WPS5658

Policy Research Working Paper 5658

# Is It What You Inherited or What You Learnt?

## Intergenerational Linkage and Interpersonal Inequality in Senegal

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May 2011

Policy Research Working Paper 5658


## Abstract

Institutional features of the African setting—large extended families and imperfect credit and land markets—matter to the equity and efficiency roles played by intergenerational linkages. Using original survey data on Senegal that include an individualized measure of consumption, this paper studies the role played by land inheritance, other bequests and parental background as influences on an adult's economic welfare and economic activities. Although intergenerational linkages are evident, the analysis finds a seemingly high degree of mobility across generations, associated with the shift from farm to non-farm sectors and the greater economic activity of women. Male-dominated bequests of land and housing bring little gain to mean consumption and play little role in explaining inequality, although they have effects on the sector of activity. Inheritance of non-land assets and the education and occupation of parents (especially the mother) and their choices about children's schooling are more important to adult welfare than property inheritance. Significant gender inequality in consumption is evident, although it is almost entirely explicable in terms of factors such as education and (non-land) inheritance. There are a number of other pronounced gender differences, with intergenerational linkages coming through the mother rather than the father.


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# Is it what you inherited or what you learnt?

## Intergenerational linkage and interpersonal inequality in Senegal

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# 1. Introduction

The re-allocation of productive assets to more efficient uses is an important means of promoting higher aggregate output in any economy. The most important (non-labor) asset in most poor countries is land. The economic, social and political means by which a country allocates its land can thus have bearing on aggregate economic efficiency.

Much of the literature has argued that well-defined individual land rights are crucial for efficiency, though there have been dissenting views.[2] The main means of changing land ownership rights studied in the literature are market purchases and administrative land re-allocations, both of which have been studied extensively.[3] Yet, in many developing-country settings it may well be the case that land inheritance is a more common means of re-assigning land-use rights, although this has received very little attention. With imperfect credit markets, inheritance may have bearing on the efficiency of farming and also promote new non-farm economic activity by providing the kind of lumpy boost to individual wealth that can allow new investment opportunities to be pursued—opportunities that would otherwise be impossible to take up given borrowing constraints. Thus there is interest in better understanding inheritance.

Equity is another reason we want to know more about inheritance. It is now understood that many poor developing countries are characterized by relatively high inequality (World Bank, 2005; Ferreira and Ravallion, 2009). However, we know far less about how much of that inequality is transmitted across generations. This can create inequalities of opportunity that come with costs to efficiency and growth, as argued in World Bank (2005). Are these economies characterized by a high degree of inter-generational persistence of poverty and affluence, or is there churning associated with successes and failures for adults taking up new economic opportunities? How much do family circumstances matter to adult outcomes? While there has been much debate about these issues in developed countries, they have received relatively little attention in poor, primarily agrarian, economies. Inheritance of agricultural land—the main non-labor factor of production—is the first mechanism one thinks of for the inter-generational transmission of inequality in such settings.

[2] For a dissenting view on the importance of individual land rights *per se* see Platteau (1996). More supportive views can be found in, for example, Feder and Noronha (1987) and Deininger (2003). Also see the discussions in Barrows, and Roth (1990), Besley (1995) and Jacoby and Minten (2007).

[3] See, for example, Deininger (2003) and Ravallion and van de Walle (2008).

The role of gender is also of interest in this context. We know very little about inter-personal inequality in living standards, including between men and women, given that survey data on consumption are almost invariably collected at the household level. Since adult women are generally married, it is difficult to separate their own welfare from that of their husbands on the basis of household data. However, gender dimensions of inequality are considered important. Male control over land and its inheritance has long been a prominent gender issue in development studies.[4] Maternal education and work experience might also be expected to play a role. It has often been argued that maternal education has an important influence on children's health, nutritional status and schooling.[5] There might also be implications for adult welfare and economic activity, though there has been less research on this intergenerational linkage.

In an effort to yield some new knowledge on these issues, this paper takes advantage of an unusual dataset that measures consumption at a relatively disaggregated level within the household, so that we can build an "individualized" consumption-based welfare measure. This allows us to distinguish inheritance and its economic welfare impacts by gender. The data were collected in Senegal—one of many developing countries where these issues have salience.

We document new evidence on the extent of inequality in living standards and its origins, paying special attention to the role of inheritance. Our results lead us to question the traditional model of a developing economy with imperfect credit markets in which privately-owned land is a marketable asset generating an income stream exclusively for the designated individual owner. But our results are easier to understand in the light of richer models of underdeveloped rural economies. We already know from the literature (in anthropology as well as economics) that market failures and non-market allocation processes play an important role in how land is used. As anthropologists have emphasized, agricultural land inheritance in much of Africa is typically filtered through customary land allocation processes involving kinship or community groups.[6] Inheritance signals a change in responsibility, such that the recipient of inherited land inherits obligations as well as an asset, and it is an asset that is not easily monetized to support other productive investments.

[4] In the context of land rights in Africa see Gray and Kevane (1999) for an overview of the issues.

[5] See, for example, Haveman and Wolfe (1995), and Hill and King (1995). The causal interpretation of these correlations can be questioned given the possibility of inter-generationally correlated latent factors; see Behrman and Rosenzweig (2002). Dumas and Lambert (2011) find that maternal education plays a weaker role once properly instrumented.

[6] For a useful overview of these issues see Shipton and Goheen (1992). Also see the discussion in Platteau (2000).

The impacts of inheritance will naturally reflect how the "dynastic family" allocates its resources, given the market and institutional environment. In principle at least, the extended family has the ability to attain any desired distribution of consumption, independently of the formal assignment of ownership rights. Indeed, it is an open question in this setting whether there is any net impact on the inheritor of a land bequest within the family.

Our results suggest that other mechanisms for the inter-generational transmission of inequality—notably related to parental education and children's schooling—are in fact more important than land inheritance in explaining interpersonal economic welfare and economic activities. Even in very poor settings, parental background can influence the schooling, expectations and life chances generally of children in ways that matter to the realized living standards of adults. There is evidence consistent with this view in the literature. Estudillo et al. (2001) emphasize the combination of both land inheritance and schooling in the inter-generational transmission of wealth in the rural Philippines. Lesorogol et al. (2011) find that the current wealth of Kenyan pastoralists is correlated with parental wealth and formal education but not with livestock inheritance. Ferreira and Gignoux (2010) find that family background characteristics are an important source of unequal opportunities in Latin America. Dumas and Lambert (2011) find that parental education has a strong effect on child schooling in Senegal. Some degree of intergenerational correlation in occupational choices can be expected, for which we find supportive evidence, though with a (possibly surprising) degree of mobility.

We begin in the following section by discussing the multiple roles of land ownership in this setting. After that we describe our data for Senegal and the methods of analysis, followed by our empirical results.

## 2. Land inheritance in an underdeveloped rural economy

Land ownership has long played a role in policy making and thinking about economic development. Taxes and transfers are often conditioned on the amount of land owned. Famously, the American political economist of the late 19th century Henry George advocated taxes on the value of land, and (of course) these were to be levied on the designated owner. Taxes on land are found in almost all countries. Also, transfers and various direct interventions are often targeted according to land holding, defined by ownership. These include policies aiming to redistribute land itself. Tenure security is traditionally defined in terms of individual titles of private ownership. There have been many efforts (often supported by external development assistance) to foster individual ownership through land titling, with expected benefits to the government in

efforts to tax land value, and also expected gains in both efficiency (promoting land investment through greater tenure security and access to credit) and equity (notably in promoting women's empowerment).[7]

The economic model underlying all these policies essentially views private ownership of land (with or without a formal title) as a form of private wealth, which is expected to deliver exclusively to its owner an income stream derived from the productive capacity of the owned land. In the context of a mainly rural market-based economy, one thus expects land ownership to play an important role in determining the individual's standard of living. Land inheritance is one way of acquiring ownership. Thus land inheritance should be important to the inter-generational transmission of inequality and also to economic activity, including diversification into non-farm production, especially when credit is unavailable. Development policy debates have sometimes focused on inheritance laws, especially reforms aiming to improve women's rights.[8]

However, it is far from clear how relevant this standard model of land as marketable and productive wealth is to underdeveloped and poor rural economies where land markets are thin or non-existent and imperfect (and asymmetric) information and long-established social institutions play an important role in how land is allocated and used. The benefits from efforts to foster individual ownership titles are known to be uncertain when individual titling is introduced in an indigenous system of tenure, which is probably why the evidence that such efforts have had their expected benefits appears to be mixed.[9]

Inheritance of the family farm may well bring enhanced individual power within the family—interpretable as a non-pecuniary gain—but it undoubtedly also comes with responsibilities. Past observations about African agriculture lead one to question the extent of the gains to the inheritor of land, who may have to take on various obligations. These naturally include responsibility for the family as an economic unit, but they may also extend well beyond the family. Anthropologists have emphasized the social responsibilities that come with acquired wealth such as through land ownership, notably in Africa.[10] As Shipton and Goheen (1992, p.311) note with reference to land in rural Africa, "Rights often entail duties. .. Cultivation and grazing rights may entail obligations to share farm products beyond the domestic group."

[7] On the expected land productivity gains from titling see Feder and Noronha (1987), Barrows, and Roth (1990), Besley (1995) and Deininger (2003).

[8] Hallward-Driemeier and Gajigo (2011), Deininger et al. (2010) and Roy (2011) find evidence that legal reforms related to property rights have brought gains to women (the first in Ethiopia and the other two in India).

[9] Deininger (2003) reviews the evidence. A recent example of a study pointing to success of land titling in raising productivity is Holden et al. (2009); an example finding little or no impact is Jacoby and Minten (2007).

[10] Though not only Africa; see Ravallion and Dearden (1988), using data for rural Java.

Similarly, with reference to the Luo people of Kenya, Shipton (1992, p. 361) argues that "Rights of individuals [over land] were not thought sacrosanct, but instead they interlocked with the rights of others, and overlapped with those of families and wider groups." Individual responsibilities within a village economy are often embedded in broader social ties, interpretable as means of enforcing cooperative equilibria that bring collective benefits (Platteau, 2000). Whether such responsibilities come with a consumption incentive is unclear on a priori grounds, given that there are also likely to be non-pecuniary benefits and costs.

The local state and community governance are often involved in land allocation, as are traditional non-market allocation processes. In particular, land that is not kept in use and looked after appropriately risks appropriation by the community in many rural economies: the household head is thus in charge of making sure this doesn't happen so as to insure the family's long-term security. Further, membership of a (potentially large) extended family often conveys rights to work the family's land holding and/or share in its bounty. These arrangements can mean that individual land ownership conveys obligations and associated costs to the owner, especially if he or she is also the head of household. One cannot even rule out consumption losses to the inheritor. Without a land market it will be hard for the recipient to "cash in" the land to finance some other (non-farm) investment. The lack of a land market may then create occupational stickiness, whereby the bequest of land inhibits the recipient's transition to non-farm activities (though possibly enhancing the scope for such a transition by others in the family). Land-market failures may even entail that the (say) eldest son who gets the land and the responsibilities of being the head of household ends up trapped in farming, while his siblings see new opportunities for diversification into non-farm activities.

Indeed, inheriting the land but without the responsibilities of headship may allow the recipient to leave the land to take up some non-farm activity. Given weak market and governmental institutions for risk-sharing, the family farm is known to serve a social security role in traditional societies. The recipient of the land bequest may then effectively transfer the right to other family members (the mother, spouse, and children). Their security (at some minimal level) is thus assured, and the son is free to seek work or start an enterprise elsewhere, such as in an urban area. However, one can also imagine situations in which non-market factors in the allocation of command over the product of land can discourage agriculture, even for the household head, in favor of other (non-farm) activities possibly outside the village economy, such as in urban areas. This can happen when the non-market allocation rules entail a sharing of the product of land, and that the sharing rule entails that inheriting extra land reduces the

marginal product of the owner's effort in farming relative to other uses of labor time, thus generating a substitution toward non-farm activities. This is a distortion to intersectoral allocation, in the sense that marginal products of labor become unequal between activities. In principle, such an inefficiency could be avoided if the family is well informed about other (non-farm) income sources, so allowing sharing rules based on total income.

Finally, it is worth underlining that land inheritance can be accompanied by learning within kinship groups, a source of specific human capital that may play an important role in the welfare gains from inheritance. It is widely believed that traditional farming practices in developing countries are characterized by a high degree of farm-specific knowledge, accumulated through experience farming the same land. Rosenzweig and Wolpin (1985) have emphasized the role of family-specific information in explaining inter-generational and intra-household land transfers, including inheritance; they find support for the claim that specific-knowledge about the family farm entails that land is kept within the family rather than being sold. This could also explain why land markets are often thin or non-existent and also why the extended family is so common in underdeveloped rural economies, given that the older generation will have accumulated greater knowledge about the family farm. As long as the extended family can share knowledge there will be little economic loss at the death of the head of the household, though one can imagine circumstances (including unanticipated deaths) when that is not the case.

The upshot of these observations is that inheritance can have ambiguous effects on welfare and economic activities. The rest of this paper will address these issues empirically using an unusual data set for Senegal.

## 3. Setting and data

More than half of Senegal's population is rural—57% out of a population of about 12.5 million inhabitants in 2009—although the contribution of agriculture to GDP amounts to only 18%.[11] Like other African countries, Senegal has seen considerable population urbanization; at the time of independence in 1960 rural areas were the home of 77% of the population.

[11] This is less than for its neighboring countries where the share of the rural population is typically about two thirds (apart for Mauritania which, due to deserts over a large area, has only a third of its population in rural areas) and the share of agriculture in GDP hardly ever below 25%, reaching a third in Mali and even 60% in Guinea-Bissau.

On paper, agricultural land is allocated through local administrative processes in Senegal. Since 1964, most of the land (between 95 and 98%) has been part of what is called the national domain. Land use rights are attributed by local land committees on the basis of needs and capacity to farm. This land cannot be sold and in theory cannot be bequeathed either (Caveriviére, 1986).

However, the reality on the ground is clearly rather different. Bequests are common, including land inheritance. The survey data we use indicate that 31% of men, but only 17% of women, report that they inherited land. (If one confines the sample to those whose father has died, the proportions are 43% for men and 28% for women.) Looking at all forms of inheritance (including housing, durables, money and productive assets) 54% of men in the sample inherited something, while 38% of women did. In practice, heirs are given priority to obtain the use rights over any other potential users. Hence, inheritance of paternal lineage land is an important means of access to ownership.

Until the constitution of 2001, women were not allowed to own land in Senegal. Furthermore, until May 2010, they were not allowed to be part of the land committees in charge of the attribution of use rights. Hence, women very rarely received land through this allocation mechanism. On the intergenerational transmission side, several inheritance laws coexist in Senegal that give very different treatment to women. Each individual can choose before his death which law he wants to abide by. The French inspired system of inheritance dictates that wealth be shared equally among children, whatever their gender. By contrast, the Islamic inheritance law (which is the most common choice in practice) limits the inheritance of daughters to half of that of sons.[12] In addition, entrenched tradition favors sons for inheriting land. Daughters are supposedly compensated by their brothers with money or other forms of wealth, for what would have otherwise been their share of land inheritance. The data (described in more detail below) reveal that very few women (about 4%) have any land to transfer to their heirs when they die, while more than a third of the men leave some land. In the sample, we observe very few changes in land ownership over the five years preceding the survey. Nevertheless, half of the cases where the amount of land owned increased are due to inheritance.

In these respects, Senegal is not unusual within Sub-Saharan Africa (Cooper, 2008, 2010). The rights of women to land are mainly indirect (Platteau et al. 2000). As a daughter

[12] Although some of the ethnic groups in Senegal are of matrilineal tradition, those traditions have mostly been displaced by Islam when it comes to inheritance. As a result, inheritance from adult male other than the father (such as a maternal uncle or foster parent for example) remains a rare occurrence.

living in her father's household, a woman will work on the family land and eventually obtain use rights on a plot. As a wife, she'll work on the land of her husband's family and might also have use rights on a particular plot. If she is in neither of these positions, she simply won't have access to land. This in part explains the high remarriage rate following widowhood or divorce. Whether this fact contributes to gender inequality in terms of well-being is a question we want to explore in this paper.

The data used here come from an original survey entitled Pauvreté et Structure Familiale (Poverty and Family Structure, henceforth PSF) conducted in Senegal in 2006/2007. The PSF survey stems from the cooperation between a team of French researchers and the National Statistical Agency of Senegal.[13] The survey is described in detail in De Vreyer et al. (2008).

The PSF is a nationally representative survey covering a sample of over 1800 households spread over 150 clusters drawn randomly from the census districts so as to insure a geographically representative sample. About 1,750 household records can be exploited, covering 14,450 individuals. The survey describes a population of which the majority (57.1%) live in rural areas, 48% is male and 95% is Muslim—statistics that accord well with other sources (World Bank, 2009). Urbanization over time is evident in that, amongst those adults who had a father in rural areas, 22% now live in urban areas. A similar percentage of those whose mother lived in rural areas also do so.

Senegalese households are large, with slightly more than eight members on average in the PSF. The families are typically multigenerational. Polygamous unions are common, with 24% of married men and 37% of married women engaged in such unions, which mostly comprise a husband and two wives (only 20% of polygamous unions have more than two wives). We find that 31% of polygamous men have non-cohabiting wives. Among those, in only half of the cases are the two parts headed by the same person or by the husband for one and a wife for the other i.e., for the other half, a married polygamous women is living in a household headed by a relative (mainly her father, brother or son). Those large households are extended both horizontally and vertically, with 36% of household members that are neither the head, nor one of his wives or children. Two thirds of households include such "extended" family members.

[13] Momar Sylla and Matar Gueye of the Agence Nationale de la Statistique et de la Démographie of Senegal (ANSD) on the one hand and Philippe De Vreyer (University of Paris-Dauphine and IRD-DIAL) Sylvie Lambert (PSE) and Abla Safir (now with the World Bank) designed the survey. The data collection was conducted by the ANSD thanks to the funding of the IDRC (International Development Research Center), INRA Paris and CEPREMAP.

In addition to the usual information on individual characteristics, the survey collected details on each household's structure and budgetary arrangements. Each household was divided into "cells" according to the following rule: the head of household and unaccompanied dependent members, such as his widowed parent or his children whose mothers do not live in the same household, are grouped together. Then, each wife of the head and her children make up a separate group. Finally, any other family nucleus, such as a married child of the household head with his/her spouse and children, forms a separate group. This disaggregation emerged from field interviews as being the relevant way to split the household into its component groups. It is worth noting that enumerators saw this as a fairly natural way to divide households and had no difficulty organizing the household in this way and collecting the data accordingly.

Consumption expenditures are recorded in several parts: first all common expenditures are collected (housing, electricity bills etc). Regarding food expenditures, a detailed account is made of who shares which meal and how much money is specifically used to prepare this meal (the "DQ", i.e. "dépenses quotidiennes," which is the name the Senegalese give to the amount of money a woman has at her disposal to buy fresh ingredients for the meals of the day). Then individual consumption is collected at the group level (such as clothing, mobile phone, transportation, food outside the home). Finally, expenditures that are shared between several groups but not the whole household are collected.

Hence, a measure of per capita consumption can be constructed at the group ("cell") level and this allows us to identify unequal consumption levels within households. Subgroups also emerge that take some or all of their meals separately (in 17% of households), thus widening the possibility for differences in nutritional intake among household members.

When looking at total expenditures, inequalities within the household are evident: the ratio between the expenditures of the richest and the poorest group within a household can be as high as 18 and is still equal to 4.4 after trimming off the 5% most unequal households. Computing an inequality index for the distribution of cash expenditures in the population, we find a Gini index of 59.8% if we attribute to each person the average per capita consumption level in his or her household. The index is 62.7% if instead each individual is attributed the per capita consumption in his cell (i.e. the sum of the per capita expenditures specific to the cell and of the cell's share of common household expenditures, distributed on a per capita basis within the cell). The Gini index of inequality in the distribution of the cell-specific component of cash expenditures (ignoring the joint consumption within the household) is 77.9%.

Thanks to these data we can construct a relatively individualized measure of consumption, which is almost never available in household surveys. This is what we will use to assess individual economic welfare. The measure we use here is the amount of expenditures specific to the cell and not shared with any other cell plus the cell's imputed share of the household's joint expenditures. We will restrict our study to individuals who are heads of their cells. They are all adults with at least one dependent, and for consumption purposes, they are assumed to be the decision makers at the cell level. We are therefore left with 4401 observations, of which 56.8% are women. The average number of cells per household is 2.51. The range is from 1 to 12; 81% of the sampled households have more than one cell.

Importantly for the purpose of our paper, these data include information on parental characteristics and inheritance. If the parent has died, the survey asked whether he or she left any inheritance and then, for each person, whether they obtained any inheritance in the form of land, housing, money, durables or productive capital. No valuation of these inheritances was obtained. In particular, we do not know how much land was inherited, although the endogeneity concerns (which we return to) would clearly be even greater using amounts of inherited land rather than simply the incidence of inheritance.

## 4. Results

We begin by describing inheritance patterns in our data, after which we study the associations with living standards, economic activity and mobility. (Appendix 1 gives summary statistics on the main variables used from the PSF.)

### *Inheritance patterns*

As can be seen in Table 1, many more fathers have any inheritance to leave to their heirs than do mothers. 72% of deceased fathers left land bequests, but only 22% of deceased mothers did so. Fathers bequeath their wealth to their sons more often than to their daughters, particularly when it is in the form of land. Mothers treated sons and daughters roughly equally in this respect.

With regard to parental characteristics, information was collected on the occupation and education of each parent for each individual. The last place of the mother and father's residence is also known (allowing us to know in particular whether an individual resides in the same village as his parents).

Occupation has been classified under three headings: agriculture, non agriculture or inactive. Table 2 gives the joint distribution of occupations of parents and their children for men and women. The table also gives Cramer's V; in all four cases the correlation is significant at the 1% level.[14]

We find that 36% of individuals had a father working in agriculture, while 22% declare that their mother was in agriculture. Note that "housewives" are coded as inactive. It is likely that mothers were declared housewives even when they did some agricultural work so that those who report being in agriculture probably really dedicated most of their time to this occupation, suggesting relatively poor households.

Women have been moving out of engaging solely in household work. We find that 48% of sampled women were coded as "inactive" but that this was true of 61% of their mothers. One third of those with inactive mothers went into the non-farm sector, with far fewer going into farming.

In fact Table 2 suggests considerable mobility out of farming across generations. Only one third of the one third of men whose father worked in agriculture stayed in the sector, though there is stronger persistence with respect to mother's sector with 43% of the men ("only" 33% of the women) who declared that their mother was working in agriculture doing so as well. Participation in the non-farm sector was more persistent across generations, with nearly three-quarters of those men whose father worked in the non-farm sector being also recorded as working in that sector.

To further explore the characteristics of those who inherit, Table 3 gives probits for any form of inheritance, while Table 4 gives probits for land in particular; in both cases these are marginal effects. In each case we also give the breakdown by gender. We give results for two specifications, the second of which drops a number of variables that might be considered endogenous to inheritance. (Later we will use these pruned regressions as the first stage for an instrumental variables estimator.) While the causal interpretation of the first regression (including the endogenous variables) can be questioned, it is still of descriptive interest.

We include a wide range of controls in these regressions (and those reported later), including the following individual characteristics: gender, age and age squared, age at first

[14] Cramer's V is a measure of correlation for contingency tables. It lies between 0 and 1 (perfect correlation). The corresponding Chi-square statistic is $2nV^2$ (for our 3x3 table).

marriage, a dummy for whether one is the first born of a given gender among siblings with the same mother and same father, a dummy for whether one is the first born among all children with the same mother and father, a dummy for whether the first born sibling from the same mother and father is a boy, number of brothers from the same father and mother, number of brothers from the same father only and same mother only, and the same three variables for sisters, dummies for ethnic group, a dummy for being Muslim relative to other religions, having some formal education, whether fostered as a child, and whether fostered at a young age (prior to two years of age, which typically implies a permanent move for the child in the Senegal context). There are also controls for parental characteristics (education, occupation, place of residence, whether the father died in the last two years, and whether the mother did so) and some demographic variables describing the household (log household size) and the individual's cell (log cell size, share of adults and share of children age 5 and under). In all cases our education variable is defined as a dummy for whether the individual has some formal education.

We continue to find that men are more likely to inherit than women, even with the controls. Being male adds 0.11 to the conditional probability of receiving any inheritance, while it adds 0.07 to the probability of inheriting land.

Unsurprisingly, the death of either parent increases the probability of inheritance, and the coefficients are considerably higher for paternal death. In the full sample, death of the father alone adds 0.67 to the probability of inheritance, while death of the mother adds only 0.15. This is probably due to the fact that at the death of a woman, her land is first passed onto her husband and transferred to children only at his death. By contrast, children inherit from their father at his death, whether or not their mother is still alive. These effects are significant across almost all strata and specifications, the only exception being that death of the mother is not a significant predictor of land inheritance by women. The effect of a father's recent death dampens the large "father dead" effect (bringing it down from 0.67 to 0.57, when the mother is still alive), suggesting that inheritance is delayed somewhat.

There is a positive coefficient on education in the regressions for any inheritance, which casts doubt on the idea of substitution by parents between formal schooling and inheritance (whereby some children get some form of inheritance while others get formal schooling). However, there is some sign of such substitution for land inheritance, though it is only statistically significant for women; those women with formal schooling are less likely to inherit land. Obviously, this might reflect the individual choice of an educated woman with a non-farm

economic activity to give up her land inheritance to the benefit of her siblings, rather than a parental decision to substitute one form of transmission for another.

Men who were fostered as boys are more likely to inherit land unless they were fostered before age two. This pattern is plausible. Fostering out a very young child is suggestive of giving away the child (for example to a childless parent), which is an indication that inheritance is unlikely. By contrast, fostering an older child is in general less permanent and more suggestive of an investment in the child, which would also suggest that inheritance is more likely. None of these effects are statistically significant for girls.

Having a mother active in the non-farm sector significantly increases the probability of any inheritance for men although not for women. For land inheritance, it is father's non-farm activity that matters but negatively ─ significantly reducing the likelihood of inheriting land for both genders. Paternal activity in farm work has no effect on inheritance but maternal farm work has a positive correlation with men's, and less so women's, land inheritance.

Finally, the number of siblings of the opposite gender is significantly associated with inheriting from one's parents. For men a positive effect on land and on any inheritance, is related to the number of sisters from the same father or same parents;[15] for women, the number of brothers from the same mother reduces the likelihood of getting any inheritance while more brothers from the same father has a significant but small positive influence on land inheritance.

Controlling for these other variables, there is little sign that the probability of inheritance is different between urban and rural areas for men. However, women's probability of any inheritance is lower in rural areas.

### *Effects of inheritance on consumption, economic activities and mobility*

We regress the log of cell-specific consumption expenditure per person on dummy variables for having inherited land, housing and other assets (finance, consumer durables and physical capital) including a large number of control variables, to account for the heterogeneity in individual and household characteristics, including parental characteristics, as described above. Other dependent variables we study include farm and non-farm activity and mobility (whether the respondent lives where his/her parents had lived). We follow past literature in assuming the exogeneity of inheritance (and other aforementioned controls); indeed, inheritance

[15] "Sibling from same parents" means that the siblings share both parents. By contrast, "sibling from the same father" means that the father is common, but not the mother (and conversely for "sibling from the same mother").

has been used as an instrumental variable for current wealth and land rights in explaining various dimensions of current living standards and land productivity.[16] However, the assumption can be questioned (as we discuss later) and so we also test robustness to relaxing the exogeneity assumption, under assumed exclusion restrictions related to the family of birth.

Tables 5, 6 and 7 give results for (log) cell expenditure per person; recall that this combines the cell-specific expenditures with imputed values for the cell's share of jointly consumed items within the household. Table 5 first presents the coefficients on inheritance estimated without any controls, followed by those estimated by adding various correlates, which we do in two steps: adding controls for geographic effects alone, and then adding the controls for individual, household and parental characteristics. We next give results with all controls for the full sample, and for both an urban-rural stratification and gender stratification in Table 6 and 7.

Without any controls, inheriting land has a strong negative correlation with consumption (Table 5). But this largely vanishes when one controls for location, reflecting the fact that rural households tend to be both poorer and more likely to inherit land. Similarly, inheriting a house is strongly positively correlated with consumption without controlling for location or and other individual and household characteristics, but this vanishes when the controls are added. However, a positive effect of other (non-land, non-housing) forms of inheritance emerges with the controls.

This finding of no statistically significant effects of land or housing inheritance in the full sample is also evident in the various strata (urban/rural, male/female) (Table 6). The significant effects of other types of inheritance in the full sample are confined to the rural stratum and to men.

We find that the gender gap in consumption largely vanishes when we add our controls. Adult male heads of cells (typically, though not always, the overall household head as well) have higher consumption than females *ceteris paribus*, but the difference is modest at a gain in log consumption of 0.01, and it is not statistically significant (Table 6). Note, however, that our controls include variables such as schooling, which are unequal between genders. The simple regression coefficient (the difference in mean log consumption) is 0.57 and is significant at the 1% level (t=14.92). So our finding can be interpreted as indicating that the gender gap in

[16] Examples include Besley (1995) and Akresh et al. (2010).

consumption can be explained by the gender difference in individual and household characteristics.

Along with the gender differences in characteristics, which (as we have seen) account for the gender disparity in consumption, there are also gender differences in returns to characteristics. A Chow test rejects the null hypothesis of equality of the coefficients across the regressions for men and women ($F(72, 1498) = 1.84$, $Prob > F = 0.0000$).

Own education is significant in the consumption regressions, as expected. Strikingly, maternal education has a much stronger effect—an impact on log consumption of 0.27—than paternal education, and this is due to its effect in urban areas and for women. Having a father (but not a mother) who worked in the non-farm sector has a large and significant effect on log consumption of 0.30; having a father in farming has a smaller effect (0.17). (The left out category is inactive.) These effects are stronger for men than for women. It is clear that parental characteristics matter, even though land and housing inheritance do not.

Being fostered out as a child is associated with higher adult consumption; the effect is confined to men, and is stronger for those living in urban areas. This result is consistent with the fact that the practice of fostering (which is common in Senegal) is often associated with investment in the human capital of the child. Notice, however, that having been fostered out young has an offsetting effect for men.

When we stratify by the interaction of gender with urban-rural residence, a sharper picture emerges on the adult consumption gains from other forms of inheritance, namely that they are confined to rural men (Table 7).

Table 8 summarizes the key marginal effects from probits for agricultural self-employment. Parental characteristics matter, though in some possibly surprising ways. Having a father in farming does not have any significant effect but a mother who was a farmer makes it more likely one will be a farmer. This effect is evident for both men and women, but significantly larger for men in rural areas. Having had either parent in the non-farm sector makes it less likely one will be a farmer, notably in rural areas, although the effect is far more pronounced for the mother in the case of rural men, while it is the father effect that is stronger for women.

Parental schooling effects on the probability of being a farmer seem weak, though for rural women there is a significant positive effect of father's schooling and negative effect of

mother's schooling (both significant at the 10% level). Own formal schooling makes it less likely that men will be in farming, but makes this more likely for women.

We find that inheriting land makes farming more likely. However, this effect is confined to women in rural areas. Endogeneity is a concern here; as women rarely inherit land, those who remained in the same village as their parents and are in farming are more likely to be the ones who do inherit land. Inheriting land does not make it more likely that men will be farmers. We find no significant effects of inheriting a house. Other (non-land, non-housing) forms of inheritance are associated with lower probabilities of an adult being in agricultural self-employment. This effect is found in both rural and urban areas, though it is stronger for rural areas (Table 8). The effect is similar in size for men and women, though only statistically significant for women.

Table 9 reports analogous results for non-farm occupations. Having a mother in the non-farm sector significantly enhances the probability of an adult working in the non-farm sector. Higher own schooling increases the probability for men (and it is a larger effect for men in rural areas) but not for women.

We find no evidence that inheriting land has a significant effect on the likelihood of doing non-farm activities (Table 9) (although, as we will see, this changes when we allow land to be endogenous). However, inheritance of other (non-land, non-housing) assets makes it more likely that women will be employed in the non-farm sector, notably in urban areas (Table 11).

A number of effects on mobility—identified by whether an adult lives in the same place as his or her parents—are evident in Table 10. Having a farmer for a father makes a son's mobility more likely, though the effect is only significant for rural men. Having a father who worked in the non-farm sector has the opposite effect—increasing the likelihood of living in the same place, though the effect is only significant for rural areas, and is larger for rural women. Having a father with formal schooling makes mobility more likely for urban men; having had a mother with schooling makes it more likely that a woman will live in the same place as her parents. Own formal schooling makes mobility more likely, though the effect is only significant for rural men and urban women.

Inheriting land does not appear to have any significant effect on the probability of moving to a location different from where one's father resided in the sample as a whole (Table 10). However, there is a sign that inheriting land actually encourages such mobility for urban women.

Inheriting a house makes it more likely a man living in rural areas will have the same residence as his parents—in a rather obvious way since the one brother who will inherit the house is the one who intends to live in it (or already does)—but there are no other significant effects of this form of inheritance. Nor are there any significant effects of other (non-land, non-housing) inheritance.

### *Further tests of robustness*

Possibly the effect of inheritance is diluted by including in the sample cell heads whose parents are still alive, and cannot (of course) be a source of inheritance. We tested this possibility by only including cases where either the father or the mother is dead. Again we found no significant effect of inheriting land, though a positive effect of inheriting a house did emerge in the urban sample. "Other inheritance" remained significant in the full sample, and is due to men. Other results were robust.

The main results reported above were also found to be robust to dropping potentially endogenous variables (own-schooling, being fostered as a child and age at first marriage). The effects of maternal characteristics (sector and education) on the probability of being a farmer are stronger when one confines attention to the sample with either parent dead. This sub-sample reveals a stronger effect on non-farm employment of having parents who did non-farm work. Dropping own education reveals even weaker effects of parental education on sector of employment.

We also tested sensitivity to allowing for an interaction effect between inheritance and the time since the father died; for those with a dead father, the mean time since death is 22 years (the median is 19). It is not clear on *a priori* grounds what one would expect. The inherited asset may have a positive rate of return allowing capital accumulation, though other factors may come into play; for example, there were clearly fewer options to farming for those who inherited the land a long time ago. Also, assets (including land) depreciate in value over time. Our tests involved simply adding an interaction effect between inheritance and years since the death of the father to the preceding regressions.[17] For cell consumption per capita, there was a negative interaction effect though only amongst urban men, for which the effect was significant at the 5%

[17] If one assumes that the current value of a past inheritance in amount $I$ is given by $f(t)=[(1+r)(1-d)]^t$ (where $r$ is the rate of return, $d$ is the depreciation rate and $t$ is the number of years since father's death) then the function $f(t)$ can be approximated by a linear function of $t$ with constant parameters if one takes its first-order Taylor series expansion and one assumes that $r$ and $d$ are common across all households. However, these are potentially strong assumptions, especially the constancy of returns.

level. The total effect was positive up to about 30 years, though not significant even when the father died recently. For agricultural self-employment the interaction effect was often positive though generally not significant, except for urban men; for non-farm employment the pattern switched, with a negative interaction effect, though again not strong. However, allowing for such an interaction effect does not change our main findings reported above.

Our assumption that past inheritance is exogenous to current living standards can be questioned. Choices about who inherits the land may be influenced by factors that are unobserved by us, but observed by the parents or other stakeholders—factors that are also correlated with the economic activity and economic welfare of the child on reaching adulthood. It may be decided by the family group that one of the sons is best suited to taking charge of the family farm on the father's death. This may reflect a latent interest or ability at farming, revealed while growing up. Or it may be that other sons show more aptitude for non-farm work. Parents may also have gender preferences in their choices about inheritance and schooling—choices that are influenced by both market and non-market parameters.[18] Another potential source of endogeneity is the fact that children could possibly decline the inheritance, in particular of land, if taking care of it is not compatible with their preferred activity or if, being themselves economically successful, they feel that their siblings have a greater need for it.

In testing the robustness of our results to treating inheritance as endogenous, the key identifying assumption we make is that the death of the father or mother only matters to an individual adult's current economic welfare via inheritance of land or other assets. It is hard to see why parental death sometime in the past would matter to current adult consumption except via inheritance and (hence) wealth. Possibly the shock of parental death will have an impact, but then we control for a father's recent death (within the last two years) in all our regressions.

We can only convincingly treat one inheritance variable as endogenous, solving out other endogenous variables.[19] We do so for any inheritance taken together, and separately for land, excluding other forms of inheritance. We also drop any variables that could be endogenous by the same logic, notably own education. (Parents may decide that one son gets the schooling while the other gets the land.) We also drop fostering and age at marriage for the same reason.

[18] For example, using data from the rural Philippines, Estudillo et al. (2001) show how sons are preferred for land inheritance, while daughters are preferred for investments in schooling.

[19] We tried using death of father and death of mother as two IVs for two inheritance variables (land and other) but these did not have sufficient power for credible identification.

Table 11 gives the IV estimates for each of the dependent variables used in the previous tables.[20] (Note that the estimator is not feasible for the sub-sample for which the father is dead.) Our results on land inheritance are reasonably robust to relaxing the exogeneity assumption using these IVs. In particular, we still find that land inheritance does not convey any significant consumption benefit.

However, we now find that land inheritance tends to encourage a shift from farm to non-farm work, suggesting that there was a downward bias in the earlier estimates (Table 9). On investigating this effect further we find that it is present for both the sub-samples that are heads of households and those that are not, but that it was far stronger (in size and statistical significance) for those who are not heads of household. Table 11 gives a split of the results for non-farm activities according to whether or not the cell head is also the overall household head.[21] The difference is even more pronounced if confined to men only; the IV coefficients on land inheritance are 0.460 (s.e.=0.333) for male heads of household as compared to 1.374 (s.e.=0.445) for male non-heads. The latter sub-sample tends to be comprised of married brothers of household heads. When land inheritance comes without the responsibilities of headship it appears to be an important factor in encouraging diversification into non-farm activities.

We found that the absence of a significant impact of land inheritance, once instrumented, on the probability of being in farming was true for all the sub-samples we considered (men, women, household heads). Furthermore, on running the same regressions using as the measure of inheritance whether or not the individual received any inheritance of any type, the results were qualitatively very similar to those for land inheritance.

### *Implications for explaining inequality*

It is clear from these results that bequests can play little role in perpetuating consumption inequality. However, other parental characteristics clearly do matter, both directly and via adult characteristics, notably education. Table 12 presents decompositions of consumption inequality implied by the regressions in Table 6. (Appendix 2 explains how the decompositions were done.)

Far more important to inequality than inheritance is "own schooling," which contributes 9% to overall consumption inequality (almost one fifth of the explained component). The share

[20] For consumption, we also used the treatment effects model (the "treatreg" estimator in STATA) which uses full maximum likelihood to estimate the effect of an endogenously chosen binary treatment on another endogenous continuous variable, conditional on two sets of independent variables. This gave very similar results.

[21] No such interaction effects were evident for the other dependent variables in Table 11.

is even higher for women. Demographics, especially cell size and the proportion of adults, also emerge as large contributors to inequality, especially in rural areas; this probably reflects differences in the available labor force. In the national sample, almost half of the explained inequality is attributable to rural-urban location.

## 5. Conclusions

We find evidence of significant intergenerational linkages in this setting. This is evident in the correlations between parents' and children's sectors of occupation, which persist on adding controls for heterogeneity in other respects. Nonetheless, there is still considerable intergenerational mobility, both across sectors and residentially, which appears to be primarily associated with the transition from farm to non-farm activities. Only one third of the sons of farmers stayed in farming. And adult women in our sample are far more economically active than were their mothers.

Our results suggest that gender plays an important role. There is consumption inequality between men and women, though this is largely accountable to factors such as education. The intergenerational linkages through the mother appear to be stronger than those through the father—including on the son's economic activity. Educated mothers are more likely to have sons in the non-farm sector. While women with formal schooling are no more likely to be in non-farm employment and (slightly) more likely to be farmers, it is their sons who are more likely to find their way into the non-farm sector.

If we assume conditional exogeneity of inheritance (with a wide range of controls), it seems that inheriting the land makes it more likely that a woman will stay a farmer, but not so for men. Inheriting other (non-land, non-housing) assets appears to help get women into non-farm work, but there is no such effect for men. However, endogeneity bias might partly account for those results. When we allow for the possible endogeneity of inheritance by assuming that the death of a parent only matters via inheritance (though allowing for the short-term shock of parental death) we find evidence that inheritance does play a role in facilitating diversification into non-farm activities, although this is only present for men who do not also inherit the responsibilities of being the overall head of the household. The potential wealth effect of an inheritance on activity choice seems to be inhibited by the obligations attendant to household headship.

On average, inheriting the land or house brings no significant gain to an adult's consumption. It appears that intra-household allocation across generations comes fairly close to equalizing consumption between otherwise identical individuals, only one of whom takes on the responsibility for the family's land and housing assets, However, we find that there are significant gains from inheriting other (non-land and non-housing) assets. Formal schooling appears to yield much higher returns.

In short, while inter-generational linkages clearly matter, there still appears to be considerable inter-generational mobility in this setting. Inheritance of land or housing contributes very little to overall inequality, and does not appear to be an important channel for enhancing economic efficiency through transfers of ownership. Non-land inheritance, schooling and parental characteristics (especially the mother's) appear to play a far more important role.

**Table 1: Inheritance, by gender**

| *Among individual heads of cells whose father or mother is dead* | Men | Women | All | t-test of the difference (women-men) |
|---|---|---|---|---|
| Father has left any form of inheritance | 75.44% (983) | 68.50% (961) | 71.84% | -4.02 |
| Father has transmitted land to this person | 43.06% (580) | 27.97% (410) | 35.19% | -8.48 |
| Mother has left any form of inheritance | 21.25% (174) | 22.18% (185) | 21.72% | 0.46 |
| Mother has transmitted land to this person | 4.49% (38) | 3.35% (29) | 3.92% | -1.21 |

Note: number of observations in brackets.

**Table 2: Sectoral occupational mobility across generations for men and women**

| *No. observations* | Men | | | | Women | | | |
|---|---|---|---|---|---|---|---|---|
| *(% of all individuals)* | Farm | Non-farm | Inactive | Total | Farm | Non-farm | Inactive | Total |
| Father's occupation | | | | | | | | |
| Farm | 216 | 313 | 113 | 642 | 228 | 273 | 398 | 899 |
| | (11.37) | (16.47) | (5.95) | (33.79) | (9.12) | (10.92) | (15.91) | (35.95) |
| Non-farm | 55 | 413 | 96 | 564 | 46 | 397 | 387 | 830 |
| | (2.89) | (21.74) | (5.05) | (29.68) | (1.84) | (15.87) | (15.47) | (33.19) |
| Inactive | 192 | 347 | 155 | 694 | 114 | 231 | 427 | 772 |
| | (10.11) | (18.26) | (8.16) | (36.53) | (4.56) | (9.24) | (17.07) | (30.87) |
| Total | 463 | 1,073 | 364 | 1,900 | 388 | 901 | 1,212 | 2,501 |
| | (24.37) | (56.47) | (19.16) | (100.00) | (15.51) | (36.03) | (48.46) | (100.00) |
| Cramer's V | | | | 0.178 | | | | 0.184 |
| Mother's occupation | | | | | | | | |
| Farm | 154 | 133 | 68 | 355 | 185 | 168 | 203 | 556 |
| | (8.11) | (7.00) | (3.58) | (18.68) | (7.40) | (6.72) | (8.12) | (22.23) |
| Non-farm | 20 | 200 | 40 | 260 | 20 | 215 | 178 | 413 |
| | (1.05) | (10.53) | (2.11) | (13.68) | (0.80) | (8.60) | (7.12) | (16.51) |
| Inactive | 289 | 740 | 256 | 1.285 | 183 | 518 | 831 | 1.532 |
| | (15.21) | (38.95) | (13.47) | (67.63) | (7.32) | (20.71) | (33.23) | (61.26) |
| Total | 463 | 1,073 | 364 | 1,900 | 388 | 901 | 1,212 | 2,501 |
| | (24.37) | (56.47) | (19.16) | (100.00) | (15.51) | (36.03) | (48.46) | (100.00) |
| Cramer's V | | | | 0.184 | | | | 0.211 |

**Table 3: Marginal determinants of the probability of any inheritance**

| | All | | Men | | Women | |
|---|---|---|---|---|---|---|
| Male | 0.111*** | 0.136*** | -- | -- | -- | -- |
| | (0.0338) | (0.0258) | | | | |
| Age | -0.00270 | 0.00183 | 0.00742 | 0.0144** | -0.00201 | 0.00148 |
| | (0.00498) | (0.00433) | (0.00745) | (0.00660) | (0.00614) | (0.00550) |
| Age squared | 2.04e-05 | -1.71e-05 | -7.66e-05 | -0.000133** | 1.22e-05 | -2.37e-05 |
| | (4.70e-05) | (4.16e-05) | (6.81e-05) | (6.13e-05) | (6.06e-05) | (5.54e-05) |
| Muslim | 0.219*** | 0.183*** | 0.275*** | 0.239** | 0.202*** | 0.167*** |
| | (0.0530) | (0.0510) | (0.0960) | (0.0945) | (0.0478) | (0.0467) |
| Serere ethnicity | -0.0806** | -0.0637* | -0.0529 | -0.0447 | -0.114*** | -0.0896** |
| | (0.0406) | (0.0380) | (0.0637) | (0.0609) | (0.0428) | (0.0403) |
| Poular ethnicity | 0.00583 | 0.00770 | 0.0568 | 0.0488 | -0.0461 | -0.0220 |
| | (0.0374) | (0.0348) | (0.0509) | (0.0493) | (0.0432) | (0.0402) |
| Diola ethnicity | 0.0481 | 0.00466 | -0.0456 | -0.0712 | 0.129 | 0.0680 |
| | (0.0849) | (0.0749) | (0.107) | (0.0990) | (0.103) | (0.0882) |
| Mandingue ethnicity | 0.0165 | 0.00655 | 0.0563 | 0.0178 | -0.0284 | -0.0105 |
| | (0.0515) | (0.0493) | (0.0795) | (0.0766) | (0.0537) | (0.0530) |
| Sarakole ethnicity | 0.0408 | 0.0636 | 0.0477 | 0.149 | 0.0300 | 0.00827 |
| | (0.111) | (0.101) | (0.137) | (0.119) | (0.144) | (0.128) |
| Mandiaque ethnicity | 0.187 | 0.106 | 0.256 | 0.231 | 0.144 | 0.0475 |
| | (0.167) | (0.157) | (0.184) | (0.199) | (0.189) | (0.158) |
| Other ethnicity | -0.110 | -0.120* | -0.112 | -0.117 | -0.111 | -0.113* |
| | (0.0749) | (0.0642) | (0.123) | (0.110) | (0.0790) | (0.0680) |
| Brothers same father | -0.000258 | 2.14e-05 | -0.00760 | -0.00741 | 0.00940 | 0.00987 |
| | (0.00675) | (0.00645) | (0.0106) | (0.0105) | (0.00811) | (0.00756) |
| Brothers same parents | -0.00319 | -0.000256 | -0.0154 | -0.0155 | 0.00127 | 0.00808 |
| | (0.00754) | (0.00710) | (0.0122) | (0.0115) | (0.00928) | (0.00859) |
| Sisters same father | 0.0235*** | 0.0224*** | 0.0317*** | 0.0359*** | 0.0144* | 0.0105 |
| | (0.00692) | (0.00661) | (0.0111) | (0.0110) | (0.00837) | (0.00767) |
| Sisters same parents | 0.0132* | 0.0142** | 0.0268** | 0.0267** | 0.00634 | 0.00555 |
| | (0.00744) | (0.00697) | (0.0110) | (0.0106) | (0.00909) | (0.00854) |
| Brothers same mother | -0.0337** | -0.0186 | -0.00547 | 0.00591 | -0.0523*** | -0.0350** |
| | (0.0148) | (0.0137) | (0.0242) | (0.0232) | (0.0194) | (0.0172) |
| Sisters same mother | -0.00430 | -0.0183 | -0.0280 | -0.0377 | 0.00334 | -0.00792 |
| | (0.0151) | (0.0140) | (0.0267) | (0.0232) | (0.0171) | (0.0167) |
| First same gender | 0.0289 | 0.0125 | -0.0272 | -0.0455 | 0.0597 | 0.0469 |
| | (0.0295) | (0.0274) | (0.0542) | (0.0519) | (0.0387) | (0.0353) |
| First of siblings | -0.0146 | -0.00173 | -0.0140 | 0.0195 | -0.0284 | -0.0378 |
| | (0.0321) | (0.0303) | (0.0611) | (0.0585) | (0.0465) | (0.0426) |
| First born is male | 0.0263 | 0.0175 | 0.0859* | 0.0729 | 0.00954 | -0.0168 |
| | (0.0239) | (0.0227) | (0.0475) | (0.0464) | (0.0327) | (0.0294) |
| Father died recently | -0.111*** | -0.111*** | -0.153** | -0.193*** | -0.0887** | -0.0648* |
| | (0.0376) | (0.0343) | (0.0688) | (0.0597) | (0.0405) | (0.0389) |
| Father is dead | 0.674*** | 0.658*** | 0.734*** | 0.717*** | 0.637*** | 0.618*** |
| | (0.0155) | (0.0147) | (0.0208) | (0.0206) | (0.0199) | (0.0189) |
| Mother is dead | 0.147*** | 0.144*** | 0.152*** | 0.152*** | 0.149*** | 0.147*** |
| | (0.0279) | (0.0264) | (0.0424) | (0.0404) | (0.0346) | (0.0324) |
| Father in farming | -0.0134 | -0.0109 | 0.0381 | 0.0509 | -0.0479 | -0.0478 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | (0.0299) | (0.0280) | (0.0433) | (0.0409) | (0.0354) | (0.0333) |
| Mother in farm. | 0.0351 | 0.0525 | 0.00198 | 0.00792 | 0.0628 | 0.0815** |
| | (0.0351) | (0.0331) | (0.0519) | (0.0497) | (0.0442) | (0.0411) |
| Father in non-farm | 0.0357 | 0.0482 | 0.00456 | 0.0149 | 0.0500 | 0.0576 |
| | (0.0341) | (0.0321) | (0.0496) | (0.0479) | (0.0420) | (0.0388) |
| Mother in non-farm | 0.0776** | 0.0753** | 0.140*** | 0.143*** | 0.0318 | 0.0281 |
| | (0.0370) | (0.0344) | (0.0509) | (0.0484) | (0.0441) | (0.0400) |
| Father's schooling | 0.0147 | 0.0181 | 0.0612 | 0.0735 | -0.0103 | -0.00847 |
| | (0.0414) | (0.0381) | (0.0602) | (0.0571) | (0.0486) | (0.0445) |
| Mother's schooling | -0.0360 | 0.00307 | -0.132 | -0.0900 | 0.0123 | 0.0450 |
| | (0.0532) | (0.0487) | (0.0858) | (0.0797) | (0.0639) | (0.0593) |
| Father rural | -0.0466 | -0.0574 | -0.114 | -0.142** | -0.00319 | -0.0135 |
| | (0.0487) | (0.0447) | (0.0752) | (0.0706) | (0.0555) | (0.0516) |
| Mother rural | 0.0603 | 0.0782* | 0.145* | 0.161** | 0.0163 | 0.0319 |
| | (0.0473) | (0.0436) | (0.0757) | (0.0721) | (0.0541) | (0.0498) |
| Log hh size | 0.0333 | 0.0187 | 0.0562 | 0.0249 | 0.0146 | 0.000344 |
| | (0.0229) | (0.0204) | (0.0344) | (0.0311) | (0.0265) | (0.0240) |
| Log cell size | 0.0347 | 0.0370* | 0.0597 | 0.0591 | 0.000396 | 0.0168 |
| | (0.0236) | (0.0218) | (0.0394) | (0.0369) | (0.0334) | (0.0300) |
| Share of cell aged<5 | 0.0101 | 0.0436 | -0.135 | 0.000953 | 0.0204 | 0.0204 |
| | (0.0860) | (0.0776) | (0.167) | (0.155) | (0.0956) | (0.0842) |
| Share of cell adults | -0.0182 | 0.0133 | 0.0190 | 0.0285 | -0.0727 | -0.00214 |
| | (0.0630) | (0.0584) | (0.112) | (0.106) | (0.0766) | (0.0688) |
| Has formal schooling | 0.0582* | -- | 0.0869** | -- | 0.0477 | -- |
| | (0.0314) | | (0.0441) | | (0.0416) | |
| Fostered | 0.00747 | -- | 0.00408 | -- | -0.0101 | -- |
| | (0.0424) | | (0.0587) | | (0.0601) | |
| Fostered young | 0.0171 | -- | 0.0722 | -- | -0.0224 | -- |
| | (0.0555) | | (0.0909) | | (0.0679) | |
| Age at first marriage | 0.00363 | -- | 0.00441 | -- | 0.00165 | -- |
| | (0.00233) | | (0.00326) | | (0.00313) | |
| Rural | 0.0110 | -0.0316 | 0.110 | 0.0733 | -0.0803 | -0.110** |
| | (0.0507) | (0.0475) | (0.0708) | (0.0685) | (0.0565) | (0.0514) |
| No. Observations | 3,150 | 3,524 | 1,415 | 1,548 | 1,735 | 1,997 |
| Pseudo $R^2$ | 0.374 | 0.373 | 0.407 | 0.404 | 0.381 | 0.380 |

Note: Robust standard errors in parentheses, clustered at the household level; *** p<0.01, ** p<0.05, * p<0.1. The variables 'First same gender', 'First of siblings' and 'First born is male' all refer to children of the same father, same mother. The regression also includes department fixed effects.

**Table 4: Marginal determinants of the probability of land inheritance**

| | All | | Men | | Women | |
|---|---|---|---|---|---|---|
| Male | 0.0748*** | 0.0779*** | -- | -- | -- | -- |
| | (0.0187) | (0.0147) | | | | |
| Age | -0.00359 | -0.00248 | -0.000444 | -0.000990 | -0.00249 | -0.00163 |
| | (0.00267) | (0.00215) | (0.00521) | (0.00435) | (0.00225) | (0.00167) |
| Age squared | 3.75e-05 | 3.06e-05 | 8.78e-06 | 1.65e-05 | 2.43e-05 | 2.05e-05 |
| | (2.47e-05) | (2.03e-05) | (4.66e-05) | (3.95e-05) | (2.18e-05) | (1.67e-05) |
| Muslim | 0.0620*** | 0.0506*** | 0.0958** | 0.0817** | 0.0422*** | 0.0326*** |
| | (0.0206) | (0.0178) | (0.0432) | (0.0417) | (0.0142) | (0.0115) |
| Serere ethnicity | 0.0310 | 0.0189 | 0.0889* | 0.0651 | 0.00322 | -5.75e-05 |
| | (0.0249) | (0.0207) | (0.0508) | (0.0447) | (0.0189) | (0.0142) |
| Poular ethnicity | 0.00156 | -0.00125 | 0.0356 | 0.0172 | -0.0132 | -0.00503 |
| | (0.0184) | (0.0157) | (0.0354) | (0.0314) | (0.0150) | (0.0122) |
| Diola ethnicity | 0.0585 | 0.0365 | 0.00777 | 0.0124 | 0.0913 | 0.0434 |
| | (0.0625) | (0.0487) | (0.0832) | (0.0748) | (0.0768) | (0.0488) |
| Mandingue ethnicity | 0.0284 | 0.0184 | 0.0576 | 0.0196 | 0.00548 | 0.00777 |
| | (0.0312) | (0.0262) | (0.0607) | (0.0507) | (0.0230) | (0.0193) |
| Sarakole ethnicity | -0.0133 | -0.0123 | -0.0120 | 0.0121 | -0.0113 | -0.0113 |
| | (0.0475) | (0.0373) | (0.0893) | (0.0768) | (0.0338) | (0.0247) |
| Mandiaque ethnicity | 0.250 | 0.204 | 0.442 | 0.445 | 0.150 | 0.0799 |
| | (0.229) | (0.200) | (0.303) | (0.317) | (0.176) | (0.118) |
| Other ethnicity | -0.0405 | -0.0292 | -0.00740 | -0.0181 | -0.0414*** | -0.0276** |
| | (0.0334) | (0.0282) | (0.0785) | (0.0635) | (0.0154) | (0.0137) |
| Brothers same father | 0.00630* | 0.00476 | 0.00747 | 0.00470 | 0.00655** | 0.00473** |
| | (0.00333) | (0.00292) | (0.00675) | (0.00623) | (0.00293) | (0.00239) |
| Brothers same parents | -0.000305 | -0.00111 | -0.00412 | -0.00522 | -0.00114 | -0.000291 |
| | (0.00408) | (0.00346) | (0.00844) | (0.00745) | (0.00364) | (0.00283) |
| Sisters same father | 0.00386 | 0.00523* | 0.0120* | 0.0155** | -0.000384 | 0.000449 |
| | (0.00346) | (0.00298) | (0.00693) | (0.00625) | (0.00300) | (0.00237) |
| Sisters same parents | 0.00669* | 0.00586* | 0.0178** | 0.0169** | 0.000874 | 9.87e-05 |
| | (0.00386) | (0.00324) | (0.00743) | (0.00668) | (0.00349) | (0.00277) |
| Brothers same mother | -0.0149** | -0.0160** | 0.00604 | -0.00185 | -0.0269*** | -0.0224*** |
| | (0.00741) | (0.00642) | (0.0164) | (0.0154) | (0.00821) | (0.00674) |
| Sisters same mother | -0.00548 | -0.00466 | -0.0208 | -0.0128 | -0.00119 | -0.000725 |
| | (0.00845) | (0.00694) | (0.0172) | (0.0148) | (0.00685) | (0.00544) |
| First same gender | 0.0168 | 0.00978 | 0.00467 | 0.000149 | 0.0190 | 0.0114 |
| | (0.0149) | (0.0127) | (0.0356) | (0.0321) | (0.0148) | (0.0118) |
| First of siblings | -0.00495 | -0.000204 | -0.0170 | -0.0103 | 0.00292 | 0.00665 |
| | (0.0164) | (0.0144) | (0.0394) | (0.0361) | (0.0175) | (0.0146) |
| First born is male | 0.0154 | 0.0112 | 0.0531* | 0.0395 | 0.00628 | 0.00392 |
| | (0.0125) | (0.0106) | (0.0289) | (0.0269) | (0.0123) | (0.00958) |
| Father died recently | -0.0397** | -0.0346** | -0.0922*** | -0.0802*** | -0.0193 | -0.0141 |
| | (0.0161) | (0.0135) | (0.0303) | (0.0263) | (0.0127) | (0.0102) |
| Father is dead | 0.334*** | 0.317*** | 0.429*** | 0.412*** | 0.259*** | 0.234*** |
| | (0.0141) | (0.0133) | (0.0196) | (0.0190) | (0.0179) | (0.0163) |
| Mother is dead | 0.0364** | 0.0257* | 0.0674** | 0.0558** | 0.0177 | 0.00852 |
| | (0.0158) | (0.0135) | (0.0289) | (0.0262) | (0.0140) | (0.0106) |
| Father in farming | -0.0122 | -0.00769 | 0.00233 | 0.0128 | -0.0151 | -0.0118 |
| | (0.0149) | (0.0128) | (0.0283) | (0.0253) | (0.0130) | (0.0104) |
| Mother in farm. | 0.0465** | 0.0471*** | 0.0953** | 0.0810** | 0.0211 | 0.0244* |

| | | | | | | |
|---|---|---|---|---|---|---|
| | (0.0201) | (0.0176) | (0.0411) | (0.0372) | (0.0169) | (0.0141) |
| Father in non-farm | -0.0577*** | -0.0514*** | -0.0845*** | -0.0746*** | -0.0383*** | -0.0330*** |
| | (0.0167) | (0.0144) | (0.0310) | (0.0278) | (0.0144) | (0.0117) |
| Mother in non-farm | 0.000288 | 0.00290 | 0.0154 | 0.0147 | -0.00356 | -0.00374 |
| | (0.0206) | (0.0177) | (0.0424) | (0.0382) | (0.0165) | (0.0130) |
| Father's schooling | -0.00155 | -0.00489 | -0.0590 | -0.0667* | 0.0213 | 0.0156 |
| | (0.0245) | (0.0202) | (0.0413) | (0.0351) | (0.0255) | (0.0201) |
| Mother's schooling | -0.00649 | -0.0138 | -0.0434 | -0.0282 | 0.00812 | -0.0126 |
| | (0.0312) | (0.0236) | (0.0537) | (0.0481) | (0.0335) | (0.0186) |
| Father rural | 0.0398* | 0.0283 | 0.0158 | -0.000487 | 0.0392** | 0.0289* |
| | (0.0227) | (0.0193) | (0.0483) | (0.0436) | (0.0184) | (0.0149) |
| Mother rural | 0.0486** | 0.0543*** | 0.0865* | 0.0876** | 0.0216 | 0.0270* |
| | (0.0228) | (0.0193) | (0.0466) | (0.0416) | (0.0192) | (0.0153) |
| Log hh size | 0.0347*** | 0.0209** | 0.0655*** | 0.0385** | 0.0156 | 0.00842 |
| | (0.0121) | (0.00967) | (0.0230) | (0.0195) | (0.0103) | (0.00777) |
| Log cell size | 0.00386 | 0.00511 | -0.00968 | -0.0122 | -0.00406 | 0.000672 |
| | (0.0115) | (0.00951) | (0.0251) | (0.0223) | (0.0116) | (0.00878) |
| Share of cell aged<5 | -0.0625 | -0.0535 | -0.274** | -0.241** | -0.0228 | -0.0143 |
| | (0.0451) | (0.0378) | (0.131) | (0.116) | (0.0330) | (0.0253) |
| Share of cell adults | -0.0299 | -0.0221 | -0.161** | -0.148** | -0.0135 | -0.00708 |
| | (0.0326) | (0.0276) | (0.0768) | (0.0692) | (0.0264) | (0.0205) |
| Has formal schooling | -0.0213 | -- | -0.0119 | -- | -0.0232* | -- |
| | (0.0145) | | (0.0286) | | (0.0119) | |
| Fostered | 0.0489** | -- | 0.119** | -- | -0.0211 | -- |
| | (0.0244) | | (0.0488) | | (0.0174) | |
| Fostered young | -0.0537*** | -- | -0.108*** | -- | -0.00254 | -- |
| | (0.0200) | | (0.0344) | | (0.0257) | |
| Age at first marriage | 0.000873 | -- | 0.00210 | -- | -0.000342 | -- |
| | (0.00111) | | (0.00195) | | (0.00125) | |
| Rural | 0.0114 | 0.00836 | 0.0769* | 0.0748* | -0.0170 | -0.0141 |
| | (0.0247) | (0.0209) | (0.0452) | (0.0401) | (0.0201) | (0.0154) |
| No. observations | 3,150 | 3,524 | 1,415 | 1,548 | 1,699 | 1,976 |
| Pseudo $R^2$ | 0.378 | 0.363 | 0.389 | 0.388 | 0.359 | 0.367 |

Note: Robust standard errors in parentheses, clustered at the household level; *** p<0.01, ** p<0.05, * p<0.1. The variables 'First same gender', 'First of siblings' and 'First born is male' all refer to children of the same father, same mother. Regressions also contain regional (department) dummies. The reference variables are Wolof ethnicity, all other religions, occupation 'inactive', share of cell members 5-15, no and non-formal schooling.

**Table 5: Estimated effects of inheritance on log cell per capita consumption with and without controls**

| | (1)<br>No controls | (2)<br>Rural location and department dummies | (3)<br>As in (2) + controls for individual and household characteristics |
|---|---|---|---|
| Inherited land | -0.482*** | -0.0620 | -0.0655 |
| | (0.0702) | (0.0572) | (0.0585) |
| Inherited house | 0.327*** | 0.0955* | 0.0515 |
| | (0.0606) | (0.0488) | (0.0498) |
| Other inheritance | 0.0631 | 0.167*** | 0.106** |
| | (0.0656) | (0.0521) | (0.0526) |
| Constant | 11.45*** | 12.28*** | 11.91*** |
| | (0.0381) | (0.303) | (0.383) |
| Observations | 4,326 | 4,326 | 3,558 |
| $R^2$ | 0.016 | 0.376 | 0.499 |

**Table 6: Regressions for log cell expenditure per capita**

| | (1) Full sample | (2) Rural | (3) Urban | (4) Men | (5) Women |
|---|---|---|---|---|---|
| Male | 0.0137 | 0.000143 | 0.0711 | -- | -- |
| | (0.0562) | (0.0770) | (0.0850) | | |
| Age | 0.00472 | 0.0107 | 0.00586 | 0.0264 | -0.0274** |
| | (0.00963) | (0.0127) | (0.0140) | (0.0161) | (0.0116) |
| Age squared | -0.000111 | -0.000217 | -6.26e-05 | -0.000352** | 0.000289** |
| | (9.89e-05) | (0.000132) | (0.000139) | (0.000155) | (0.000121) |
| Muslim | 0.223* | -0.154 | 0.343** | 0.304* | 0.165 |
| | (0.124) | (0.224) | (0.137) | (0.184) | (0.127) |
| Serere ethnicity | -0.350*** | -0.610*** | -0.156* | -0.461*** | -0.243** |
| | (0.0827) | (0.147) | (0.0914) | (0.109) | (0.0968) |
| Poular ethnicity | -0.114 | -0.222** | -0.0258 | -0.213** | -0.0288 |
| | (0.0699) | (0.113) | (0.0860) | (0.0957) | (0.0786) |
| Diola ethnicity | -0.265* | -0.567 | -0.0682 | -0.118 | -0.366** |
| | (0.156) | (0.534) | (0.152) | (0.221) | (0.151) |
| Mandingue ethnicity | -0.125 | -0.0702 | -0.164 | -0.156 | -0.0884 |
| | (0.0966) | (0.159) | (0.117) | (0.134) | (0.105) |
| Sarakole ethnicity | -0.00777 | 0.0638 | 0.0186 | -0.0864 | 0.0374 |
| | (0.167) | (0.299) | (0.228) | (0.230) | (0.187) |
| Mandiaque ethnicity | -0.362* | -0.551*** | -0.190 | -0.0677 | -0.459** |
| | (0.190) | (0.163) | (0.250) | (0.285) | (0.225) |
| Other ethnicity | 0.0434 | 0.0361 | -0.0897 | 0.220 | -0.0854 |
| | (0.142) | (0.200) | (0.145) | (0.189) | (0.143) |
| Brothers same father | 0.00307 | -0.00771 | 0.00710 | 0.00506 | -0.000408 |
| | (0.0109) | (0.0148) | (0.0160) | (0.0182) | (0.0135) |
| Brothers same parents | 0.0157 | 0.0176 | 0.00880 | 0.0312 | 0.00431 |
| | (0.0134) | (0.0190) | (0.0190) | (0.0207) | (0.0171) |
| Sisters same father | -0.00188 | -0.00907 | 0.000743 | 0.00145 | 0.00182 |
| | (0.0111) | (0.0163) | (0.0153) | (0.0195) | (0.0132) |
| Sisters same parents | 0.0286** | 0.0365* | 0.0276* | 0.0183 | 0.0379** |
| | (0.0126) | (0.0209) | (0.0164) | (0.0200) | (0.0167) |
| Brothers same mother | 0.0215 | -0.0416 | 0.0573* | 0.0181 | 0.0270 |
| | (0.0244) | (0.0428) | (0.0297) | (0.0380) | (0.0312) |
| Sisters same mother | 0.00623 | 0.0337 | -0.00222 | -0.0210 | 0.0117 |
| | (0.0292) | (0.0424) | (0.0404) | (0.0451) | (0.0361) |
| First same gender | 0.00601 | 0.0437 | -0.0336 | 0.0467 | -0.0108 |
| | (0.0468) | (0.0667) | (0.0660) | (0.0882) | (0.0657) |
| First of siblings | -0.0228 | -0.117* | 0.0842 | -0.0870 | 0.0397 |
| | (0.0520) | (0.0704) | (0.0788) | (0.0964) | (0.0809) |
| First born is male | 0.0545 | 0.0895 | 0.0153 | 0.0723 | 0.0898 |
| | (0.0417) | (0.0570) | (0.0583) | (0.0865) | (0.0560) |
| Father died recently | -0.0578 | -0.0145 | -0.0761 | -0.111 | -0.0853 |
| | (0.0850) | (0.128) | (0.112) | (0.165) | (0.0920) |
| Father in farming | 0.170*** | 0.153** | 0.192** | 0.215*** | 0.108 |
| | (0.0574) | (0.0722) | (0.0952) | (0.0822) | (0.0692) |
| Mother in farm. | -0.0145 | 0.0552 | -0.109 | -0.168* | 0.108 |
| | (0.0600) | (0.0769) | (0.0952) | (0.0875) | (0.0731) |
| Father in non-farm | 0.295*** | 0.315*** | 0.259*** | 0.386*** | 0.217*** |
| | (0.0593) | (0.0962) | (0.0776) | (0.0862) | (0.0728) |
| Mother in non-farm | -0.0823 | 0.131 | -0.171** | -0.119 | -0.0608 |

| | | | | | |
|---|---|---|---|---|---|
| | (0.0619) | (0.100) | (0.0797) | (0.0994) | (0.0727) |
| Father's schooling | 0.0367 | -0.249** | 0.110 | 0.0925 | 0.00213 |
| | (0.0702) | (0.124) | (0.0813) | (0.121) | (0.0818) |
| Mother's schooling | 0.265*** | 0.205 | 0.371*** | 0.182 | 0.303** |
| | (0.0933) | (0.184) | (0.113) | (0.144) | (0.125) |
| Father rural | 0.0958 | 0.102 | 0.0347 | 0.130 | 0.0718 |
| | (0.0725) | (0.114) | (0.0937) | (0.138) | (0.0830) |
| Mother rural | -0.129* | -0.108 | -0.119 | -0.104 | -0.143* |
| | (0.0699) | (0.107) | (0.0945) | (0.134) | (0.0808) |
| Log hh size | -0.154*** | -0.0743 | -0.245*** | -0.129** | -0.167*** |
| | (0.0430) | (0.0646) | (0.0563) | (0.0561) | (0.0518) |
| Log cell size | -0.246*** | -0.417*** | -0.164*** | -0.234*** | -0.212*** |
| | (0.0398) | (0.0620) | (0.0523) | (0.0688) | (0.0590) |
| Share of cell aged<5 | -0.563*** | -0.579*** | -0.440** | -0.784*** | -0.561*** |
| | (0.141) | (0.196) | (0.205) | (0.301) | (0.166) |
| Share of cell adults | 0.696*** | 0.371** | 0.824*** | 0.627*** | 0.671*** |
| | (0.116) | (0.168) | (0.162) | (0.214) | (0.139) |
| Has formal schooling | 0.400*** | 0.336*** | 0.396*** | 0.315*** | 0.468*** |
| | (0.0497) | (0.0843) | (0.0620) | (0.0761) | (0.0662) |
| Fostered | 0.187** | 0.123 | 0.199* | 0.305*** | 0.0413 |
| | (0.0751) | (0.109) | (0.103) | (0.110) | (0.101) |
| Fostered young | -0.0334 | 0.00367 | -0.0545 | -0.298** | 0.177 |
| | (0.0966) | (0.142) | (0.130) | (0.150) | (0.130) |
| Age at first marriage | 0.00422 | 0.0118** | -0.00149 | -0.00420 | 0.0173*** |
| | (0.00395) | (0.00590) | (0.00523) | (0.00534) | (0.00537) |
| Inherited land | -0.0527 | 0.0410 | -0.0959 | -0.0825 | 0.00956 |
| | (0.0609) | (0.0858) | (0.0896) | (0.0910) | (0.0762) |
| Inherited house | 0.0164 | -0.104 | 0.0962 | 0.00775 | 0.0160 |
| | (0.0519) | (0.0836) | (0.0666) | (0.0765) | (0.0650) |
| Other inheritance | 0.126** | 0.137** | 0.0914 | 0.237*** | 0.0189 |
| | (0.0547) | (0.0674) | (0.0860) | (0.0758) | (0.0685) |
| Rural | -0.670*** | | | -0.669*** | -0.722*** |
| | (0.0896) | | | (0.125) | (0.100) |
| Constant | 11.68*** | 10.55*** | 10.63*** | 11.26*** | 12.15*** |
| | (0.379) | (0.727) | (0.539) | (0.627) | (0.461) |
| Observations | 3,165 | 1,637 | 1,528 | 1,419 | 1,746 |
| $R^2$ | 0.504 | 0.301 | 0.394 | 0.479 | 0.529 |

Note: Robust standard errors in parentheses, and are clustered at the household level. *** p<0.01, ** p<0.05, * p<0.1. The variables 'First same gender', 'First of siblings' and 'First born is male' all refer to children of the same father, same mother. Regressions also contain regional (department) dummies. The reference variables are Wolof ethnicity, all other religions, occupation 'inactive', share of cell members 5-15, no and non-formal schooling.

**Table 7: Regressions for log cell expenditure per capita by gender and rural/urban residence**

| | (1) Rural men | (2) Rural women | (3) Urban men | (4) Urban women |
|---|---|---|---|---|
| Age | 0.0239 | -0.0170 | 0.0344 | -0.0247 |
| | (0.0232) | (0.0143) | (0.0212) | (0.0181) |
| Age squared | -0.000393* | 0.000163 | -0.000343* | 0.000300 |
| | (0.000222) | (0.000148) | (0.000203) | (0.000185) |
| Muslim | -0.265 | -0.106 | 0.473** | 0.245 |
| | (0.290) | (0.233) | (0.194) | (0.163) |
| Serere ethnicity | -0.822*** | -0.458*** | -0.249* | -0.0306 |
| | (0.189) | (0.164) | (0.135) | (0.118) |
| Poular ethnicity | -0.353** | -0.129 | -0.0922 | 0.0166 |
| | (0.149) | (0.133) | (0.126) | (0.0994) |
| Diola ethnicity | -0.532 | -0.525 | 0.159 | -0.219 |
| | (0.547) | (0.673) | (0.237) | (0.146) |
| Mandingue ethnicity | -0.0685 | -0.0484 | -0.217 | -0.137 |
| | (0.200) | (0.181) | (0.182) | (0.129) |
| Sarakole ethnicity | -0.0465 | 0.332 | 0.0841 | -0.00152 |
| | (0.516) | (0.463) | (0.309) | (0.218) |
| Mandiaque ethnicity | -0.553 | -0.593*** | 0.336 | -0.363 |
| | (0.382) | (0.180) | (0.342) | (0.314) |
| Other ethnicity | 0.0997 | -0.0493 | 0.136 | -0.255 |
| | (0.253) | (0.225) | (0.215) | (0.157) |
| Brothers same father | -0.00759 | -0.00231 | 0.0186 | -0.00920 |
| | (0.0263) | (0.0182) | (0.0258) | (0.0209) |
| Brothers same parents | 0.0302 | 0.00264 | 0.0300 | -0.00723 |
| | (0.0315) | (0.0241) | (0.0287) | (0.0252) |
| Sisters same father | -0.0278 | 0.00545 | 0.0128 | 0.00100 |
| | (0.0295) | (0.0189) | (0.0256) | (0.0196) |
| Sisters same parents | 0.0287 | 0.0516* | 0.00979 | 0.0414* |
| | (0.0314) | (0.0275) | (0.0266) | (0.0223) |
| Brothers same mother | -0.0556 | -0.0386 | 0.0858** | 0.0382 |
| | (0.0764) | (0.0528) | (0.0402) | (0.0406) |
| Sisters same mother | 0.0814 | 0.00493 | -0.0801* | 0.0323 |
| | (0.0954) | (0.0372) | (0.0440) | (0.0569) |
| First same gender | 0.0862 | 0.0477 | 0.0910 | -0.0959 |
| | (0.120) | (0.0960) | (0.121) | (0.0937) |
| First of siblings | -0.191 | -0.0484 | -0.0309 | 0.160 |
| | (0.135) | (0.107) | (0.135) | (0.127) |
| First born is male | 0.183 | 0.114 | 0.00841 | 0.0584 |
| | (0.118) | (0.0739) | (0.120) | (0.0870) |
| Father died recently | -0.137 | -0.00607 | -0.0534 | -0.149 |
| | (0.250) | (0.157) | (0.227) | (0.113) |
| Father in farming | 0.114 | 0.170** | 0.407*** | -0.0131 |
| | (0.107) | (0.0852) | (0.131) | (0.126) |
| Mother in farm. | -0.0397 | 0.147 | -0.399*** | 0.113 |
| | (0.114) | (0.0899) | (0.148) | (0.130) |
| Father in non-farm | 0.443*** | 0.196* | 0.384*** | 0.148 |
| | (0.134) | (0.118) | (0.109) | (0.102) |
| Mother in non-farm | -0.0221 | 0.291** | -0.158 | -0.185** |
| | (0.143) | (0.140) | (0.130) | (0.0917) |

| | | | | |
|---|---|---|---|---|
| Father's schooling | -0.386 | -0.0897 | 0.225 | 0.0521 |
| | (0.246) | (0.149) | (0.140) | (0.0971) |
| Mother's schooling | 0.270 | 0.0745 | 0.255 | 0.425*** |
| | (0.279) | (0.227) | (0.183) | (0.153) |
| Father rural | 0.329 | 0.0238 | -0.0932 | 0.0946 |
| | (0.262) | (0.122) | (0.164) | (0.111) |
| Mother rural | -0.399 | -0.00812 | 0.0434 | -0.212* |
| | (0.259) | (0.118) | (0.160) | (0.116) |
| Log hh size | 0.0667 | -0.174** | -0.309*** | -0.176** |
| | (0.0890) | (0.0752) | (0.0719) | (0.0756) |
| Log cell size | -0.458*** | -0.349*** | -0.104 | -0.202** |
| | (0.108) | (0.0880) | (0.0918) | (0.0862) |
| Share of cell aged<5 | -1.079** | -0.484** | -0.293 | -0.580** |
| | (0.425) | (0.232) | (0.455) | (0.241) |
| Share of cell adults | 0.246 | 0.334 | 0.815*** | 0.716*** |
| | (0.307) | (0.203) | (0.311) | (0.205) |
| Has formal schooling | 0.189 | 0.446*** | 0.327*** | 0.446*** |
| | (0.124) | (0.114) | (0.101) | (0.0827) |
| Fostered | 0.270* | -0.0535 | 0.350** | 0.0617 |
| | (0.151) | (0.174) | (0.169) | (0.125) |
| Fostered young | -0.301 | 0.228 | -0.293 | 0.172 |
| | (0.221) | (0.203) | (0.218) | (0.166) |
| Age at first marriage | 0.00190 | 0.0273*** | -0.0114 | 0.0111 |
| | (0.00881) | (0.00760) | (0.00697) | (0.00799) |
| Inherited land | 0.00869 | 0.113 | -0.156 | -0.0340 |
| | (0.121) | (0.113) | (0.147) | (0.111) |
| Inherited house | -0.165 | -0.0896 | 0.150 | 0.0746 |
| | (0.111) | (0.110) | (0.110) | (0.0822) |
| Other inheritance | 0.259*** | 0.0293 | 0.176 | -0.0160 |
| | (0.0982) | (0.0796) | (0.122) | (0.110) |
| Constant | 11.31*** | 11.65*** | 9.912*** | 11.94*** |
| | (1.124) | (0.627) | (0.733) | (0.563) |
| Observations | 733 | 904 | 686 | 842 |
| $R^2$ | 0.297 | 0.321 | 0.385 | 0.395 |

Note: Robust standard errors in parentheses, clustered at the household level. *** p<0.01, ** p<0.05, * p<0.1. The variables 'First same gender', 'First of siblings' and 'First born is male' all refer to children of the same father, same mother. Regressions also contain regional (department) dummies. The reference variables are Wolof ethnicity, all other religions, occupation 'inactive', share of cell members 5-15, no and non-formal schooling.

**Table 8: Marginal determinants of agricultural employment including inheritance, schooling and parental characteristics**

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|---|---|---|---|---|---|---|---|---|---|
| | All | Rural | Urban | Men | Women | Rural men | Rural women | Urban men | Urban women |
| Father in farming | 0.0181 | 0.0219 | 0.00746 | 0.0120 | 0.0188 | 0.00892 | 0.0334 | 0.0158 | -0.00185 |
| | (0.0167) | (0.0326) | (0.0102) | (0.0262) | (0.0166) | (0.0494) | (0.0403) | (0.0197) | (0.00154) |
| Mother in farm. | 0.0845*** | 0.145*** | 0.00958 | 0.139*** | 0.0446** | 0.240*** | 0.0779* | -0.0226* | 0.0204 |
| | (0.0242) | (0.0397) | (0.0172) | (0.0376) | (0.0218) | (0.0570) | (0.0432) | (0.0118) | (0.0186) |
| Father in non-farm | -0.0355* | -0.0799* | -0.00620 | -0.0471 | -0.0438** | -0.150** | -0.0516 | 0.00564 | -0.0119 |
| | (0.0197) | (0.0468) | (0.0103) | (0.0310) | (0.0207) | (0.0687) | (0.0618) | (0.0171) | (0.00737) |
| Mother in non-farm | -0.0414* | -0.107* | -0.00494 | -0.0656* | -0.0226 | -0.161* | -0.0878 | -0.0138 | -0.000187 |
| | (0.0224) | (0.0557) | (0.00936) | (0.0356) | (0.0219) | (0.0838) | (0.0625) | (0.0136) | (0.00154) |
| Father's schooling | 0.0371 | 0.150* | -0.00126 | 0.0260 | 0.0282 | 0.0285 | 0.211** | 0.00739 | -0.000617 |
| | (0.0305) | (0.0855) | (0.0103) | (0.0514) | (0.0313) | (0.131) | (0.107) | (0.0223) | (0.00149) |
| Mother's schooling | -0.0186 | -0.104 | -0.000787 | -0.0228 | -0.0171 | -0.127 | -0.136* | -0.0194 | 0.0376 |
| | (0.0396) | (0.0803) | (0.0163) | (0.0618) | (0.0357) | (0.117) | (0.0725) | (0.0187) | (0.0343) |
| Own schooling | -0.0114 | -0.0452 | -0.00598 | -0.0504* | 0.0435* | -0.0543 | 0.0230 | -0.0604*** | 0.00654 |
| | (0.0187) | (0.0455) | (0.00835) | (0.0282) | (0.0242) | (0.0669) | (0.0620) | (0.0193) | (0.00492) |
| Inherited land | 0.0623*** | 0.0916** | 0.0117 | 0.0201 | 0.0992*** | 0.00354 | 0.168*** | 0.00841 | 0.0115 |
| | (0.0230) | (0.0426) | (0.0137) | (0.0304) | (0.0331) | (0.0585) | (0.0653) | (0.0198) | (0.00955) |
| Inherited house | 0.00736 | 0.0175 | 0.0137 | -0.0111 | 0.0209 | -0.0305 | 0.0842 | 0.0120 | -0.000296 |
| | (0.0188) | (0.0388) | (0.0124) | (0.0265) | (0.0209) | (0.0533) | (0.0548) | (0.0152) | (0.00207) |
| Inherited other | -0.0432*** | -0.0760** | -0.0149** | -0.0331 | -0.0289* | -0.0596 | -0.0573 | -0.0149 | -0.00198 |
| | (0.0159) | (0.0351) | (0.00754) | (0.0250) | (0.0155) | (0.0496) | (0.0435) | (0.0139) | (0.00156) |
| Observations | 3,190 | 1,652 | 1,433 | 1,422 | 1,702 | 731 | 866 | 627 | 554 |
| Pseudo $R^2$ | 0.305 | 0.213 | 0.234 | 0.305 | 0.365 | 0.218 | 0.284 | 0.298 | 0.479 |

Notes: Robust standard errors in parentheses, clustered at the household level; *** p<0.01, ** p<0.05, * p<0.1. Marginal effects are reported. The regressions include controls listed in Table 5.

**Table 9: Marginal determinants of non-agricultural employment including inheritance, schooling and parental characteristics**

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|---|---|---|---|---|---|---|---|---|---|
| | All | Rural | Urban | Men | Women | Rural men | Rural women | Urban men | Urban women |
| Father in farming | 0.0239 | 0.00973 | 0.0474 | 0.0496 | 0.00176 | 0.0369 | -0.0150 | 0.0414 | 0.0710 |
| | (0.0274) | (0.0295) | (0.0389) | (0.0378) | (0.0347) | (0.0468) | (0.0334) | (0.0422) | (0.0625) |
| Mother in farm. | -0.0199 | -0.0329 | 0.0443 | -0.0801* | 0.0272 | -0.114** | 0.0125 | 0.0300 | 0.0420 |
| | (0.0318) | (0.0326) | (0.0482) | (0.0445) | (0.0402) | (0.0504) | (0.0377) | (0.0523) | (0.0728) |
| Father in non-farm | 0.0486* | 0.128*** | 0.00437 | 0.102** | 0.0237 | 0.202*** | 0.0994 | 0.0353 | 9.27e-06 |
| | (0.0294) | (0.0460) | (0.0343) | (0.0436) | (0.0388) | (0.0749) | (0.0616) | (0.0395) | (0.0522) |
| Mother in non-farm | 0.135*** | 0.130** | 0.125*** | 0.176*** | 0.113*** | 0.240*** | 0.0623 | 0.105*** | 0.131*** |
| | (0.0313) | (0.0545) | (0.0302) | (0.0476) | (0.0394) | (0.0889) | (0.0623) | (0.0317) | (0.0470) |
| Father's schooling | -0.0479 | -0.0960* | 0.0114 | -0.00532 | -0.0591 | 0.0161 | -0.0980* | 0.0329 | -0.00552 |
| | (0.0330) | (0.0540) | (0.0356) | (0.0612) | (0.0393) | (0.124) | (0.0555) | (0.0453) | (0.0510) |
| Mother's schooling | 0.0115 | 0.173* | -0.0323 | 0.0843 | -0.0237 | 0.268** | 0.135 | 0.0321 | -0.0619 |
| | (0.0513) | (0.0946) | (0.0559) | (0.0854) | (0.0582) | (0.128) | (0.121) | (0.0692) | (0.0769) |
| Own schooling | 0.0483* | 0.0814* | 0.0276 | 0.161*** | -0.0130 | 0.247*** | 0.0266 | 0.117*** | -0.0383 |
| | (0.0269) | (0.0452) | (0.0297) | (0.0380) | (0.0339) | (0.0747) | (0.0508) | (0.0351) | (0.0432) |
| Inherited land | -0.0121 | 0.00565 | 0.0185 | 0.0154 | -0.00516 | 0.0735 | -0.0372 | -0.0216 | 0.0726 |
| | (0.0317) | (0.0364) | (0.0444) | (0.0440) | (0.0419) | (0.0582) | (0.0426) | (0.0487) | (0.0632) |
| Inherited house | 0.0150 | -0.0101 | 0.00849 | -0.00725 | 0.0239 | -0.0129 | 0.00961 | -0.0205 | 0.0250 |
| | (0.0281) | (0.0352) | (0.0345) | (0.0396) | (0.0351) | (0.0551) | (0.0437) | (0.0383) | (0.0477) |
| Inherited other | 0.0392 | -0.00184 | 0.104*** | 0.0189 | 0.0783** | 0.00184 | 0.0269 | 0.0631* | 0.152*** |
| | (0.0279) | (0.0313) | (0.0350) | (0.0372) | (0.0367) | (0.0482) | (0.0390) | (0.0349) | (0.0536) |
| Observations | 3,169 | 1,624 | 1,538 | 1,409 | 1,747 | 705 | 893 | 682 | 849 |
| Pseudo $R^2$ | 0.208 | 0.142 | 0.154 | 0.259 | 0.179 | 0.217 | 0.145 | 0.149 | 0.148 |

Notes: Robust standard errors in parentheses, clustered at the household level; *** p<0.01, ** p<0.05, * p<0.1. Marginal effects are reported. The regressions include controls listed in Table 5.

**Table 10: Marginal determinants of living in the same residence including inheritance, schooling and parental characteristics**

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|---|---|---|---|---|---|---|---|---|---|
| | All | Rural | Urban | Men | Women | Rural men | Rural women | Urban men | Urban women |
| Father in farming | -0.0765*** | -0.0607* | -0.0367 | -0.0884** | -0.0523 | -0.0427** | -0.0411 | -0.0346 | -0.0508 |
| | (0.0259) | (0.0319) | (0.0533) | (0.0357) | (0.0351) | (0.0208) | (0.0475) | (0.0776) | (0.0695) |
| Mother in farm. | -0.0296 | -0.0187 | -0.0266 | 0.000695 | -0.0466 | 0.0190 | -0.0587 | -0.0442 | -0.0130 |
| | (0.0297) | (0.0347) | (0.0700) | (0.0396) | (0.0384) | (0.0190) | (0.0488) | (0.101) | (0.0924) |
| Father in non-farm | 0.0747** | 0.116*** | 0.0700* | 0.0545 | 0.0761* | 0.0547*** | 0.200*** | 0.0681 | 0.0597 |
| | (0.0299) | (0.0423) | (0.0418) | (0.0380) | (0.0398) | (0.0164) | (0.0710) | (0.0652) | (0.0530) |
| Mother in non-farm | 0.0987*** | 0.148*** | 0.0887** | 0.0999** | 0.0605 | 0.0487*** | 0.149* | 0.139* | 0.0735 |
| | (0.0308) | (0.0433) | (0.0417) | (0.0409) | (0.0392) | (0.0179) | (0.0820) | (0.0725) | (0.0514) |
| Father's schooling | -0.0258 | 0.0924 | -0.0823** | -0.0599 | -0.0248 | 0.0157 | 0.0634 | -0.131** | -0.0511 |
| | (0.0370) | (0.0662) | (0.0406) | (0.0519) | (0.0461) | (0.0479) | (0.119) | (0.0624) | (0.0505) |
| Mother's schooling | 0.0472 | 0.138** | -0.0385 | 0.0462 | -0.00292 | 0.0425* | 0.211* | -0.0343 | -0.0865 |
| | (0.0483) | (0.0658) | (0.0566) | (0.0720) | (0.0629) | (0.0226) | (0.123) | (0.122) | (0.0644) |
| Own schooling | -0.0482* | -0.0512 | -0.0732** | -0.0636* | -0.0222 | -0.0783* | 0.00202 | -0.0916 | -0.0908** |
| | (0.0277) | (0.0509) | (0.0354) | (0.0378) | (0.0366) | (0.0456) | (0.0692) | (0.0590) | (0.0455) |
| Inherited land | -0.0380 | 0.00648 | -0.102** | 0.00195 | -0.0901** | 0.0161 | 0.0239 | -0.0337 | -0.142** |
| | (0.0290) | (0.0392) | (0.0444) | (0.0389) | (0.0402) | (0.0236) | (0.0631) | (0.0728) | (0.0573) |
| Inherited house | 0.0310 | -0.00573 | 0.0246 | 0.0475 | 0.00455 | 0.0418* | -0.0932 | 0.0149 | 0.0202 |
| | (0.0251) | (0.0366) | (0.0365) | (0.0326) | (0.0343) | (0.0220) | (0.0584) | (0.0587) | (0.0460) |
| Inherited other | 0.0167 | 0.0297 | 0.00577 | 0.0221 | -0.0217 | 0.0259 | 0.0150 | 0.0143 | -0.00543 |
| | (0.0261) | (0.0340) | (0.0442) | (0.0343) | (0.0357) | (0.0211) | (0.0536) | (0.0695) | (0.0571) |
| Observations | 3,190 | 1,652 | 1,538 | 1,382 | 1,761 | 702 | 912 | 663 | 849 |
| Pseudo $R^2$ | 0.173 | 0.287 | 0.330 | 0.326 | 0.109 | 0.360 | 0.202 | 0.415 | 0.314 |

Notes: Robust standard errors in parentheses, clustered at the household level; *** p<0.01, ** p<0.05, * p<0.1. Marginal effects are reported. The regressions include controls listed in Table 5.

**Table 11: IV estimates for all dependent variables, land inheritance**

| | (1) Log expend-iture per capita | (2) | (3) Non-farm | (4) | (5) Farm employment | (6) Same residence as parents |
|---|---|---|---|---|---|---|
| | | All | Heads | Non-heads | | |
| Inherited land | 0.0417 | 0.142** | 0.101 | 0.142* | -0.0368 | -0.0325 |
| | (0.145) | (0.0592) | (0.0905) | (0.0778) | (0.0437) | (0.0598) |
| Father in farming | 0.142*** | 0.0260 | -0.00304 | 0.0536* | 0.0163 | -0.0656*** |
| | (0.0546) | (0.0218) | (0.0301) | (0.0275) | (0.0195) | (0.0207) |
| Mother in farm. | -0.0147 | -0.0231 | -0.0374 | -0.0203 | 0.117*** | -0.0120 |
| | (0.0581) | (0.0236) | (0.0333) | (0.0308) | (0.0247) | (0.0237) |
| Father in non-farm | 0.331*** | 0.0583** | 0.0456 | 0.0782** | -0.0111 | 0.0514** |
| | (0.0586) | (0.0238) | (0.0347) | (0.0315) | (0.0168) | (0.0246) |
| Mother in non-farm | -0.0865 | 0.109*** | 0.165*** | 0.0982*** | -0.0182 | 0.0960*** |
| | (0.0599) | (0.0249) | (0.0399) | (0.0313) | (0.0154) | (0.0255) |
| Father's schooling | 0.173** | -0.0182 | 0.0217 | -0.0476 | 0.0179 | -0.00635 |
| | (0.0683) | (0.0260) | (0.0391) | (0.0364) | (0.0158) | (0.0299) |
| Mother's schooling | 0.275*** | -0.0138 | -0.00311 | -0.0103 | 0.0151 | 0.0447 |
| | (0.0858) | (0.0380) | (0.0603) | (0.0485) | (0.0253) | (0.0366) |
| Constant | 12.07*** | 0.0324 | 0.350 | 0.000805 | 0.541*** | 0.598*** |
| | (0.361) | (0.108) | (0.224) | (0.135) | (0.117) | (0.180) |
| Observations | 3,499 | 3,524 | 1,519 | 2,005 | 3,524 | 3,524 |
| $R^2$ | 0.494 | 0.234 | 0.278 | 0.270 | 0.272 | 0.214 |

Linear IV coefficients for (2)-(6). Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1. The regressions exclude own education, whether fostered and age at first marriage; other controls are as in Table 5.

**Table 12: Inequality decomposition implied by Table 6**

| | Share of inequality attributable to each source (%): | | | | |
|---|---|---|---|---|---|
| | All | Rural | Urban | Men | Women |
| Male | 0.17 | 0.00 | 1.56 | -- | -- |
| Age | 0.82 | 0.90 | 1.82 | -1.50 | -5.67 |
| Age squared | -1.45 | -1.09 | -1.74 | 4.14 | 5.54 |
| Muslim | -0.06 | -0.21 | 0.32 | -0.09 | -0.08 |
| Serere | 1.39 | 9.16 | -0.06 | 1.97 | 0.97 |
| Poular | 0.54 | 0.50 | 0.16 | 1.91 | 0.05 |
| Diola | -0.06 | 1.41 | -0.03 | -0.04 | -0.15 |
| Mandingue | 0.11 | -0.04 | 0.41 | 0.13 | 0.06 |
| Sarakole | 0.00 | 0.18 | 0.02 | -0.05 | 0.02 |
| Mandiaque | -0.07 | 0.32 | 0.05 | -0.04 | -0.01 |
| Other ethnicity | 0.02 | 0.07 | -0.01 | 0.31 | 0.03 |
| Brothers same father | 0.06 | -0.05 | 0.27 | 0.16 | 0.00 |
| Brothers same parents | 0.14 | 0.35 | 0.06 | 0.66 | 0.01 |
| Sisters same father | -0.04 | -0.08 | 0.03 | 0.04 | 0.03 |
| Sisters same parents | 0.36 | 0.69 | 0.26 | 0.24 | 0.70 |
| Brothers same mother | 0.13 | 0.02 | 0.43 | 0.07 | 0.24 |
| Sisters same mother | 0.03 | -0.02 | 0.00 | -0.07 | 0.09 |
| First same gender | 0.00 | -0.18 | -0.08 | -0.07 | -0.01 |
| First of siblings | -0.04 | 0.51 | 0.53 | 0.00 | 0.06 |
| First born is male | 0.21 | 1.00 | 0.13 | 0.05 | -0.09 |
| Father dead recently | 0.02 | 0.03 | 0.10 | 0.00 | 0.01 |
| Father in farming | -1.82 | -0.21 | -1.03 | -1.70 | -1.46 |
| Mother in farming | 0.16 | -0.40 | 0.67 | 1.82 | -1.21 |
| Father in non-farm | 5.75 | 3.22 | 4.21 | 7.46 | 4.80 |
| Mother in non-farm | -0.40 | 0.79 | 0.38 | -0.51 | -0.40 |
| Father's schooling | 0.34 | -0.25 | 1.20 | 0.87 | 0.02 |
| Mother's schooling | 1.07 | 0.38 | 2.43 | 0.44 | 1.85 |
| Father rural | -2.53 | -0.22 | -0.27 | -3.42 | -2.10 |
| Mother rural | 3.46 | 0.30 | 0.87 | 2.71 | 4.33 |
| Log hh size | 3.00 | 1.11 | 8.46 | 3.07 | 2.80 |
| Log cell size | 6.39 | 27.57 | 7.62 | 4.85 | 3.44 |
| Share of cell aged<5 | 3.62 | 7.14 | 4.21 | 2.93 | 3.20 |
| Share of cell adults | 10.63 | 11.15 | 18.11 | 5.69 | 9.02 |
| Has formal schooling | 9.21 | 3.75 | 10.15 | 7.04 | 10.88 |
| Fostered | 0.91 | 0.72 | 1.14 | 1.41 | 0.22 |
| Fostered young | -0.06 | 0.00 | -0.08 | -0.42 | 0.55 |
| Age at first marriage | 0.99 | 4.28 | -0.42 | -0.47 | 2.64 |
| Inherited land | 0.25 | 0.31 | 0.28 | 0.90 | -0.03 |
| Inherited house | 0.07 | -0.76 | 0.41 | -0.01 | 0.10 |
| Other inheritance | 0.08 | 1.44 | 0.36 | -0.49 | 0.01 |
| Rural | 23.80 | -- | na | 23.46 | 27.57 |
| Total share explained | 50.40 | 30.10 | 39.40 | 47.90 | 52.90 |

Note: All sources do not add to the total share explained due to the omission of the share of inequality due to department of residence.

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**Appendix Table 1: Descriptive Statistics**

| Variable | Obs. | Mean | Std. Dev. | Min | Max |
|---|---|---|---|---|---|
| Log cell consumption per capita | 4326 | 11.326 | 1.466 | 5.336 | 18.059 |
| In farming | 4377 | 0.222 | 0.416 | 0 | 1 |
| In non-farm | 4377 | 0.413 | 0.492 | 0 | 1 |
| Same residence as parents | 4377 | 0.555 | 0.497 | 0 | 1 |
| Male | 4377 | 0.437 | 0.496 | 0 | 1 |
| Age | 4370 | 42.314 | 15.063 | 13 | 96 |
| Muslim | 4377 | 0.954 | 0.210 | 0 | 1 |
| Serere ethnicity | 4364 | 0.128 | 0.334 | 0 | 1 |
| Poular ethnicity | 4364 | 0.308 | 0.462 | 0 | 1 |
| Diola ethnicity | 4364 | 0.040 | 0.197 | 0 | 1 |
| Mandingue ethnicity | 4364 | 0.062 | 0.241 | 0 | 1 |
| Sarakole ethnicity | 4364 | 0.023 | 0.149 | 0 | 1 |
| Mandiaque ethnicity | 4364 | 0.011 | 0.104 | 0 | 1 |
| Other ethnicity | 4364 | 0.040 | 0.196 | 0 | 1 |
| Brothers same father (no.) | 4322 | 1.668 | 2.316 | 0 | 21 |
| Brothers same parents (no.) | 4329 | 1.986 | 1.633 | 0 | 11 |
| Sisters same father (no.) | 4317 | 1.502 | 2.216 | 0 | 17 |
| Sisters same parents (no.) | 4330 | 1.952 | 1.671 | 0 | 14 |
| Brothers same mother (no.) | 4321 | 0.318 | 0.892 | 0 | 10 |
| Sisters same mother (no.) | 4321 | 0.277 | 0.826 | 0 | 10 |
| First born same gender | 4377 | 0.465 | 0.499 | 0 | 1 |
| First born of siblings | 4377 | 0.291 | 0.454 | 0 | 1 |
| First born is male | 4280 | 0.569 | 0.495 | 0 | 1 |
| Father dead recently | 4377 | 0.068 | 0.252 | 0 | 1 |
| Father in farming | 4377 | 0.051 | 0.220 | 0 | 1 |
| Mother in farming | 4377 | 0.374 | 0.484 | 0 | 1 |
| Father in non-farm | 4377 | 0.221 | 0.415 | 0 | 1 |
| Mother in non-farm | 4377 | 0.282 | 0.450 | 0 | 1 |
| Father's schooling | 4377 | 0.136 | 0.343 | 0 | 1 |
| Mother's schooling | 4377 | 0.102 | 0.302 | 0 | 1 |
| Father rural | 3877 | 0.051 | 0.220 | 0 | 1 |
| Mother rural | 3948 | 0.660 | 0.474 | 0 | 1 |
| Log hh size | 4377 | 0.651 | 0.477 | 0 | 1 |
| Log cell size | 4377 | 2.142 | 0.689 | 0 | 3.784 |
| Share of cell members aged<5 | 4377 | 0.970 | 0.699 | 0 | 2.708 |
| Share of adults in cell | 4377 | 0.146 | 0.213 | 0 | 0.8 |
| Has formal education | 4377 | 0.645 | 0.318 | 0 | 1 |
| Fostered | 4377 | 0.262 | 0.440 | 0 | 1 |
| Fostered young | 4377 | 0.152 | 0.359 | 0 | 1 |
| Age at first marriage | 3838 | 0.073 | 0.261 | 0 | 1 |
| Inherited land | 4377 | 22.394 | 6.773 | 10 | 56 |
| Inherited house | 4377 | 0.246 | 0.431 | 0 | 1 |
| Other inheritance | 4377 | 0.334 | 0.472 | 0 | 1 |
| Rural | 4377 | 0.073 | 0.261 | 0 | 1 |
| Father dead | 4274 | 0.574 | 0.494 | 0 | 1 |
| Mother dead | 4266 | 0.657 | 0.475 | 0 | 1 |

Notes: The statistics are population weighted. The variables 'First born same gender', 'First born of siblings' and 'First born is male' all refer to children of the same father, same mother.

**Appendix Table 2: Descriptive statistics by gender**

| Variable | Women | | | | | Men | | | | | t-test of equality |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Obs | Mean | Std. | Min | Max | Obs | Mean | Std. | Min | Max | |
| Log cell consumption p.c. | 2442 | 11.093 | 1.370 | 6.812 | 17.589 | 1884 | 11.625 | 1.529 | 5.336 | 18.059 | -14.47 |
| In farming | 2471 | 0.170 | 0.376 | 0 | 1 | 1906 | 0.289 | 0.453 | 0 | 1 | -8.10 |
| In non farm | 2471 | 0.331 | 0.471 | 0 | 1 | 1906 | 0.519 | 0.500 | 0 | 1 | -14.16 |
| Same residence | 2471 | 0.465 | 0.499 | 0 | 1 | 1906 | 0.671 | 0.470 | 0 | 1 | -11.66 |
| Age | 2471 | 39.224 | 14.124 | 13 | 96 | 1902 | 46.291 | 15.302 | 15 | 95 | -18.73 |
| Muslim | 2471 | 0.951 | 0.215 | 0 | 1 | 1906 | 0.957 | 0.203 | 0 | 1 | -.88 |
| Serere ethnicity | 2466 | 0.129 | 0.335 | 0 | 1 | 1898 | 0.126 | 0.332 | 0 | 1 | 0.40 |
| Poular ethnicity | 2466 | 0.295 | 0.456 | 0 | 1 | 1898 | 0.325 | 0.468 | 0 | 1 | -2.16 |
| Diola ethnicity | 2466 | 0.045 | 0.207 | 0 | 1 | 1898 | 0.034 | 0.182 | 0 | 1 | 2.13 |
| Mandingue ethnicity | 2466 | 0.069 | 0.253 | 0 | 1 | 1898 | 0.053 | 0.225 | 0 | 1 | 2.64 |
| Sarakole ethnicity | 2466 | 0.023 | 0.150 | 0 | 1 | 1898 | 0.023 | 0.149 | 0 | 1 | -0.02 |
| Mandiaque ethnicity | 2466 | 0.013 | 0.112 | 0 | 1 | 1898 | 0.009 | 0.092 | 0 | 1 | 1.73 |
| Other ethnicity | 2466 | 0.039 | 0.193 | 0 | 1 | 1898 | 0.042 | 0.200 | 0 | 1 | -0.81 |
| Brothers same father | 2440 | 1.628 | 2.226 | 0 | 21 | 1882 | 1.719 | 2.428 | 0 | 20 | -1.51 |
| Brothers same parents | 2444 | 2.045 | 1.645 | 0 | 10 | 1885 | 1.911 | 1.614 | 0 | 11 | 1.90 |
| Sisters same father | 2435 | 1.505 | 2.198 | 0 | 17 | 1882 | 1.498 | 2.239 | 0 | 15 | -0.12 |
| Sisters same parents | 2445 | 2.038 | 1.676 | 0 | 12 | 1885 | 1.842 | 1.658 | 0 | 14 | 4.00 |
| Brothers same mother | 2440 | 0.326 | 0.891 | 0 | 10 | 1881 | 0.308 | 0.894 | 0 | 9 | 1.14 |
| Sisters same mother | 2440 | 0.282 | 0.843 | 0 | 10 | 1881 | 0.270 | 0.804 | 0 | 10 | 1.05 |
| First same gender | 2471 | 0.448 | 0.497 | 0 | 1 | 1906 | 0.488 | 0.500 | 0 | 1 | -2.34 |
| First of siblings | 2471 | 0.261 | 0.439 | 0 | 1 | 1906 | 0.329 | 0.470 | 0 | 1 | -4.80 |
| First born is male | 2411 | 0.433 | 0.496 | 0 | 1 | 1869 | 0.743 | 0.437 | 0 | 1 | -20.34 |
| Father died recently | 2471 | 0.074 | 0.262 | 0 | 1 | 1906 | 0.061 | 0.240 | 0 | 1 | 1.52 |
| Mother died recently | | 0.054 | 0.227 | 0 | 1 | | 0.047 | 0.211 | 0 | 1 | 1.42 |
| Father in farming | 2471 | 0.384 | 0.486 | 0 | 1 | 1900 | 0.360 | 0.480 | 0 | 1 | 1.64 |
| Mother in farm. | 2471 | 0.238 | 0.426 | 0 | 1 | 1900 | 0.200 | 0.400 | 0 | 1 | 3.33 |
| Father in non-farm | 2471 | 0.299 | 0.458 | 0 | 1 | 1900 | 0.261 | 0.439 | 0 | 1 | 2.92 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mother in non-farm | 2471 | 0.146 | 0.354 | 0 | 1 | 1900 | 0.122 | 0.328 | 0 | 1 | 2.74 |
| Father's schooling | 2471 | 0.116 | 0.320 | 0 | 1 | 1900 | 0.083 | 0.276 | 0 | 1 | 3.35 |
| Mother's schooling | 2471 | 0.057 | 0.233 | 0 | 1 | 1900 | 0.043 | 0.202 | 0 | 1 | 2.17 |
| Father rural | 2191 | 0.644 | 0.479 | 0 | 1 | 1683 | 0.681 | 0.466 | 0 | 1 | -1.98 |
| Mother rural | 2236 | 0.632 | 0.482 | 0 | 1 | 1709 | 0.676 | 0.468 | 0 | 1 | -2.43 |
| Log hh size | 2471 | 2.179 | 0.630 | 0 | 3.784 | 1906 | 2.094 | 0.756 | 0 | 3.784 | 5.21 |
| Log cell size | 2471 | 1.223 | 0.601 | 0 | 2.708 | 1906 | 0.645 | 0.681 | 0 | 2.708 | 28.01 |
| Share of cell aged<5 | 2471 | 0.209 | 0.233 | 0 | 0.8 | 1906 | 0.065 | 0.149 | 0 | 0.75 | 22.71 |
| Share of adults in cell | 2471 | 0.502 | 0.287 | 0 | 1 | 1906 | 0.829 | 0.254 | 0.143 | 1 | -36.00 |
| Has formal education | 2471 | 0.229 | 0.420 | 0 | 1 | 1900 | 0.305 | 0.461 | 0 | 1 | -7.08 |
| Fostered | 2471 | 0.143 | 0.350 | 0 | 1 | 1900 | 0.164 | 0.371 | 0 | 1 | -1.68 |
| Fostered young | 2471 | 0.088 | 0.284 | 0 | 1 | 1900 | 0.054 | 0.226 | 0 | 1 | 4.29 |
| Age at first marriage | 2138 | 18.684 | 4.788 | 10 | 51 | 1699 | 26.997 | 6.007 | 12 | 56 | -48.66 |
| Inherited land | 2471 | 0.176 | 0.381 | 0 | 1 | 1906 | 0.336 | 0.472 | 0 | 1 | -11.29 |
| Inherited house | 2471 | 0.278 | 0.448 | 0 | 1 | 1906 | 0.407 | 0.491 | 0 | 1 | -8.45 |
| Inherited other | 2471 | 0.049 | 0.215 | 0 | 1 | 1906 | 0.105 | 0.307 | 0 | 1 | -6.76 |
| Rural | 2471 | 0.576 | 0.494 | 0 | 1 | 1906 | 0.573 | 0.495 | 0 | 1 | 1.36 |
| Father is dead | 2412 | 0.600 | 0.490 | 0 | 1 | 1862 | 0.730 | 0.444 | 0 | 1 | -8.67 |
| Mother is dead | 2414 | 0.359 | 0.480 | 0 | 1 | 1852 | 0.462 | 0.499 | 0 | 1 | -6.83 |

Notes : The statistics are population weighted. The variables 'First born same gender', 'First born of siblings' and 'First born is male' all refer to children of the same father, same mother.

## Appendix 2: Regression-based decomposition of inequality

A measure of (relative) inequality can be written in the generic form:

$$I = I(y_1 / \mu, ..., y_N / \mu)$$

where $y_i$ is the $i$'th person's consumption in a population of size $N$ and $\mu$ is mean income. We assume that this measure is continuous, symmetric (swapping incomes does not change the measure), normalized such that inequality is zero when all persons have the same income, and that the measure satisfies the Pigou-Dalton transfer axiom" such that a transfer from rich to poor reduces inequality. For some sorts of distributional comparisons we may not need to know any more about the measure of inequality.[22]

In our empirical work we will focus on two special cases of the above class of measures. The first is the well-known Gini index ($G$), given by the (household-size weighted) mean absolute deviation between all pairs of per capita household incomes. The second is a member of the Generalized Entropy class of additively decomposable measures, namely the average log deviation of incomes from their mean:

$$LD = \frac{1}{N}\sum_{i=1}^{N} \ln(\mu / y_i)$$

We will ask how much of the level of inequality or its change over time is due to some variable determining consumption through a stochastic process. Write the regression model as:

$$y_i = \sum_{k=1}^{m} \beta_k x_{ik}$$

where $x_{ik}$ is the $k$'th predictors ($x_{im}$ can be taken to be an error term, with $\beta_m$=1). Following Fields (1996) and Ravallion and Chen (1999), the contribution of the $k$'th explanatory variable to total inequality is given by:

$$c_k = \frac{\beta_k \, \mathrm{cov}(x_k, y)}{\mathrm{var}(y)}$$

This is simply the product of the partial regression coefficient of income on schooling (holding all other variables constant) with that total regression coefficient of schooling on income (holding nothing else constant). The contributions of each asset to the changes over time can then be determined. The precise decomposition will naturally depend on the regression specification.

[22] For example, if the Lorenz curve (giving, on the vertical axis, the share of total income held by the poorest x% of the population) for distribution A is everywhere above that of B then all inequality measures in the above class of measures will show higher inequality in B than A (Atkinson, 1970).