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# Marital trajectories and women's wellbeing in Senegal

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**Abstract:** Divorce and widowhood followed by remarriage are common for women in Africa. A key question is how such discontinuous marital trajectories affect women's wellbeing. Women's marital trajectories in Senegal are described and correlated with measures of voice, resource constraints, and wellbeing as measured by consumption. Considerable selection into divorce and widowhood as well as subsequent remarriage is documented. Poorer women are more vulnerable to both dissolution and remarriage, and hence bear more of the costs while being nevertheless afforded a safety net in the form of a male protector. Marital breakdowns and their aftermaths are far from neutral in terms of women's wellbeing.

**Keywords:** divorce, Senegal, welfare, widowhood, women
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# 1 Introduction

Marital trajectories in Senegal are often discontinuous. Divorce is frequent and widowhood is a common predicament for women, due in particular to the fact that women marry older men. In 2006/07, spousal age gaps (male age minus female age) averaged 11.2 in urban areas and 12.9 in rural areas. At the same time, around 18.5 per cent of ever-married adult women were currently widows or had remarried after widowhood, and 13.2 per cent were currently divorced or remarried following a divorce.[1] Women confronted with divorce or widowhood most often remarry, and may well face one or more further marriage dissolutions during their lives. Remarriage appears to take place relatively rapidly: the median duration between widowhood and remarriage among those who remarry is one year. For those who are divorced it is two years.

Given how common these broken trajectories are, it is of interest to ask how they affect women's wellbeing. Work by economists on marital dissolution in low-income countries is relatively sparse and hardly exists for the African context, particularly with respect to divorce. There has been a bit more attention to widowhood, often indirectly through the study of female-headed households (Appleton 1996 (Uganda); Chapoto et al. 2011 (Zambia); Horrell and Krishnan 2007 (Zimbabwe); and van de Walle 2013 (Mali)). Other social sciences provide the core of our knowledge in this domain for Africa. As divorce might in some instances result from the woman's choice, it is likely to not be universally detrimental to women's welfare. In fact, it has been suggested that early divorces may be a means for women to both escape family authority and to climb the social ladder.[2] Indeed, first, and usually early, marriages are often arranged with attending benefits to both families and may be experienced as a constraint from which one can be freed through divorce. Once divorced, given the lower stakes in terms of bride price for divorcees, women have more room for choosing their next partner (Dial 2008; Hertrich 1994; Locoh and Thiriat 1995; Yade 2007).[3] Widowhood, on the other hand, ensuing from adverse circumstances rather than choice, is universally seen as unfavourable to a woman's situation (Locoh and Thiriat 1995).

Based on conversations with women, numerous anecdotes in the press, and the literature on the consequences of divorce and widowhood in OECD countries, one might expect to find negative consequences associated with all types of dissolution. These may or may not be tempered by remarriage, so the effects may be lasting. In qualitative interviews conducted by two of the authors (Lambert and van de Walle) in Senegal in 2012, one of the dominant messages was that women who have the option *not* to remarry seize it eagerly.[4] Such women tend to talk about married life as an ordeal they are happy to be in the position to avoid. Echoed in the interviews were general preferences for non-co-residing husbands and/or mothers-in-law.

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[1] The statistics given here are based on PSF1 data (described below).

[2] Recently, more economists are showing an interest in the links between divorce and social mobility (Cherchye et al. 2016).

[3] In our data, average bride price paid for marrying a divorcee is about half that paid for a woman in her first marriage.

[4] Interviews transcribed in Lambert and van de Walle (2012).

To date, there have been few studies of divorce or widowhood in Senegal. Antoine and Dial (2003) and Dial (2008) focus on a small selected sample of women with complex marital trajectories in Dakar only.[5] Another study using fertility surveys that estimated that 17 per cent of all unions dissolve within the first five years is likely to be out of date (Smith et al. 1984).[6] The 2015 World Marriage Data reveal that the percentage of divorced (or separated) and non-remarried women in the population has been increasing slightly since the mid-1980s for all but those below age 30. Rates were 2–3 per cent for ages 30–55 until the most recent period, when they seem to have risen more for women over 40 than for younger women. Current divorcees account for about 7 per cent of women in the 45–55 age range, and only 4 per cent of those aged 30–40 according to the 2014 Demographic and Health Survey (DHS) (Table A1). Given that the data do not record divorced and remarried women, this increase could be due to decreasing remarriage rates at older ages, either because age makes non-remarriage more socially acceptable nowadays or because it makes remarriage more difficult. For women 40 years and older, the percentage of non-remarried widows was higher than that for divorcees until the beginning of the 2000s. This has changed in recent years as the percentage of widows has remained fairly stable, while that of divorced women has increased. The latest DHS indicates that the percentage of widows is higher than that of divorcees only above age 50, when it reaches 12.5 per cent (Table A2).

To our knowledge, this study is the first to directly examine the relationship between marriage dissolution and women's wellbeing in Senegal. We focus on women because, as a result of large spousal age gaps and the widespread practice of polygamy, ever-married men rarely find themselves in a non-married state. In fact, although the share of ever-married men who are currently divorced is similar to that for women (2.5 per cent for men and close to 3 per cent for women), many fewer men than women are currently widowers (1.3 per cent of ever-married men versus 13.6 per cent of ever-married women). This paper uses recent nationally representative data from a new household survey and from the DHS to document Senegalese women's marital trajectories and how they correlate with current consumption levels and other individual dimensions of welfare.

The paper finds that marital breakdowns and their aftermaths are far from neutral in terms of women's wellbeing. Naturally, the form a woman's marital trajectory takes is the result of myriad influences, including her family and individual characteristics, social norms, and chance, as well as the legal and economic setting. Selection and endogeneity are rife in women's life courses. The paper does not claim any one-directional causality between marital status and its trajectories and welfare. Indeed, the paper documents considerable selection into divorce and widowhood as well as into subsequent remarriage. Poorer women are found to be more vulnerable to both dissolutions and remarriage and hence to bear more of the costs while being nevertheless afforded a safety net in the form of a male protector after prior marriage dissolution. In particular, the analysis suggests that this safety net is least effective in ensuring consumption levels for less favoured widows who tend to remarry in a leviratic marriage. We suspect those widows were left no other choice then remarrying within their late husband's lineage, either because of their age or because of the presence of young children.

We begin in Section 2 with some background on the legal and institutional context for marriage in Senegal, followed by a brief description of our data in Section 3. Section 4 provides some simple descriptive statistics on marital status and marriage trajectories before we examine associations between

[5] Findings in Antoine and Dial (2003) that one-third of marriages end in divorce and that for the youngest generation 25 per cent of divorces occur within seven years of marriage are likely to be highly specific to their sample.

[6] The survey used was part of the World Fertility Surveys.

marital status and women's welfare in Section 5, and selection issues in Section 6. A final section concludes.

## 2 Marriage dissolution in Senegal

Colonial legislators attempted to minimize social tensions by establishing a variety of coexisting legal statuses with respect to family law, and more generally the civil code (decree of 10 November 1903). The Senegalese people could either comply with the rules of a general statute (similar to French law), or elect to fall under the prescriptions of Islamic, Animist, or Christian statutes, according to their beliefs (Brossier 2004; Yade 2007).[7] Nonetheless, a divorce law that gave women the right to secure a divorce was also introduced at the time. This was a major step forward for women who, until then, depended on their husband's agreement to be freed from matrimonial ties (Yade 2007). However, a wife seeking a divorce could be asked by the judge to reimburse the bridewealth she and her family had received from the husband at marriage.

In 1972, more than 10 years after independence, a new set of family laws was approved. It aimed to unify the various statutes present under colonial rule. Two sources of differentiation remain that are of primary interest for our purposes as they have consequences for divorcees and widows. In addition to providing dispositions for civil marriages, the law allows for Islamic and customary marriages performed in front of witnesses to be registered ex-post in the civil register. Furthermore, the Family Code contains two chapters dedicated to inheritance rights, one for the general case and one specific to the Muslim population, which constitutes 95 per cent of Senegal's population.

Marriages recorded in the civil register can be ended by divorce. Divorce is a mandatory step for women who wish to remarry. The judge decides on the custody of children according to their best interest. In principle, the husband can be required to provide for the subsistence of his ex-wife.

Nevertheless, a large number of religious or customary marriages are never officially registered, and in such cases customary practices apply in the case of repudiation or divorce, without any available legal recourse for either party.[8] Islamic law is not very favourable to women in general, but as pointed out by Bowen (2017, forthcoming), what matters, and what differs vastly across countries, is its implementation. In Senegal, repudiation is officially prohibited but appears to remain fairly common de facto (Dial 2008). For divorce under customary law, the situation is very asymmetric between husbands and wives. A man only needs two adult witnesses to repudiate his wife, while a woman can only ask for separation, with the final decision up to others. In such cases, the choice over child custody lies with the father. He can keep the children (once weaned) if he cares to. Interviews with divorced mothers of young children shows in a striking way the level of apprehension associated with the risk of losing their

[7] Note that Islam was already the religion of the vast majority of the population at the end of the nineteenth century and that animism is perfectly compatible with both monotheist religions present in the country. The type of Islam practised in Senegal is in fact tinted by animist traditions.

[8] In our data, 20 per cent of marriages are declared as 'civil' or 'religious and civil'. The remaining 80 per cent are declared as 'religious' only. This is likely to overestimate the number of unregistered marriages, but is nevertheless indicative of a low level of formalization.

children at any moment, upon the father's decision.[9] Whether the husband contributes to child support when offspring remain with their mother is entirely at his discretion. In the case of an early divorce (approximately within two years of marriage) initiated by the wife, her family can be asked to reimburse the bride price. Nevertheless, we found no qualitative evidence of this actually taking place, and at any rate our data show that it does not appear to prevent rapid divorces (see Section 4).

In the case of widowhood, no official support systems exist other than when the late husband was a public servant (or possibly an employee of one of a few large formal sector firms, such as the electricity provider). The civil service allocates a pension to widows equal to one-third of the late husband's wage, to be shared among co-wives if the husband was polygamous. Nor can a widow systematically count on inheriting from her husband. Although the statutory Family Code states that wives must inherit a share equal to that of the children, inheritance practices under Islamic and customary patrilineal laws only allocate one-eighth of the total bequest to the widow, to be shared among co-wives in the case of polygamy. In practice, and particularly in the many cases where inheritance is mainly illiquid (a house, for example), wives are excluded from a bequest following their husband's death; the inheritance is shared among the husband's children, with sons inheriting more, and more frequently, than daughters (Lambert et al. 2014). A widow can remarry outside the lineage of her late husband or in a leviratic marriage whereby she marries a relative of the deceased husband, most often a brother (allowing her to stay with the children if the paternal lineage wants to keep them). Widowed women who have the option also frequently go to live with one of their sons. Those who have sufficient means to support themselves, usually because they have independent access to housing, often choose not to remarry, an option aided by having grown sons (Lambert and Rossi 2016).

## 3 Data

The main data source is the first wave of the survey 'Poverty and Family Structure' (PSF, by its French acronym) conducted in Senegal in 2006–07 and 2011 (De Vreyer et al. 2008).[10] The first wave (PSF1) provides a nationally representative sample of 1,800 households spread over 150 primary sampling units drawn randomly among census districts. About 1,750 records can be exploited. Households have unusually complex structures in Senegal (Bongaarts 2001; van de Walle and Gaye 2006). What we will refer to as a household is often a series of families related in some way and living together in a compound organized under one head and taking their meals together.

In addition to the usual information on individual characteristics, the PSF survey collected detailed information on marital trajectories. In particular, age at first marriage and the number of previous unions are recorded for each individual. The circumstances (divorce or widowhood) of the last dissolution are known, as well as some characteristics of the previous spouse.

A further aspect of the survey that is particularly important for our purposes is that it collected detail on the structure and budgetary arrangements of each household. To best reflect intra-household

[9] See Lambert and van de Walle (2012).

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

structure and resource allocation, households were divided into groups or 'cells' according to the following rules. 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. This is in the same spirit as the procedure used for the Senegalese census of 1988 (van de Walle and Gaye 2006). Any unmarried brothers of the head would also be considered as part of his cell. Each wife of the head and her children and any other dependents then form separate cells. Other women with children or other dependents, and whose husbands are not present, are also considered cell heads. The same goes for any other family nucleus such as a married child of the household head with his/her spouse and children, or a sister of the head residing in the household with her children (typically post-divorce or while her husband looks for a job). This disaggregation emerged from field interviews as being the most relevant way to split the household into its component groups.

Consumption expenditures are recorded in several parts: first, all common expenditures are collected (housing, electricity bills, food, etc.). Food expenditures are compiled based on a detailed account of who shares which meal and how much money is specifically used to prepare the meal. These are the 'DQ' or 'dépenses quotidiennes'—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. Next, individual consumption is collected at the group level (e.g., expenditures on clothing, mobile phones, transportation, and food outside the home). Finally, expenditures that are shared between several cells but not the whole household are collected.

A measure of per capita consumption can then be constructed at the cell level, allowing us to identify unequal consumption levels within households. Subgroups also emerge that take some or all of their meals separately (in 17 per cent of households), thus widening the possibility for differences in nutritional intake among household members. The data allow us to construct a relatively individualized measure of consumption that we use to assess women's individual economic welfare.

The description presented in this paper is mainly based on the sample of ever-married adult women (15 years of age and older), without age limit, from the 2006 PSF1 database. This sample is presented by women's marital status in Table 1.

A second source of data is the DHSs of 2005 and 2010, which we draw on for comparison purposes and to complement the analysis using the PSF. In particular, the DHSs assemble information on aspects of women's wellbeing, decision-making, and resource constraints that are not represented in the PSF.

## 4 Marital status in Senegal

Given the complexity of marital trajectories, computing divorce and widowhood rates from cross-sectional data is complicated, even when surveys contain recall of past marital history data. As noted in Section 1, the PSF1 identifies 18.5 per cent of ever-married women aged 15 and older as ever-widowed. As can be seen in Table 1, the rates are similar in urban and rural areas. Regarding divorces, the 13.2 per cent overall average hides a higher incidence in urban (16.7 per cent) than in rural areas (10 per cent). However, these numbers are a lower bound on the share of women who experience either widowhood or divorce. Nearly 7 per cent of ever-married women have had more than one dissolution. We have no information on how the union that preceded the previous dissolution ended. If we assume that all women with more than one rupture and whose last break-up occurred because of a divorce had previously been widowed, this would give us an upper bound of 21.5 per cent of ever-married women

who have experienced widowhood at least once. Conversely, if we assume that the previous dissolution of those identified as having been widowed was a divorce, the estimated upper bound to the proportion of women having suffered a divorce would be 17.3 per cent.

By comparison, the 2010 DHS for Senegal identifies 9.2 per cent of all women aged 15 and older as widows (9.0 per cent in urban and 9.3 per cent in rural), and 1.1 per cent for those in the 15–49 age group. However, because of Senegal's high remarriage rates, these DHS statistics vastly underestimate the incidence of widowhood within a typical woman's lifespan. Looking instead at the 2005 DHS, which collected more detailed information on marital history (albeit only for the 15–49 age group), 3.6 and 4.6 per cent of women are ever-widowed in urban and rural areas respectively, reflecting rates of 2.1 and 3.8 per cent remarried widows among women aged 15–49. There are far more ever-divorced women. The 2005 DHS identifies 12.9 per cent of all women aged 15–49 as married but previously divorced, while it finds that 5.9 per cent are currently divorced.[11] These numbers are in line with the PSF1 estimates, although the PSF1 counts relatively more widows (6.7 per cent of widows or remarried widows in the 15–49 age group) and fewer divorcees whether remarried or not (14.1 per cent in total in that age group).

A notable fact is that most women who divorce eventually remarry, although fewer widows do so. Indeed, according to the PSF1, 59 per cent of divorcees and 26 per cent of widowed women remarry. A majority remarry polygamous husbands (47 per cent and 72 per cent respectively compared to 36 per cent of first-marriage women). Half of the remarried widows are remarried within a leviratic union, among them 83 per cent in a polygamous union.

Using the latest DHSs for a number of countries for which details on marital histories were collected, Senegal's characteristically high remarriage rate following divorce appears to be shared with other West African countries (Table 2). In countries in the southern and eastern parts of the subcontinent, divorce rates are higher, but a much larger share of divorcees remain unmarried. Finally, countries in Central Africa have by far the highest divorce rates, with up to one-third of women having been divorced at some point in their lives in Gabon, and about half of them remarried. Table 2 shows that patterns of widowhood rates and remarriage are more equal across the continent; indeed, about 6 per cent of all women aged 15 through 49 have been widowed, and in most countries nearly half are remarried. There are a few outliers, in particular those most affected by the HIV/AIDS epidemic (such as Lesotho, Swaziland, and Zimbabwe), where the widowhood rate is considerably higher and the share of remarried widows lower.

There is naturally a strong positive age gradient in the likelihood of being widowed. The top panels of Figures 1 and 2 display the gradient by age and by marriage duration in the PSF1, respectively. In Figure 1, we graph the proportion of all women of a given age (with no more than a single marital dissolution) who are ever-widowed. As expected, the share of widowed women steadily rises, and at an increasing rate to reach close to 40 per cent of women aged 50–70 and almost 80 per cent of those aged 70 and older. In Figure 2, the *y*-axis gives the widowhood rate for a given marriage duration among marriages that survived for at least that period of time.

The bottom panels of these figures show the equivalent computations for divorce rates. Here, the age patterns show a peak around the age of 40. However, divorce rates by marriage duration make it clear

[11] Note that separated women are included in the same category as divorced.

that those most at risk are recent marriages, since the rate of divorce is highest in the first five years of marriage.[12] This is driven by divorce in urban areas, where the divorce rate among recent marriages is more than twice as high as in rural areas, reaching an average of 1.4 per cent per annum during the first five years (against 0.6 per cent in rural areas). One-quarter of divorces happen within the first three years of marriage, while the median duration of marriages that ended with a divorce is 7.5 years. Divorces happen more quickly for the younger generation; the first quartile of the distribution of marriage duration is only two years for women under 40 against six years for women older than 40 (the corresponding medians are 5 and 14 years). These findings correspond well to the idea that some young women divorce to escape arranged marriages, while others, who may have impetuously engaged in a love marriage, tend to divorce quickly when disappointed with their husband—for example, if he tries to limit their autonomy and prevent them from working or finishing their studies, as suggested by qualitative studies.

After 10 years of marriage, a high 8 per cent of unions have ended in divorce (Figure 3). Decomposing the sample into two cohorts (those aged below and above 40), as done in the first panel of Figure 4, reveals that the incidence of divorce has increased over time. In the second panel, it can be seen that this trend is even steeper in Dakar. In contrast, the rate of widowhood does not appear to have changed over time. The corresponding graphs (not shown) for two cohorts, whether split around the age of 40 or 60, are indistinguishable.

Finally, to give a sense of overall marriage instability, it is informative to look at union survival rates, by women's ages. Among ever-married women, more than one-quarter have been through one marriage dissolution by age 45 (Figure 5).[13]

Ever-widowed and ever-divorced women tend to differ primarily in two dimensions: ever-divorced women are more often urban dwellers and they are three times more likely to have ever been to a French school. This is perhaps not surprising as these characteristics permit greater autonomy and are likely to facilitate divorce. In addition, for demographic reasons and because divorcees remarry more often than widows, widows are older, have more living children, and are more often heads of their households (Table 3).

## 5 Differences in welfare levels

To investigate associations between marital status and women's welfare, we first turn to some non-monetary individual welfare indicators as well as measures of decision-making power and resource constraints available from the 2005 DHS. We then examine individualized measures of consumption using the PSF consumption survey of 2006.

[12] These results echo findings from the sparse literature (Antoine and Dial 2003; Locoh and Thiriat 1995; Smith et al. 1984).

[13] This number is comparable to the French case (29 per cent of highly educated and 23 per cent of less educated women have experienced one marital dissolution before age 45; 1999 data) (Lefèvre and Filhon 2005).

### 5.1 Measures of wellbeing, decision-making, and constraints

The focus of Tables 4 and 5 is all ever-married women aged 15–49. Table 4 begins with some descriptive statistics on key characteristics that arguably reflect aspects of a woman's living standards and wellbeing. It can be noted that close to one-quarter of this group have had a union dissolution.

Controlling for age (as women married only once are on average younger—column 2), there doesn't seem to be any difference in body mass index (BMI) correlated with marital status (column 5).

Differences appear in nearly every other dimension. Urban remarried widows live in significantly more asset-poor households than do once-married and widowed women,[14] while urban divorcees are members of significantly richer households. In rural areas, ever-divorced women reside in less asset-poor households.

Current widows are about twice as likely as their remarried counterparts to have inherited most of their deceased husband's property, suggesting one reason for why they have not remarried. Finally, the last two columns of Table 4 show the percentages of women who were born in rural areas but now live in urban areas, and vice versa. The first could reflect an escape from more stringent social norms, as suggested by the higher shares of widows and ever-divorced women who have followed this path. Alternatively, such women may have married into an urban family and simply remained there when the union ended. Likewise, being urban-born and ending up in rural areas may be interpreted as a worsening of life conditions, and we see that current divorcees and widows are significantly less likely to have made this move. But here, too, an alternative story is selection into a rural marriage prior to the husband's loss.

Taken together, the statistics presented in Table 4 are consistent with a situation in which women who remarry are mostly those who cannot afford to remain husbandless, and despite remarriage, appear to be living in poorer households.

Women are asked various questions whose answers can be interpreted as indicative, or related to, their levels of voice within the household and the constraints they face. A number of suggestive patterns emerge when we examine how these vary with marital status (Table 5). Widows are the least likely to report having no say over decisions that affect them and their households, undoubtedly reflecting the fact that they are more often household heads. Women in their first union are the most likely ones to have no say in decision-making, with remarried divorcees not far behind. Divorcees and ex-widows fall somewhere in-between, exchanging rankings depending on the activity.

In seeking health care for oneself, getting permission is a constraint faced by at most 5–6 per cent of Senegalese women, and appears not to be strongly associated with marital status. A much larger share of women point to a cost constraint, with the health care of remarried and current widows being the most liquidity constrained at 71 per cent and 68 per cent respectively, and once-married women the least constrained at 55 per cent.

Incomes are not typically pooled across the members of a Senegalese household. Women contribute their labour to the household enterprise and its overall care, but their own earnings are in general for

[14] In this paper, 'once-married' means a currently married woman who has only ever been married a single time.

their own and their dependants' non-food needs. Women are asked what share of their earnings is spent on the household. The data suggest that on average around one-third of women contribute none of their own earnings to household needs. The one exception among marital statuses is for remarried widows, of which only a low 17 per cent surrender none of their earnings. Indeed, they are more likely to give up more than half of their personal earnings than other women (34 per cent versus 16 per cent for married and 21 per cent for ever-divorced women), with the exception of widows who, since they more often head their households, are expected to do so. These statistics may reflect the fact that widowed women without resources or a place to live often remarry poor men who can provide a degree of social insurance, but not much more than food and shelter.

Adult female DHS respondents were asked about whether a husband is justified in beating his wife if she leaves the home without telling him, neglects the children, argues with him, refuses sex, or burns the food. The responses follow the same patterns across women (only two are shown). Widows and divorcees are least likely and remarried widows most likely to agree that a husband is justified in beating his wife. Here again, remarried widows stand out as in a particularly weak position.

Among women, a larger share of remarried widows never watch television (43 per cent) followed by women in their first marriage (32 per cent) and remarried divorcees (27 per cent). Current widows and divorcees are most likely to watch TV and access information and entertainment on a frequent basis. Such statistics could reflect economic constraints, although alternative explanations are also possible (such as a lower burden in terms of household chores).

The above are simple correlations for which one should of course be cautious about making causal interpretations. Note, however, that the associations between the descriptive statistics and potential indications of decision-making power and constraints faced are consistent with many of the relationships that emerge from the PSF in what follows for women by marital status. Second, the correlations underscore the relevance of marital status to women's welfare and suggest less pronounced associations of levels of wellbeing and voice for women who have remarried following a dissolution.

### 5.2 Differences in consumption levels

Using the PSF survey, we can document women's average consumption levels by marital status for each of the five groups considered (widow (*W*), remarried widow (*MW*), divorcee (*D*), remarried divorcee (*MD*), first marriage (*M*)). Simple descriptive statistics show that, unconditionally, current divorcees and widows have the highest average cell per capita consumptions and, along with ex-divorcees, reside in higher per capita consumption households (Table 6).[15] Remarried widows fare the worst on average, and particularly when they are in a levirate marriage with log average cell consumption of only 12.06 as opposed to 12.22 for all remarried widows. Widows remarried outside the lineage of their late husband enjoy a level of consumption more than 30 per cent higher than those in levirate marriages. This may reflect the fact that remarried widows are different from other women in a number of dimensions. As we will see in Section 6, they indeed cumulate a double negative selection: selection into widowhood, which suggests they were from relatively poorer backgrounds to begin, and selection into remarriage, with rural dwellers among them remarrying more often. Negative selection is even stronger for those remarrying one of their late husband's kin. Such disadvantage could also be due to remarriage itself if

[15] Descriptive statistics on the five groups are given in Tables A3–A5.

entering into a second union after widowhood confines women to weak bargaining positions within their new households.

In order to isolate the consumption implications of marital status itself from those of selection on the basis of observable characteristics, we conduct a decomposition analysis.

Table 7 presents regressions for women by marital status group of the log of cell consumption per person for the $i$th woman against a vector of attributes $x_i$. This set of regressions can be written as:

$$\ln C_i = \sum_{\forall j}(\alpha_j + \beta_j x_i + \varepsilon_{ij})S_{ij} \quad (1)$$

where $j = M, W, MW, D, MD$. Here, all parameters are marital-status specific, $\varepsilon_{ij}$ is an error term, and $S_{ij} = 1$ if woman $i$ is a member of group $j$ and $S_{ij} = 0$ otherwise. Noting that

$$\sum_{\forall j} S_{ij} = 1 \quad (2)$$

we can re-write (1) such that the parameters for marital-status groups are evaluated as deviations from mean points for a given reference marital-status group $k$:

$$\ln C_i = \alpha_k + \beta_k x_i + \varepsilon_{ik} + \sum_{\forall j \neq k}[\alpha_j - \alpha_k + (\beta_j - \beta_k)x_i + \varepsilon_{ij} - \varepsilon_{ik}]S_{ij} \quad (3)$$

Estimating the model in this way also facilitates testing for the equality of the parameters. A special case is when only the intercepts differ, in which case the model is equivalent to running a regression with dummy variables for marital status.

We then use each group's own estimated parameters to predict consumption for a fixed reference group's mean covariates. For example, using the mean attributes of remarried widows ($\bar{x}^{MW}$) allows us to determine how much worse-off remarried widows are on average purely because they are remarried widows; this entails estimating for marital-status group $j$:

$$E_j[\ln C_i | MW_i = 0, x_i = \bar{x}^{MW}] - E_j[\ln C_i | MW_i = 1, x_i = \bar{x}^{MW}] \quad (4)$$

$$= \alpha_j + \beta_j \bar{x}^{MW} - ln\bar{C}^{MW} \quad (5)$$

Here, $E_j[.]$ denotes the expectation formed over the parameters and error term distribution for group $j$, while $\ln \bar{C}^{MW}$ denotes the mean of log consumption for $j = MW$.

The regressions control for individual and household characteristics that tend to be important in the Senegalese context and are common across all three groups of women. These include age, age squared, and age at first marriage; log household and cell size; the share of children in the cell; and a series of dummy variables for whether the woman was fostered as a child, attended a French school or a Koranic school, has a son aged 18 or older, belongs to the household head's cell, is head of her own cell, (current or ex-) husband's occupation (informal or formal sector or other, with agriculture the left-out option),

whether the current (or previous for ever-widowed and ever-divorced women) marriage is (was) polygamous, and whether the woman lives in an urban or rural area.[16]

There are some notable differences in the models across marital-status groups. A higher age at marriage is associated with significantly higher consumption for once-married women, but not for women in other groups. Larger household size is associated with significantly lower consumption for all except remarried widows. However, not all of the differences in coefficients are statistically significant. Taking once-married women as the reference, one can only reject the null that the coefficient on age at first marriage is different for widows, and the same is true for the coefficients on log household size but with respect to remarried widows. A higher cell size and cell share of children are associated with lower consumption for all groups, although the first is only significantly associated with consumption for married and divorced women. But again, tests of the differences in coefficients relative to once-married women show that they are statistically indistinguishable from each other.

There are high returns associated with education. Having attended the French school has a substantial and highly significant (and statistically indistinguishable) return for all women. Koranic education is correlated with higher cell consumption for widows and women who have remarried. Indeed, controlling for age and other covariates, the effects of Koranic schooling on consumption are about the same as having attended the French school for ex-widows and half as much for ex-divorcees and widows. However, relative to once-married women, the difference is significant for ever-widowed women only. Having a son older than 18 appears to be a significant asset for divorcees.

The largest boost to the consumption of remarried women is having had a formal public or private sector employee as their (now deceased) husband. For ex-widows this effect ($\beta = 0.721$, $t$-stat = 4.07) far outweighs that of any other covariate. It likely captures the effect of receiving a pension and being able to keep it for oneself, to a large extent, as a source of personal income. For both groups, having had a husband in the informal and 'other' sectors is also associated with higher consumption, although tests reveal these not to be statistically different from that estimated for other women. Urban location significantly boosts consumption for all groups. The high coefficient for once-married women is only statistically different from that estimated for ex-divorcees.

The results in estimating Equation (5) are given in panel 1 of Table 8, where consumption is evaluated for the mean attributes of *MW,* and for 10-year age ranges with the first cut-off at age 40, and urban and rural areas separately. This gives a first insight into the question of how much worse- or better-off remarried widows would be if their marital status changed. The table's second and third panels do the same for widows and once-married women, respectively using the mean attributes of widows and of once-married women in the various age groups.

Consumption differences are substantial when evaluated for the mean characteristics of ex-widows. In both urban and rural areas, and for most ages, ex-widows tend to have the lowest average per capita

[16] Other variables—potentially relevant to living standards but not shared across the groups—were tested. For all currently married women, whether the husband co-resides and number of co-wives; for previously married women, the number of past dissolutions and ex-co-wives; for remarried women, the duration of widowhood/divorce prior to remarriage. Only the number of dissolutions is ever statistically significant and this for widows (with 1.3 the average number of dissolutions) at the 5 per cent level ($\beta_W = -0.13$, $t = 2.10$), and for divorcees (1.4; ($\beta_D = -0.15$, $t = 1.7$). As other coefficients also change when these covariates are included, predicted effects on consumption (see below) are altered only slightly. We restrict the model to the same covariates across groups.

consumption. The differences are largest and most significant at young ages and dissipate as women age due to a positive age effect on consumption for remarried widows. Rural widows are an exception, with insignificant differences at all ages. Urban remarried widows would have been better-off in any other marital status and in particular had they remained husbandless. There are two potential explanations for such a result. On the one hand, it might be that either remarried widows differ in some unobserved characteristics (potential support from kin network or personal savings, for example) such that they are relatively poor and cannot support themselves without a husband. This would be consistent with the fact that the results are in large part explained by the very low constant term in the consumption equation for ex-widows relative to any other groups. On the other hand it could also be that remarriage in itself is not really a favourable outcome. Widows who remarry might be constrained to do so for social reasons (in particular in the case of levirate marriages) and might end up marrying into relatively poor households or with a weak position within the household due to their marital trajectory.

Panel 2 shows consumption differences when characteristics are fixed at the mean for W but parameters are allowed to vary by marital status. In urban areas, widows would be worse-off as MW or MD throughout the age distribution. W also fare better than MW in rural areas, although the difference is statistically significantly different from zero only for the youngest group. Widows in rural areas do not seem to fare substantially worse than other marital-status groups. Differences favour these other groups but hardly ever significantly so. In total, widows who didn't remarry seem to have chosen the best option, given their characteristics.

Finally, panel 3 fixes characteristics at the mean for M women. In urban areas, married women would be worse-off with their own characteristics but the parameters of the other groups. This is particularly true for MW and MD, for whom the predicted changes in consumption are statistically significant. Rural M women would generally have lower consumption levels in any other status and significantly so as MW under 40. Generally speaking, women in their first marriage seem to benefit from this unbroken marital trajectory.

The same exercise can be done using divorcees as the reference group. Results (not shown) indicate that divorcees would not have fared very differently had they stayed in their first union. Conversely, once-married women fare better than if they had ever been divorced, hinting at the positive selection of women into divorce.

Comparing widows and remarried widows for a given age at dissolution suggests that, in urban areas and given their characteristics, widows fare better as widows than they would do as remarried widows, whatever their age at widowhood (Table 9A1). Here again it is also the case that remarried widows would fare better if not remarried, irrespective of age at dissolution. In rural areas the difference in the predicted consumption of these women according to whether they remarried or not is never significantly different from zero. The same results are found if we examine duration since widowhood (Table 9B1). After a divorce, whatever the age at divorce or the duration since divorce, women have the same consumption level given their characteristics whether they remarried or not (Tables 9A2 and 9B2).

Differences reflect both the consequences of a particular marital trajectory and the selection processes that push or pull women into those pathways. One possible interpretation of these findings consistent with what we know is as follows. Women who become widows and remarry often do so out of necessity. They would appear to consist of a group of poorer women, with probably little fall-back position in the event their husband dies. Their vulnerability is not captured by commonly considered observables such as education, age, place of residence, and the type of job held by the deceased husband, as otherwise we

would expect to find them better-off when remarried rather than not (contrary to results presented in panel 1 of Table 8). Clearly the unobserved characteristics along which they differ from those who do not remarry explains part of the consumption gap. Comparing them with once-married women (less likely to be selected than widows) it appears that for them there is a large economic loss associated with widowhood at all ages. Remarriage does not, however, compensate them fully for such economic loss. Widows, on the other hand, do not seem to incur economic loss from their marital status, pointing at a potential positive selection for those who do not (choose to) remarry. In the following section we emphasize selection not only in widowhood or divorce but also in remarriage, an issue not previously identified in the literature.

## 6 Determinants of current marital status

Given the results presented above and the strong presumption of differential selection into the various possible marital statuses, it is of interest to understand the determinants of being in one or another position. We decompose trajectories into several successive steps. We first discuss the individual-level correlates of widowhood and divorce, followed by those associated with remarriage, and finally those that correlate with various aspects of marriage quality.

### 6.1 Selection into widowhood and divorce

Older women understandably have a higher probability of widowhood (Table 10). Age is also significantly associated with divorce, although in a less pronounced way. Characteristics typically associated with higher standards of living are negatively correlated with becoming a widow; this is true for both the socioeconomic category of the deceased husband (men employed in the formal or public sector are more likely to survive) and for the wife's own level of education. This strongly suggests that widows are selected among relatively poorer women. Nevertheless, there is also a surprising negative correlation between rural residence at the time of dissolution and widowhood. With respect to selection into divorce, the story is slightly different. In fact, while a husband's positive characteristics are associated with a lower probability of divorce, a wife's positive characteristics (education) are positively correlated with it. Furthermore, urban areas see more divorces. This suggests that women who have the means (social as well as economic) to exercise their independence are more likely to be divorced, probably often at their own initiative. That said, women appear to be less willing to divorce men with desirable economic situations.

### 6.2 Selection into remarriage

Table 11 presents the correlates of remarriage following a dissolution, while Table A6 presents the rural–urban decomposition of those estimates. Age at dissolution is the strongest correlate of remarriage for both divorcees and widows. Indeed, if the dissolution happens before the age of 25, the probability of remarriage is 1.8 times higher for widows and increases by more than 60 per cent for divorcees, relative to the situation in which the dissolution happens after age 40. Women from more traditional settings are more likely to remarry (in particular after widowhood): this holds for rural dwellers, daughters of polygamous men, and women who have been fostered in childhood. There may be different reasons for the latter two correlations, from a larger kin network to a better acceptance of polygamy. Irrespective of the age at dissolution, a polygamous husband awaits three-quarters of women who remarry following widowhood, and half of those who do so after divorce. Conversely, educated women, who are more likely to be divorced, are also more likely not to remarry following divorce (this is driven by urban

divorcees). Finally, having a son from the previous union is correlated with lower remarriage for divorcees (a result driven by rural women).[17] Various channels might explain this correlation. On the one hand, for divorcees having a grown-up son has a positive impact on consumption level, suggesting the possibility of material support that makes remarriage less necessary. On the other hand, it might be more difficult to retain custody of a son after remarriage. Finally, women who do not yet have a son may feel the urge to remarry in order to maximize their chances of ever bearing one. Conversely, widows without children from the late husband are less likely to remarry, probably because levirate marriage is less of an option for them. As shown in Table 12, levirate marriage is prevalent mainly in rural areas. Among widows who remarry, having a son from the previous union is strongly associated with remarrying into the deceased husband's family (levirate). Here again, women's education is associated with a somewhat lower probability of this traditional practice.

### 6.3 Remarriage quality

Correlations observed in the DHS data between marital characteristics and women's autonomy (see Table A8) suggest that a 'good' marriage is a monogamous one, without cohabitation with the in-laws and/or the husband. In addition, a civil marriage (for the protection it provides), a husband working in the formal sector, and the possibility of living with one's children from the previous union seem to be other desirable characteristics. We therefore investigate the correlates of such 'good-quality' remarriage for remarried women in Tables 13 and 14, respectively for widows and divorcees, recalling that widows are more likely to remarry as higher ranked wives in polygamous unions.

A late dissolution is associated with a lower probability of cohabitation, in particular when the woman has passed childbearing age, and especially so for ex-widows (Tables 13 and 14). At the same time, it is related to a higher likelihood of remarriage in a polygamous union. Widows with children from a previous union are less likely to cohabit and even less so for those with a son at the time of dissolution.

Divorcees who have been to a French school and who were fostered before age 15 (two correlated characteristics) appear better able to avoid polygamy; yet having been brought up with a polygamous father increases the likelihood of marrying into a polygamous union, maybe because it facilitates acceptance of this type of marriage.

Having been to a French school, having been fostered in childhood, and having had a monogamous father all correlate with marrying a husband with a formal sector job, and more so for widows than for divorcees. Finally, living in a rural area at the time of dissolution is unfavourable as it reduces access to husbands with formal jobs and increases the likelihood of polygamy.

Living in a rural area is associated with other negative outcomes (Tables 15 and 16): divorcees in rural areas are less likely to have a civil contract for their marriages (this is true for widows as well); they are more likely to live with their in-laws, and they are more at risk of not living with children from their previous union. Having a son from the previous union is positively correlated with the probability of living with children from the previous union after remarriage.

Interestingly, when we compare these results with the correlates of marriage quality in these various dimensions for women in their first marriage, it appears that a woman's education is associated with

[17] See Table A6.

protection against polygamy and a higher probability of a civil marriage in the same way for them and for divorcees when they remarry. On the other hand, it does not go hand-in-hand with such a protective role for widows upon remarriage (see Table A7 for women in their first marriage).

Finally, we look at whether a new marriage is associated with social mobility through the relative characteristics of ex- and current husbands. Concentrating on women whose first marriage was with a man working in the informal sector, we look at the correlates of a second husband working in the formal sector. Table 17 shows that the chances of marrying 'upwards' are higher for women whose dissolution occurred relatively late (after age 40) and who have some formal education. There are insufficient observations of women first married to men with formal sector jobs to explore the correlates of downward mobility.

## 7 Conclusions

Discontinuous marital trajectories are associated with different consequences according to whether they are affected by divorce or widowhood. Confirming descriptions for sub-Saharan African countries by sociologists, and in accordance with the fact that divorce might be chosen, our analysis suggests that divorce is a means for some women to escape family authority and gain a relatively comfortable autonomy, while widowhood is correlated with more negative consequences in terms of welfare. In fact, current divorcees enjoy a higher level of consumption than any of the other groups of women we consider. This may be related to formal education, which clearly plays an important role for divorcees. First and foremost, divorcees are more likely to be educated women. Upon divorce, higher education is correlated with a lower likelihood of remarriage, and for those who do remarry, it is related to better-quality unions in various dimensions: more civil contracts and husbands with formal sector jobs, and a lower likelihood of a polygamous husband.

Education is associated with a lower probability of widowhood. But more education is not related to increased social mobility for widows (although if they remarry it is less likely to be in a leviratic marriage and more likely to be with a husband holding a formal job). This may be linked to the fact that widows observed in the sample are, on average, older and therefore less educated than the average divorcee, as well as to differences in age at dissolution. Although education opens up more options for relatively young women on the marriage market, it may not do so for women who are beyond childbearing age. Overall, widowhood appears to be accompanied by negative consequences that are not mitigated by remarriage. This ensues from a double negative selection: first, poorer women (less educated and with a husband in an informal or agricultural job) are more likely to experience widowhood; and second, it seems that the most vulnerable widows are those who have to remarry (rural ones) and, for the uneducated ones and those who have a son with the deceased husband, to enter a leviratic marriage. Leviratic marriages are associated with the lowest consumption levels. There are two competing interpretations for this finding. First, it may be that leviratic marriage is the only option for very poor widows, and it mainly happens in very poor lineages. On the other hand, these marriages may act like a poverty trap for those women who cannot afford to refuse it, either because of a lack of independent means or because it is the only way to remain with their children. Those who can afford not to remarry do so, maintain a level of consumption comparable to that of women in their first marriage, and gain autonomy in this way.

However, differences in observed characteristics between widows and remarried widows do not suffice to explain the consumption gap. Thus, a worry remains that the causality runs the other way, with remarried widows becoming vulnerable because of their remarriage, as social pressure to remarry pushes them to enter a union with a status that may well be even more dominated than that of other married women. Inquiry into the direction of causality is beyond the scope of this paper, but is clearly of importance.

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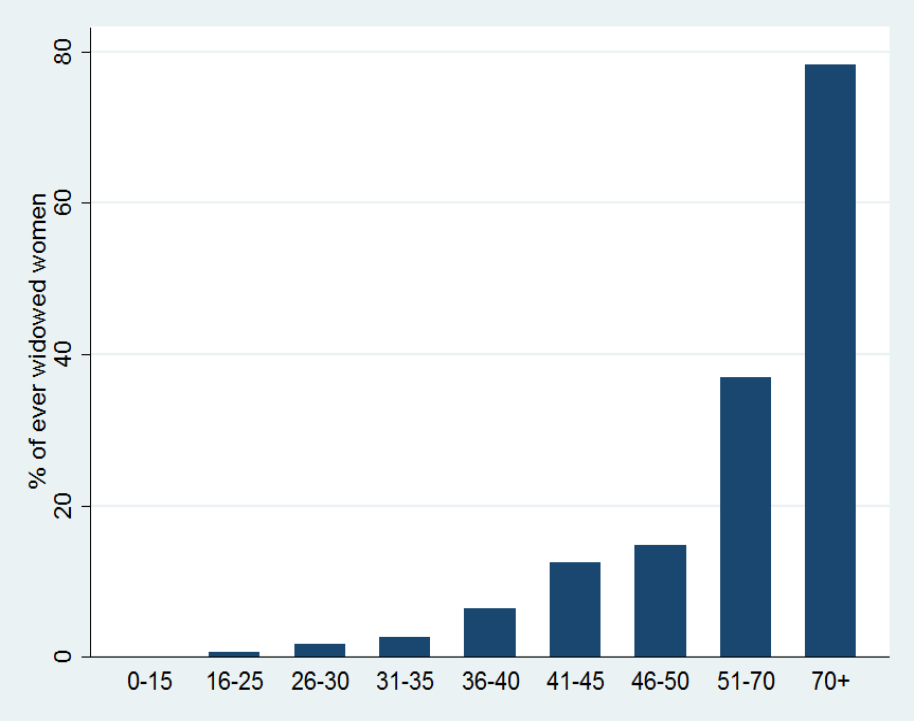
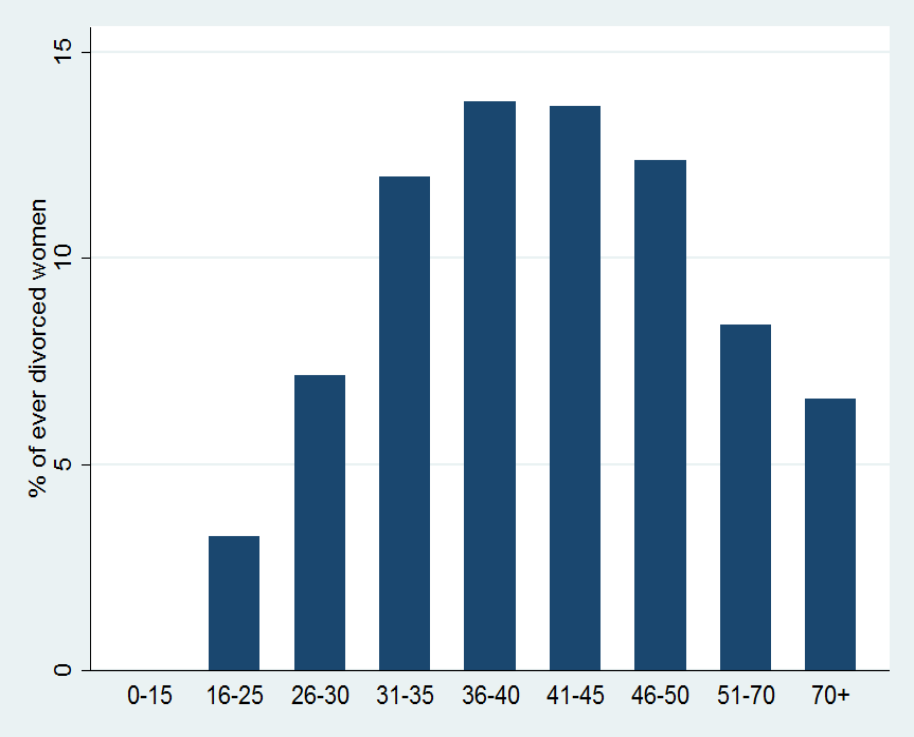
Figure 1: Percentage of ever-widowed and ever-divorced women by age groups, all areas

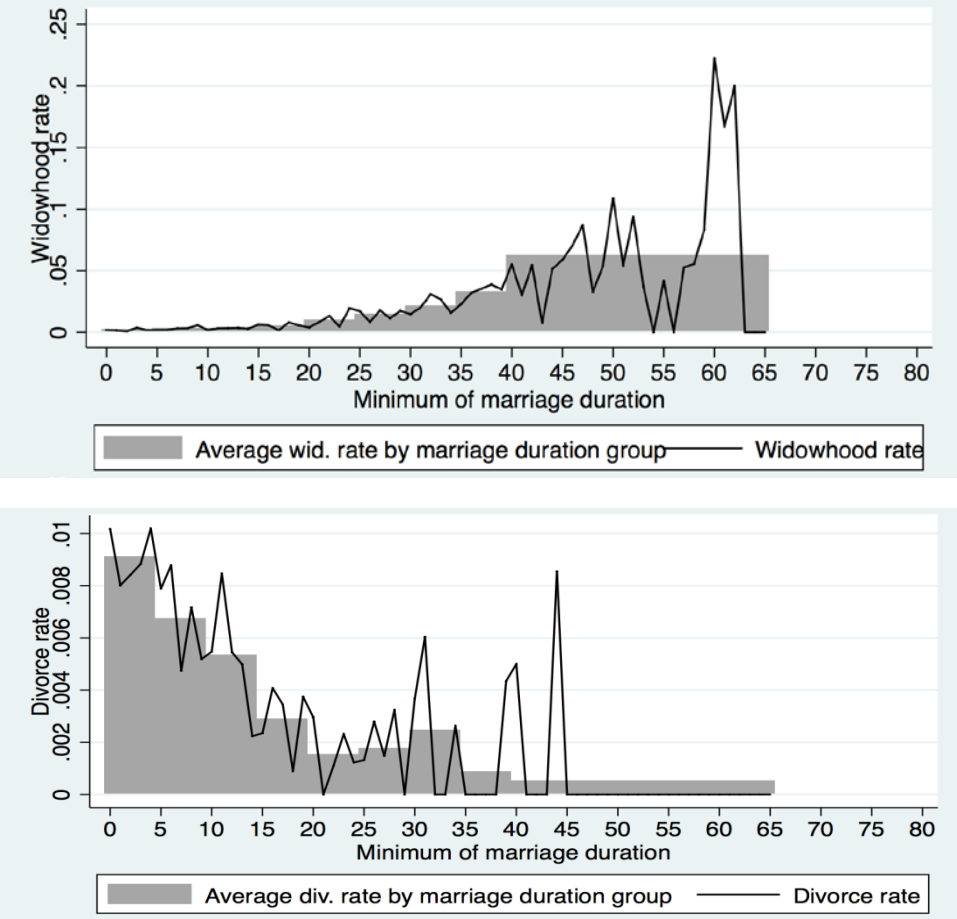



Note: Sample of all women with at most one marital dissolution.

Source: authors' calculations using the PSF1.

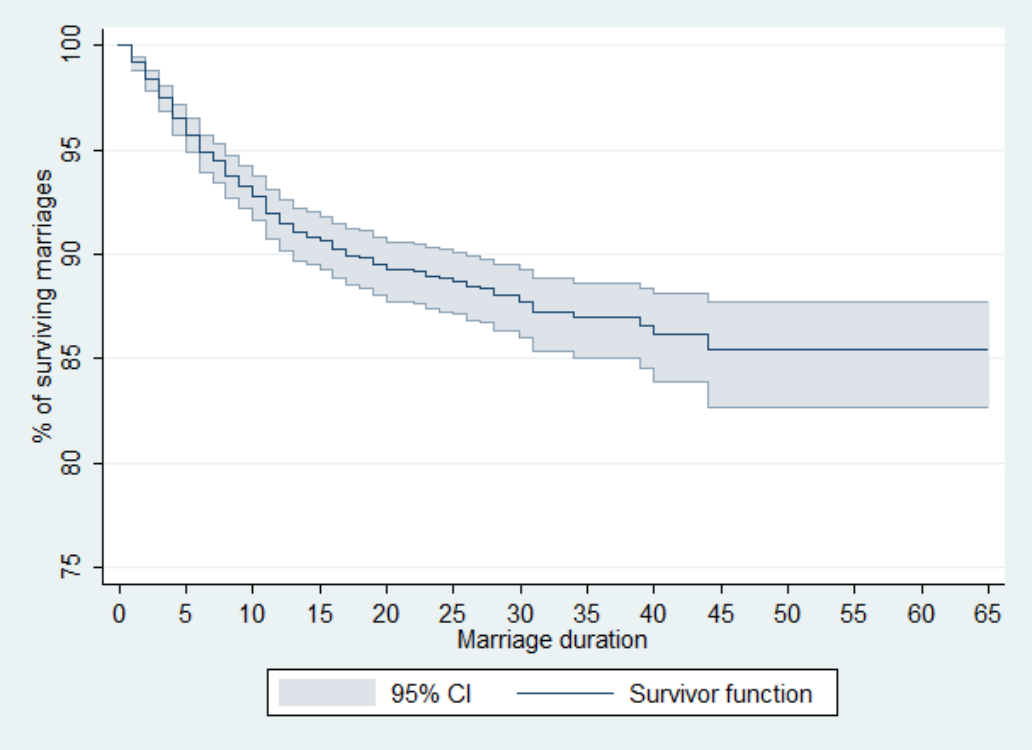
Figure 2: Widowhood and divorce rates by marriage duration, all areas




Note: upper panel = widowhood rate for a given marriage duration, among marriages that survived for at least that period of time. Lower panel = divorce rate for a given marriage duration, among marriages that survived for at least that period of time. Sample of women 15 and older with at most one marital dissolution.

Source: authors' calculations using the PSF1.

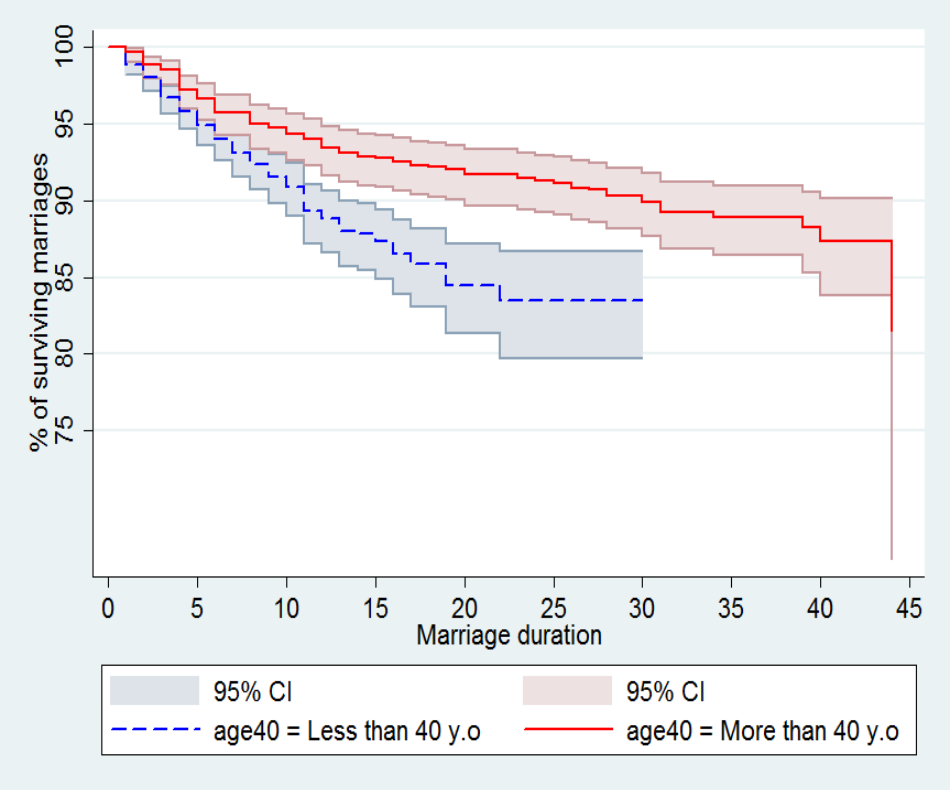
Figure 3: Share of marriages ending in divorce by marriage duration, all areas

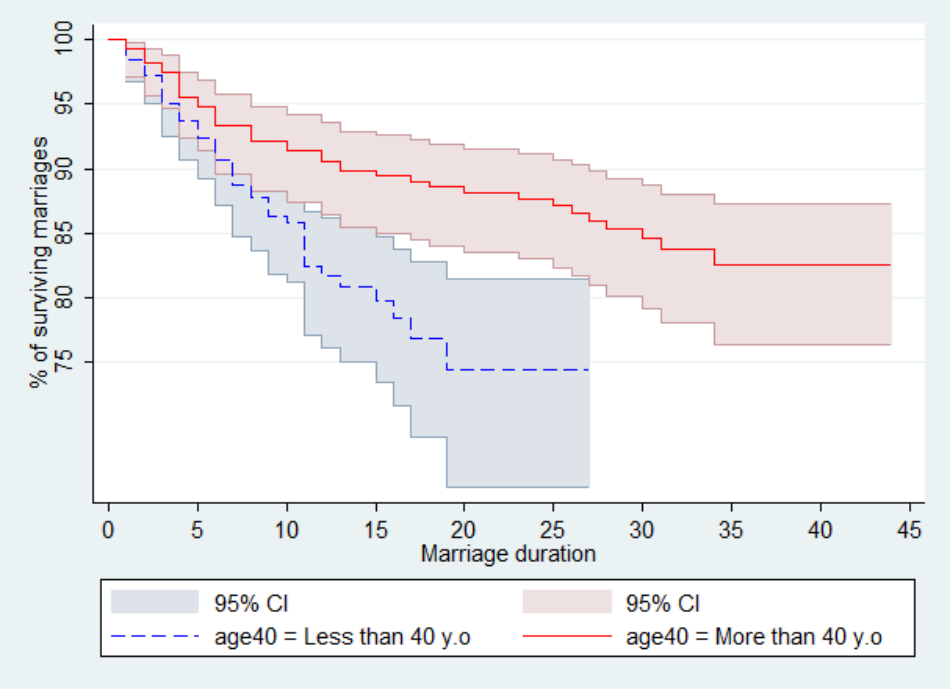



Note: sample of women 15 and older with at most one marital dissolution.

Source: authors' calculations using the PSF1.

Figure 4: Heterogeneity in the incidence of divorce over time and space; upper panel, all areas; lower panel, Dakar

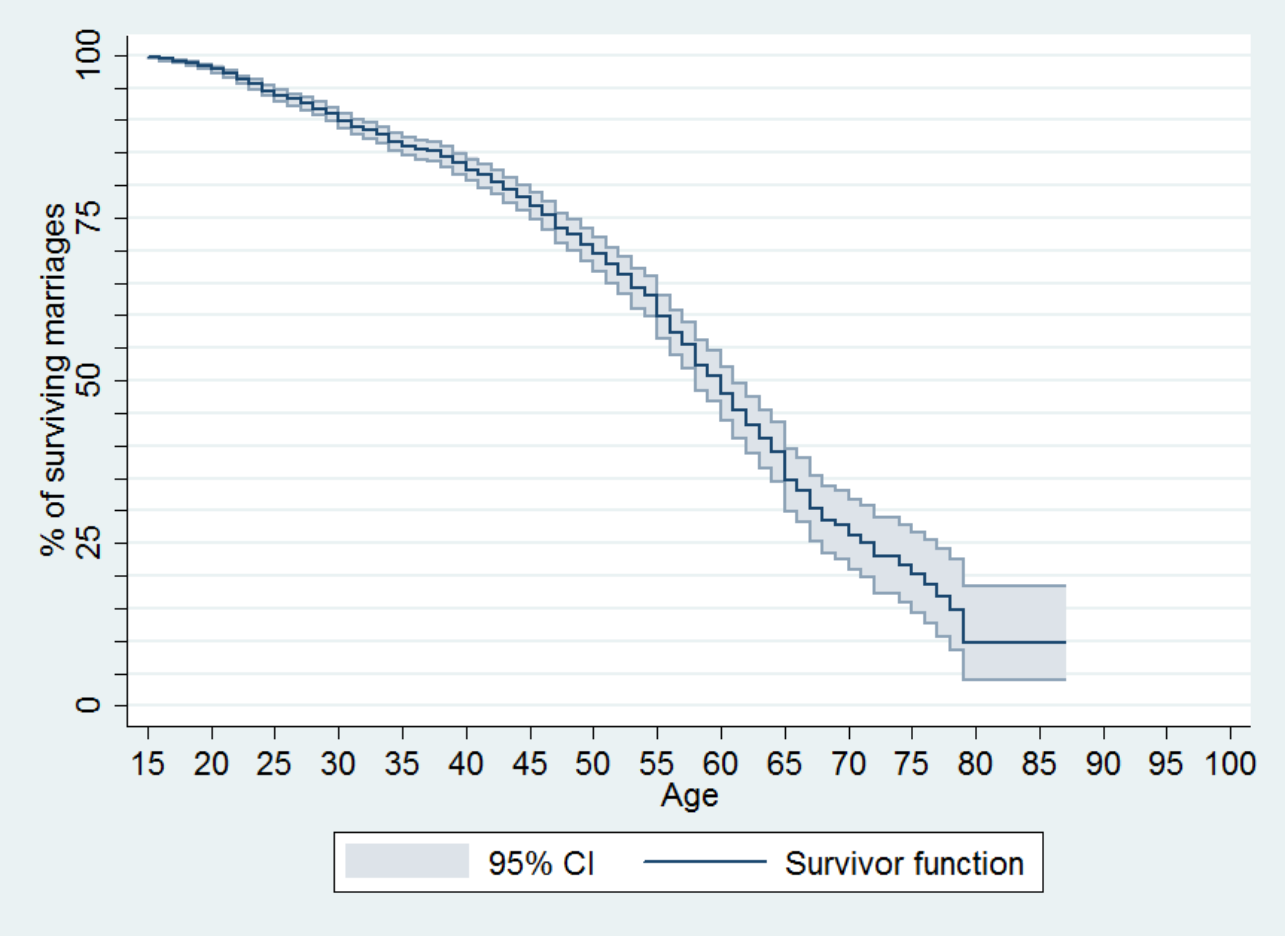



Note: sample of women 15 and older with at most one marital dissolution.

Source: authors' calculations using the PSF1.

Figure 5: Union survival rates by age, all areas




Note: sample of women 15 and older with at most one marital dissolution.

Source: authors' calculations using the PSF1.

Table 1: PSF1 sample of ever-married adult women

| Marital status | | Rural | Urban | TOTAL |
|---|---|---|---|---|
| First marriage | N | 1,168 | 985 | 2,153 |
| | % | 71.35 | 64.89 | 68.24 |
| Remarried widow | N | 95 | 60 | 155 |
| | % | 5.80 | 3.95 | 4.91 |
| Remarried divorcee | N | 115 | 132 | 247 |
| | % | 7.03 | 8.70 | 7.83 |
| Widow | N | 210 | 220 | 430 |
| | % | 12.83 | 14.49 | 13.63 |
| Divorcee | N | 49 | 121 | 170 |
| | % | 2.99 | 7.97 | 5.39 |
| **Total** | | **1,637** | **1,518** | **3,155** |
| Remarried widows in: | | | | |
| *a leviratic marriage* | N | 51 | 20 | 71 |
| *a non-leviratic marriage* | N | 36 | 34 | 70 |

Note: adults are defined as 15 and older. For 14 remarried widows, we have no information on whether the current husband is a relative of the deceased husband.

Source: authors' calculations using the PSF1.

Table 2: Divorce and widowhood rates in sub-Saharan Africa (percentage of ever-married women aged 15–49)

| | Married once | Ever-widowed | | Ever-divorced | |
|---|---|---|---|---|---|
| | | Widow | Remarried widow | Divorcee | Remarried divorcee |
| Burkina Faso | 80 | 3 | 3 | 3 | 11 |
| Niger | 76 | 2 | 3 | 3 | 17 |
| Senegal | 76 | 2 | 4 | 6 | 13 |
| Mali | 81 | 2 | 4 | 2 | 11 |
| Sierra Leone | 73 | 3 | 7 | 4 | 13 |
| Nigeria | 83 | 3 | 2 | 3 | 9 |
| Cote D'Ivoire | 77 | 4 | 2 | 10 | 8 |
| DRC | 71 | 3 | 3 | 10 | 14 |
| Congo | 63 | 3 | 2 | 17 | 16 |
| Gabon | 63 | 2 | 2 | 14 | 19 |
| Lesotho | 79 | 12 | 1 | 8 | 1 |
| Swaziland | 77 | 11 | 1 | 6 | 4 |
| Mozambique | 80 | 5 | 0 | 15 | 0 |
| Namibia | 73 | 6 | 2 | 10 | 9 |
| Zimbabwe | 69 | 11 | 2 | 11 | 8 |
| Malawi | 66 | 4 | 3 | 12 | 15 |
| Uganda | 65 | 6 | 3 | 12 | 14 |
| Zambia | 68 | 6 | 4 | 11 | 12 |

Note: samples of ever-married women.

Source: authors, based on DHS surveys between 2005 and 2011 depending on the country; for Senegal, DHS 2005.

Table 3: Differences in socioeconomic characteristics between ever-widowed and ever-divorced women

| | Ever-widowed | Ever-divorced |
|---|---|---|
| Rural area | 0.52 | 0.39*** |
| Age | 58.68 | 40.21*** |
| Age at first marriage | 18.26 | 18.76 |
| Ever been to a French school | 0.13 | 0.37*** |
| Total number of children (alive) | 4.54 | 3.42*** |
| Log of total household consumption per capita (CFA francs per year) | 12.38 | 12.49* |
| Log of total cell consumption per capita (CFA francs per year) | 12.38 | 12.42 |
| Household size | 10.73 | 10.09 |
| Household head | 0.32 | 0.17*** |
| Cell head | 0.61 | 0.82*** |
| N | 585 | 417 |

Note: all characteristics are expressed as shares of the marital-status group except for age, number of children, consumption aggregates, and household size. Divorced includes separated women. All significance tests are relative to ever-widowed women, where *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Source: authors' calculations using the PSF1.

Table 4: Descriptive statistics on ever-married women by current marital status, Senegal 2005 DHS

| | Percentage of ever-married women 15–49 | Age | Household head | BMI | Percentage underweight (at mean age) | DHS asset index | | Received most of husband's property | Born rural, lives urban | Born urban, lives rural |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Urban | Rural | | | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| Married once | 75.7 | 29.7 | 5.8 | 22.75 | 11.6 | 1.06 | −0.54 | – | 8.3 | 4.8 |
| Remarried widow | 4.4 | 38.8 | 19.9 | 24.35*** | 8.50 | 0.67*** | −0.57 | 16.0 | 6.1 | 5.6 |
| Widow | 1.5 | 38.5 | 32.2 | 25.35*** | 12.0 | 1.10 | −0.41 | 30.9 | 14.1*** | 2.2* |
| Remarried divorcee | 13.1 | 34.3 | 8.9 | 24.99*** | 10.3 | 0.93*** | −0.43*** | – | 13.1*** | 6.0 |
| Divorced | 5.4 | 32.4 | 14.6 | 23.20* | 10.3 | 1.35*** | −0.30*** | – | 12.7*** | 3.1** |

Note: all characteristics are expressed as percentages of the marital-status group except for age (years), BMI, and the wealth index. All significance tests are relative to married-once women, where *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Underweight is defined as having BMI less than 18.5. Column (5) presents mean underweight conditional on age and aged squared and evaluated at mean age for the sample as a whole. Differences relative to once-married women are no longer statistically significant. Pregnant women are omitted from the BMI and underweight means. Divorced includes separated women. The wealth index is generated by DHS using principal components analysis on assets; housing construction materials; and type of water access and sanitation facilities. The index places households on a continuous scale of relative wealth and refers to the household to which the woman belongs.

Source: authors' calculations using Senegal's 2005 DHS.

Table 5: Measures of women's decision-making and access to resources by marital status, Senegal 2005 DHS (percentage)

| | Has no say on | | | Constraints on seeking health care | | Own earnings spent on household | | Beating justified | | Never watches TV |
|---|---|---|---|---|---|---|---|---|---|---|
| | Own health care | Large household purchases | Visits to family | Permission | Cost | None | >half | If argue | Refuses sex | |
| Married once | 81.5 | 83.8 | 66.8 | 6.0 | 55.0 | 33.2 | 16.4 | 51.6 | 49.8 | 32.3 |
| Remarried widow | 66.7*** | 67.9*** | 50.3*** | 4.5** | 70.7*** | 16.8*** | 34.0*** | 56.9 | 58.8*** | 43.1*** |
| Widow | 32.7*** | 44.4*** | 31.3*** | 2.1** | 68.1*** | 33.8 | 44.3*** | 40.6 | 48.1 | 21.0** |
| Remarried divorcee | 73.2*** | 76.7*** | 62.4*** | 4.8** | 58.9*** | 31.1 | 20.7*** | 50.7** | 46.9*** | 26.7*** |
| Divorced | 46.5*** | 70.3*** | 50.9*** | 4.9*** | 59.6*** | 38.1*** | 21.4* | 38.3*** | 36.4*** | 15.5*** |

Note: the table shows the percentage of women of each marital status answering positively to each question. 'Has no say' is defined as answering that each decision is taken by either the husband/partner alone or by someone else. Divorced includes separated women. Significance tests are relative to once-married women, where *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Source: authors' calculations using Senegal's 2005 DHS.

Table 6: Cell consumption levels, by current marital status

| | Married once | Remarried widows | Remarried divorcees | Widows | Divorcees |
|---|---|---|---|---|---|
| Log of total cell consumption per capita (CFA francs per year) | 12.31 | 12.22 | 12.33 | 12.43** | 12.55*** |
| *In a leviratic union (N = 71)* | | 12.06** | | | |
| *In a non-leviratic union (N = 70)* | | 12.36 | | | |
| N | 2,153 | 155 | 247 | 430 | 170 |

Note: 1 dollar = 522.9 CFA francs in 2006. Divorced includes separated women. All significance tests are relative to once-married women, where *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. For 14 remarried widows, we have no information on whether the current husband is a relative of the deceased husband. Their mean log consumption is 12.26.

Source: authors' calculations using the PSF1.

Table 7: Regressions of log cell consumption per capita

| | Married once | Remarried widows | Remarried divorcees | Widows | Divorcees |
|---|---|---|---|---|---|
| Age | 0.010 | 0.033$^{+}$ | 0.020 | −0.008 | −0.007 |
| | (0.010) | (0.021) | (0.019) | (0.015) | (0.020) |
| Age squared | −0.000 | −0.0002 | −0.000 | 0.0001 | −0.00003 |
| | (0.000) | (0.0002) | (0.000) | (0.0001) | (0.0002) |
| Age at first marriage | 0.010** | 0.002 | 0.008 | −0.002 | 0.011 |
| | (0.004) | (0.013) | (0.014) | (0.007) | (0.009) |
| ln household size | −0.315*** | −0.035 | −0.331*** | −0.213** | −0.233** |
| | (0.059) | (0.147) | (0.094) | (0.087) | (0.111) |
| ln cell size | −0.193*** | −0.096 | −0.084 | −0.049 | −0.337** |
| | (0.053) | (0.136) | (0.172) | (0.085) | (0.138) |
| Share of children in cell | −0.442*** | −0.658*** | −0.749** | −0.461** | −0.757*** |
| | (0.101) | (0.223) | (0.353) | (0.187) | (0.302) |
| Belongs to head's cell | 0.088 | 0.020 | −0.126 | −0.010 | 0.194 |
| | (0.085) | (0.170) | (0.165) | (0.10) | (0.153) |
| Cell head | −0.002 | 0.180 | 0.014 | 0.031 | 0.101 |
| | (0.052) | (0.135) | (0.209) | (0.102) | (0.151) |
| French school | 0.308*** | 0.475*** | 0.442*** | 0.460*** | 0.525*** |
| | (0.055) | (0.149) | (0.128) | (0.111) | (0.132) |
| Koranic school | 0.006 | 0.469*** | 0.222$^{+}$ | 0.249*** | 0.071 |
| | (0.066) | (0.177) | (0.136) | (0.089) | (0.191) |
| Fostered before age 15 | 0.030 | 0.176 | −0.043 | −0.045 | −0.153 |
| | (0.053) | (0.145) | (0.117) | (0.125) | (0.134) |
| Has son aged 18 or older | −0.044 | −0.079 | 0.065 | 0.070 | 0.251** |
| | (0.038) | (0.112) | (0.113) | (0.092) | (0.126) |
| Husband in informal sector | 0.042 | 0.187* | 0.269** | −0.079 | −0.088 |
| | (0.057) | (0.109) | (0.121) | (0.126) | (0.207) |
| Husband in formal/public sector | 0.209*** | 0.721*** | 0.355** | 0.105 | 0.30 |
| | (0.060) | (0.177) | (0.178) | (0.138) | (0.228) |
| Husband in other sector | −0.071 | 0.399** | 0.269 | −0.002 | 0.022 |

| | | | | | |
|---|---|---|---|---|---|
| | (0.102) | (0.192) | (0.228) | (0.143) | (0.280) |
| Polygamous marriage | −0.026 | −0.090 | −0.013 | −0.123 | 0.110 |
| | (0.049) | (0.146) | (0.140) | (0.082) | (0.115) |
| Urban residence | 0.582*** | 0.358** | 0.223$^{+}$ | 0.628*** | 0.362** |
| | (0.074) | (0.148) | (0.141) | (0.129) | (0.152) |
| Constant | 12.687*** | 10.831*** | 12.579*** | 12.635*** | 12.963*** |
| | (0.229) | (0.148) | (0.535) | (0.468) | (0.474) |
| $R^2$ | 0.37 | 0.46 | 0.35 | 0.28 | 0.48 |
| Observations | 2,082 | 146 | 241 | 394 | 160 |

Note: robust standard errors are given in parentheses, clustered at the sampling unit level. ‘Husband’ is the current one for married-once women, and ex-husband for all other groups. Ditto for polygamous marriage. Husband in agriculture is the left-out category. $^{+}$ $p < 0.12$, * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Source: authors’ estimations using the PSF1.

Table 8: Estimated log cell consumption per capita differences, evaluated at mean attributes for reference woman at different ages

| | Age groups | | | |
|---|---|---|---|---|
| | 15–40 | 41–50 | 51–60 | 61+ |
| ***Urban:*** Remarried widow | 11.774 | 11.874 | 12.133 | 12.302 |
| Widow | 0.549** | 0.536*** | 0.405** | 0.347$^{+}$ |
| Married once | 0.783*** | 0.578*** | 0.429*** | 0.343 |
| Divorcee | 0.527* | 0.492** | 0.349 | 0.338 |
| Remarried divorcee | 0.405$^{+}$ | 0.315 | 0.105 | −0.364 |
| ***Rural***: Remarried widow | 11.416 | 11.516 | 11.775 | 11.944 |
| Widow | 0.280 | 0.266$^{+}$ | 0.135 | 0.077 |
| Married once | 0.559*** | 0.354*** | 0.205$^{+}$ | 0.119 |
| Divorcee | 0.524*** | 0.489** | 0.345$^{+}$ | 0.334 |
| Remarried divorcee | 0.541*** | 0.450** | 0.240 | −0.229 |
| ***Urban***: Widow | 12.443 | 12.632 | 12.681 | 12.638 |
| Remarried widow | −0.766*** | −0.544* | −0.409 | −0.532** |
| Married once | −0.029 | 0.091 | 0.011 | −0.077 |
| Divorcee | −0.163 | −0.027 | −0.117 | −0.246 |
| Remarried divorcee | −0.283 | −0.388 | −0.523* | −0.820** |
| ***Rural***: Widow | 11.816 | 12.005 | 12.054 | 12.011 |
| Remarried widow | −0.497** | −0.275 | −0.140 | −0.262 |
| Married once | 0.017 | 0.137 | 0.057 | −0.031 |
| Divorcee | 0.103 | 0.239 | 0.149 | 0.020 |
| Remarried divorcee | 0.122 | 0.016 | −0.118 | −0.415 |
| ***Urban:*** Married once | 12.451 | 12.430 | 12.478 | 12.556 |
| Widow | −0.098 | 0.062 | 0.011 | 0.080 |
| Remarried widow | −0.806*** | −0.489*** | −0.376*** | −0.259 |
| Divorcee | −0.361$^{+}$ | −0.250 | −0.095 | −0.087 |
| Remarried divorcee | −0.400** | −0.273 | −0.311* | −0.474** |
| ***Rural:*** Married once | 11.869 | 11.848 | 11.896 | 11.974 |
| Widow | −0.144 | 0.017 | −0.035 | 0.035 |
| Remarried widow | −0.582*** | −0.265$^{+}$ | −0.152 | −0.035 |
| Divorcee | −0.140 | −0.030 | 0.125 | 0.133 |
| Remarried divorcee | −0.041 | 0.086 | 0.048 | −0.115 |

Note: women 15 and older. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$, $^{+}$ $p < 0.12$. Significance tests refer to differences relative to the reference marital status estimated consumption. Consumptions are predicted using own parameters and mean attributes of the reference marital-status group for the indicated age range.

Source: authors' estimations using the PSF1.

Table 9: Estimated log cell consumption per capita differences

Table 9A1: Evaluated at mean attributes for reference woman and different age-at-dissolution groups

| | Age at marriage dissolution | | | |
|---|---|---|---|---|
| | 15–30 | 31–40 | 41–50 | 51+ |
| ***Urban:*** Remarried widow | 11.921 | 11.991 | 12.073 | 12.235 |
| Widow | 0.498** | 0.516*** | 0.489** | 0.478** |
| ***Rural***: Remarried widow | 11.599 | 11.668 | 11.751 | 11.913 |
| Widow | 0.148 | 0.166 | 0.139 | 0.128 |
| ***Urban***: Widow | 12.639 | 12.690 | 12.719 | 12.664 |
| Remarried widow | −0.656*** | −0.542** | −0.481* | −0.608** |
| ***Rural***: Widow | 11.966 | 12.017 | 12.046 | 11.991 |
| Remarried widow | −0.305 | −0.191 | −0.131 | −0.258 |

Table 9A2: Evaluated at mean attributes for reference woman and different age-at-dissolution groups

| | 15–25 | 26–30 | 31–40 | 41+ |
|---|---|---|---|---|
| ***Urban:*** Remarried divorcee | 12.209 | 12.323 | 12.441 | 12.269 |
| Divorcee | −0.256 | −0.116 | 0.136 | −0.012 |
| ***Rural***: Remarried divorcee | 11.920 | 12.034 | 12.152 | 11.980 |
| Divorcee | −0.328 | −0.188 | 0.065 | 0.144 |
| ***Urban***: Divorcee | 12.827 | 12.160 | 12.330 | 12.715 |
| Remarried divorcee | 0.057 | 0.084 | 0.144 | −0.451 |
| ***Rural***: Divorcee | 12.466 | 11.799 | 11.969 | 12.353 |
| Remarried divorcee | 0.129 | 0.156 | 0.216 | −0.380 |

Note: women 15 and older. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Significance tests refer to differences relative to the reference marital status estimated consumption. Consumptions are predicted using own parameters and mean attributes of the reference marital status at the given age group.

Source: authors' estimations using the PSF1.

Table 9B1: Evaluated at mean attributes for reference woman and different durations since dissolution

| | Time since widowhood (years) | | | |
|---|---|---|---|---|
| | <7 | 8–16 | 17–25 | 26+ |
| ***Urban:*** Remarried widow | 11.943 | 11.905 | 11.984 | 12.221 |
| Widow | 0.553*** | 0.531*** | 0.518** | 0.414* |
| ***Rural***: Remarried widow | 11.568 | 11.530 | 11.609 | 11.847 |
| Widow | 0.277$^{+}$ | 0.254 | 0.241 | 0.138 |
| ***Urban***: Widow | 12.504 | 12.759 | 12.709 | 12.956 |
| Remarried widow | −0.439** | −0.459* | −0.549** | −0.662* |
| ***Rural***: Widow | 11.853 | 12.108 | 12.058 | 12.305 |
| Remarried widow | −0.163 | −0.182 | −0.273 | −0.386 |

Table 9B2: Evaluated at mean attributes for reference woman and different durations since dissolution

| | Time since divorce (years) | | |
|---|---|---|---|
| | <5 | 6–10 | 11+ |
| ***Urban:*** Remarried divorcee | 12.212 | 12.260 | 12.254 |
| Divorcee | 0.212 | −0.071 | −0.333 |
| ***Rural***: Remarried divorcee | 11.955 | 12.004 | 12.026 |
| Divorcee | 0.109 | −0.174 | −0.436* |
| ***Urban***: Divorcee | 12.675 | 12.644 | 12.705 |
| Remarried divorcee | 0.185 | −0.451 | −0.326 |
| ***Rural***: Divorcee | 12.316 | 12.284 | 12.346 |
| Remarried divorcee | 0.289 | −0.347 | −0.222 |

Note: women 15 and older. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$, $^{+}$ $p < 0.12$. Significance tests refer to differences relative to the reference marital status estimated consumption. Consumptions are predicted using own parameters and mean attributes of the reference marital-status subgroup.

Source: authors' estimations using the PSF1.

Table 10: Probability of widowhood or divorce and husband's characteristics, all areas

| | Prob(widow) | Prob(divorce) |
|---|---|---|
| Rural area | −0.040*** | −0.088*** |
| | (0.014) | (0.018) |
| *Ref: Husband working in the informal sector* | | |
| Husband: agricultural sector | 0.015 | 0.042** |
| | (0.016) | (0.019) |
| Husband: private formal or public sector | −0.036** | −0.092*** |
| | (0.017) | (0.019) |
| Husband: other sector | 0.109*** | 0.093*** |
| | (0.024) | (0.032) |
| Age at first marriage | −0.005*** | −0.005*** |
| | (0.001) | (0.002) |
| Ever been to a French school | −0.027$^{+}$ | 0.064*** |
| | (0.017) | (0.017) |
| Current age | 0.010*** | 0.004*** |
| | (0.000) | (0.001) |
| *Ref: Wolof/Lebou* | | |
| Serere | 0.021 | 0.014 |
| | (0.019) | (0.023) |
| Poular | 0.010 | −0.007 |
| | (0.015) | (0.018) |
| Other ethnics | 0.058*** | 0.012 |
| | (0.016) | (0.020) |
| Mean of dep. var. | 0.21 | 0.17 |
| N | 2593 | 2467 |
| Pseudo $R^2$ | 0.386 | 0.066 |

Note: logit model—marginal effects shown. Sample of ever-married women. 'Husband' refers to the one prior to the widowhood or divorce. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$, $^{+}$ $p < 0.12$.

Source: authors' estimations using the PSF1.

Table 11: Probability of remarriage, all areas

| | Probability of remarriage for widows | Probability of remarriage for divorcees |
|---|---|---|
| *Ref: dissolution after age 40* | | |
| Dissolution before age 25 | 0.470*** | 0.371*** |
| | (0.055) | (0.070) |
| Dissolution between ages 25 and 39 | 0.291*** | 0.261*** |
| | (0.030) | (0.072) |
| Last dissolution; rural resident | 0.082** | 0.109** |
| | (0.035) | (0.054) |
| No children born from last union | −0.130* | 0.065 |
| | (0.078) | (0.069) |
| Had a son at time of dissolution | −0.023 | −0.104** |
| | (0.036) | (0.052) |
| Number of marital dissolutions | −0.016 | −0.019 |
| | (0.034) | (0.060) |
| Ever been to a French school | 0.011 | −0.121** |
| | (0.047) | (0.051) |
| Polygamous father | 0.098*** | 0.071 |
| | (0.037) | (0.049) |
| Fostered before age 15 | 0.123** | 0.098 |
| | (0.048) | (0.068) |
| *Ref: Wolof/Lebou* | | |
| Serere | 0.048 | 0.011 |
| | (0.054) | (0.070) |
| Poular | 0.019 | −0.054 |
| | (0.043) | (0.059) |
| Other ethnicity | −0.043 | −0.113 |
| | (0.045) | (0.076) |
| Mean of dep. var. | 0.27 | 0.59 |
| N | 488 | 353 |
| Pseudo $R^2$ | 0.258 | 0.146 |

Note: logit models—marginal effects shown. Samples of ever-widowed women (column 1) and ever-divorced women (column 2).

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Source: authors' estimations using the PSF1.

Table 12: Probability of levirate remarriage

| | All areas | Urban areas | Rural areas |
|---|---|---|---|
| *Ref: dissolution after age 40* | | | |
| Dissolution before age 25 | −0.098 | −0.117 | −0.107 |
| | (0.105) | (0.148) | (0.135) |
| Dissolution between ages 25 and 39 | −0.113 | −0.149 | −0.043 |
| | (0.087) | (0.126) | (0.113) |
| Last dissolution; rural resident | 0.233*** | | |
| | (0.075) | | |
| Had a son at time of widowhood | | | |
| | 0.249*** | 0.276** | 0.246** |
| | (0.080) | (0.131) | (0.107) |
| Number of marital dissolutions | −0.128* | −0.270* | −0.112 |
| | (0.072) | (0.158) | (0.091) |
| Polygamous last marriage | −0.115 | 0.094 | −0.207** |
| | (0.077) | (0.152) | (0.097) |
| Ever been to a French school | −0.274** | −0.216* | −0.316* |
| | (0.124) | (0.128) | (0.186) |
| Fostered before age 15 | 0.054 | 0.017 | 0.023 |
| | (0.094) | (0.137) | (0.134) |
| *Ref: Wolof/Lebou* | | | |
| Serere | 0.059 | −0.025 | 0.112 |
| | (0.107) | (0.126) | (0.175) |
| Poular | −0.009 | −0.122 | 0.001 |
| | (0.102) | (0.172) | (0.131) |
| Other ethnicity | −0.192** | −0.223 | −0.168 |
| | (0.092) | (0.206) | (0.120) |
| Mean of dep. var. | 0.49 | 0.31 | 0.60 |
| N | 140 | 52 | 88 |
| Pseudo $R^2$ | 0.189 | 0.275 | 0.140 |

Note: logit model—marginal effects shown. Sample of remarried widows *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Source: authors' estimations using the PSF1.

Table 13: Type of remarriage for widows by union and husband's characteristics.

| | Co-resides with husband | Polygamy | Husband works in the formal sector |
|---|---|---|---|
| *Ref: dissolution after age 40* | | | |
| Dissolution before age 25 | 0.379*** | −0.261*** | 0.035 |
| | (0.090) | (0.101) | (0.101) |
| Dissolution between ages 25 and 39 | 0.283*** | −0.134 | −0.017 |
| | (0.081) | (0.099) | (0.091) |
| Last dissolution; rural resident | 0.009 | 0.128* | −0.097 |
| | (0.077) | (0.074) | (0.075) |
| No children born in last union | 0.309** | 0.156 | −0.294$^{+}$ |
| | (0.138) | (0.214) | (0.179) |
| Had a son at widowhood | −0.208*** | −0.031 | −0.000 |
| | (0.072) | (0.086) | (0.080) |
| Number of marital dissolutions | 0.128 | 0.021 | 0.029 |
| | (0.093) | (0.085) | (0.078) |
| Ever been to a French school | −0.192$^{+}$ | −0.097 | 0.400*** |
| | (0.117) | (0.088) | (0.083) |
| Polygamous father | −0.151* | −0.058 | −0.146* |
| | (0.079) | (0.077) | (0.077) |
| Fostered before age 15 | −0.129 | −0.014 | 0.152$^{+}$ |
| | (0.087) | (0.083) | (0.095) |
| *Ref: Wolof/Lebou* | | | |
| Serere | −0.399*** | 0.015 | 0.249** |
| | (0.127) | (0.124) | (0.118) |
| Poular | −0.155 | −0.065 | −0.015 |
| | (0.100) | (0.107) | (0.104) |
| Other ethnicity | −0.161* | −0.139 | 0.019 |
| | (0.098) | (0.092) | (0.103) |
| Mean of dep. var. | 0.51 | 0.74 | 0.33 |
| N | 133 | 132 | 123 |
| Pseudo $R^2$ | 0.265 | 0.106 | 0.223 |

Note: logit model—marginal effects shown. Sample of ever-widowed women. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$, $^{+}$ $p < 0.12$.

Source: authors' estimations using the PSF1.

Table 14: Type of remarriage for divorcees by union and husband's characteristics.

| | Co-resides with husband | Polygamy | Husband works in the formal sector |
|---|---|---|---|
| *Ref: dissolution after age 40* | | | |
| Dissolution before age 25 | 0.252** | −0.145 | −0.227$^{+}$ |
| | (0.107) | (0.163) | (0.141) |
| Dissolution between ages 25 and 39 | 0.113 | −0.055 | −0.145 |
| | (0.106) | (0.158) | (0.140) |
| Last dissolution; rural resident | 0.014 | 0.016 | −0.180*** |
| | (0.071) | (0.076) | (0.070) |
| No children born in last union | 0.032 | 0.070 | −0.138 |
| | (0.080) | (0.085) | (0.089) |
| Had a son at time of divorce | −0.024 | 0.034 | −0.090 |
| | (0.079) | (0.082) | (0.078) |
| Number of marital dissolutions | −0.048 | 0.003 | −0.038 |
| | (0.059) | (0.072) | (0.075) |
| Ever been to a French school | −0.079 | −0.153** | 0.133** |
| | (0.071) | (0.075) | (0.068) |
| Polygamous father | −0.116* | 0.144** | 0.011 |
| | (0.064) | (0.064) | (0.066) |
| Fostered before age 15 | −0.093 | −0.186** | 0.069 |
| | (0.075) | (0.085) | (0.083) |
| *Ref: Wolof/Lebou* | | | |
| Serere | −0.129 | −0.189* | −0.038 |
| | (0.086) | (0.099) | (0.089) |
| Poular | −0.088 | −0.167** | 0.002 |
| | (0.077) | (0.082) | (0.082) |
| Other ethnicity | −0.048 | −0.102 | −0.003 |
| | (0.091) | (0.098) | (0.102) |
| Mean of dep. var. | 0.73 | 0.48 | 0.34 |
| N | 207 | 207 | 198 |
| Pseudo $R^2$ | 0.084 | 0.087 | 0.105 |

Note: logit model—marginal effects shown. Sample of ever-divorced women. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$, $^{+}$ $p < 0.12$.

Source: authors' estimations using the PSF1.

Table 15: Type of remarriage for widows by other union characteristics

| | Has a civil contract | Lives with in-laws | Lives with children from previous union |
|---|---|---|---|
| Dissolution before age 40 | 0.077 | 0.019 | −0.114 |
| | (0.066) | (0.044) | (0.083) |
| Last dissolution; rural resident | −0.179*** | 0.051 | −0.034 |
| | (0.056) | (0.044) | (0.073) |
| No children born in last union | 0.005 | 0.027 | |
| | (0.093) | (0.065) | |
| Had a son at widowhood | −0.080$^{+}$ | 0.003 | 0.347*** |
| | (0.051) | (0.035) | (0.051) |
| Number of marital dissolutions | −0.029 | 0.074*** | −0.042 |
| | (0.065) | (0.028) | (0.064) |
| Ever been to a French school | 0.077 | 0.047 | 0.113 |
| | (0.060) | (0.051) | (0.105) |
| Mean of dep. var. | 0.11 | 0.063 | 0.65 |
| N | 142 | 142 | 134 |
| Pseudo $R^2$ | 0.221 | 0.124 | 0.204 |

Note: logit model—marginal effects shown. Sample of ever-widowed women. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$, $^{+}$ $p < 0.12$.

Source: authors' estimations using the PSF1.

Table 16: Type of remarriage for divorcees by other union characteristics

| | Has a civil contract | Lives with in-laws | Lives with children from previous union |
|---|---|---|---|
| Dissolution before age 40 | 0.025 | 0.156 | 0.215* |
| | (0.102) | (0.115) | (0.111) |
| Last dissolution; rural resident | −0.197*** | 0.138*** | −0.282*** |
| | (0.060) | (0.053) | (0.065) |
| No children born in last union | −0.072 | 0.103** | |
| | (0.066) | (0.044) | |
| Had a son at time of divorce | −0.105* | −0.045 | 0.203*** |
| | (0.062) | (0.069) | (0.077) |
| Number of marital dissolutions | −0.094 | −0.063 | 0.057 |
| | (0.089) | (0.062) | (0.074) |
| Ever been to French school | 0.119** | 0.021 | −0.125 |
| | (0.052) | (0.053) | (0.081) |
| Mean of dep. var. | 0.18 | 0.13 | 0.55 |
| N | 227 | 227 | 177 |
| Pseudo $R^2$ | 0.171 | 0.129 | 0.119 |

Note: logit model—marginal effects shown. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Source: authors' estimations using the PSF1.

Table 17: Probability of upward mobility upon remarriage

| | Prob(upward mobility) | Prob(upward mobility) |
|---|---|---|
| Married widow | 0.012 | 0.024 |
| | (0.053) | (0.055) |
| Last dissolution; rural resident | −0.199*** | −0.140*** |
| | (0.047) | (0.051) |
| Dissolution before age 40 | | −0.115* |
| | | (0.064) |
| Ever been to a French school | | 0.208*** |
| | | (0.058) |
| Number of marital dissolutions | | −0.020 |
| | | (0.049) |
| Mean of dep. var. | 0.28 | 0.28 |
| N | 289 | 286 |
| Pseudo $R_2$ | 0.045 | 0.087 |

Note: logit model—marginal effects shown. Sample: remarried widows and remarried divorcees. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Source: authors' estimations using the PSF1.

## Appendix A

Table A1: Senegal: percentage of currently separated or divorced women, by age group

| Year | Age group | | | | | | | | | | | | | | Sources |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | [15–19] | [20–24] | [25–29] | [30–34] | [35–39] | [40–44] | [45–49] | [50–54] | [55–59] | [60–64] | [65–69] | [70+] | [70–74] | [75+] | |
| 1960–1961 | 1.0 | 2.5 | 4.6 | 3.2 | 4.3 | 3.4 | 6.0 | 4.5 | 5.3 | 3.8 | 4.1 | 2.6 | 2.5 | 1.3 | ED |
| 1970–1971 | | 1.0 | 3.1 | 3.6 | 3.4 | 3.1 | 3.2 | 4.1 | 4.5 | 5.0 | 3.9 | 3.0 | 2.7 | 3.3 | ED |
| 1978 | | 1.9 | 4.7 | 3.8 | 2.8 | 4.0 | 2.8 | 2.7 | | | | | | | WFS |
| 1986 | | 0.6 | 2.0 | 2.8 | 2.0 | 2.7 | 2.4 | 1.7 | | | | | | | DHS |
| 1988 | 0.1 | 0.9 | 1.6 | 2.0 | 2.2 | 2.1 | 2.1 | 2.1 | 2.4 | 2.5 | 2.5 | 2.7 | 3.3 | | Census |
| 1992–1993 | | 0.4 | 1.8 | 2.4 | 2.1 | 2.4 | 2.0 | 1.8 | | | | | | | DHS |
| 1997 | | 0.4 | 1.6 | 2.9 | 3.2 | 3.3 | 2.6 | 1.6 | | | | | | | DHS |
| 1999 | | 0.7 | 2.3 | 4.7 | 4.7 | 5.6 | 5.7 | 4.4 | | | | | | | DHS |
| 2000 | | 0.4 | 1.2 | 1.8 | 2.1 | 2.3 | 2.2 | 1.4 | 1.5 | 0.9 | 0.6 | 1.0 | 0.4 | 0.5 | MICS |
| 2002 | 0.1 | 0.5 | 1.5 | 2.4 | 3.1 | 3.1 | 2.8 | 2.4 | 1.8 | 1.6 | 1.1 | 1.0 | 0.9 | 0.7 | Census |
| 2005 | | 0.6 | 1.7 | 2.3 | 3.1 | 3.1 | 3.7 | 3.3 | | | | | | | DHS |
| 2010–2011 | 0.0 | 0.7 | 1.3 | 3.0 | 3.8 | 3.7 | 4.2 | 3.6 | 4.4 | 6.0 | 3.5 | 3.6 | 2.2 | 2.9 | DHS-MICS |
| 2012–2013 | | 0.9 | 2.8 | 4.9 | 5.2 | 5.3 | 6.4 | 6.2 | 3.0 | 4.0 | 1.2 | 2.0 | 3.1 | 0.4 | DHS |
| 2012–2014 | | 0.7 | 2.7 | 4.4 | 4.8 | 6.7 | 6.8 | 6.6 | 4.2 | 2.9 | 3.0 | 2.1 | 2.7 | 0.3 | DHS |
| 2014 | | 0.5 | 2.6 | 4.0 | 4.4 | 8.0 | 7.2 | 7.0 | 5.4 | 1.9 | 4.9 | 2.2 | 2.3 | 0.1 | DHS |

Note: ED: Enquête Démographique; WFS: World Fertility Survey; DHS: Demographic and Health Surveys; MICS: Multiple Indicator Cluster Surveys.

Source: United Nations, Department of Economic and Social Affairs, Population Division (2015).

Table A2: Senegal: percentage of current widows, by age group

| Year | Age group | | | | | | | | | | | | | | | Sources |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | [10–14] | [15–19] | [20–24] | [25–29] | [30–34] | [35–39] | [40–44] | [45–49] | [50–54] | [55–59] | [60–64] | [65–69] | [70+] | [70–74] | [75+] | |
| 1960–1961 | | 0.2 | 1.0 | 1.6 | 1.6 | 3.2 | 8.1 | 12.6 | 24.5 | 36.6 | 54.9 | 63.2 | | 76.2 | 83.7 | ED |
| 1970–1971 | 0.1 | 0.1 | 0.5 | 0.9 | 1.7 | 2.7 | 5.0 | 10.4 | 18.5 | 28.6 | 40.2 | 49.1 | | 63.0 | 75.9 | ED |
| 1978 | | 0.3 | 0.5 | 0.9 | 1.4 | 2.4 | 2.0 | 1.9 | | | | | | | | WFS |
| 1986 | | 0.3 | 0.4 | 1.2 | 0.8 | 1.0 | 4.3 | 4.1 | | | | | | | | DHS |
| 1988 | 0.0 | 0.3 | 0.5 | 0.9 | 1.7 | 3.8 | 7.2 | 13.5 | 19.7 | 32.0 | 40.5 | 54.0 | 64.1 | | | Census |
| 1992–1993 | | 0.0 | 0.8 | 0.7 | 0.9 | 2.4 | 1.9 | 3.5 | | | | | | | | DHS |
| 1997 | | 0.4 | 0.2 | 0.6 | 0.7 | 1.9 | 2.1 | 3.6 | | | | | | | | DHS |
| 1999 | | 0.1 | 0.5 | 0.8 | 1.0 | 1.6 | 2.9 | 6.0 | | | | | | | | DHS |
| 2000 | | 0.4 | 0.9 | 0.9 | 1.5 | 2.7 | 6.1 | 7.5 | 16.5 | 24.0 | 39.1 | 50.2 | | 65.9 | 80.4 | MICS |
| 2002 | 0.2 | 0.3 | 0.5 | 0.8 | 1.2 | 1.7 | 3.2 | 5.1 | 10.1 | 14.6 | 24.7 | 29.6 | | 42.0 | 51.5 | Census |
| 2005 | | 0.1 | 0.1 | 1.2 | 1.0 | 1.8 | 3.8 | 4.3 | | | | | | | | DHS |
| 2010–2011 | 0.0 | 0.1 | 0.2 | 0.8 | 1.1 | 2.3 | 3.3 | 5.3 | 14.0 | 20.3 | 38.2 | 44.6 | | 64.7 | 80.4 | DHS-MICS |
| 2012–2013 | | 0.1 | 0.1 | 0.8 | 1.2 | 1.9 | 1.8 | 7.0 | 12.6 | 24.3 | 35.3 | 53.0 | | 60.2 | 77.2 | DHS |
| 2012–2014 | | 0.1 | 0.2 | 0.7 | 1.0 | 2.5 | 1.7 | 6.5 | 12.5 | 23.0 | 37.2 | 53.5 | | 58.2 | 79.1 | DHS |
| 2014 | | 0.0 | 0.4 | 0.5 | 0.9 | 3.1 | 1.7 | 6.0 | 12.5 | 21.8 | 39.2 | 54.2 | | 56.0 | 81.2 | DHS |

Note: ED: Enquête Démographique; WFS: World Fertility Survey; DHS: Demographic and Health Surveys; MICS: Multiple Indicator Cluster Surveys.

Source: authors, based on United Nations, Department of Economic and Social Affairs, Population Division (2015).

Table A3: Individual characteristics of ever-married women, by current marital status

| | Married once | Remarried widows | Remarried divorcees | Widows | Divorcees |
|---|---|---|---|---|---|
| Lives in a rural area | 0.54 | 0.61* | 0.47** | 0.49** | 0.29*** |
| Age | 34.87 | 49.02*** | 40.15*** | 62.16*** | 40.29*** |
| Muslim | 0.96 | 0.95 | 0.98 | 0.95 | 0.92** |
| Wolof/Lebou | 0.42 | 0.38 | 0.40 | 0.36** | 0.41 |
| Serere | 0.12 | 0.14 | 0.14 | 0.13 | 0.11 |
| Poular | 0.29 | 0.26 | 0.29 | 0.29 | 0.26 |
| Other ethnic group | 0.17 | 0.23* | 0.17 | 0.23*** | 0.23** |
| Age at first marriage | 19.09 | 17.79*** | 18.27** | 18.43** | 19.50 |
| Fostered before age 15 | 0.14 | 0.20** | 0.19* | 0.09** | 0.15 |
| Polygamous father | 0.59 | 0.68** | 0.63 | 0.59 | 0.53 |
| Ever been to a French school | 0.30 | 0.17*** | 0.32 | 0.12*** | 0.45*** |
| Ever been to Koranic school | 0.16 | 0.21 | 0.15 | 0.19 | 0.12 |
| Total number of children (alive) | 3.46 | 4.74*** | 3.91** | 4.47*** | 2.71*** |
| Has a son aged 18 or older | 0.49 | 0.65*** | 0.45 | 0.77*** | 0.52 |
| Log of total household consumption per capita (CFA francs per year) | 12.37 | 12.24 | 12.40 | 12.42 | 12.60*** |
| Log of total cell consumption per capita (CFA francs per year) | 12.31 | 12.22 | 12.33 | 12.43** | 12.55*** |
| *In a leviratic union* | | 12.06 | | | |
| *In a non-leviratic union* | | 12.36 | | | |
| Household size | 11.72 | 10.88 | 9.98*** | 10.67*** | 10.24** |
| Number of adults living in household | 6.74 | 6.25 | 5.91*** | 6.61 | 6.54 |

| | | | | | |
|---|---|---|---|---|---|
| Cell size | 4.23 | 3.70*** | 3.86*** | 4.07 | 3.71*** |
| Share of kids in cell | 0.44 | 0.28*** | 0.42 | 0.19*** | 0.31*** |
| Household head | 0.05 | 0.25*** | 0.11*** | 0.34*** | 0.26*** |
| Cell head | 0.76 | 0.85** | 0.89*** | 0.52*** | 0.72 |
| Belongs to head's cell | 0.08 | 0.36*** | 0.14*** | 0.75*** | 0.48*** |
| N | 2,153 | 155 | 247 | 430 | 170 |

Note: all characteristics are expressed as percentages of the marital-status group except for ages (years), number of children, consumption aggregates, household and cell sizes and number of adults living in the household. 1 dollar = 522.9 CFA francs in 2006. Divorced includes separated women. All significance tests are relative to married-once women, where *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Source: authors' calculations using the PSF1.

Table A4: Marriage characteristics of currently married women, by current marital status

| | Married once | Remarried widows | Remarried divorcees |
|---|---|---|---|
| Polygamous marriage | 0.36 | 0.72*** | 0.47*** |
| Is the first-rank spouse | 0.53 | 0.15*** | 0.19*** |
| Co-resident husband | 0.78 | 0.54*** | 0.73 |
| Number of children from current union | 3.51 | 1.53*** | 2.75*** |
| Civil marriage | 0.20 | 0.12** | 0.18 |
| In-laws living in household | 0.28 | 0.07*** | 0.13*** |
| Husband works in the agricultural sector | 0.27 | 0.31 | 0.19** |
| Husband works in the informal (non-agricultural) sector | 0.37 | 0.33 | 0.45** |
| Husband works in the formal sector | 0.32 | 0.32 | 0.34 |
| Percentage of woman's cell expenditures financed by her husband | 0.48 | 0.25*** | 0.38*** |
| N | 2153 | 155 | 247 |

Note: all characteristics are expressed as shares of the marital-status group except for the number of children and the husband's contributions to expenditures (shares). Divorced includes separated women. All significance tests are relative to married-once women, where *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Source: authors' calculations using the PSF1.

Table A5: Previous union characteristics, by current marital status

| | Remarried widows | Remarried divorcees | Widows | Divorcees |
|---|---|---|---|---|
| Age at last dissolution | 34.1 | 24.8 | 50.39*** | 32.53*** |
| Number of dissolutions | 1.19 | 1.23 | 1.32** | 1.42*** |
| Rural area at time of dissolution | 0.63 | 0.51 | 0.5** | 0.3*** |
| Polygamous previous union | 0.49 | 0.37 | 0.53 | 0.33 |
| First-rank spouse in previous union | 0.31 | 0.16 | 0.47** | 0.2 |
| Number of children from previous union | 4.1 | 1.6 | 4.58 | 2.02** |
| Had no children from previous union | 0.06 | 0.22 | 0.1 | 0.16 |
| Had a son at time of dissolution | 0.53 | 0.24 | 0.69*** | 0.47*** |
| At least one child from previous union is living in the household | 0.65 | 0.56 | 0.74** | 0.78*** |
| Ex-husband works in the agricultural sector | 0.39 | 0.37 | 0.35 | 0.21 |
| Ex-husband works in the informal (non-agricultural) sector | 0.36 | 0.40 | 0.23*** | 0.45*** |
| Ex-husband works in the formal sector | 0.15 | 0.15 | 0.21* | 0.27*** |
| N | 155 | 247 | 430 | 170 |

Note: all characteristics are expressed as shares of the marital-status group except for ages, the number of dissolutions, and the number of children. Divorced includes separated women. Significance tests are relative to remarried widows for non-remarried widows and to remarried divorcees for non-remarried divorcees, where *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Source: authors' calculations using the PSF1.

Table A6: Probability of remarriage

| | Probability of remarriage widows —urban | Probability of remarriage divorcees—urban | Probability of remarriage widows—rural | Probability of remarriage divorcees—Rural |
|---|---|---|---|---|
| *Ref: dissolution after age 40* | | | | |
| Dissolution before age 25 | 0.476*** | 0.386*** | 0.488*** | 0.313*** |
| | (0.070) | (0.109) | (0.080) | (0.074) |
| Dissolution between ages 25 and 39 | 0.308*** | 0.249** | 0.267*** | 0.256*** |
| | (0.036) | (0.106) | (0.048) | (0.081) |
| No children born from last union | −0.156 | 0.046 | −0.133 | 0.045 |
| | (0.104) | (0.101) | (0.103) | (0.083) |
| Had a son at time of dissolution | 0.043 | 0.001 | −0.057 | −0.200*** |
| | (0.049) | (0.073) | (0.051) | (0.058) |
| Number of marital dissolutions | −0.043 | 0.048 | 0.018 | −0.126** |
| | (0.043) | (0.071) | (0.046) | (0.049) |
| Ever been to a French school | −0.012 | −0.185*** | 0.051 | 0.051 |
| | (0.057) | (0.063) | (0.080) | (0.082) |
| Polygamous father | 0.101** | 0.058 | 0.089 | 0.082 |
| | (0.046) | (0.068) | (0.058) | (0.070) |
| Fostered before age 15 | 0.037 | 0.120 | 0.253*** | 0.091 |
| | (0.064) | (0.083) | (0.072) | (0.096) |
| *Ref: Wolof/Lebou* | | | | |
| Serere | 0.033 | −0.039 | 0.042 | 0.131 |
| | (0.055) | (0.097) | (0.088) | (0.090) |
| Poular | 0.003 | −0.154* | 0.032 | 0.088 |
| | (0.060) | (0.086) | (0.065) | (0.081) |
| Other ethnicity | −0.083 | −0.057 | −0.026 | −0.061 |
| | (0.064) | (0.105) | (0.065) | (0.087) |
| Mean of dep. var. | 0.22 | 0.50 | 0.32 | 0.70 |

| | | | | |
|---|---|---|---|---|
| N | 227 | 203 | 261 | 150 |
| Pseudo $R^2$ | 0.323 | 0.092 | 0.227 | 0.314 |

Note: logit models. Marginal effects shown. Columns (1) and (3), sample of ever-widowed women; Columns (2) and (4), sample of ever-divorced women.
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Source: authors' estimations using the PSF1.

Table A7: Marriage quality—women in their first marriage.

| | Co-resides with husband | Polygamy | Husband works in the formal sector | Has a civil contract | Lives with in-laws |
|---|---|---|---|---|---|
| Rural area before current marriage | −0.001 | 0.096*** | −0.136*** | −0.181*** | 0.052** |
| | (0.022) | (0.024) | (0.022) | (0.018) | (0.023) |
| Ever been to a French school | −0.061*** | −0.148*** | 0.187*** | 0.143*** | −0.016 |
| | (0.023) | (0.026) | (0.022) | (0.017) | (0.025) |
| Polygamous father | 0.004 | 0.088*** | −0.006 | 0.008 | −0.012 |
| | (0.019) | (0.022) | (0.022) | (0.017) | (0.021) |
| Fostered before age 15 | −0.022 | −0.023 | 0.061** | −0.003 | −0.027 |
| | (0.026) | (0.031) | (0.029) | (0.023) | (0.030) |
| Serere | −0.031 | −0.059* | 0.065* | 0.037 | −0.064* |
| | (0.029) | (0.035) | (0.034) | (0.027) | (0.034) |
| Poular | 0.051** | −0.100*** | −0.039 | −0.014 | 0.026 |
| | (0.024) | (0.026) | (0.026) | (0.021) | (0.024) |
| Other ethnicity | −0.006 | −0.079*** | 0.075** | 0.024 | −0.130*** |
| | (0.027) | (0.030) | (0.029) | (0.023) | (0.032) |
| Mean of dep. var. | 0.77 | 0.36 | 0.34 | 0.20 | 0.28 |
| N | 1,941 | 1,936 | 1,826 | 1,941 | 1,941 |
| Pseudo $R^2$ | 0.010 | 0.048 | 0.085 | 0.147 | 0.016 |

Note: logit model. Marginal effects shown. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Source: authors' estimations using the PSF1.

Table A8: Regressions of measures of women's decision-making and access to resources by marital status with controls, Senegal 2005 DHS (percentage)

| | Has final say on | | | Constraints on seeking health care | | Own earnings spent on household | | Beating justified | | Never watches TV |
|---|---|---|---|---|---|---|---|---|---|---|
| | Own health care | Large household purchases | Visits to family | Permission | Cost | None | >half | If argue | Refuses sex | |
| Co-resident mother-in-law | −0.021* | −0.002 | −0.011 | −0.004 | −0.016 | 0.042 | −0.038* | 0.051*** | 0.042** | −0.013 |
| | (−2.47) | (−0.36) | (−1.31) | (−0.68) | (−1.21) | (1.84) | (−2.09) | (3.93) | (3.22) | (−1.11) |
| Co-resident husband | −0.081*** | −0.061*** | −0.116*** | 0.025*** | 0.075*** | −0.078*** | −0.013 | −0.013 | −0.011 | 0.075*** |
| | (−11.34) | (−11.42) | (−16.21) | (5.01) | (6.89) | (−4.35) | (−0.87) | (−1.14) | (−1.00) | (7.70) |
| Polygamous husband | −0.001 | 0.008 | 0.014 | 0.007 | −0.039*** | 0.020 | −0.036** | 0.034** | 0.032** | −0.009 |
| | (−0.17) | (1.43) | (1.95) | (1.35) | (−3.64) | (1.16) | (−2.63) | (3.16) | (2.92) | (−0.91) |
| Age | 0.006*** | 0.004*** | 0.007*** | −0.001*** | 0.006*** | −0.009*** | 0.005*** | 0.0003 | 0.002* | 0.001* |
| | (13.99) | (14.85) | (17.63) | (−5.01) | (9.57) | (−9.24) | (6.43) | (0.53) | (2.53) | (2.55) |
| Urban | 0.053*** | 0.031*** | 0.011 | −0.027*** | −0.177*** | −0.003 | −0.010 | −0.143*** | −0.154*** | −0.388*** |
| | (7.50) | (5.92) | (1.52) | (−5.69) | (−16.86) | (−0.15) | (−0.75) | (−13.41) | (−14.38) | (−40.99) |
| Constant | −0.011 | −0.046*** | −0.023 | 0.086*** | 0.428*** | 0.688*** | 0.029 | 0.576*** | 0.527*** | 0.399*** |
| | (−0.85) | (−4.94) | (−1.84) | (9.97) | (22.67) | (19.49) | (1.00) | (30.05) | (27.42) | (23.53) |
| Observations | 9412 | 9412 | 9405 | 9527 | 9530 | 3257 | 3257 | 9526 | 9528 | 9524 |

Note: the sample consists of all ever-married women (once-married, remarried widows, and remarried divorcees). Divorced includes separated women. Whether a mother-in-law co-resides is badly measured as it must be estimated from the DHS. For all women aged 15–49 whose husbands are heads, we can see from the roster whether his mother is present. To these we add women whose father-in-law is household head based on an assumption that his wife (and the husband's mother) is present. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Source: authors' calculations using Senegal's 2005 DHS.