori expected to be more effective. Households with more savings may however better smooth consumption. To summarize, following a covariate shock, because the kin group's higher incentive to help may be constrained by its ability to do so, the extent to which an endogamous marriage helps to better smooth consumption is ambiguous.[24]

3 Testing the insurance motive : the empirical model

3.1 Measures of adverse income shocks

We measure adverse income shocks in three manners. A first measure is whether the household reports having faced a shock either idiosyncratic or covariate during the year preceding each interview. Our second measure restricts the first one to declared household level covariate shocks.[25] Our last measure focuses on idiosyncratic individual level shocks. Specifically, it measures whether a parent declares having had an illness (chronic or not)

[24]Note finally that the co-existence of parents' demands for insurance and for a bride may well explain why within-kin-group marriages have remained preferential in Senegal.

[25]A household level shock is identified as covariate if the household reports having had bad crops, faced a decrease of output price, an increase of food price, or an increase of fuel price.

during the three months preceding each interview.[26]

Prevalence of household and individual shocks are described in Table 5. Both at baseline and at follow-up, it is balanced across households having married a daughter endogamously or exogamously (conditional on controlling for their rural location, in the case of household level shocks). Around 45% of households experienced the illness of a parent (whatever the year).[27] In our setting, illness may have significant adverse income effects, as in one third of the case (at least), it prevented the ill parent from performing his/her usual activities. In other words, beyond the medical expenditures it entails, it is likely to have a significant opportunity cost, as it can prevent from working.[28] Household level shocks are less common than parents' illness. Among them, covariate shocks are frequent.

[TABLE 5 HERE]

3.2 The consumption equation

3.2.1 Model specification

Using the sample of households of daughters' parents, we estimate:[29]

$$C_{h,t} = \alpha_0 + \beta_1 Shock_{h,t} + \beta_2 Endo_{h,t} + \beta_3 Endo_{h,t} * Shock_{h,t} + \beta_4 T + \pi_h + \varepsilon_{h,t} \quad (1)$$

Our two main outcomes are the log of household and per capita consumption. They exclude health-related expenditures. $Shock_{h,t}$ is a dummy reporting whether household h has had an adverse shock prior the interview at t. $Endo_{h,t}$ is a dummy for household h having a daughter married endogamously at t. It is always zero at baseline for all

[26] We focus on parents' illness since our theoretical framework suggests that a daughter's endogamous marriage may be a strategy for parents to address the adverse consequences on their household's welfare of shocks that affect them.

[27] Note that in households where both parents are present at baseline, the correlation between parents' illness status is equal to 0.37 at baseline, to 0.35 at follow-up.

[28] At follow-up, there are less incapacitating illness than at baseline. This may be due to the fact that parents, ageing, perform fewer activities.

[29] The specification follows the one adopted in Gertler and Gruber (2002), Gertler et al. (2006), Gertler et al. (2009) and Jack and Suri (2014).

households (by construction). It equals one at follow-up if any daughter of the household married endogamously between baseline and a year before the follow-up interview (and zero otherwise).[30] π_h is the parents' household fixed effect. T is an interview-round fixed effect (0 for baseline and 1 for follow-up).[31] $\varepsilon_{h,t}$ is the error term. The model is estimated by OLS with standard errors clustered at the origin-household level.

We estimate two models for food and non-food consumption. The rationale for considering these expenditures separately is twofold. First, we believe that basic welfare is best proxied by food consumption. We therefore expect households looking for smoothing first food consumption and eventually adjusting non-food expenditures in that respect. Second, food consumption being more divisible than non-food consumption, its adjustement may be more responsive to adjustements of household size or composition to smooth a shock.[32]

3.2.2 Coefficients interpretation

β_3 of Equation (1) is our coefficient of interest. It measures whether the effect of a shock at follow-up affects consumption trend between baseline and follow-up in a differentiated way depending on the marriage type of a daughter. This interpretation appears more clearly if the model is re-written as a simple difference across time:

$$\Delta C_h = \alpha'_0 + \beta_1 \Delta Shock_h + \beta_2 \Delta Endo_h + \beta_3 \Delta(Endo_h * Shock_h) + \Delta\varepsilon'_h \tag{2}$$

$\Delta(Endo_h * Shock_h)$ equals 0 for all households at baseline. At follow-up, it equals 1 for households having married a daughter endogamously and facing a shock (and 0

[30]For households with more than one daughter married over the time interval, $Endo_{h,t}$ is one if at least one daughter married endogamously.

[31]The model also includes interview-round fixed effects that are area-specific to account for area-specific price shocks and improve the global significance of the model. The geographic areas are: (a) the West with the regions of Dakar and of Thies, (b) the Center with the regions of Kaolack and Fatick, (c) the South with Casamance.

[32]Expenditures related to electricity and water represent 21% of total non-food consumption, furnitures 7%, transport represents 11%, personal expenditures 31%, clothing 18%, education 5%, restaurants 6%, leisure 1% of this consumption.

otherwise). Therefore, the coefficient on $\Delta(Endo_h * Shock_h)$ is identified by households who married a daughter endogamously between the two waves of interview and who had to cope with a shock in the second period (whatever their shock status in the first period). Their number equals 41, 18 and 15 when dealing respectively with a parent' illness, household level shocks, household level covariate shocks.[33]

If $\widehat{\beta}_3 > 0$ ($\widehat{\beta}_3 < 0$), parents' households smooth shocks at follow-up better (worse) when their daughter married endogamously. If $\widehat{\beta}_3 = 0$, then marrying a daughter endogamously or exogasmouly makes no difference in the ability of parents' household to smooth a shock at follow-up.

$\Delta Shock_h$ can take 3 values: -1, 0, 1. It equals -1 if the household faced a shock at baseline but not at follow-up; 0 if the shock status is the same in both periods; 1 if the household faced a shock only at follow-up. Its coefficient $\widehat{\beta}_2$ will be negative if households having married a daughter exogamously cannot perfectly smooth the adverse consequences of a shock.

3.2.3 Causal interpretation

Compared to a model that would use follow-up data only, our model has one major advantage for the identification of $\widehat{\beta}_3$. It enables to account for all factors, fixed over time, that explain why households having married a daughter endogamously and other households may have, at baseline, different demand for insurance and/or why their demand for insurance may have changed in a different way following their daughter's marriage. We discuss few reasons why such differences may be expected, although the prevalence of shocks is similar between the two groups of households, in Appendix 8.1.

Yet, the causal interpretation of $\widehat{\beta}_3$ still relies on the parallel trend assumption : households marrying a daughter endogamously between baseline and the year preceding the follow-up interview would have followed the same consumption trend as other households if they had married their daughter to a male outside the kin group.

[33] We paid attention to have at least 15 observations within this cell.

Direct test of such an assumption is not possible. However, we test the extent to which our estimate is sensitive to controlling for the interaction between the shock measure and indicators of a household's wealth, in particular those correlated with the occurence of shocks or the decision to marry a daughter endogamously, to capture potential bias from a differentiated flow of wealth between the two groups of households. Following the discussion in Appendix 8.1, we control more specifically for the interaction between the shock measure and whether the household lives in a rural area ($Rural_h * Shock_{h,t}$), the size of the kin group with whom risk sharing may occur (mothers' brothers whenever mothers are present, fathers' brothers otherwise: $NBrothers_h * Shock_{h,t}$)[34] , whether the household head has some formal education ($FormalEduHHhead_h * Shock_{ht}$) and whether the household head works as an independant in the agricultural sector ($IndepAgriHHhead_h * Shock_{ht}$). We add all these controls sequentially to see how the coefficient of interest changes with their introduction.[35]

4 Testing the insurance motive : results

4.1 Main specification results

Tables 6, 7 and 8 show estimation results when shocks refer to parents' illness, household level shocks, and household level covariate shocks respectively.[36] We first comment results in columns labelled (1a), (1b), (1c), (1d), which present results of the estimation of Equation (1).

In most models, the coefficient $\widehat{\beta_2}$ is not statistically different from zero. This indicates

[34]Using alternative definitions of this network (father's brothers whenever he is present, mother's brother otherwise; mother's brothers whenever she is present, father's sisters otherwise; household head's brothers) woult provide similar results.

[35]The interpretation of the coefficient on these controls is not straightforward. $Rural_h$, $NBrothers_h$, $FormalEduHHhead_h$, and $IndepAgriHHHead_h$ can all take a non-zero value in 2006 (whereas $Endo_{h,t}$ is zero in 2006 by construction). The coefficient on these interactions (but not the one on the interaction between endogamy and shock) will then also capture the effect of the household facing a shock in 2006 but not in 2011.

[36]Results on consumption, food and non-food considered together, are available in Online Appendix (see Tables O1, O2, O3.)

that there is some consumption smoothing among households who married a daughter exogamously. Given our theoretical framework, this may come from alternative insurance networks, or from using saved brideprice as a smoothing device. In models estimating the effect of illness or of a covariate shock on non-food consumption, the coefficient $\widehat{\beta_2}$ is significantly negative (at 15% level in case of illness). This indicates notably that one way to smooth food consumption after the illness of a parent or a covariate shock, for households having married a daughter exogamously, is to cut some non-food expenditures.

Households of parents who married a daughter endogamously show same patterns of non-food consumption smoothing as households of parents who married a daughter exogamously, but different patterns of *food* consumption smoothing. Following parents' illness, parents' households better smooth their food consumption (total and per capita) when the daughter married endogamously as opposed to exogamously. If a daughter's endogamous marriage does not avoid non-food expenditures cuttings, it may ease forms of transfers between parents' household and the kin group that help to better protect food expenditures.[37]

When the whole household is hit by a shock, notably by a covariate one, households of parents whose daughters married endogamously face a higher drop of their *total* food consumption : cuttings in non-food expenditures do not appear sufficient to achieve the same smoothing of total food consumption as other households. But note that the smoothing of food consumption *per capita* is similar between households. Therefore, through a higher adjustment of household size or composition, parents who married their daughter endogamously can smooth their food consumption as other parents do.

[TABLE 6 HERE] [TABLE 7 HERE] [TABLE 8 HERE]

[37]Our results will be qualitatively similar if at follow-up the measure excludes all illness (chronic or not) if at baseline the parent fell chronically ill. Indeed a chronic disease may increase the likelihood of an illness in the future leading parents' households to adjust their consumption trend. The results are not shown but available upon request.

4.2 Robustness analysis

4.2.1 Robustness to controlling for differentiated wealth trends at baseline

As discussed in sub-section 3.2.3, a differentiated flow of wealth between households having married a daughter endogamously and other households could explain the differentiated ability to smooth shocks occuring after a daughter's marriage. But our results are robust to controlling for a set of characteristics aiming at capturing such a difference (see columns from 2 to 4 in Tables 6, 7 and 8).

4.2.2 Robustness to initial differentiated ability to smooth shocks

The coefficient on $Endo_{h,t} * Shock_{h,t}$ measures whether the effect of a shock at follow-up, *whatever the shock status at baseline*, affects consumption trend between baseline and follow-up in differentiated way depending on the marriage type of a daughter. Here, we aim at testing the robustness of the effects controlling for the fact that households who will marry a daughter endogamously have different ability to smooth their consumption levels. This could be because of a differentiated flow of wealth (assumed to be already accounted for) or because the endogamous marriage is anticipated.

To control for an initial differentiated ability to smooth shocks, we add to the estimated model the following control: $Endo_h * Shock_{h,t}$ (the interaction between the dummy indicating whether a daughter will ever marry endogamously and the shock dummy). The coefficient on this control is identified by households who married a daughter endogamously between the two waves of interview and whose shock status has changed between the two waves of interview. Their number equals 32, 34 and 29 when dealing respectively with illness, household level shocks, household level covariate shocks.

Now we control for $Endo_h * Shock_{h,t}$, the coefficient on $Endo_{h,t} * Shock_{h,t}$ captures solely the differentiated effect of facing a shock at follow-up by daughter's marriage type given that households had to cope with a shock at baseline. We count respectively 17, 14 and 13 households having married a daughter endogamously and facing respectively an illness shock, a household level shock and a household level covariate shock both at follow-up and at baseline. For household level shocks, the number of observations that identifies the coefficient on $Endo_{h,t} * Shock_{h,t}$ in this model is very close to the number of observations that identify it in equation (1). Therefore, we do not expect the coefficient on $Endo_{h,t} * Shock_{h,t}$ to vary between the model not controlling for $Endo_{h} * Shock_{h,t}$ and the one controlling for it. This is indeed what we observe: according to Tables 9 and 10, results from models examining the differentiated effect of a daughter's endogamous marriage on the consumption of her parents' household following a household level shock do not vary with introducing $Endo_{h,t} * Shock_{h,t}$.[38]

In contrast, results from models examining the differentiated effect of a daughter's endogamous marriage on the consumption of her parents' household following the illness of a parent appear quite sensitive to including this control (Table 11). Its inclusion decreases the size of the differentiated positive effect of a daughter's endogamous marriage on the food consumption of her parents' household. The effect although still far from zero is no more significant. Note that the control itself is significantly positive. It suggests that the better smoothing effect from marrying a daughter endogamously found when estimating model (1) is essentially driven by households where parents have fallen ill *only* at follow-up.

[TABLE 9 HERE] [TABLE 10 HERE] [TABLE 11 HERE]

5 Discussion

5.1 Investigating the channels

The comparison of results across models examining household total consumption and household consumption per capita suggested that part of the differentiated smoothing effects of a daughter's endogamous marriage arises from differentiated household size or

[38] In case the shock is covariate, if the significance decreases, this is due to a loss of precision. Indeed, the point estimate remains almost the same.

composition adjustements. We wonder whether a differentiated practice of child fostering could drive part of the differentiated consumption smoothing. We test this hypothesis here.

We also find that households having married a daughter endogamously face a higher drop of their total food consumption when hit by a household level shock, notably covariate. This could be because the shock is of a higher size for households having married a daughter endogamously. If cuttings in non-food expenditures is constrained, then this may explain the higher decrease of food expenditures. Or this may be due to a higher drop in transfers received by these households, potentially because the household level shock affected the kin group too (and more the kin group than alternative insurance networks).[39] We test here whether a household level shock, notably covariate, is associated with a higher drop of transfers received by the household for households having married a daughter endogamously.

Lastly, since a daughter's endogamous marriage helps her parents to better smooth their household total food consumption, we expect this is thanks to a higher increase of monetary transfers received.

5.1.1 A role for child fostering ?

In Table A3 in the Appendix, we describe the proportion of households with a child having left the household during the three months (respectively, the year) prior the follow-up survey, depending on (a) the type of marriage made by the daughter and (b) whether the household had to cope with a parent's illness (respectively, a household level shock). Part of these exits are due to formal child fostering[40].

[39]Or covariate shocks are actually nation-wide, and only households with more savings better smooth. Households having married a daughter exogamously, having received a higher brideprice upon marriage, may have more savings, explaining their relative better smoothing. Note that if the kin group is more affected by the shock than networks made of co-workers or of friends, this may then indicate that the average distance between parents' household and the kin group expected to provide insurance is actually lower than the one between parents' households and any alternative insurance network. Given our theoretical discussion, distance is here spatial distance. However, it can also be understood as social distance (distance in terms of occupational status).

[40]The remaining exits are referred to as informal child fostering. See for instance Beck et al. (2015) and Marazyan (2015) documenting the practice of formal and informal child fostering in Senegal.

Although the double difference is not significant, we do find that households who married a daughter endogamously are more likely to observe a child's exit following the illness of a parent or a household level shock at follow-up. These results could indicate a link between endogamous marriages and child fostering.

5.1.2 Adjustments of monetary transfers

Using a similar specification as for consumption, we investigate whether shocks affect monetary transfers received by the parents' household in a different way depending on daughters' marriage type. We measure transfers received by the household in two manners: occurence and amount (in log). Appendix Tables A4, A5 and A6 present estimation results when shocks refer to parents' illness, household level shock and household level covariate shock respectively. Missing information on transfers received by the household implies to run these models on a lower number of observations. Power issue, especially when the effect of covariate shocks is investigated, is at stake.[41]

Following a household level shock, we confirm that the higher drop of total food consumption faced by households having married a daughter endogamously is due, in part, to the higher drop in transfers received by the household. The effect is significant at 15% level. Its size and significance level hold once controls are added. [42]

Following parents' illness, monetary transfers received increase to a higher extent for households having married a daughter endogamously. Here again, the effect is significant at 15%. However, its size and significance decrease once we add controls.[43] Evidence for a better smoothing of total food consumption from a daughter's endogamous marriage

[41]Indeed, in that case, the number of identifying observations is lower than 15.

[42]When focusing on household level covariate shocks, none of the effects is significant, although of the expected sign. Power issue may be a reason. Note that we do not control for $Endo_h * Shock_{h,t}$ since most of observations identifying the effect of $Endo_{h,t} * Shock_{h,t}$ are already households having married a daughter endogamously and facing a shock both at follow-up and at baseline.

[43]This seems especially to be driven by the inclusion of $NBrothers_h * Shock_{h,t}$.

through increased monetary transfers received is thus weak in our data. [44]

5.2 Competing interpretations

Our theoretical framework suggests that the better smoothing effect of a daughter's endogamous marriage is driven by an improved incentive of the kin group to help parents of daughters when they are in need. One could argue that the benefit of a daughter's endogamous marriage arises from better functionning of the kin group less because incentives to help have improved, but more because the kin group has become wealthier. Indeed, a within-kin-group marriage could increase economies of scale, for instance because members of the kin group share more factors of production. Or it could also increase the labor productivity of family workers directly involved in the matrimonial exchange.[45]

We cannot rule out this alternative explanation. However, three sets of findings plead in favor of the first one. A first one is the fact that our results hold for individual shocks but not for household level ones. Yet, we would have expected the kin group to be more able to help whatever the shock if the kin group had became wealthier. A second finding is that we do not find the main effect of endogamy to be positive on consumption. Yet, we would have expected this effect to be positive if the whole kin group, including the parents' household, had became wealthier. A last finding is the fact that parents' households better cope with illness when a daughter, not a son, married endogamously. Indeed, evidence for a better smoothing effect from a child's endogamous marriage is

[44] With data in hand, we can also look at transfers sent by daughters' follow-up households and by daughters themselves. We do not expect patterns of transfers sent by daughters' follow-up households to mirror those of transfers received by their origin-household since members of their follow-up households constitute (at best) only a share of parents' kin group. We find that transfers sent by daughters' follow-up households do not respond to a shock affecting the daughters' origin-household in a different way depending on the marriage status of the daughter. Looking at transfers sent by daughters themselves, we find that the probability that the daughter sends a transfer to a kin member is higher in case one of her parent falls ill, but not in case her parents' household faces a household level shock. This effect holds when we add controls. This is in line with the fact that parents whose daughter married endogamously slightly better smooth their household consumption in case of illness. Results are not shown but available upon request.

[45] The labor contract is made more efficient now it has been interlinked with a matrimonial contract.

weaker (see Table O6 in Online Appendix).[46] This indicates that a son's endogamous marriage does not contribute to improving kin-group-based insurance. We expect such a result if marrying a son endogamously helps to marry him faster and if marrying a daughter endogamously increases the kin group's incentives to help in exchange of a bride.[47]

5.3 Heterogeneity results

In Appendix Table O8, we estimate the effect on household consumption of having a parent fallen ill depending on the marriage type of a daughter, distinguishing the illness of a mother from the one of a father.

Among households having married a daughter exogamously, we find that fathers' illness is costly to food consumption, but not to non-food consumption. In other words, cuttings of non-food consumption are not used as a mean to smooth food consumption in case fathers have fallen ill. In contrast, we find that mothers' illness is not costly to food consumption, but is to non-food consumption. Here, cuttings of non-food consumption appear to be used as a mean to smooth food consumption.[48] This first set of results may indicate that mothers and fathers do not contribute to the same expenses in a household and, due to the absence of income pooling (Udry and Duflo, 2004; Castilla and Walker, 2012, 2013), an adverse shock on their individual income affects expenditures differently.

[46]As shown Table O4 in Online Appendix, there are 231 origin-households in the PSF data in which a parent had a coresiding child (aged between 11-35 for daughters, between 18-45 for sons) who married, for the first time, between the first wave of the interview and the year preceding the second wave. In 45 households, parents married more than one child in the time period under consideration. Interestingly, only in six cases, a child married endogamously and another one exogamously. In this sample, 54% of parents' household married a child endogamously. At follow-up, seven origin-households made of two parents splitted. Therefore, at follow-up, we count 238 households of parents. Prevalence of shocks on this sample is described in Table O5 in Online Appendix. The prevalence of shocks is comparable between endogamous and exogamous households.

[47]We can directly evaluate the effect of a son's endogamous marriage on household's consumption smoothing although the result should be taken with caution given the lower number of households having married a son: 102 origin-households have married 112 sons between baseline and the follow-up interview of their parents. Table O7 on Online Appendix presents the result. The coefficient on the interaction is not significant. In terms of size, it is either close to 0 or negative.

[48]Results from models examining non-food expenditures should be taken with caution, especially those with controls added, as the model does not appear globally significant at 10% level.

Following the illness of a father, households of parents who married a daughter endogamously show same patterns of food and non-food consumption smoothing as households of parents who married a daughter exogamously. However, following the illness of a mother, parents' households appear to better smooth their non-food consumption *per capita* when the daughter married endogamously as opposed to exogamously. If a daughter's endogamous marriage does not avoid non-food expenditures cuttings, it may ease adjustments of household size or composition that help to better protect non-food expenditures. [49]

Eased adjustments of household size or composition that help to better protect non-food expenditures for households having married a daughter endogamously in case mothers fall ill, but not to better protect food expenditures in case fathers fall ill, may suggest that mothers are the main beneficiaries of the improved kin-group-based insurance. Recall the daughter is more likely to marry sons of maternal uncles. Therefore, this may be essentially the mother's kin group that is reinforced in its insurance function through the endogamous marriage.

6 Conclusion

This paper has considered how the adverse effects of shocks are managed by households according to whether a daughter recently married within the kin group (endogamously) or outside the kin group (exogamously). We expect this to matter if endogamy is a mutually-beneficial arrangement: parents of sons marry their sons more easily, and as a counterpart to this benefit the parents of daughters improve their ability to smooth adverse shocks.

We exploit original individual-level panel data on consumption and monetary and non-monetary transfers collected in Senegal in 2006/2007 and 2011/2012. We find that

[49] The differentiated effect of mothers' illness is identified on 34 observations (the one of fathers on 24 observations). Once we control for a potential differentiated smoothing at baseline (column 5b), the significance of the effect vanishes, but not its size. This suggests that the significant effect found is driven by households where the mother has fallen ill at follow-up *only*.

daughters' endogamous marriage helps their parents' household to better smooth total food consumption when the shock is at the individual level (illness of daughters' parents) but not when shocks are common to a group of households. In that case, total household food consumption drops to a higher extent when parents married their daughter endogamously. However, if the arrangement does not protect total food consumption, it helps, by easing adjustments of household size, to protect food consumption *per capita*.

The better smoothing effect from a daughter's endogamous marriage when shocks are individual may explain part of the demand for endogamous marriages observed in Senegal. Yet, this advantage does not rule out drawbacks: households having married a daughter endogamously achieve a similar smoothing of their food consumption per capita as other households only because they adjusted to a higher extent their size. There could be some costs for individuals moving-out, not to mention for daughters who marry according to the desire of their parents, and potentially against their own. The question of potential costs associated with endogamous marriage are addressed by future work.

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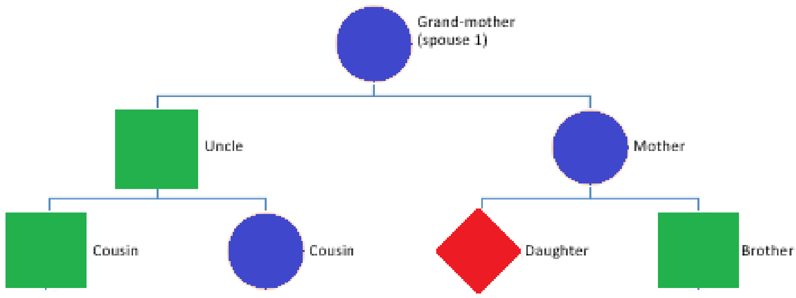
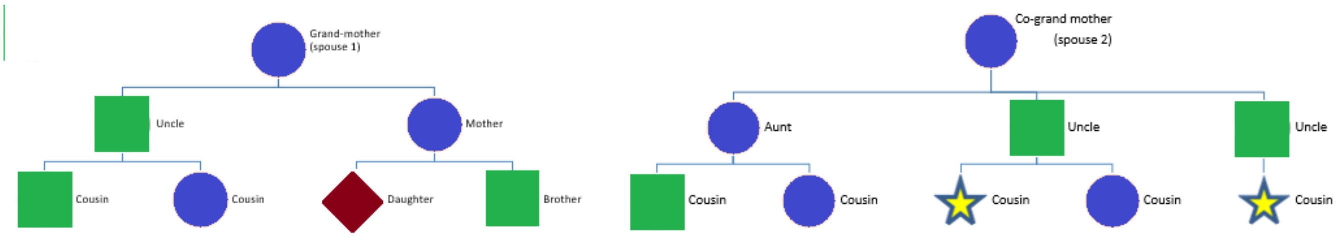
7 Figures and Tables



The figure shows the definition of cross-cousins. The male members are represented by a square and female members by a circle, except the "daughter of interest", who is represented by a diamond. All the relationships in the figure are with respect to the daughter of interest. Her potential spouse would be the male cousin who is the son of the brother of her mother in this case (represented in the figure by the green square at the bottom left).

Figure 1: Diagram of Cross-cousins



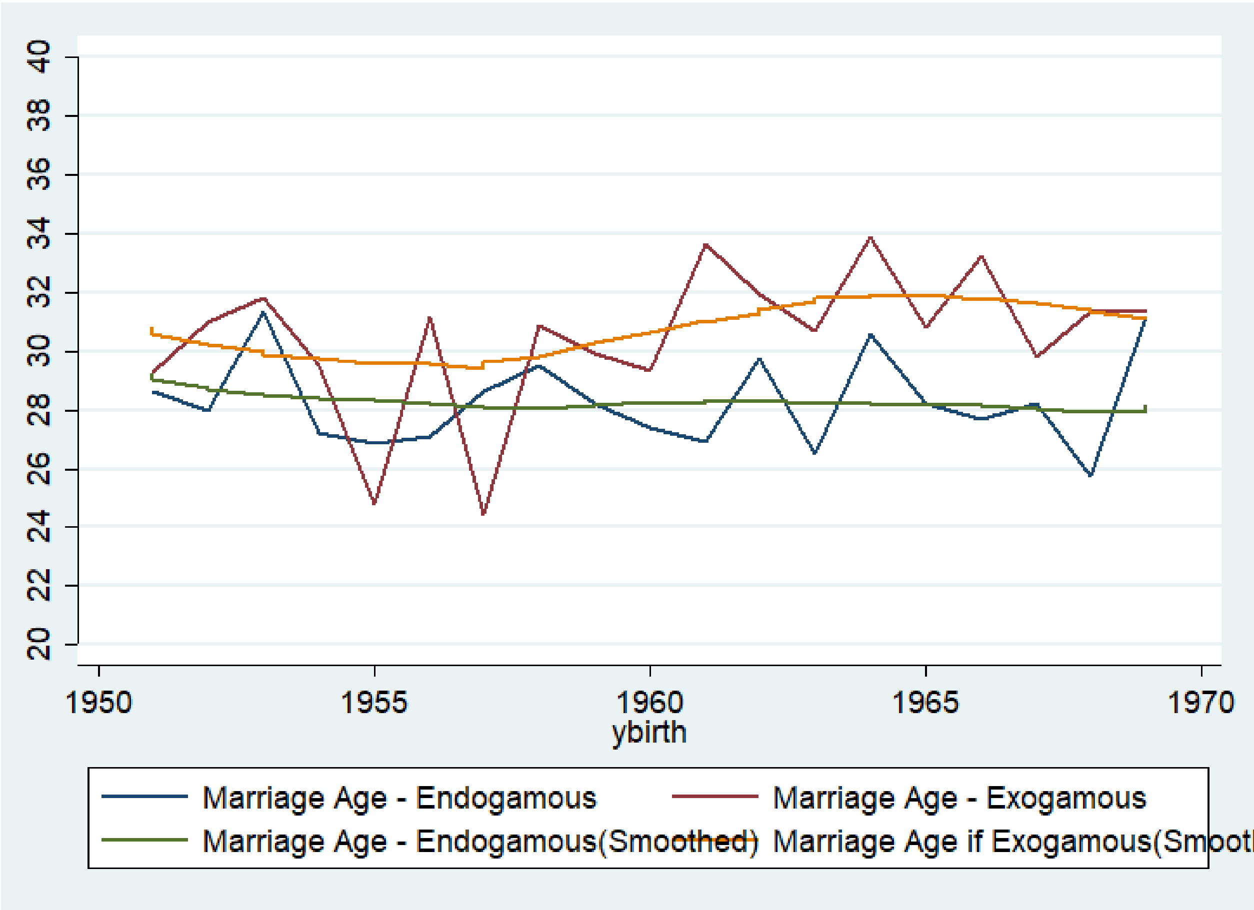
The figure presents the definition of cross-cousins in case of polygamy of the grand father. The male members are represented by a square and female members by a circle, except the "daughter of interest", who is represented by a diamond. All the relationships in the figure are with respect to the daughter of interest. Her potential favorite spouses are those represented by a star: they are cross-cousins and have only one grand-father in common with the daughter of interest.

Figure 2: Diagram of Cross-cousins in case of polygamy of the grand-father

Table 1: Households (HH) where a daughter has married between the two waves of interview

	All HH	Both parents present	Only the father present	Only the mother present
An endogamous union has been celebrated: %	0.52	0.60	0.50	0.39
Number of HH	153	91	6	56

Note: We count marriages that have been celebrated between the first wave of the interview and a year before the second.



The figure presents the average age at first marriage according to the year of birth for men surveyed in 2006 and the type of marriage. We use a locally weighted regression to smooth the graph, because of the importance of age heaping.

Figure 3: Age at first marriage for men according to birth cohort and type of marriage

Table 2: Correlates of daughters endogamous union

	Endogamous	Exogamous	Diff.	Coefficient (OLS) (1)	(2)
Age	17.74	21.86	-4.11***	-0.01	-0.01
			(0.00)	(0.40)	(0.50)
Is the first-born child (amng siblings of same parents)	0.40	0.43	-0.04	0.04	0.04
			(0.62)	(0.60)	(0.57)
N. siblings of same parents	4.94	4.77	0.17	0.01	0.00
			(0.67)	(0.53)	(0.78)
N. siblings of same father only	3.35	3.09	0.26	0.01	0.00
			(0.67)	(0.43)	(0.75)
N. siblings of same mother only	0.23	0.83	-0.60***	-0.04+	-0.05*
			(0.00)	(0.11)	(0.08)
Wolof/Lebou	0.52	0.40	0.13+	0.09	0.07
			(0.10)	(0.34)	(0.49)
Peuhl	0.20	0.30	-0.10+	0.03	-0.00
			(0.12)	(0.79)	(1.00)
Has a French/Arab education	0.33	0.72	-0.38***	0.00	-0.05
			(0.00)	(0.99)	(0.62)
Has a Koranic education	0.28	0.08	0.21***	0.11	0.14
			(0.00)	(0.35)	(0.31)
Place of residence is rural	0.80	0.23	0.57***	0.55***	0.58***
			(0.00)	(0.00)	(0.00)
HH head has French/Arab education	0.12	0.43	-0.31***	-0.15+	-0.20*
			(0.00)	(0.13)	(0.06)
HH head has Koranic education	0.40	0.27	0.13*	-0.07	-0.11
			(0.07)	(0.50)	(0.34)
HH head: independant agricul. sector	0.21	0.17	0.04	-0.22*	-0.26**
			(0.50)	(0.06)	(0.03)
HH head: independant non-agricul. sector	0.31	0.29	0.02	0.04	0.02
			(0.73)	(0.67)	(0.79)
HH head: other occup. status (incl. retired) [REF]	0.48	0.54	-0.07		
			(0.40)		
A HH member exploits farmland	0.70	0.27	0.43***	-0.02	-0.03
			(0.00)	(0.91)	(0.81)
A HH member owns cattle	0.78	0.57	0.21***	0.04	0.03
			(0.00)	(0.66)	(0.71)
A HH member owns the house (heritage)	0.37	0.27	0.11+	-0.09	-0.06
			(0.14)	(0.47)	(0.63)
A HH member owns the house (purchase)	0.49	0.55	-0.07	-0.20+	-0.21*
			(0.39)	(0.11)	(0.09)
Tenant of the house [REF]	0.14	0.18	-0.04		
			(0.47)		
Father is deceased	0.07	0.23	-0.16***	0.04	0.04
			(0.00)	(0.69)	(0.74)
Mother is deceased	0.02	0.01	0.01	0.02	-0.19
			(0.58)	(0.92)	(0.29)
Two-parent HH	0.76	0.55	0.20***	0.04	0.02
			(0.01)	(0.68)	(0.86)
Parents are married endogamously	0.62	0.29	0.33***	0.13	0.13
			(0.00)	(0.17)	(0.15)
Mother (if absent, father) has French/Arab education	0.02	0.21	-0.19***	0.03	0.06
			(0.00)	(0.82)	(0.64)
A parent was fostered during childhood	0.28	0.19	0.09	-0.03	-0.02
			(0.19)	(0.70)	(0.85)
N. HH members	11.91	11.93	-0.02		0.01+
			(0.98)		(0.11)
HH consumption level per capita (in log)	12.06	12.46	-0.40***		0.03
			(0.00)		(0.57)
Transfers received from kin by HH pc (log)	-1.98	-0.62	-1.36*		-0.01
			(0.08)		(0.55)
Transfers send to kin by HH pc (log)	-3.11	-1.97	-1.14*		0.00
			(0.08)		(0.76)
Constant				0.35	-0.09
				(0.20)	(0.91)
Number of individuals	86	83	169	151	145
R2				0.39	0.37
pvalue				0.00	0.00

Note: The sample corresponds to daughters having married between baseline and the year preceding their parents' follow-up interview. The conditional difference corresponds the coefficient on the variable in a linear model explaining the probability to marry endogamously. As explanatory variables, all those showed in the table are included. Significance levels are denoted as follows: + p<0.15, * p<0.10, ** p<0.05, *** p<0.01.

Table 3: Correlates of daughters endogamous union: parental network characteristics

	Endogamous	Exogamous	Diff.	Coefficient (OLS) endogamieF_11	endogamieF_11
Maternal uncles (if NA paternal aunts) - same grand-parents	1.74	1.89	-0.15	-0.00	
			(0.55)	(0.87)	
Maternal uncles (if NA paternal aunts) - same grand-father only	2.08	1.12	0.96***	0.06***	
			(0.01)	(0.00)	
Maternal uncles (if NA paternal aunts) - same grand-mother only	0.17	0.54	-0.38**	-0.12***	
			(0.02)	(0.00)	
Maternal aunts (if NA paternal uncles) - same grand-parents	1.83	2.35	-0.51*	-0.05**	
			(0.05)	(0.05)	
Maternal aunts (if NA paternal uncles) - same grand-father only	1.26	1.10	0.16	-0.02	
			(0.53)	(0.37)	
Maternal aunts (if NA paternal uncles) - same grand-mother only	0.32	0.21	0.11	0.08**	
			(0.39)	(0.02)	
Paternal aunts (if NA maternal uncles) - same grand-parents	1.51	1.49	0.02		-0.02
			(0.94)		(0.67)
Paternal aunts (if NA maternal uncles) - same grand-father only	0.95	1.00	-0.05		0.00
			(0.85)		(0.91)
Paternal aunts (if NA maternal uncles) - same grand-mother only	0.33	0.17	0.16+		0.07
			(0.12)		(0.33)
Paternal uncles (if NA maternal aunts) - same grand-parents	1.68	1.46	0.22		0.04
			(0.34)		(0.25)
Paternal uncles (if NA maternal aunts) - same grand-father only	1.13	1.19	-0.05		-0.00
			(0.84)		(0.94)
Paternal uncles (if NA maternal aunts) - same grand-mother only	0.32	0.15	0.17		0.04
			(0.16)		(0.34)
Constant				0.57***	0.44***
				(0.00)	(0.00)
Number of individuals	84	81	165	165	165
R2				0.10	-0.01
pvalue				0.00	0.43

Note: The sample corresponds to daughters having married between baseline and the year preceding their parents' follow-up interview. NA stands for not available. Data on sibship characteristics is available only for household members. When in baseline the daughter has only one parent coresiding, we measure her stock of potential spouses by the number of siblings her mother has (respectively her father has) if the mother (respectively the father) is the coresiding parent. When in baseline the daughter coresides with both parents, we measure the stock of potential spouses in two manners. In a first measure, the stock is mainly determined by the characteristics of the mother's sibship as it accounts for the sibship characteristics of the mother whenever she is present, and of the father only when the mother is absent (six first rows). In the second measure, the stock is mainly determined by the characteristics of the father's sibship by accounting for the sibship characteristics of the father whenever he is present, and of the mother only when the father is absent (six last rows). Conditional difference corresponds to the coefficient on the characteristic in a model explaining the probability to marry endogamously controlling for other characteristics by OLS. Significance levels are denoted as follows: + $p<0.15$, * $p<0.10$, ** $p<0.05$, *** $p<0.01$.

Table 4: Daughters' marriage characteristics

	Endogamous (1)	Exogamous (2)	Diff. (3)	Coefficient (OLS) (4)
Age at first marriage	19.19	23.90	-4.70***	
			(0.00)	
Moved to another district	0.22	0.11	0.11**	
			(0.05)	
Distance in km	43.70	9.82	33.88***	
			(0.00)	
Spouse is more educated	0.27	0.42	-0.14*	
			(0.06)	
Has married second rank (or more)	0.20	0.14	0.06	
			(0.34)	
Deflated amount of the gift (in thousands fcfa)	79.19	91.52	-12.34	-2.29
			(0.49)	(0.89)
Deflated amount of the brideprice (in thousands fcfa)	117.04	178.61	-61.57**	-40.86+
			(0.01)	(0.10)
Deflated amount of the bagage (in thousands fcfa)	47.95	58.54	-10.59	-5.54
			(0.42)	(0.66)
Coreside with mother or father (at the day of interview)	0.26	0.36	-0.11+	
			(0.14)	
Number of individuals	86	83	169	164
R2				
pvalue				

Note: The sample corresponds to daughters having married between baseline and the year preceding their parents' follow-up interview. The conditional difference corresponds the coefficient on the variable "having married endogamously" in a linear model explaining the amount of marital compensations, controlling for the level of household's consumption per capita in log. Significance levels are denoted as follows: + p<0.15, * p<0.10, ** p<0.05, *** p<0.01.

Table 5: Proportion of households (HH) facing an adverse income shock

	Endogamous (1)	Exogamous (2)	Diff. (3)	Coefficient (OLS) (4)
A shock (covariate and idiosyncratic) hit the HH, in 2006	0.31	0.19	0.12*	0.02
			(0.09)	(0.86)
A shock (covariate and idiosyncratic) hit the HH, in 2011	0.23	0.19	0.04	0.04
			(0.58)	(0.71)
The shock is covariate, among HH hit by a shock in 2006	0.78	0.57	0.21	
			(0.21)	
The shock is covariate, among HH hit by a shock in 2011	0.84	0.83	0.01	
			(0.96)	
A parent has fallen ill, in 2006	0.51	0.40	0.11	
			(0.19)	
A parent has fallen ill, in 2011	0.51	0.40	0.11	
			(0.15)	
A parent cannot perform usual activity because of illness, among ill in 2006	0.66	0.62	0.04	
			(0.80)	
A parent cannot perform usual activity because of illness, among ill in 2011	0.32	0.31	0.01	
			(0.95)	

Note: The sample corresponds to households with a parent having married a daughter between baseline and the year preceding the follow-up interview. The conditional difference corresponds to the coefficient on the variable in a linear model explanining the occurence of a shock, controlling for being in a rural location. In 2006, prevalence of shocks are computed on 153 households. In 2011, there are computed on 155 households. Significance levels are denoted as follows: * p<0.10, ** p<0.05, *** p<0.01.

Table 6: Effect of individual shocks (parents' illness) on household (HH) consumption
Food and non-food considered separately

	Log of HH non-food cons.				Log of HH non-food cons. pc				Log of HH food cons.				Log of HH food cons. pc			
	(1a)	(2a)	(3a)	(4a)	(1b)	(2b)	(3b)	(4b)	(1c)	(2c)	(3c)	(4c)	(1d)	(2d)	(3d)	(4d)
Endo_ht	-0.07	-0.02	-0.06	-0.07	0.08	0.12	0.08	0.07	-0.25+	-0.30*	-0.33*	-0.34*	0.02	-0.03	-0.07	-0.07
	(0.24)	(0.25)	(0.26)	(0.26)	(0.21)	(0.22)	(0.23)	(0.22)	(0.17)	(0.17)	(0.17)	(0.18)	(0.21)	(0.22)	(0.22)	(0.22)
Illness_ht	-0.24+	-0.35+	-0.69**	-0.91***	-0.22	-0.31	-0.53+	-0.76**	-0.12	-0.01	-0.16	-0.20	-0.11	0.00	-0.06	-0.07
	(0.16)	(0.22)	(0.30)	(0.32)	(0.15)	(0.22)	(0.33)	(0.35)	(0.10)	(0.12)	(0.17)	(0.19)	(0.11)	(0.15)	(0.24)	(0.27)
Endo_ht*Illness_ht	0.16	0.11	0.10	0.19	0.26	0.21	0.22	0.27	0.33*	0.39**	0.41**	0.43**	0.46**	0.52**	0.55***	0.53**
	(0.33)	(0.34)	(0.35)	(0.36)	(0.29)	(0.30)	(0.31)	(0.31)	(0.18)	(0.19)	(0.19)	(0.20)	(0.19)	(0.20)	(0.20)	(0.20)
Rural_h*Illness_ht		0.20	0.28	0.35		0.17	0.22	0.31		-0.20	-0.18	-0.09		-0.22	-0.22	-0.13
		(0.28)	(0.27)	(0.29)		(0.28)	(0.28)	(0.31)		(0.17)	(0.17)	(0.19)		(0.20)	(0.20)	(0.25)
NBrothers_h*Illness_ht			0.09*	0.06			0.06	0.03			0.04	0.04			0.02	0.02
			(0.05)	(0.05)			(0.05)	(0.05)			(0.04)	(0.04)			(0.04)	(0.05)
FormalEduHHhead_h*Illness_ht				0.51+				0.53*				0.10				0.04
				(0.31)				(0.29)				(0.21)				(0.28)
IndepAgriHHhead_h*Illness_ht				0.52**				0.48*				-0.25				-0.30
				(0.23)				(0.26)				(0.19)				(0.25)
Constant	13.72***	13.71***	13.70***	13.73***	11.33***	11.33***	11.32***	11.34***	14.07***	14.08***	14.07***	14.07***	11.70***	11.70***	11.70***	11.69***
	(0.09)	(0.08)	(0.08)	(0.09)	(0.08)	(0.08)	(0.08)	(0.08)	(0.06)	(0.06)	(0.06)	(0.06)	(0.08)	(0.08)	(0.08)	(0.08)
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Area specific time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Average	14.05	14.05	14.02	14.02	11.70	11.70	11.66	11.66	14.16	14.16	14.15	14.15	11.67	11.67	11.64	11.64
N	141	141	139	138	141	141	139	138	141	141	139	138	141	141	139	138
pvalue	0.05	0.09	0.05	0.02	0.02	0.04	0.05	0.03	0.05	0.07	0.07	0.05	0.04	0.04	0.04	0.07

Note: The sample corresponds to households with a parent having married a daughter between baseline and the year preceding the follow-up interview. We include time FE specific to three areas: (a) Dakar and Thies, (b) Kaolack and Fatick, (c) Casamance. Standard errors are clustered at the level of the origin household. Significance levels are denoted as follows: + p<0.15, * p<0.10, ** p<0.05, *** p<0.01.

Table 7: Effect of household level shocks on household (HH) consumption
Food and non-food considered separately

	Log of HH non-food cons.				Log of HH non-food cons. pc				Log of HH food cons.				Log of HH food cons. pc			
	(1a)	(2a)	(3a)	(4a)	(1b)	(2b)	(3b)	(4b)	(1c)	(2c)	(3c)	(4c)	(1d)	(2d)	(3d)	(4d)
Endo_ht	0.12	0.10	0.10	0.10	0.21	0.20	0.19	0.17	-0.02	-0.01	-0.01	-0.01	0.07	0.09	0.08	0.06
	(0.21)	(0.21)	(0.21)	(0.21)	(0.20)	(0.20)	(0.20)	(0.20)	(0.12)	(0.12)	(0.12)	(0.12)	(0.13)	(0.12)	(0.12)	(0.13)
ShockDecla_ht	-0.03	0.04	-0.04	-0.08	-0.09	-0.01	-0.28	-0.33	0.06	-0.06	0.01	-0.13	-0.01	-0.11	-0.23	-0.37*
	(0.20)	(0.33)	(0.38)	(0.39)	(0.18)	(0.27)	(0.33)	(0.34)	(0.10)	(0.12)	(0.20)	(0.21)	(0.10)	(0.12)	(0.19)	(0.20)
Endo_ht*ShockDecla_ht	-0.19	-0.16	-0.18	-0.19	0.10	0.13	0.13	0.07	-0.32*	-0.37**	-0.40**	-0.34*	-0.04	-0.08	-0.10	-0.08
	(0.41)	(0.44)	(0.45)	(0.46)	(0.41)	(0.44)	(0.44)	(0.44)	(0.19)	(0.19)	(0.19)	(0.20)	(0.19)	(0.19)	(0.19)	(0.19)
Rural_h*ShockDecla_ht		-0.14	-0.16	-0.10		-0.16	-0.20	-0.01		0.22	0.21	0.20		0.20	0.17	0.29
		(0.36)	(0.36)	(0.38)		(0.32)	(0.31)	(0.33)		(0.17)	(0.18)	(0.22)		(0.17)	(0.18)	(0.21)
NBrothers_h*ShockDecla_ht			0.02	0.02			0.07+	0.06+			-0.02	-0.02			0.03	0.02
			(0.05)	(0.05)			(0.04)	(0.04)			(0.04)	(0.04)			(0.04)	(0.04)
FormalEduHHhead_h*ShockDecla_ht				0.12				0.26				0.32				0.46**
				(0.46)				(0.39)				(0.22)				(0.21)
IndepAgriHHhead_h*ShockDecla_ht				-0.15				-0.34				0.31				0.12
				(0.30)				(0.29)				(0.24)				(0.25)
Constant	13.60***	13.60***	13.60***	13.61***	11.25***	11.26***	11.26***	11.26***	13.97***	13.96***	13.96***	13.96***	11.63***	11.62***	11.62***	11.61***
	(0.07)	(0.06)	(0.07)	(0.07)	(0.07)	(0.06)	(0.06)	(0.07)	(0.03)	(0.03)	(0.04)	(0.04)	(0.03)	(0.04)	(0.04)	(0.04)
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Area specific time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Average	14.17	14.17	14.16	14.16	11.74	11.74	11.72	11.72	14.22	14.22	14.21	14.21	11.79	11.79	11.77	11.77
N	149	149	147	146	149	149	147	146	149	149	147	146	149	149	147	146
pvalue	0.29	0.25	0.30	0.39	0.10	0.13	0.03	0.08	0.02	0.01	0.01	0.01	0.03	0.03	0.01	0.01

Note: The sample corresponds to households with a parent having married a daughter between baseline and the year preceding the follow-up interview.We include time FE specific to three areas: (a) Dakar and Thies, (b) Kaolack and Fatick, (c) Casamance. Standard errors are clustered at the level of the origin household. Significance levels are denoted as follows: + p<0.15, * p<0.10, ** p<0.05, *** p<0.01.

Table 8: Effect of household level covariate shock on household (HH) consumption
Food and non-food considered separately

	Log of HH non-food cons.				Log of HH non-food cons. pc				Log of HH food cons.				Log of HH food cons. pc			
	(1a)	(2a)	(3a)	(4a)	(1b)	(2b)	(3b)	(4b)	(1c)	(2c)	(3c)	(4c)	(1d)	(2d)	(3d)	(4d)
Endo_ht	0.08	0.07	0.07	0.08	0.23	0.22	0.22	0.20	-0.02	-0.02	-0.03	0.00	0.13	0.13	0.12	0.13
	(0.21)	(0.21)	(0.22)	(0.22)	(0.19)	(0.19)	(0.19)	(0.20)	(0.12)	(0.12)	(0.12)	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)
ShockDeclaCov_ht	-0.32*	-0.59*	-0.61+	-0.59+	-0.31*	-0.65*	-0.87**	-0.83**	0.12	0.03	0.17	0.07	0.12	-0.02	-0.09	-0.16
	(0.17)	(0.35)	(0.38)	(0.37)	(0.17)	(0.36)	(0.40)	(0.40)	(0.14)	(0.19)	(0.24)	(0.24)	(0.15)	(0.24)	(0.29)	(0.30)
Endo_ht*ShockDeclaCov_ht	0.23	0.27	0.26	0.17	0.35	0.41	0.42	0.30	-0.39*	-0.38+	-0.43*	-0.42*	-0.26	-0.24	-0.27	-0.29
	(0.41)	(0.39)	(0.40)	(0.40)	(0.42)	(0.39)	(0.40)	(0.41)	(0.22)	(0.23)	(0.24)	(0.22)	(0.24)	(0.24)	(0.24)	(0.23)
Rural_h*ShockDeclaCov_ht		0.33	0.32	0.42		0.41	0.36	0.54		0.10	0.08	-0.03		0.18	0.12	0.08
		(0.39)	(0.39)	(0.39)		(0.40)	(0.38)	(0.38)		(0.23)	(0.24)	(0.28)		(0.28)	(0.29)	(0.34)
NBrothers_h*ShockDeclaCov_ht			0.01	0.01			0.06+	0.06+			-0.03	-0.03			0.03	0.03
			(0.04)	(0.04)			(0.04)	(0.04)			(0.05)	(0.04)			(0.05)	(0.05)
FormalEduHHhead_h*ShockDeclaCov_ht				0.34*				0.37+				0.60+				0.63
				(0.20)				(0.25)				(0.41)				(0.48)
IndepAgriHHhead_h*ShockDeclaCov_ht				-0.34				-0.58**				0.34				0.10
				(0.25)				(0.26)				(0.27)				(0.29)
Constant	13.67***	13.67***	13.66***	13.66***	11.30***	11.29***	11.28***	11.28***	13.98***	13.98***	13.98***	13.97***	11.60***	11.60***	11.60***	11.59***
	(0.06)	(0.06)	(0.07)	(0.07)	(0.06)	(0.06)	(0.06)	(0.06)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Area specific time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Average	14.19	14.19	14.18	14.18	11.76	11.76	11.74	11.74	14.22	14.22	14.21	14.21	11.79	11.79	11.77	11.77
N	141	141	139	138	141	141	139	138	141	141	139	138	141	141	139	138
R	0.04	0.04	0.03	0.03	0.06	0.06	0.07	0.07	0.11	0.11	0.11	0.13	0.10	0.10	0.11	0.12
pvalue	0.01	0.02	0.03	0.02	0.01	0.00	0.00	0.00	0.03	0.04	0.05	0.01	0.04	0.05	0.05	0.05

Note: The sample corresponds to households with a parent having married a daughter between baseline and the year preceding the follow-up interview. We include time FE specific to three areas: (a) Dakar and Thies, (b) Kaolack and Fatick, (c) Casamance. Standard errors are clustered at the level of the origin household. Significance levels are denoted as follows: + p<0.15, * p<0.10, ** p<0.05, *** p<0.01.

Table 9: Effect of household level shocks on consumption
Robustness analysis

	HH non-food cons. (log)				HH food cons. (log)			
	(total)	(total)	(pc)	(pc)	(total)	(total)	(pc)	(pc)
Endo_ht	0.10	0.07	0.17	0.12	-0.01	0.00	0.06	0.05
	(0.21)	(0.22)	(0.20)	(0.21)	(0.12)	(0.12)	(0.13)	(0.13)
ShockDecla_ht	-0.08	-0.02	-0.33	-0.22	-0.13	-0.16	-0.37*	-0.36*
	(0.39)	(0.37)	(0.34)	(0.33)	(0.21)	(0.21)	(0.20)	(0.21)
Endo_ht*ShockDecla_ht	-0.19	-0.07	0.07	0.29	-0.34*	-0.41*	-0.08	-0.05
	(0.46)	(0.49)	(0.44)	(0.48)	(0.20)	(0.23)	(0.19)	(0.23)
Rural_h*ShockDecla_ht	-0.10	-0.01	-0.01	0.15	0.20	0.15	0.29	0.31+
	(0.38)	(0.48)	(0.33)	(0.39)	(0.22)	(0.22)	(0.21)	(0.19)
FormalEduHHhead_h*ShockDecla_ht	0.12	0.09	0.26	0.22	0.32	0.33+	0.46**	0.45**
	(0.46)	(0.44)	(0.39)	(0.37)	(0.22)	(0.22)	(0.21)	(0.22)
IndepAgriHHhead_h*ShockDecla_ht	-0.15	-0.13	-0.34	-0.31	0.31	0.30	0.12	0.12
	(0.30)	(0.30)	(0.29)	(0.30)	(0.24)	(0.24)	(0.25)	(0.25)
NBrothers_h*ShockDecla_ht	0.02	0.02	0.06+	0.07+	-0.02	-0.02	0.02	0.02
	(0.05)	(0.05)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Endo_h*ShockDecla_ht		-0.23		-0.43		0.14		-0.06
		(0.49)		(0.41)		(0.21)		(0.20)
Constant	13.61***	13.61***	11.26***	11.27***	13.96***	13.96***	11.61***	11.61***
	(0.07)	(0.07)	(0.07)	(0.07)	(0.04)	(0.04)	(0.04)	(0.04)
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Area specific time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Average	14.16	14.16	11.72	11.72	14.21	14.21	11.77	11.77
N	146	146	146	146	146	146	146	146
pvalue	0.39	0.41	0.08	0.06	0.01	0.02	0.01	0.01

Note: The sample corresponds to households with a parent having married a daughter between baseline and the year preceding the follow-up interview.We include time FE specific to three areas: (a) Dakar and Thies, (b) Kaolack and Fatick, (c) Casamance. Standard errors are clustered at the level of the origin household. Significance levels are denoted as follows: + p<0.15, * p<0.10, ** p<0.05, *** p<0.01.

Table 10: Effect of household level covariate shock on consumption
Robustness analysis

	HH non-food cons. (log)				HH food cons. (log)			
	(total)	(total)	(pc)	(pc)	(total)	(total)	(pc)	(pc)
Endo_ht	0.08	0.06	0.20	0.19	0.00	0.00	0.13	0.13
	(0.22)	(0.23)	(0.20)	(0.21)	(0.13)	(0.13)	(0.13)	(0.13)
ShockDeclaCov_ht	-0.59+	-0.52+	-0.83**	-0.75**	0.07	0.06	-0.16	-0.16
	(0.37)	(0.34)	(0.40)	(0.37)	(0.24)	(0.23)	(0.30)	(0.27)
Endo_ht*ShockDeclaCov_ht	0.17	0.22	0.30	0.36	-0.42*	-0.43+	-0.29	-0.29
	(0.40)	(0.45)	(0.41)	(0.45)	(0.22)	(0.26)	(0.23)	(0.27)
Rural_h*ShockDeclaCov_ht	0.42	0.44	0.54	0.56+	-0.03	-0.04	0.08	0.08
	(0.39)	(0.40)	(0.38)	(0.39)	(0.28)	(0.27)	(0.34)	(0.34)
FormalEduHHhead_h*ShockDeclaCov_ht	0.34*	0.36+	0.37+	0.39+	0.60+	0.59	0.63	0.63
	(0.20)	(0.22)	(0.25)	(0.26)	(0.41)	(0.42)	(0.48)	(0.49)
IndepAgriHHhead_h*ShockDeclaCov_ht	-0.34	-0.32	-0.58**	-0.56**	0.34	0.34	0.10	0.10
	(0.25)	(0.25)	(0.26)	(0.26)	(0.27)	(0.28)	(0.29)	(0.30)
NBrothers_h*ShockDeclaCov_ht	0.01	0.01	0.06+	0.07+	-0.03	-0.03	0.03	0.03
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.05)	(0.05)
Endo_h*ShockDeclaCov_ht		-0.16		-0.18		0.03		0.01
		(0.34)		(0.35)		(0.25)		(0.28)
Constant	13.66***	13.66***	11.28***	11.28***	13.97***	13.97***	11.59***	11.59***
	(0.07)	(0.07)	(0.06)	(0.06)	(0.04)	(0.04)	(0.04)	(0.04)
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Area specific time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Average	14.18	14.18	11.74	11.74	14.21	14.21	11.77	11.77
N	138	138	138	138	138	138	138	138
pvalue	0.02	0.03	0.00	0.00	0.01	0.02	0.05	0.06

Note: The sample corresponds to households with a parent having married a daughter between baseline and the year preceding the follow-up interview. We include time FE specific to three areas: (a) Dakar and Thies, (b) Kaolack and Fatick, (c) Casamance. Standard errors are clustered at the level of the origin household. Significance levels are denoted as follows: + p<0.15, * p<0.10, ** p<0.05, *** p<0.01.

Table 11: Effect of individual shocks (parents' illness) on consumption
Robustness analysis

	HH non-food cons. (log)				HH food cons. (log)			
	(total)	(total)	(pc)	(pc)	(total)	(total)	(pc)	(pc)
Endo_ht	-0.07	-0.04	0.07	0.09	-0.34*	-0.27+	-0.07	-0.00
	(0.26)	(0.27)	(0.22)	(0.23)	(0.18)	(0.18)	(0.22)	(0.23)
Illness_ht	-0.91***	-0.96***	-0.76**	-0.80**	-0.20	-0.32+	-0.07	-0.19
	(0.32)	(0.34)	(0.35)	(0.35)	(0.19)	(0.20)	(0.27)	(0.28)
Endo_ht*Illness_ht	0.19	0.10	0.27	0.21	0.43**	0.23	0.53**	0.33
	(0.36)	(0.41)	(0.31)	(0.35)	(0.20)	(0.23)	(0.20)	(0.24)
Rural_h*Illness_ht	0.35	0.26	0.31	0.25	-0.09	-0.30	-0.13	-0.34
	(0.29)	(0.32)	(0.31)	(0.35)	(0.19)	(0.21)	(0.25)	(0.26)
FormalEduHHhead_h*Illness_ht	0.51+	0.54*	0.53*	0.56*	0.10	0.18	0.04	0.12
	(0.31)	(0.31)	(0.29)	(0.30)	(0.21)	(0.22)	(0.28)	(0.29)
IndepAgriHHhead_h*Illness_ht	0.52**	0.56**	0.48*	0.51*	-0.25	-0.17	-0.30	-0.22
	(0.23)	(0.23)	(0.26)	(0.27)	(0.19)	(0.19)	(0.25)	(0.24)
NBrothers_h*Illness_ht	0.06	0.05	0.03	0.03	0.04	0.03	0.02	0.01
	(0.05)	(0.05)	(0.05)	(0.05)	(0.04)	(0.04)	(0.05)	(0.04)
Endo_h*Illness_ht		0.23		0.16		0.52**		0.52**
		(0.34)		(0.31)		(0.25)		(0.25)
Constant	13.73***	13.72***	11.34***	11.34***	14.07***	14.05***	11.69***	11.67***
	(0.09)	(0.09)	(0.08)	(0.08)	(0.06)	(0.06)	(0.08)	(0.08)
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Area specific time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Average	14.02	14.02	11.66	11.66	14.15	14.15	11.64	11.64
N	138	138	138	138	138	138	138	138
pvalue	0.02	0.02	0.03	0.04	0.05	0.02	0.07	0.00

Note: The sample corresponds to households with a parent having married a daughter between baseline and the year preceding the follow-up interview. We include time FE specific to three areas: (a) Dakar and Thies, (b) Kaolack and Fatick, (c) Casamance. Standard errors are clustered at the level of the origin household. Significance levels are denoted as follows: + p<0.15, * p<0.10, ** p<0.05, *** p<0.01.

8 Appendix

8.1 Model specification

Ideally, to test our predictions, one would like to evaluate the effect of a shock on the consumption of households comparable in terms of their demand for insurance and in terms of their kin group's demand or a bride, one group having randomly decided to marry their daughter endogamously, and the other one exogamously. With data in hand, such a comparison is not possible.

A first option is to evaluate the effect of a shock on the consumption of households at follow-up, depending on whether the household married a daughter endogamously or exogamously. The comparison of these households consumption will however lead to a misleading estimate of our effect if (a) households having married a daughter endogamously and other households do not have, initially, the same demand for insurance; (b) if their demand for insurance varies in a different way following their daughter's marriage type.

To test (a), we investigate the correlation between various baseline characteristics and the occurence of shocks, depending on the type of marriage made by a daughter. We find that shocks (parents' illness or household level shocks) at baseline are more likely to affect households exploiting farmland, especially among households who will marry a daughter endogamously (Table A1). We also find that parents are less likely to suffer from an illness at baseline in households whose head has some formal education, especially in household who will marry a daughter endogamously. Households with two parents are also more likely to face the illness of a parent. Given these differences, one might worry that demand for insurance is not similar between households who marry a daughter endogamously and other households. To test (b), we investigate the correlation between the same set of baseline characteristics and change in the shock status between baseline and follow-up (Table A2). We find very few significant correlations : illness status of parents is more likely to change if the household exploits farmland or if the household is rural (but the difference is not significant among households having married a daughter endogamously); tenants of their house are more likely to see a change in their household level shock status (but the difference is significant only among households having married a daughter endogamously).

To account for potential differences in demand for insurance at baseline, or in change in shock status over time, a second option is to estimate a model that exploits both follow-up and baseline data. This is the option chosen in this paper.

Table A1: Household (HH) baseline characteristics by whether she has celebrated an endogamous union between the two rounds and faced a shock in baseline (2006)

Variables	HH level shock No	HH level shock Yes	Diff. (1)	Endogamy: HH level shock No	Endogamy: HH level shock Yes	Diff. (2)	Parents' illness No	Parents' illness Yes	Diff. (3)	Endogamy: parents' illness No	Endogamy: parents' illness Yes	Diff. (4)
A HH member owns the house (heritage)	0.31	0.34	-0.04	0.36	0.42	-0.05	0.31	0.35	-0.04	0.35	0.44	-0.08
			(0.70)			(0.67)			(0.64)			(0.46)
A HH member owns the house (purchase)	0.51	0.50	0.01	0.47	0.42	0.06	0.51	0.47	0.04	0.46	0.41	0.05
			(0.93)			(0.65)			(0.66)			(0.67)
Tenant of the house	0.18	0.16	0.03	0.16	0.17	-0.00	0.18	0.18	0.00	0.19	0.15	0.04
			(0.71)			(0.97)			(1.00)			(0.69)
A HH member owns cattle	0.61	0.79	-0.18**	0.71	0.83	-0.12	0.65	0.70	-0.05	0.78	0.77	0.01
			(0.03)			(0.22)			(0.55)			(0.88)
A HH member exploits farmland	0.42	0.71	-0.29***	0.62	0.83	-0.22**	0.44	0.56	-0.12	0.59	0.79	-0.20*
			(0.00)			(0.04)			(0.16)			(0.06)
Two parents HH	0.94	0.93	0.01	0.95	0.94	0.00	0.89	0.98	-0.09*	0.92	0.97	-0.05
			(0.84)			(0.97)			(0.08)			(0.46)
HH is in a rural location	0.44	0.71	-0.27***	0.73	0.83	-0.11	0.45	0.58	-0.12	0.70	0.82	-0.12
			(0.00)			(0.29)			(0.15)			(0.24)
HH head has French/Arab education	0.30	0.22	0.08	0.16	0.09	0.08	0.31	0.23	0.08	0.22	0.08	0.14*
			(0.31)			(0.33)			(0.28)			(0.10)
HH head: independant agricul. sector	0.18	0.32	-0.14	0.20	0.33	-0.13	0.17	0.21	-0.04	0.19	0.26	-0.07
			(0.10)			(0.24)			(0.52)			(0.49)
HH head: independant non-agricul. sector	0.32	0.26	0.05	0.35	0.29	0.05	0.35	0.29	0.06	0.38	0.33	0.05
			(0.54)			(0.64)			(0.42)			(0.69)
HH head: other occupation status (inc. retired)	0.51	0.42	0.09	0.45	0.38	0.08	0.48	0.50	-0.02	0.43	0.41	0.02
			(0.35)			(0.52)			(0.82)			(0.85)
Mother's N. of half brothers (if absent, father's N. of half sisters)	3.67	3.82	-0.15	3.81	4.08	-0.27	3.99	3.65	0.34	4.25	4.03	0.22
			(0.78)			(0.71)			(0.50)			(0.76)
Number of HH	114	38	152	55	24	79	77	66	143	37	39	76

Note: The sample corresponds to households with a father (if absent, a mother) having married a daughter between baseline and the year preceding the follow-up interview. Significance levels are denoted as follows: * p<0.10, ** p<0.05, *** p<0.01.

Table A2: Household (HH) baseline characteristics by whether she has celebrated an endogamous union between the two rounds of interview and by whether the shock status has changed over time

Variables	Btw 06-11, HH level shock		Diff. (1)	Endogamy: btw 06-11, HH level shock		Diff. (2)	Btw 06-11, parents' illness		Diff. (3)	Endogamy: btw 06-11, parents' illness		Diff. (4)
	status does not vary	status does vary		status does not vary	status does vary		status does not vary	status does vary		status does not vary	status does vary	
A HH member owns the house (heritage)	0.35	0.25	0.10	0.44	0.29	0.15	0.31	0.36	-0.06	0.39	0.41	-0.02
			(0.18)			(0.17)			(0.49)			(0.86)
A HH member owns the house (purchase)	0.51	0.50	0.01	0.47	0.44	0.03	0.49	0.49	-0.00	0.43	0.44	-0.01
			(0.95)			(0.82)			(0.98)			(0.96)
Tenant of the house	0.14	0.25	-0.11	0.09	0.26	-0.18*	0.20	0.15	0.06	0.18	0.16	0.03
			(0.13)			(0.05)			(0.36)			(0.77)
A HH member owns cattle	0.64	0.71	-0.08	0.71	0.79	-0.08	0.64	0.73	-0.09	0.80	0.75	0.05
			(0.35)			(0.40)			(0.26)			(0.65)
A HH member exploits farmland	0.48	0.52	-0.03	0.71	0.65	0.06	0.43	0.60	-0.17*	0.68	0.72	-0.04
			(0.69)			(0.55)			(0.05)			(0.73)
Two parents HH	0.93	0.95	-0.02	0.94	0.96	-0.02	0.91	0.97	-0.06	0.94	0.96	-0.02
			(0.73)			(0.78)			(0.20)			(0.77)
HH is in a rural location	0.47	0.58	-0.10	0.76	0.76	-0.01	0.44	0.62	-0.17**	0.73	0.81	-0.09
			(0.24)			(0.93)			(0.04)			(0.39)
HH head has French/Arab education	0.30	0.24	0.07	0.13	0.15	-0.02	0.29	0.25	0.03	0.16	0.13	0.04
			(0.37)			(0.82)			(0.67)			(0.65)
HH head: independant agricul. sector	0.21	0.21	0.00	0.22	0.26	-0.04	0.16	0.24	-0.08	0.23	0.22	0.01
			(0.99)			(0.67)			(0.27)			(0.93)
HH head: independant non-agricul. sector	0.31	0.29	0.02	0.38	0.26	0.11	0.33	0.31	0.02	0.32	0.41	-0.09
			(0.76)			(0.29)			(0.80)			(0.44)
HH head: other occupation status (inc. retired)	0.47	0.50	-0.03	0.40	0.47	-0.07	0.51	0.45	0.06	0.45	0.38	0.08
			(0.77)			(0.54)			(0.51)			(0.49)
Mother's N. of half brothers (if absent, father's N. of half sisters)	3.49	3.96	-0.47	3.80	4.03	-0.23	4.10	3.40	0.70	4.58	3.53	1.05
			(0.30)			(0.73)			(0.15)			(0.14)
Number of HH	99	52	151	45	34	79	88	55	143	44	32	76

Note: The sample corresponds to households with a father (if absent, a mother) having married a daughter between baseline and the year preceding the follow-up interview. Significance levels are denoted as follows: * p<0.10, ** p<0.05, *** p<0.01.

8.2 Channels of diffenciated consumption smoothing effects

Table A3: Prevalence of child exit or of child fostering in follow-up by whether the household celebrated an endogamous union and by whether the household faced a shock in follow-up

Variables	Exogamy: HH level shock No	Exogamy: HH level shock Yes	Diff.	Endogamy: HH level shock No	Endogamy: HH level shock Yes	Diff.	Double Diff.	Exogamy: parents' illness No	Exogamy: parents' illness Yes	Diff.	Endogamy: parents' illness No	Endogamy: parents' illness Yes	Diff.	Double Diff.
A child (under 18) was formally fostered-out during the year before follow-up	0.00	0.00	0.00	0.05	0.17	-0.12	0.12							
			(.)			(0.23)	(0.19)							
A child (under 18) left the HH during the year before follow-up	0.03	0.00	0.03	0.10	0.17	-0.07	0.07							
			(0.16)			(0.49)	(0.46)							
A child (under 18) was formally fostered-out the last 3 months before follow-up								0.00	0.00	0.00	0.06	0.12	-0.06	0.04
										(.)			(0.32)	(0.44)
A child (under 18) left the HH the last 3 months before follow-up								0.00	0.08	-0.07	0.06	0.20	-0.14*	0.05
										(0.16)			(0.07)	(0.56)
Number of HH	58	14	72	61	18	79	151	43	24	73	35	41	76	152

Note: The sample corresponds to households with a parent having married a daughter between baseline and the year preceding the follow-up interview. Significance levels are denoted as follows: + p<0.15, * p<0.10, ** p<0.05, *** p<0.01.

Table A4: Effect of individual shock (parents' illness) on household level tranfers received

	No controls		With controls			
	Occ.	Amount (log)	Occ.	Amount (log)	Occ.	Amount (log)
Endo_ht	0.01	-0.29	0.04	-0.02	0.06	0.34
	(0.13)	(1.65)	(0.14)	(1.78)	(0.15)	(1.83)
Illness_ht	-0.05	-0.60	-0.25	-3.44	-0.31	-4.49+
	(0.09)	(1.15)	(0.22)	(2.71)	(0.23)	(2.83)
Endo_ht*Illness_ht	0.22+	2.10	0.12	0.79	0.04	-0.57
	(0.15)	(1.91)	(0.16)	(2.05)	(0.18)	(2.23)
Rural_h*Illness_ht			0.10	1.32	-0.00	-0.32
			(0.18)	(2.19)	(0.20)	(2.34)
FormalEduHHhead_h*Illness_ht			-0.27	-3.01	-0.23	-2.40
			(0.19)	(2.22)	(0.21)	(2.41)
IndepAgriHHhead_h*Illness_ht			-0.08	-0.83	-0.05	-0.38
			(0.18)	(2.32)	(0.17)	(2.24)
NBrothers_h*Illness_ht			0.08**	1.03**	0.08**	0.99**
			(0.04)	(0.44)	(0.04)	(0.43)
Endo_h*Illness_ht					0.22	3.76
					(0.23)	(2.62)
Constant	0.65***	0.87+	0.62***	0.45	0.61***	0.28
	(0.05)	(0.59)	(0.05)	(0.59)	(0.05)	(0.59)
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
Area specific time FE	Yes	Yes	Yes	Yes	Yes	Yes
Average	0.72	2.55	0.72	2.43	0.72	2.43
N	126	126	123	123	123	123
pvalue	0.00	0.00	0.00	0.00	0.00	0.00

Note: The sample corresponds to households with a parent having married a daughter between baseline and the year preceding the follow-up interview. We include time FE specific to three areas: (a) Dakar and Thies, (b) Kaolack and Fatick, (c) Casamance. Standard errors are clustered at the level of the origin household. Significance levels are denoted as follows: + p<0.15, * p<0.10, ** p<0.05, *** p<0.01.

Table A5: Effect of household levelshocks on household level tranfers received

	No controls		With controls	
	Occ.	Amount (log)	Occ.	Amount (log)
Endo_ht	0.14	0.94	0.11	0.45
	(0.10)	(1.25)	(0.11)	(1.28)
ShockDecla_ht	-0.10	-1.42	-0.03	-0.13
	(0.09)	(1.19)	(0.15)	(1.85)
Endo_ht*ShockDecla_ht	-0.30+	-3.15+	-0.30+	-2.95
	(0.19)	(2.17)	(0.20)	(2.15)
Rural_h*ShockDecla_ht			-0.12	-2.32
			(0.14)	(1.84)
FormalEduHHhead_h*ShockDecla_ht			0.02	-0.10
			(0.15)	(2.00)
IndepAgriHHhead_h*ShockDecla_ht			-0.23	-2.36
			(0.20)	(2.55)
NBrothers_h*ShockDecla_ht			0.01	0.17
			(0.03)	(0.37)
Constant	0.67***	1.15***	0.68***	1.25***
	(0.03)	(0.38)	(0.03)	(0.39)
Time FE	Yes	Yes	Yes	Yes
Area specific time FE	Yes	Yes	Yes	Yes
Average	0.78	3.07	0.78	3.00
N	132	132	129	129
pvalue	0.00	0.00	0.00	0.00

Note: The sample corresponds to households with a parent having married a daughter between baseline and the year preceding the follow-up interview. We include time FE specific to three areas: (a) Dakar and Thies, (b) Kaolack and Fatick, (c) Casamance. Standard errors are clustered at the level of the origin household. Significance levels are denoted as follows: + p<0.15, * p<0.10, ** p<0.05, *** p<0.01.

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Table A6: Effect of household level covariate shocks on household level tranfers received

	No controls		With controls	
	Occ.	Amount (log)	Occ.	Amount (log)
Endo_ht	0.13	0.66	0.11	0.30
	(0.10)	(1.26)	(0.10)	(1.24)
ShockDeclaCov_ht	-0.14	-2.11	-0.11	-1.12
	(0.13)	(1.52)	(0.19)	(2.03)
Endo_ht*ShockDeclaCov_ht	-0.26	-2.50	-0.34	-3.48
	(0.23)	(2.50)	(0.24)	(2.48)
Rural_h*ShockDeclaCov_ht			-0.03	-1.37
			(0.18)	(2.03)
FormalEduHHhead_h*ShockDeclaCov_ht			0.10	1.90
			(0.12)	(1.36)
IndepAgriHHhead_h*ShockDeclaCov_ht			-0.40*	-4.65*
			(0.22)	(2.78)
NBrothers_h*ShockDeclaCov_ht			0.03	0.38
			(0.03)	(0.39)
Constant	0.66***	1.11***	0.66***	1.14***
	(0.03)	(0.33)	(0.03)	(0.35)
Time FE	Yes	Yes	Yes	Yes
Area specific time FE	Yes	Yes	Yes	Yes
Average	0.76	2.88	0.76	2.80
N	124	124	121	121
pvalue	0.00	0.00	0.00	0.00

Note: The sample corresponds to households with a parent having married a daughter between baseline and the year preceding the follow-up interview. We include time FE specific to three areas: (a) Dakar and Thies, (b) Kaolack and Fatick, (c) Casamance. Standard errors are clustered at the level of the origin household. Significance levels are denoted as follows: + p<0.15, * p<0.10, ** p<0.05, *** p<0.01.

Table O1: Effect of individual shocks (parents' illness) on household (HH) consumption

	Log of HH cons.				Log of HH cons. pc			
	(1a)	(2a)	(3a)	(4a)	(1b)	(2b)	(3b)	(4b)
Endo_ht	-0.23	-0.23	-0.27	-0.27	-0.09	-0.10	-0.14	-0.15
	(0.18)	(0.19)	(0.19)	(0.19)	(0.15)	(0.16)	(0.16)	(0.16)
Illness_ht	-0.15	-0.15	-0.30+	-0.40*	-0.12	-0.10	-0.13	-0.25
	(0.10)	(0.13)	(0.18)	(0.21)	(0.10)	(0.14)	(0.23)	(0.27)
Endo_ht*Illness_ht	0.27	0.27	0.29	0.33	0.36*	0.37*	0.40**	0.41**
	(0.21)	(0.22)	(0.23)	(0.23)	(0.18)	(0.19)	(0.19)	(0.20)
Rural_h*Illness_ht		-0.00	0.02	0.11		-0.04	-0.04	0.07
		(0.18)	(0.18)	(0.21)		(0.18)	(0.19)	(0.24)
NBrothers_h*Illness_ht			0.04	0.03			0.01	0.00
			(0.03)	(0.03)			(0.04)	(0.04)
FormalEduHHhead_h*Illness_ht				0.25				0.29
				(0.22)				(0.22)
IndepAgriHHhead_h*Illness_ht				0.04				0.00
				(0.18)				(0.23)
Constant	14.73***	14.73***	14.73***	14.74***	12.34***	12.34***	12.34***	12.35***
	(0.06)	(0.06)	(0.06)	(0.07)	(0.06)	(0.06)	(0.06)	(0.06)
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Area specific time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Average	14.87	14.87	14.86	14.86	12.53	12.53	12.50	12.50
N	141	141	139	138	141	141	139	138
pvalue	0.10	0.13	0.10	0.12	0.01	0.02	0.02	0.03

Note: The sample corresponds to households with a parent having married a daughter between baseline and the year preceding the follow-up interview. We include time FE specific to three areas: (a) Dakar and Thies, (b) Kaolack and Fatick, (c) Casamance. Standard errors are clustered at the level of the origin household. Significance levels are denoted as follows: + p<0.15, * p<0.10, ** p<0.05, *** p<0.01.

Table O2: Effect of household level shocks on household (HH) consumption

	Log of HH cons.				Log of HH cons. pc			
	(1a)	(2a)	(3a)	(4a)	(1b)	(2b)	(3b)	(4b)
Endo_ht	-0.03	-0.03	-0.03	-0.03	0.07	0.07	0.06	0.03
	(0.15)	(0.15)	(0.15)	(0.14)	(0.14)	(0.14)	(0.14)	(0.13)
ShockDecla_ht	0.03	0.02	0.01	-0.12	-0.03	-0.03	-0.23	-0.37+
	(0.14)	(0.23)	(0.29)	(0.27)	(0.12)	(0.18)	(0.24)	(0.23)
Endo_ht*ShockDecla_ht	-0.16	-0.17	-0.19	-0.14	0.12	0.13	0.12	0.12
	(0.26)	(0.26)	(0.26)	(0.28)	(0.25)	(0.25)	(0.25)	(0.25)
Rural_h*ShockDecla_ht		0.01	-0.01	0.00		-0.01	-0.05	0.09
		(0.25)	(0.25)	(0.25)		(0.21)	(0.20)	(0.21)
NBrothers_h*ShockDecla_ht			0.01	0.00			0.05	0.04
			(0.04)	(0.04)			(0.04)	(0.04)
FormalEduHHhead_h*ShockDecla_ht				0.31				0.45+
				(0.34)				(0.29)
IndepAgriHHhead_h*ShockDecla_ht				0.22				0.03
				(0.23)				(0.23)
Constant	14.62***	14.62***	14.62***	14.62***	12.28***	12.28***	12.27***	12.27***
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Area specific time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Average	14.97	14.97	14.97	14.97	12.54	12.54	12.52	12.52
N	149	149	147	146	149	149	147	146
pvalue	0.07	0.10	0.14	0.15	0.01	0.02	0.00	0.00

Note: The sample corresponds to households with a parent having married a daughter between baseline and the year preceding the follow-up interview.We include time FE specific to three areas: (a) Dakar and Thies, (b) Kaolack and Fatick, (c) Casamance. Standard errors are clustered at the level of the origin household. Significance levels are denoted as follows: + p<0.15, * p<0.10, ** p<0.05, *** p<0.01.

Table O3: Effect household level covariate shock on household (HH) consumption

	Log of HH cons.				Log of HH cons. pc			
	(1a)	(2a)	(3a)	(4a)	(1b)	(2b)	(3b)	(4b)
Endo_ht	-0.03	-0.03	-0.04	-0.02	0.11	0.11	0.11	0.11
	(0.15)	(0.15)	(0.15)	(0.15)	(0.13)	(0.13)	(0.13)	(0.14)
ShockDeclaCov_ht	-0.10	-0.14	-0.05	-0.15	-0.09	-0.20	-0.32	-0.39
	(0.14)	(0.20)	(0.25)	(0.23)	(0.14)	(0.23)	(0.28)	(0.28)
Endo_ht*ShockDeclaCov_ht	0.02	0.02	-0.02	-0.02	0.14	0.16	0.14	0.10
	(0.27)	(0.27)	(0.28)	(0.27)	(0.27)	(0.26)	(0.26)	(0.26)
Rural_h*ShockDeclaCov_ht		0.05	0.03	-0.07		0.13	0.08	0.05
		(0.22)	(0.23)	(0.24)		(0.24)	(0.25)	(0.27)
NBrothers_h*ShockDeclaCov_ht			-0.02	-0.02			0.04	0.04
			(0.04)	(0.03)			(0.04)	(0.04)
FormalEduHHhead_h*ShockDeclaCov_ht				0.74**				0.77**
				(0.29)				(0.37)
IndepAgriHHhead_h*ShockDeclaCov_ht				0.28				0.04
				(0.23)				(0.24)
Constant	14.67***	14.66***	14.66***	14.65***	12.29***	12.29***	12.28***	12.28***
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Area specific time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Average	14.99	14.99	14.98	14.98	12.55	12.55	12.53	12.53
N	141	141	139	138	141	141	139	138
pvalue	0.10	0.14	0.18	0.04	0.02	0.03	0.02	0.03

Note: The sample corresponds to households with a parent having married a daughter between baseline and the year preceding the follow-up interview. We include time FE specific to three areas: (a) Dakar and Thies, (b) Kaolack and Fatick, (c) Casamance. Standard errors are clustered at the level of the origin household. Significance levels are denoted as follows: + p<0.15, * p<0.10, ** p<0.05, *** p<0.01.

Table O4: Households (HH) where a child has married between the two waves of interview

	All HH	Both parents present	Only the father present	Only the mother present
An endogamous union has been celebrated: %	0.54	0.60	0.43	0.45
Number of HH	231	134	14	83

Note: We count marriages that have been celebrated between the first wave of the interview and a year before the second.

Table O5: Proportion of households (HH) with a parent fallen ill
Sample of parents having married a child

	Endogamous (1)	Exogamous (2)	Diff. (3)
A shock (covariate and idiosyncratic) hit the HH, in 2006	0.29	0.20	0.09
			(0.12)
A shock (covariate and idiosyncratic) hit the HH, in 2011	0.27	0.24	0.03
			(0.58)
The shock is covariate, among HH hit by a shock in 2006	0.74	0.62	0.12
			(0.39)
The shock is covariate, among HH hit by a shock in 2011	0.77	0.75	0.02
			(0.90)
A parent has fallen ill, in 2006	0.49	0.45	0.04
			(0.59)
A parent has fallen ill, in 2011	0.50	0.43	0.07
			(0.31)

Note: The sample corresponds to households with a parent having married a daughter between baseline and the year preceding the follow-up interview. In 2006, prevalence of shocks are computed on 231 households. In 2011, there are computed on 238 households. Significance levels are denoted as follows: * p<0.10, ** p<0.05, *** p<0.01.

Table O6: Effect of individual shocks (parents' illness) on household (HH) consumption
Food and non-food considered separately
Sample of parents with a married child

	Log of HH non-food cons.				Log of HH non-food cons. pc				Log of HH food cons.				Log of HH food cons. pc			
	(1a)	(2a)	(3a)	(4a)	(1b)	(2b)	(3b)	(4b)	(1c)	(2c)	(3c)	(4c)	(1d)	(2d)	(3d)	(4d)
Endo_ht	0.03	0.10	0.10	0.11	0.12	0.17	0.16	0.17	-0.13	-0.13	-0.14	-0.16	0.04	0.02	-0.00	-0.02
	(0.18)	(0.19)	(0.19)	(0.19)	(0.18)	(0.18)	(0.18)	(0.18)	(0.13)	(0.13)	(0.13)	(0.13)	(0.15)	(0.15)	(0.15)	(0.16)
Illness_it	-0.15	-0.39**	-0.55**	-0.67***	-0.15	-0.31**	-0.42**	-0.51**	-0.01	-0.00	-0.12	-0.29*	-0.03	0.05	-0.03	-0.16
	(0.13)	(0.17)	(0.21)	(0.24)	(0.12)	(0.16)	(0.21)	(0.23)	(0.08)	(0.11)	(0.15)	(0.15)	(0.09)	(0.12)	(0.17)	(0.18)
Endo_ht*Illness_ht	0.12	0.02	0.01	0.04	0.24	0.17	0.17	0.18	0.08	0.09	0.10	0.16	0.23+	0.26*	0.29*	0.32**
	(0.28)	(0.28)	(0.29)	(0.30)	(0.25)	(0.25)	(0.26)	(0.27)	(0.14)	(0.15)	(0.15)	(0.15)	(0.15)	(0.15)	(0.16)	(0.16)
Rural_h*Illness_ht		0.43**	0.45**	0.48**		0.29+	0.30+	0.32+		-0.02	-0.01	0.14		-0.14	-0.14	-0.00
		(0.21)	(0.21)	(0.23)		(0.20)	(0.20)	(0.22)		(0.15)	(0.14)	(0.14)		(0.15)	(0.15)	(0.16)
NBrothers_h*Illness_ht			0.04	0.02			0.03	0.01			0.03	0.03			0.02	0.03
			(0.03)	(0.03)			(0.03)	(0.03)			(0.03)	(0.03)			(0.03)	(0.03)
FormalEduHHhead_h*Illness_ht				0.34				0.24				0.40**				0.31**
				(0.27)				(0.25)				(0.16)				(0.16)
IndepAgriHHhead_h*Illness_ht				0.33+				0.30+				-0.24*				-0.27+
				(0.20)				(0.19)				(0.14)				(0.17)
Constant	13.68***	13.68***	13.68***	13.72***	11.34***	11.34***	11.34***	11.37***	13.98***	13.98***	13.98***	14.00***	11.65***	11.65***	11.64***	11.66***
	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.06)	(0.06)	(0.07)	(0.05)	(0.05)	(0.05)	(0.05)	(0.06)	(0.06)	(0.06)	(0.06)
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Area specific time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Average	14.06	14.06	14.06	14.13	11.76	11.76	11.76	11.81	14.17	14.17	14.17	14.19	11.77	11.77	11.77	11.78
N	221	221	218	216	221	221	218	216	221	221	218	216	221	221	218	216
pvalue	0.02	0.01	0.01	0.00	0.03	0.03	0.04	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Note: The sample corresponds to households with a parent having married a child between baseline and the year preceding the follow-up interview. We include time FE specific to three areas: (a) Dakar and Thies, (b) Kaolack and Fatick, (c) Casamance. Standard errors are clustered at the level of the origin household. Significance levels are denoted as follows: + p<0.15, * p<0.10, ** p<0.05, *** p<0.01.

Table O7: Effect of individual shocks (parents' illness) on household (HH) consumption
Food and non-food considered separately
Sample of parents with a married son

	Log of HH non-food cons.				Log of HH non-food cons. pc				Log of HH food cons.				Log of HH food cons. pc			
	(1a)	(2a)	(3a)	(4a)	(1b)	(2b)	(3b)	(4b)	(1c)	(2c)	(3c)	(4c)	(1d)	(2d)	(3d)	(4d)
Endo_ht	0.32	0.35	0.37	0.37	0.25	0.27	0.27	0.27	-0.01	0.00	-0.00	0.03	-0.07	-0.07	-0.09	-0.07
	(0.26)	(0.26)	(0.27)	(0.27)	(0.25)	(0.25)	(0.25)	(0.26)	(0.17)	(0.17)	(0.17)	(0.17)	(0.17)	(0.17)	(0.17)	(0.17)
Illness_it	-0.09	-0.37+	-0.42+	-0.40+	-0.12	-0.33+	-0.36	-0.29	0.12	0.04	-0.12	-0.28	0.08	0.08	-0.06	-0.18
	(0.20)	(0.23)	(0.28)	(0.27)	(0.18)	(0.22)	(0.27)	(0.24)	(0.13)	(0.17)	(0.21)	(0.20)	(0.13)	(0.18)	(0.21)	(0.21)
Endo_ht*Illness_ht	-0.14	-0.30	-0.33	-0.33	0.08	-0.03	-0.04	-0.04	-0.29	-0.34	-0.33	-0.32	-0.06	-0.06	-0.04	-0.03
	(0.52)	(0.55)	(0.59)	(0.60)	(0.43)	(0.44)	(0.48)	(0.48)	(0.23)	(0.24)	(0.25)	(0.26)	(0.24)	(0.25)	(0.27)	(0.28)
Rural_h*Illness_ht		0.52+	0.52+	0.46		0.37	0.37	0.30		0.15	0.12	0.23		0.01	-0.02	0.07
		(0.34)	(0.34)	(0.35)		(0.30)	(0.31)	(0.32)		(0.21)	(0.21)	(0.21)		(0.22)	(0.22)	(0.21)
NBrothers_h*Illness_ht			0.02	-0.00			0.01	-0.00			0.05	0.06			0.05	0.06
			(0.05)	(0.05)			(0.04)	(0.05)			(0.04)	(0.04)			(0.05)	(0.05)
FormalEduHHhead_h*Illness_ht				-0.03				-0.19				0.54***				0.38*
				(0.37)				(0.36)				(0.20)				(0.21)
IndepAgriHHhead_h*Illness_ht				0.27				0.25				-0.18				-0.21
				(0.36)				(0.31)				(0.25)				(0.26)
Constant	13.63***	13.64***	13.64***	13.68***	11.37***	11.37***	11.36***	11.38***	13.83***	13.83***	13.83***	13.85***	11.57***	11.57***	11.55***	11.56***
	(0.11)	(0.10)	(0.11)	(0.11)	(0.10)	(0.10)	(0.10)	(0.10)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Area specific time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Average	14.04	14.04	14.04	14.19	11.78	11.78	11.78	11.91	14.11	14.11	14.11	14.15	11.86	11.86	11.86	11.87
N	94	94	92	91	94	94	92	91	94	94	92	91	94	94	92	91
pvalue	0.07	0.03	0.06	0.07	0.32	0.22	0.32	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Note: The sample corresponds to households with a parent having married a son between baseline and the year preceding the follow-up interview. We include time FE specific to three areas: (a) Dakar and Thies, (b) Kaolack and Fatick, (c) Casamance. Standard errors are clustered at the level of the origin household. Significance levels are denoted as follows: + p<0.15, * p<0.10, ** p<0.05, *** p<0.01.

Table O8: Effect of individual shocks (father or mother's illness) on household (HH) consumption Food and non-food considered separately

	Log of HH non-food cons.					Log of HH non-food cons. pc					Log of HH food cons.					Log of HH food cons. pc				
	(1a)	(2a)	(3a)	(4a)	(5a)	(1b)	(2b)	(3b)	(4b)	(5b)	(1c)	(2c)	(3c)	(4c)	(5c)	(1d)	(2d)	(3d)	(4d)	(5d)
Endo_ht	-0.12	-0.08	-0.11	-0.12	-0.14	0.06	0.11	0.08	0.05	0.01	-0.17	-0.18	-0.21	-0.21	-0.16	0.12	0.13	0.10	0.09	0.14
	(0.25)	(0.26)	(0.27)	(0.27)	(0.28)	(0.23)	(0.23)	(0.24)	(0.24)	(0.25)	(0.16)	(0.16)	(0.16)	(0.16)	(0.18)	(0.20)	(0.21)	(0.21)	(0.22)	(0.24)
IllnessMo_ht	-0.31*	-0.38**	-0.45**	-0.51**	-0.76***	-0.30*	-0.41**	-0.45**	-0.50**	-0.66**	0.01	0.04	0.00	-0.07	-0.31+	0.01	-0.02	-0.03	-0.06	-0.21
	(0.18)	(0.19)	(0.21)	(0.23)	(0.27)	(0.17)	(0.18)	(0.21)	(0.23)	(0.27)	(0.11)	(0.11)	(0.13)	(0.14)	(0.21)	(0.13)	(0.14)	(0.16)	(0.19)	(0.25)
IllnessFa_ht	-0.06	-0.13	-0.14	-0.14	0.14	-0.08	-0.18	-0.18	-0.16	0.11	-0.21*	-0.19	-0.20+	-0.27*	-0.24	-0.30*	-0.32*	-0.32*	-0.37**	-0.46
	(0.21)	(0.26)	(0.26)	(0.27)	(0.34)	(0.22)	(0.26)	(0.26)	(0.27)	(0.36)	(0.12)	(0.14)	(0.14)	(0.14)	(0.24)	(0.15)	(0.18)	(0.18)	(0.18)	(0.35)
Endo_ht*IllnessMo_ht	0.52	0.48	0.50	0.55	0.35	0.58*	0.52+	0.54+	0.63*	0.52	0.12	0.13	0.15	0.12	-0.11	0.21	0.20	0.22	0.21	0.06
	(0.37)	(0.38)	(0.39)	(0.40)	(0.49)	(0.33)	(0.33)	(0.34)	(0.34)	(0.41)	(0.18)	(0.19)	(0.19)	(0.19)	(0.20)	(0.22)	(0.22)	(0.23)	(0.23)	(0.25)
Endo_ht*IllnessFa_ht	-0.43	-0.41	-0.40	-0.37	-0.22	-0.41	-0.39	-0.38	-0.41	-0.26	0.18	0.18	0.19	0.29	0.28	0.24	0.24	0.26	0.27	0.20
	(0.34)	(0.35)	(0.35)	(0.37)	(0.42)	(0.34)	(0.34)	(0.34)	(0.36)	(0.40)	(0.21)	(0.21)	(0.22)	(0.22)	(0.25)	(0.24)	(0.24)	(0.24)	(0.25)	(0.29)
Rural_h*Illness_ht		0.20	0.17	0.14	0.06		0.29	0.26	0.24	0.22		-0.07	-0.10	0.06	-0.08		0.07	0.06	0.21	0.09
		(0.25)	(0.26)	(0.29)	(0.31)		(0.25)	(0.26)	(0.29)	(0.32)		(0.16)	(0.17)	(0.18)	(0.20)		(0.19)	(0.20)	(0.23)	(0.24)
NBrothers_h*Illness_ht			0.03	-0.01	0.00			0.02	-0.02	-0.02			0.01	0.02	0.02			0.00	0.01	0.01
			(0.04)	(0.05)	(0.05)			(0.05)	(0.05)	(0.05)			(0.03)	(0.04)	(0.04)			(0.04)	(0.04)	(0.04)
FormalEduHHhead_h*Illness_ht				0.35	0.39				0.43+	0.45*				0.14	0.21				0.12	0.17
				(0.29)	(0.29)				(0.27)	(0.27)				(0.22)	(0.22)				(0.28)	(0.28)
IndepAgriHHhead_h*Illness_ht				0.41*	0.53**				0.37	0.43				-0.30+	-0.17				-0.39	-0.30
				(0.25)	(0.25)				(0.29)	(0.30)				(0.20)	(0.21)				(0.29)	(0.30)
Endo_h*IllnessMo_ht					0.48					0.28					0.54**					0.35
					(0.39)					(0.35)					(0.26)					(0.27)
Endo_h*IllnessFa_ht					-0.43					-0.43					-0.02					0.17
					(0.44)					(0.45)					(0.29)					(0.39)
Constant	13.75***	13.74***	13.73***	13.74***	13.73***	11.38***	11.37***	11.36***	11.37***	11.36***	14.07***	14.07***	14.07***	14.07***	14.05***	11.72***	11.72***	11.71***	11.71***	11.70***
	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.08)	(0.08)	(0.08)	(0.09)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.09)	(0.09)	(0.10)	(0.09)	(0.09)
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Area specific time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Endo_it*IllnessMo_it=Endo_it*IllnessFa_it: p-value	0.09	0.12	0.12	0.13	0.43	0.05	0.08	0.08	0.05	0.20	0.83	0.88	0.90	0.60	0.21	0.94	0.90	0.91	0.89	0.74
N	141	141	139	138	138	141	141	139	138	138	141	141	139	138	138	141	141	139	138	138
R	0.05	0.05	0.05	0.05	0.06	0.07	0.07	0.07	0.08	0.08	0.10	0.10	0.10	0.11	0.14	0.02	0.02	0.01	0.01	0.01
pvalue	0.16	0.22	0.29	0.22	0.13	0.04	0.07	0.11	0.12	0.14	0.03	0.05	0.07	0.05	0.00	0.04	0.05	0.06	0.08	0.04

Note: The sample corresponds to households with a parent having having married a daughter between baseline and the year preceding the follow-up interview. We include time FE specific to three areas: (a) Dakar and Thies, (b) Kaolack and Fatick, (c) Casamance. Standard errors are clustered at the level of the origin household. Significance levels are denoted as follows: + p<0.15, * p<0.10, ** p<0.05, *** p<0.01.