

# Legal Origins and Female HIV\*

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## Abstract

More than half of all people living with HIV are women and 80% of all HIV positive women in the world live in Sub-Saharan Africa. This paper demonstrates that the legal origins of these formerly colonized countries significantly determines current day female HIV rates. In particular, female HIV rates are significantly higher in common law Sub-Saharan African countries compared to civil law ones. This paper explains this relationship by focusing on differences in female property rights under the two codes of law. In Sub-Saharan Africa common law is associated with weaker female marital property laws. As a result, women in these common law countries have lower bargaining power within the household and are less able to negotiate safe sex practices and are thus more vulnerable to HIV, compared to their civil law counterparts. Exploiting the fact that some ethnic groups in Sub-Saharan Africa cross country borders with different legal systems, we are able to include ethnicity fixed effects into a regression discontinuity approach. This allows us to control for a large set of cultural, geographical, and environmental factors that could be confounding the estimates. The results of this paper are consistent with gender inequality (the ‘feminization of AIDS’) explaining much of its prevalence in Sub-Saharan Africa.

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## 1. Introduction

Approximately 80% of all HIV positive women in the world live in Sub-Saharan Africa (UNAIDS). Uniquely, it is the only place in the world where more women than men live with HIV. Adult women (aged 15-49) are on average three times more likely than men to be infected. For young cohorts, aged 15-24, women are as much as eight times more likely than men to be HIV positive.<sup>1</sup> This alarming phenomenon is commonly referred to as the ‘feminization’ of HIV/AIDS in Sub-Saharan Africa.<sup>2</sup> Although these striking gender differences are widely acknowledged, little research has sought to explain the variation in female HIV rates across the continent.

The vast majority of HIV infection in Sub-Saharan Africa is through unprotected heterosexual contact (UNAIDS). Male HIV rates on the continent have been linked to high-risk cultural patterns; chief among them traditionally liberal attitudes towards the sexual activity of men. Multiple sexual partners, and both pre-marital and extra-marital sexual activity, is widely tolerated and in some cases even expected (Pettifor et al. 2004). Regional variation in male HIV rates is also strongly correlated with male circumcision rates, which is a cultural initiation ritual among many ethnicities in Sub-Saharan Africa. Compelling experimental evidence has shown that male circumcision reduces the risk of heterosexually acquired HIV infection in men by approximately 60%.<sup>3</sup> Rates of male HIV infection are particularly low in North and West Africa with its predominately Muslim communities; which are characterised by very high male circumcision rates and local mores discouraging extra-marital liaisons. In contrast, where the Muslim population is relatively low, as in parts of central Africa, HIV infection rates are high. Similarly, in many parts of East Africa and most of Southern Africa the HIV epidemic ran an explosive course beginning in the early 1990s (Buve et al. 2002).

The high endemic areas are also characterised by disproportionately higher HIV rates for young women relative to their male counterparts.<sup>4</sup> The WHO, the UN, and the World Bank have conjectured that gender

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<sup>1</sup>Refer to Anderson and Ray (2010) who compute excess relative female mortality from HIV in sub-Saharan Africa. Their estimates suggest that there are more than 600,000 excess female deaths from this disease each year.

<sup>2</sup>Many national HIV strategic plans acknowledge the need to address gender issues (Jewkes et. al. 2010). The World Development Report 2012 states that it is a combination of biological factors and gender-based inequalities that contribute to the increasing ‘feminization of AIDS’. Women are biologically more likely to acquire the virus because their bodies are more susceptible to infection than men, however, biology alone cannot explain the excessively high rates of HIV among women in Sub-Saharan Africa.

<sup>3</sup>The evidence includes three randomized controlled trials (Bailey et. al. 2007, Gray et. al. 2007, and Auvert et. al. 2005).

<sup>4</sup>Buve et al. (2002) suggest that this high prevalence among younger women could be critical in provoking and maintaining

inequality plays an important causal role in this ‘feminization’ of the disease. Accordingly, policy has shifted to altering power relations within households, since more than 80% of HIV positive women in Sub-Saharan Africa were infected through their spouse (UNAIDS). A widespread conjecture is that strengthening women’s property and inheritance rights will prevent the spread of HIV/AIDS by promoting women’s economic security and empowerment. Speaking at the 53rd session of the Commission on the Status of Women held at UN headquarters on March 13, 2009, Elizabeth Mataka, UN Special Envoy for HIV/AIDS in Africa, stated:

“Lack of equal rights for women to inheritance and property excludes women from accessing resources that would help them reduce their vulnerability to HIV and improve their ability to cope with the consequences of the epidemic.”

Despite this policy focus, no causal relationship between female bargaining power and female HIV infection rates has yet been established.<sup>5</sup> Moreover, we still cannot answer the most basic policy question. Do formal laws that alter women’s rights within the household – like those pertaining to marital rights and those relating to custody of property upon divorce – have any impact on female HIV infection rates?<sup>6</sup> The present paper uses the legal origins of Sub-Saharan African countries to provide an answer. And it appears to be a resounding yes - suggesting that large-scale legal reform, towards improved marital property rights for women, could potentially alleviate some of this extreme gender disparity in disease burden.

A well established literature has documented the link between legal origins and measures of development (La Porta, Lopez-De-Silanes, and Shleifer 2008).<sup>7</sup> Since legal traditions were typically introduced into colonized countries through conquest, persisted after independence, and varied between common and civil law colonizers, they provide a nice experiment allowing researchers to trace the effects of legal system variation on a variety of outcomes. The literature has reported significant differences in the protection of property rights across the two systems; common law tends to have superior contract enforcement and better property

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the explosive HIV epidemic. As younger age groups substantially outnumber older people in Africa, high rates of HIV infection in young women more heavily weight overall HIV levels than do high rates in older men (Laga et al. 2001).

<sup>5</sup>Cross-sectional studies have shown that intimate partner violence and gender inequity are correlated with female HIV prevalence, and that a woman’s capacity to negotiate safe sex practices that protect them from spousal infection are also compromised (see Jewkes (2010) for references).

<sup>6</sup>Refer to Doepke, Tertilt, and Voena (2012) for a survey of the economic importance of women’s rights.

<sup>7</sup>Refer also to Glaeser and Shleifer (2002), La Porta, Lopez-De-Silanes, Shleifer, and Vishny (1997, 1998), and Acemoglu and Johnson (2005).

rights protection. Consequently the positive aspects of common law (compared to civil law) for development outcomes have been emphasized. By contrast, it is demonstrated here that the relationship is reversed for female HIV prevalence - which is significantly higher in common law countries.

This paper argues that this counter-intuitive pattern is most likely the result of relatively weaker female bargaining power in common law African countries. It is not immediately clear what each system's impact on women's power within the household would be. The absolute level of property rights protection or contract enforcement is not as relevant for women in developing countries (where almost all women marry) as marital property law. And it turns out that property in marriage, and allocations upon divorce, are governed by very different rules under common and civil law, particularly in Sub-Saharan Africa. It will be seen that, with regards to women's rights, traditional civil law far outshines common law. It provides clear recognition of household work, joint ownership of all property within marriage, and gives explicit protection to wives upon marital dissolution. Common law, as will be shown in the next section, provides for none of these.

Exploiting this variation in common and civil law countries we show that weaker female marital property rights generate significantly higher female HIV prevalence rates. This is consistent with stronger female marital property laws allowing women to negotiate safer sex practices with their possibly infected spouses. Such a conjecture lines up precisely with economic bargaining models of the household which have received much empirical support in developing countries.<sup>8</sup> Numerous studies have found posited determinants of threat points, such as government transfer payments, assets before marriage, marriage payments, inherited assets and legal rights to indeed affect allocations within the household.<sup>9</sup> Property regimes allowing women to leave marriage with a significant share of household assets – lowering dissolution costs and hence making the threat more credible – can increase female sexual autonomy, even if never exercised. Conversely, regimes limiting women's control to assets brought to the marriage and to assets acquired personally, limit female power to negotiate sexual interaction with husbands, hence raising female vulnerability to infection. To test for this channel, we explore the type of contraception used by women. We find that women in common law

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<sup>8</sup>McElroy and Horney (1981) and Manser and Brown (1980) pioneered this bargaining approach to households. Doepke and Tertilt (2009) model how women's legal rights determine the marital bargaining power of husbands and wives. Empirical work in Sub-Saharan Africa includes: Duflo and Udry (2004) for Cote d'Ivoire; Udry (1996) for Burkino Faso; Dulfo (2003) for South Africa; and Quisumbing and Maluccio (2000) for Ethiopia.

<sup>9</sup>Refer, for example, to: Dercon and Krishnan (2000) for Ethiopia; Duflo (2003) for South Africa; Quisumbing and Maluccio (2000) for Ethiopia and South Africa; Hoddinott and Haddad (1995) for Cote d'Ivoire; and Doss (1996) for Ghana.

countries are indeed less able to negotiate safer sex. That is, women in these countries are more likely to rely on contraception methods that do not require negotiations with their partners, but also do not reduce their risk of contracting HIV, such as injections, the pill, and IUDs. By contrast, women in civil law countries are more likely to use contraception techniques that reduce their chances of contracting HIV, but also require compliance from their partner, such as condoms, abstinence, and the withdrawal method.

Our key empirical strategy is to exploit the exogenous variation in legal origins across Sub-Saharan Africa and its direct link to marital property laws. In particular, using a representative random sample of women who were tested for HIV across 25 countries in Sub-Saharan Africa, we estimate the probability of testing positive for HIV as a function of whether a woman lives in a common law country. There is still the concern that the variation in legal origins exploited here may be correlated with important unobservables which are driving the main results and have nothing to do with the channel of causality argued for in this paper. To address these concerns, our key identification strategy exploits the fact that some ethnic groups in Sub-Saharan Africa cross country borders with different legal systems, so that we are able to include ethnicity fixed effects into these estimations.<sup>10</sup> This allows us to control for a large set of confounding factors that might determine female property rights such as kinship based cultural and social factors, customary laws, and whether the society is patrilineal or matrilineal.<sup>11</sup> Using the GIS information available in the data, we are also able to use a spatial regression discontinuity approach to identify the average effects close to the border. This allows us to further control for any unobservable factors that individuals, who live within close proximity to each other, may share. Finally, because not all women are directly affected by the marital property laws in question: in particular Muslims and women in polygynous marriages, we can test for these heterogeneous effects in the data. The paper demonstrates that the positive and significant correlation between common law and female HIV status only holds for those women directly affected by the laws.

The rest of the paper is organised as follows. The next section provides a discussion of legal origins and marital property law in Sub-Saharan Africa. Section 3 discusses the data and Section 4 sets up the empirical

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<sup>10</sup>Michalopoulos and Papaioannou (2013 and 2016) follow a related strategy but do not focus on legal origins. They use the spatial distribution of African ethnicities before colonization and demonstrate how artificially drawn borders by colonists partitioned a significant number of ethnic groups into different countries. See also Cogneau et. al. (2015) and Cogneau and Moradi (2014).

<sup>11</sup>There are many different forms of cognatic kinship, inheritance patterns, and initiation rites across Africa that may affect household relationships. For the most part, these are ethnic-group specific.

strategy. Section 5 demonstrates the empirical link between common law and female HIV prevalence rates. To uncover the channel for this positive relationship between common law and female HIV prevalence, we also demonstrate the negative impact of legal common law on the adoption of protective contraception techniques and female bargaining power. Sections 6 and 7 further discuss the results and consider alternative explanations. Section 8 concludes.

## 2. Legal Origins and Female Property Rights

African countries adopted the legal system of their colonists at the time of independence. The former British colonies retained the system of common law, and those previously colonized by countries from continental Europe (France, Portugal, Spain, Italy, or Belgium) followed civil codes of law.

A series of influential papers have demonstrated significant differences between common and civil law countries with regards to legal outcomes.<sup>12</sup> In particular, it has been shown that civil law countries exhibit less secure property rights than do common law countries. Common law is associated with lower formalism of judicial procedures and greater judicial independence than civil law, and these indicators are in turn associated with better contract enforcement and greater security of property. This literature thus emphasizes the positive role common law plays in commercial and financial development.

The laws most relevant for women (and for household bargaining), particularly in developing countries where marriage is almost universal, are marital property laws. These differ markedly under common and civil law, with the differences stemming from how the two codes of law treat the household unit. Under traditional common law, a married woman had practically no legal rights. She could not administer her own property, be part of a contract, conduct a business undertaking, or receive money earned from her labors. Husbands were the sole owners of all marital property. An important reform, the “Married Women’s Property Act” of 1882, established a system of *separate marital property*, and allowed married women to administer their own property, recognizing for the first time married women as independent persons before the law. However, the establishment of *separate marital property* did not protect women upon marital dissolution, either by divorce or death. In particular, housewives (or those on the family farm), without being recipients of independent income, had no rights to any of the marital property upon dissolution. This treatment of housewives before

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<sup>12</sup>Refer to La Porta, Lopez-De-Silanes, and Shleifer (2008) for a summary of this literature.

the law was widely recognized as deficient, but was subject to extreme inertia; serious discussions of altering the law only began after World War II (Pederson 1968).

This stands in stark contrast to the system of *community marital property* that originated under civil law. *Community marital property* presumes joint ownership of all property during the marriage, and gives explicit protection to wives upon marital dissolution; typically splitting all marital property equally. This regime implicitly recognizes non-monetized contributions to the household (including care, childrearing, household chores, or subsistence agriculture), without requiring proof of contribution by either spouse.

The 1960s witnessed an unparalleled upheaval in family law systems of all western industrialized countries. Legal norms, which had been relatively undisturbed for centuries, were either discarded or radically altered in the areas of marriage, divorce, family support, and inheritance. Despite contrasts in legal and political contexts of law reform, the national differences among common and civil family law systems in western industrialized countries have greatly diminished since then (Glendon 1989).

The 1960s is also the time when most African countries were gaining their independence. The discussions and changes occurring in their former colonists with regards to family law were not paralleled on the African continent. Essentially no significant reforms to family law have since occurred (Htun and Weldon 2011). Using all of the information available from constitutions, statutes, and international conventions for all 47 Sub-Saharan countries, Hallward-Driemeier and Hasan (2012) have created a database on women's legal rights, in terms of marital property, land ownership, and labour laws. With regards to marital property law, they confirm that all civil law countries have *community marital property*, whereas common law countries have *separate marital property*. There are three exceptions to this whose colonial heritage makes them a hybrid. Lesotho, Namibia, and South Africa are common law countries with community marital property due to the earlier influence of Dutch-Roman law. Our estimation results are robust to coding these countries appropriately as having community marital property (i.e. civil law) or dropping them from the analysis.<sup>13</sup>

Hallward-Driemeier and Hasan (2012) document how the community marital property regime of the civil law countries gives equal protection to women in case of divorce – typically an even split of property between spouses – and legally protects widows. This is in stark contrast to the separate marital property regime of the

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<sup>13</sup>South Africa is not included in our sample as no individual level data on HIV infection rates are available from the Demographic Health Surveys.

former British colonies who adopted the Married Women’s Property Act of 1882. Very few of these countries have added provisions to these outdated marriage laws and they provide little, or no, protection for women in event of marital dissolution. Separate ownership of property does allow spouses to maintain ownership of assets acquired during the marriage; implying some protection for female entrepreneurs who can keep control of their own productive assets upon divorce. But it penalizes most women due to non-recognition of non-monetized contributions. Moreover, in common law countries of Sub-Saharan Africa, widowhood is typically associated with a critical loss in use and control over assets, because a husband’s assets revert to his family. Only three of these common law countries recognize wives’ non-monetary contributions to marital property, but the share is far less than the half share applied in civil law countries, and this recognition rarely applies at the time of divorce.<sup>14</sup>

To re-cap, the traditionally advantageous treatment of women under civil versus common law regarding marital property has since been largely eroded in western industrialized countries. This is decidedly not the case in Africa. There, women have unambiguously weaker marital property rights in common law countries. In Section 5.3 of this paper, we provide empirical evidence to corroborate this negative relationship between common law and female property rights. There are, however, important heterogeneous effects within civil law countries. In particular, as Hallward-Driemeier and Hasan (2012) emphasize, *community marital property* does not apply to polygynous marriages or to Muslims.<sup>15</sup> The default property regime for both of these groups is instead *separate marital property*.<sup>16</sup> We should therefore not expect to find a significant correlation between a common law system and female property rights in these two populations. For them the default regime is *separate marital property* in both civil and common law countries. In the main empirical analysis we will explore these heterogeneous effects.

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<sup>14</sup>The three countries who recognize wives’ non-monetary contribution to marital property are Tanzania, Zambia, and Zimbabwe. Only Zimbabwe recognizes non-monetary contributions in the case of divorce, but it is far below an equal share. The empirical results are robust to dropping this country from the analysis.

<sup>15</sup>Refer to Tertilt (2005) for an analysis of polygyny in Sub-Saharan Africa.

<sup>16</sup>Seperate marital property is the default regime in classical Islamic Law (Jeppie et. al. 2010). The default marital property regime for polygynous marriages is also seperate, as in this case, it protects a wife from having to share her private property with other wives (Hallward-Driemeier and Hasan 2012).

## 2.1. Marital Property Law and Threat Points

In what follows, we empirically demonstrate a positive correlation between common law and female HIV prevalence rates. As already emphasized, we conjecture this happens because weaker property rights under common law upon marital dissolution reduce female threat points in household bargaining, weaken their ability to negotiate safe-sex practices, and raise their susceptibility to HIV. For this channel to be a viable explanation two preconditions must hold. First, the threat point of marital dissolution must be relevant to women; and second, the legal system must be applicable in determining the threat point.

Regarding the first point, a high prevalence of marriage dissolution is indeed observed in Sub-Saharan Africa. Marriage is essentially universal amongst the young but at the same time divorce is exceptionally common; average divorce rates are more than 40 percent in these countries (Bongaarts et. al. 1984, Reniers 2003, Takyi 2001). In the context of Sub-Saharan Africa, the marital dissolution threat point is often realized.<sup>17</sup>

But are the terms of marital dissolution indeed determined by the formal legal system? Alternatively, does the reach of the legal system correspond with poor state capacity in such countries? Most countries of Sub-Saharan Africa feature this poor capacity and often exhibit sharp ethnolinguistic divisions that can correspond with markedly different traditional and social norms. Formally, at least, all countries of Sub-Saharan Africa granted ultimate authority to the statutory court system upon independence.

From the earliest dates of colonial administration in Africa (beginning with the Berlin Conference of 1884-1885), colonies were exposed to the legal systems of the metropolises. During the very early period, when the administration of colonies in Africa was typically left to a small number of locally based administrators, or officials of one of the large trading companies, law was applied on a fairly ad hoc basis.<sup>18</sup> Almost immediately after attaining territorial control, however, European powers introduced their own metropolitan law and systems of courts throughout the continent. Indigenous laws and procedures were allowed to coexist to the extent that they were compatible with European notions of natural justice and morality. This resulted

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<sup>17</sup>Historically, several catholic countries in Europe prohibited divorce. For example, divorce became legal for women in France in 1792 but once Catholicism became the state religion it was abolished in 1816. Divorce has been reinstated in France since 1884. In Great Britain, the 1857 Matrimonial Causes Act allowed all people to divorce, prior to this divorce was mainly open to men. Divorce has never been illegal in Sub-Saharan African countries.

<sup>18</sup>This was particularly true in the interior where missionaries might be called upon to serve as judges in disputes.

in a dual and parallel system of laws and courts, where statutory law prevailed in the different grades of Magistrates' courts and customary law (which is uncodified and kinship based) prevailed in the so called "native courts" (Joireman 2004, Ndulo 2011). Prior to the arrival of the colonists, there was no formal system of courts in place nor a unified legal system. Many tribal groups did not have chiefs, let alone courts for the resolution of disputes (Hawkins 2002). In fact, historians and legal scholars continue to debate as to whether 'customary law' was truly indigenous or whether it was formed in relation to European law, as a response to colonialism and to the encroachment of the colonial administration (Chanock 1991, Mann and Roberts 1991, Snyder 1987).

It varied by colony how integrated the "native" courts were with the statutory courts (Ellovich 1985, Ndulo 2011, Musembi 2007). Where systems were kept separate and distinct, it was always the case that colonial administrative officials enjoyed wide powers of revision over any decisions made in the native courts. The overall sense was that the two systems should be integrated as soon as possible and towards the end of the colonial period, the formal statutory courts had complete jurisdiction to hear appeals from the native courts and traditional chiefs and elders were gradually replaced by young lay magistrates, typically European or elite Africans (Anderson 1960). The process of integration and formalisation was taken still further after independence when native courts were abolished and jurisdiction with respect to customary law passed to the Magistrates' courts. The use of native courts was jettisoned by the independent African nations - few wanted to promote the notion that one type of law was for Africans and another for Europeans and the well educated. Thus the pattern was for countries to apply common and civil law justice to all peoples while trying to integrate the important aspects of customary law into the legal system.(Joireman 2004)

Very soon after gaining territorial control, there were requests for the introduction of marriage legislation by the colonial administrations. At that time, statutory marriage laws from the metropolises were put into place. These laws, dating to the very beginning of the twentieth century (between 1898 to 1908 depending on the country and the arrival date of the colonists), are still in place in Africa today. During the colonial period, statutory marriage law applied to all Christians - it was inapplicable to Muslims and to those who chose to have a customary marriage (Morris 1979). Statutory marriage law only provided for monogamous marriage and had to take place either before a registrate or in a licensed place of worship. African Christians were compelled to have a statutory marriage since the church insisted on it. There was significant debate during the

colonial period with regards to marriage law reform. In particular, there was a large push to try to incorporate customary marriages into statutory law but the colonists could not condone polygyny, typical of customary marriages. The call for codification of a single marriage law persisted throughout the colonial rule. Marriage instability, evinced in high divorce rates, extra-marital affairs, and high bride prices, was seen as troubling and an important determinant of population growth. However, political leaders (colonial officials, missionaries, village chiefs, and elite Africans) could not agree over the definition of customary law, nor who had the legitimacy to define marriage law nor adjudicate over conjugal conflict.<sup>19</sup> Thus the sociopolitical apparatuses of the colonial state and indirect rule were irresolute on shifting the legal foundations. Legal scholars emphasize how marriage law comes to the heart of the more general legal unification problem throughout Africa. It is conceded that it is not feasible to integrate the laws of marriage, divorce, and succession into a single national system - rather it is inevitable that a monogamous form of statutory marriage, customary polygynous marriage, and an Islamic form of marriage continue to coexist (Allot 1968). Independent African governments have not considered an overhaul of this inherited body of marriage law to be a high priority, a coexistence of the three types of marriages persists and there have been no significant amendments to the original statutory marriage laws put into place in the early twentieth century.

During the colonial times, the newly created court system and statutory marriage provided new opportunities for African women. Colonists were very concerned with issues surrounding: age of marriage, child betrothal, mutual consent of both parties, the custom of levirate, and excessive marriage payments. Matters concerning marriage and divorce were often deemed too important to be handled by native tribunals. In their place, courts presided over by an administrative official (typically European) functioned to permit the official registration of marriage without the consent of parents and enforced by statutory law. For women, statutory marriages were much more convenient as they were more easily dissolved than customary ones. Customary marriage law unites the two families whereas a statutory marriage is between two parties only. Customary marriage payments play a large role in this, they are transferred from one father to the other, there are no coherent protocols on how much should be returned if the marriage dissolves. Traditionally, a customary marriage was not dissolved upon the death of a spouse, the surviving spouse was to accept a consort se-

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<sup>19</sup>How customary law was articulated over the course of the 20th century remains one of the most debated themes in Africanist historiography (Jean-Baptiste 2008).

lected by the family and continue to produce familial offspring. Colonists took the institution of marriage, which had been regulated by tradition, and made it a statutory institution (Jean-Baptiste 2008, Maqutu 1979). The fact that the statutory law gave women the right to refuse a husband chosen by their family was significant. The newly created court system provided the option for women to leave undesirable marriages and for that decision to be enforceable by law (Wright 1983, Roberts 1990, Byfield 2000, Hawkins 2002). There is substantial evidence that during colonial times, women resorted to colonial courts for protection against the discriminatory justice of traditional chief's courts in matters of physical, sexual abuse, and forced marriage (Booth 1992, Jean-Baptiste 2007). This perception of the discriminatory practices of customary law persists today - women perceive local councils to be biased against them as they are typically filled by males; sometimes relatives and friends of their husbands. Significant contemporary evidence suggests women prefer to take their cases to the formal courts (Curran and Bonthuys 2005, Tripp 2004, Kuenyehia 2006). Recent studies show that women are more likely than men to file suits in the formal courts, particularly in family law cases, and that there has been a striking increase in the use of courts by women over time (Hammergren and Mikiku 2010, Hallward-Driemeier and Hasan 2012).

The inherently discriminatory nature of the traditional forums has led policy makers to enhance women's rights by advocating changes in statutory laws and access rather than relying on the evolution of customary tribunals (Tripp 2004). Governments, women's rights organizations and NGOs have advocated decentralizing offices and providing paralegal and legal aid services to women unable to access formal courts (Cooper 2010, Strickland 2004). The more accessible they are, the greater their impact on the terms of dissolution decided in traditional forums. So even in regions where dissolutions are usually decided through traditional forums, overarching formal legal systems reflecting the differences in female treatment under common and civil law should still exert an impact. At the country level, female threat points should still be correlated with variation in legal origins.

We do not know, from the data used here, if marriages are statutory or customary. We do know if women are Muslim or in a polygynous marriage, the latter of which is necessarily a customary marriage. As discussed above, we will be exploiting these heterogeneous effects in the empirical estimations. For our key sample of women (i.e., non-Muslim women who are in a monogamous marriage), more than 88% are

Christians.<sup>20</sup> So there is a high probability that their marriages occurred in a church and hence are legally statutory marriages.<sup>21</sup> That the majority of marriages in our relevant sample are Christian ones, and hence by definition legally statutory, still begs the question of de facto jurisdiction. Particularly in rural areas there is limited access to the formal legal system and varying degrees of statutory law enforcement. Given this, we may expect the reach of statutory law to be lower in more remote areas. We will test for this in Section 6 of the paper.

### 3. Data

#### 3.1. Individual Level Data

For information on HIV infection rates we rely on the Demographic Health Surveys (DHS) which have been conducted in Sub-Saharan African countries since the 1990s. The DHS household surveys typically interview a nationally representative sample of between 10,000 to 20,000 women (aged 15-49) and men (aged 15-59). In recent years blood tests have been added to the verbal interview to test for various health conditions, including HIV status. This initiative of the MEASURE DHS project effectively changed the way HIV prevalence rates were measured in Africa. Prior to 2001, HIV prevalence was estimated largely from sentinel surveillance systems that monitored infection rates in pregnant women attending antenatal centres. By instead collecting blood for HIV testing from representative samples of the population, the DHS Program provides nationally representative estimates of HIV prevalence rates.<sup>22</sup> The testing is simple; the interviewer collects dried blood spots (DBS) on filter paper from a finger prick and the filter paper is transported to a laboratory for testing.<sup>23</sup> The testing is anonymous, voluntary, and non-informative to respondents. The average response rate is extremely high; 93% for women (slightly lower for men).<sup>24</sup>

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<sup>20</sup>Only 3% of the sample follow an indigenous religion, the remaining women do not subscribe to any religion.

<sup>21</sup>Although Christianity does not typically support polygynous marriages, it can be common to find Christian women in Africa that are in polygynous marriages. The most controversial issue for Christian missionaries in Africa was the indigenous tradition of polygynous marriage (Hastings 1973, 1994), today it remains one of the most heated issues in African congregations (Falen 2008).

<sup>22</sup>The testing protocol undergoes a host country ethnical review as well as an ethical review at ICF International. In countries with CDC involvement, the testing protocol is also reviewed by CDC.

<sup>23</sup>There are some concerns with the accuracy of this HIV data. Refer to Fishel and Garret (2016).

<sup>24</sup>The DHS program has compared the population who agreed to testing and those who refused. They find no significant differences in characteristics across these two samples. Refer to: <http://dhsprogram.com/topics/HIV-Corner/HIV-Prevalence-and-HIV-Testing.cfm>

We restrict our sample to DHS surveys containing both HIV testing information and GPS data.<sup>25</sup> This leaves us with a sample of approximately 308,000 women across 25 Sub-Saharan African countries (see the Appendix for a list of the countries). The proportion of men tested for HIV is lower and we have a sample of approximately 190,000 men.

On average, 6.8% of women in our sample are HIV positive (this compares to 4.6% of men). In common law countries the average female HIV infection rate is approximately 9.5%. It is close to half, at 4.6%, in civil law countries. Tables A1 and A2 in the Appendix provide summary statistics and more details on this data as well as other individual-level controls included in the estimations.

### 3.2. Ethnicity Level Data

For identification purposes, we include in the estimations ethnicity level fixed effects. This allows us to control for a large set of confounding factors that might determine female property rights such as kinship based cultural and social determinants, customary laws, and whether the society is patrilineal or matrilineal. Ethnicity fixed effects would also control for the effects on HIV infection rates of any cultural specific norms regarding sexual behaviour and contraception use. To this end, we employ George Peter Murdock's Ethnographic Map of Africa, which maps the spatial distribution of roughly 800 ethnicities across the continent at the time of colonization.<sup>26</sup> The assumption in using it is that individuals who reside in the same ethnic homeland will share its cultural norms and traits. It is important then that the spatial distribution of ethnicities across Africa has not changed substantially since the creation of this map. Reassuringly, individual level data from the Afrobarometer surveys demonstrate a 0.55 correlation between the location of respondents in 2005 and their historical ethnic homeland (Nunn and Wantchekon 2011). A subset of eleven DHS surveys also collected information on the ethnic identity of individuals. This individual data likewise demonstrates that on average approximately 60% of individuals within a given ethnic group reside in their respective historical ethnic homeland.<sup>27</sup>

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<sup>25</sup>To ensure respondent confidentiality, the DHS surveys randomly displace the GPS latitude/longitude positions. As a result, the GPS coordinates contain a minimum of 0 and a maximum of 5 kilometres of positional error. Importantly for the analysis here, the displacement is restricted to points within the country and within the DHS survey region.

<sup>26</sup>The key estimation results are also robust to instead using the GREG (Geo-referencing of Ethnic Groups) Maps to define ethnic homelands. Refer to Table A8 in the Appendix.

<sup>27</sup>The sample of countries for which we have individual ethnicity information are: Burkino Faso, Cote d'Ivoire, Cameroon, Ethiopia, Gabon, Guinea, Liberia, Mali, Malawi, Sierra Leone, and Senegal. We can alternatively use this ethnicity information

Following the strategy of Michalopoulos and Papaioannou (2013 and 2014), we project Murdock’s map on contemporary national boundaries. Connecting the GPS information to the DHS surveys overlays the individual sample onto the Ethnographic Map. The sample spans 473 ethnic homelands across the 25 countries in the DHS sample. Of this total, 102 of the ethnicities are partitioned across one or more countries, for a total of 222 split groups. Of the partitioned ethnicities, 60 have different legal origins, for a total of 132 split groups. Since the larger ethnic groups typically span the borders, 51% of the individual sample (a total of roughly 157 000 women) fall into partitioned ethnic groups, and 35% of the total sample (approximately 108 000 women) are in partitioned ethnic homelands with different legal origins. Of the 25 Sub-Saharan African countries in our sample, 24 of them have at least one partitioned ethnic group. That is, only one country in our sample does not share a border with another country in our sample. There are four countries in our sample that do not share a border with another country in our sample of different legal origin. As a result, the sample of partitioned ethnic groups with different legal origins span across 20 different countries; and we have 19 country pairs who share a border with different legal origins (see the Appendix for more details).<sup>28</sup>

The maps below show how female HIV infection rates vary across our sample of ethnic groups. The first map on the left depicts all of the ethnic-country groups for which we have HIV information. The top map on the right hand side shows which of these ethnic groups are split across a country border. The lower map on the right hand side, comprises the ethnic groups which cross a country border with different legal origins.<sup>29</sup>

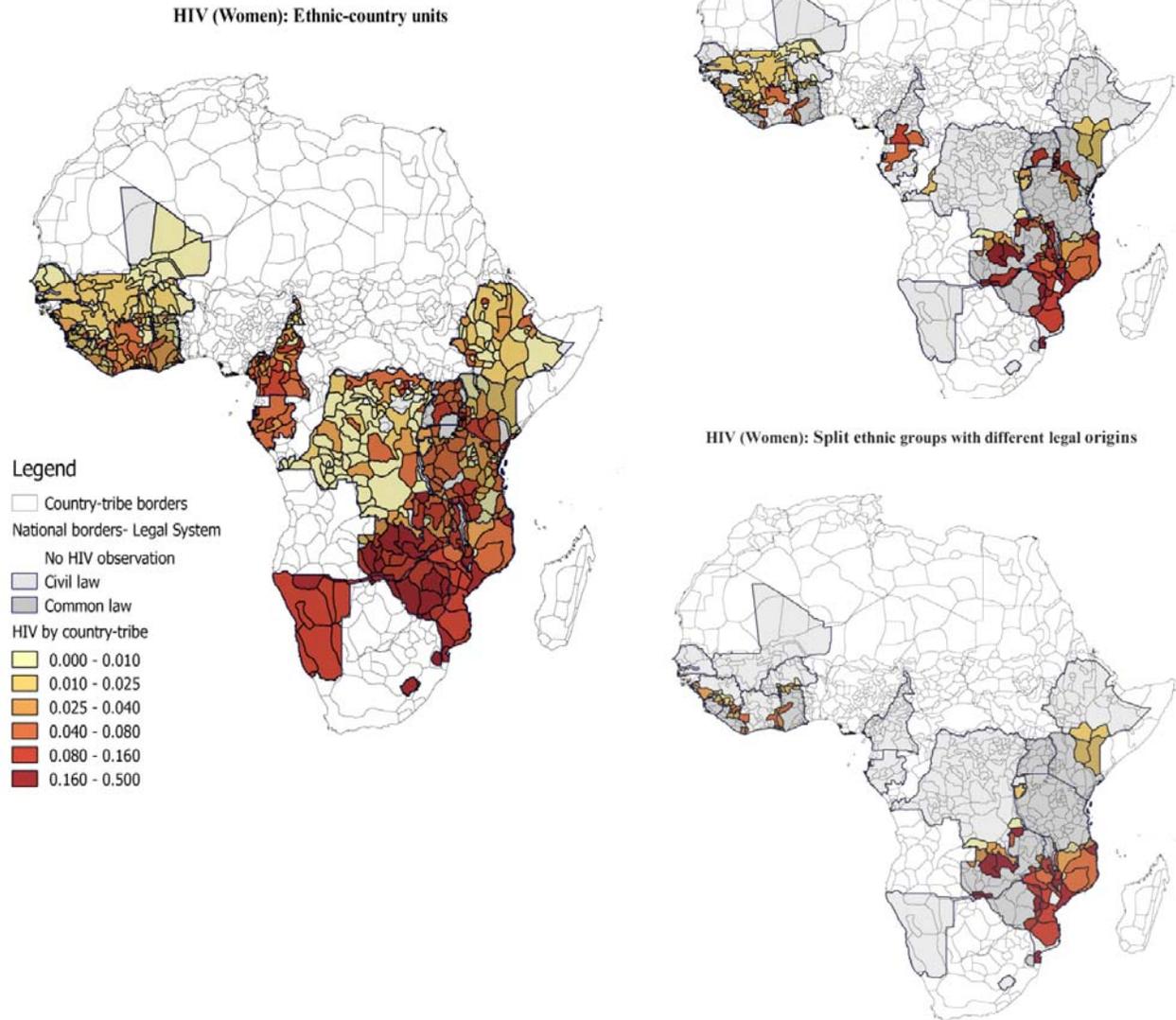
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to construct our ethnic fixed effects, albeit for a much smaller set of countries, in the estimations. Our key results are robust to doing this.

<sup>28</sup>The key estimation results are robust to excluding one country (and hence border) at a time. The estimated coefficient remains relatively stable. Two countries that move the estimated coefficient around somewhat are Liberia and Namibia. Namibia has exceptionally high female HIV rates relative to other civil law countries and Liberia has exceptionally low female HIV rates compared to other common law countries.

<sup>29</sup>Corresponding maps depicting the population density of each of these relevant ethnic groups are provided in Figure A1 in the Appendix.

Figure 1 – Female HIV by Ethnic Group



### 3.3. Pixel Level Data

Using the GPS information available in the DHS surveys, we can augment the individual level data with detailed geographic information. Following Michalopoulos and Papaioannou (2013 and 2014), we divide the continent into units of  $12.5\text{ km} \times 12.5\text{ km}$ , and for each of these units we have information on: average light density, surface area, population density, area under water (rivers, lakes, streams), elevation, land suitability for agriculture, malaria suitability index, indicators for a diamond mine and petroleum/oil field, distance to the capital city, distance to the sea coast, and distance to the national border.<sup>30</sup> Table A4 in the Appendix provides summary statistics and more details on this pixel-level data.

This fine grained geographic information allows us to include a sophisticated set of controls that capture the physical and economic environment surrounding individuals in our sample.<sup>31</sup> Moreover, using the variable capturing distance to the national border we can run regression discontinuity (RD) estimations.

### 3.4. Country Level Data

Our key variable of interest, whether a country has common or civil law, comes from the dataset in (La Porta, Lopez-de-Silanes, and Shleifer 2008). Approximately 45% of the countries in our sample have common law and the remaining countries have civil law.<sup>32</sup> We also include country level controls such as GDP/capita, and other geographic and environmental measures. Given the significant regional variation in HIV infection rates across sub-Saharan Africa, we also include in the estimations regional fixed effects; reflecting southern, east, west, and central Africa.<sup>33</sup> These groupings correspond to the U.N. classification of sub-regions in Africa. Table A3 in the Appendix provides summary statistics and more details on this country-level data.

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<sup>30</sup>The pixels used for grids will have different sizes depending on latitude, as a result the absolute kilometre size is an approximation.

<sup>31</sup>We also ran the key estimations on different samples which varied by population density at the pixel level. This test confirmed that it was not sparsely populated areas that were driving the results.

<sup>32</sup>Though not reported here, there is a strong and significant positive cross-country correlation between common law and female HIV rates. This cross-country correlation is robust to including a host of country level controls capturing geographic, demographic, environmental, and disease characteristics, as well as regional fixed effects and measures of conflict and property rights.

<sup>33</sup>The key results are robust to alternatively excluding these regional fixed effects. This likely follows because most of the regional variation is captured in the ethnic homeland fixed effects.

## 4. Estimation Strategy

We implement a regression discontinuity (RD) approach that identifies the average effect of common law on outcomes close to national borders with different legal origins. The main empirical specification can be represented by the following:

$$Y_{rcepi} = \alpha_0 + \alpha_1 L_{rc} + \alpha_2 X_{rc} + \alpha_3 X_{rcep} + \alpha_4 X_{rcepi} + f(BD_{rcep}) + \delta_e + \gamma_r + \lambda_t + \epsilon_{rcepi}. \quad (4.1)$$

$Y_{rcepi}$  is an outcome of interest for an individual  $i$ , residing in region  $r$ , country  $c$ , ethnic homeland  $e$ , and pixel  $p$ .  $L_{rc}$  is equal to one if the country has a common law legal system and equal to zero if it has civil law.  $X_{rc}$  is a vector of country level controls reflecting GDP per capita and geographic and climate controls.<sup>34</sup>  $X_{rcep}$  is a vector of pixel level controls (light density, population density, area under water (rivers, lakes, streams), elevation, ruggedness, land suitability for agriculture, malaria stability index, diamond mine indicator, petroleum/oil field indicator, distance to capital city, distance to sea coast, distance to national border).  $X_{rcepi}$  represents a set of individual level controls (age and education),  $\delta_e$  is an ethnicity level fixed effect, and  $\gamma_r$  is a region fixed effect (southern, eastern, western, and central).  $f(BD_{rcep})$  represents a second order RD-polynomial of the distance from the centroid of each pixel to the nearest national border with different legal origins. This allows coefficients of the polynomial terms to be different for each side of the border. Standard errors,  $\epsilon_{rcepi}$ , are clustered at the ethnicity and country level to account for spatial correlation using the method developed by Cameron, Gelbach, and Miller (2011).<sup>35</sup> Finally, since the different DHS surveys are collected in different years, we also include a variable, denoted by  $\lambda_t$ , which captures the year of the survey, and would control for any time trends across the different surveys.<sup>36</sup>

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<sup>34</sup>Our results are robust to including a host of other country level controls capturing geographic, demographic, environmental, and disease characteristics, as well as measures of conflict and property rights.

<sup>35</sup>The results are also robust to instead estimating standard errors accounting for spatial correlation using Conley's (1999) method. Refer to Table A8 in the Appendix.

<sup>36</sup>Table A5 in the Appendix reports the results from a series of estimations on the key control variables used in regression (4.1) to test if they are significantly different across common and civil law countries. In general they are not. These results are discussed further in Section 7.

## 5. Main Estimation Results

In this section, we present the results from estimating (4.1) for four key outcome variables. We focus on female and male HIV prevalence rates and contraception use. It will be seen that the probability that a randomly selected female tested positive for HIV is significantly higher in common law countries. By contrast there are no significant effects for the probability that a randomly selected male tested positive. This finding for female HIV rates suggest an avenue – much discussed in the policy literature – linking female HIV prevalence to a lack of female property rights restricting their capacity to negotiate safe sex practices. We test this channel directly by investigating whether females are more likely to use a contraception method that prevents them from contracting HIV in common law countries. We find that this is indeed so. To corroborate this evidence, we also find that men were also less likely to use a contraceptive method that prevents the spreading of HIV in common law countries. Before presenting these estimation results, we first provide a graphical illustration of these RD estimates. To do this, we construct a running variable which is the distance (in kilometers) to the nearest national border with different legal origins. The four figures below plot the predicted outcome variables, for individuals within 5 kilometer bins, using a second order RD polynomial on distance to the border with different legal origins. Positive values, on the horizontal axis, reflect 5 *km* bins in common law countries and negative values reflect 5 *km* bins in civil law countries.

Figure 2(a) – HIV Positive (Females)

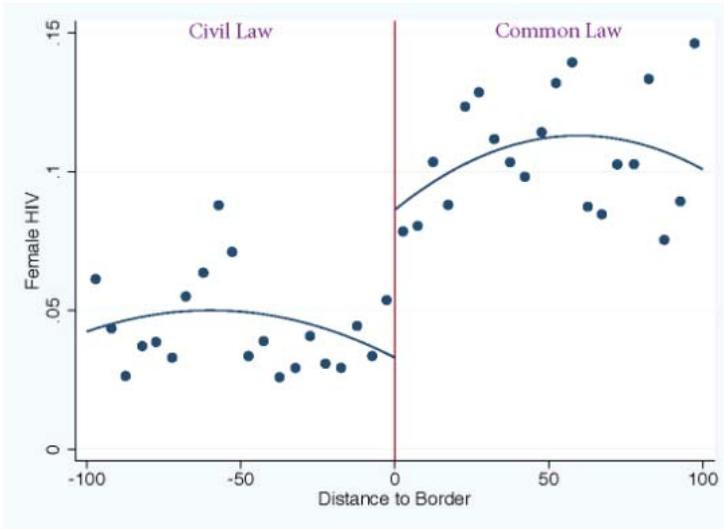
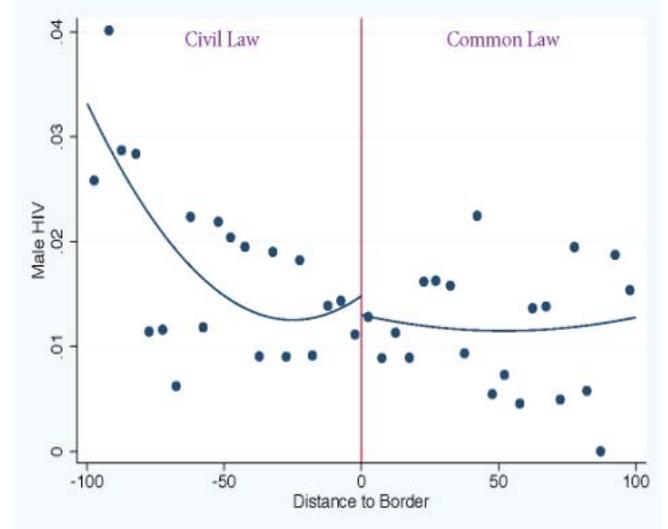


Figure 2(b) – HIV Positive (Males)



We see from Figure 2(a) that HIV infection rates amongst females are significantly higher in common law countries. By contrast, there is no corresponding positive effect for males, as seen in Figure 2(b). The two figures below consider contraception use. We see that for both females and males, in Figures 3(a) and 3(b) respectively, protective contraception is used significantly less in common law countries.

Figure 3(a) – Protection (Females)

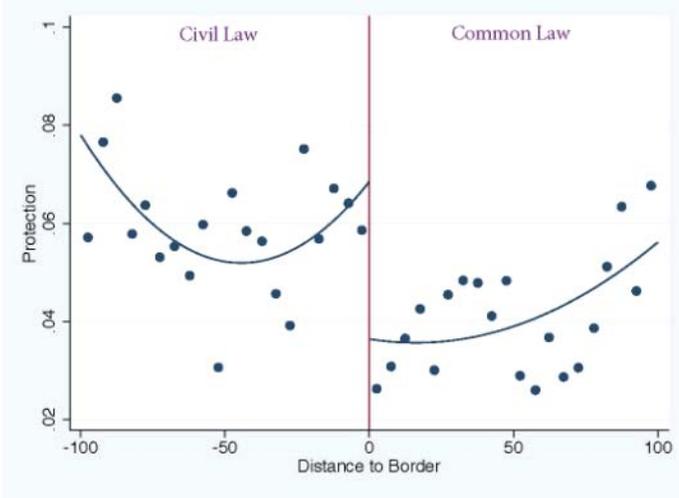
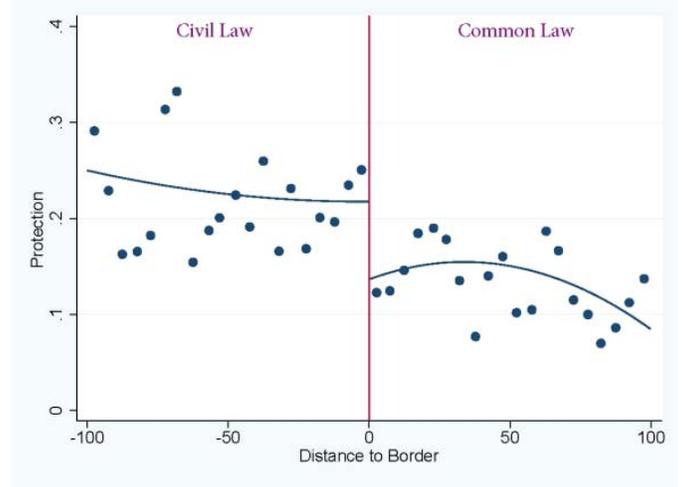


Figure 3(b) – Protection (Males)



### 5.1. HIV Prevalence

Table 1 below presents the baseline results from estimating (4.1), where  $Y_{rcepi}$  is the probability that a randomly selected female  $i$  tested positive for HIV. Each of the specifications include all of the controls, as well as ethnic and region fixed effects, and a second-order RD polynomial of the distance from the centroid of each pixel to the national border with different legal origins. Though not reported here, including instead higher or lower order RD polynomials makes almost no difference to the estimation results.<sup>37</sup> The estimated coefficient also remains stable if we instead add the controls in sequentially into a series of estimation specifications.

The first part of Table 1 below reports the results from estimating (4.1), for the whole sample of women for different bandwidths. In the first three columns we restrict the sample to pixels within 200 *km*, 150 *km* and 100 *km* from each side of the different legal origins border. We see a statistically significant positive correlation between common law and female HIV infection rates, where the estimated coefficient becomes slightly larger when the sample of observations is narrowed down to a shorter distance from the national

<sup>37</sup>Refer to Table A7 in the Appendix.

borders with different legal origins. This implies quite large effects - female HIV infection rates are at least 25% higher in common law countries, as the mean value for this variable in our sample is around 0.07.

Table 1 - HIV Positive (Females aged 15-49)

Variable	Whole Sample			Non-Muslim/ Non-Polygynous	Muslim/ Polygynous
	$\leq 200$ km	$\leq 150$ km	$\leq 100$ km	$\leq 100$ km	$\leq 100$ km
Common Law	0.016*** (0.006)	0.018*** (0.006)	0.019*** (0.007)	0.016*** (0.006)	0.007 (0.013)
Observations	118903	99511	77336	55507	21829

Notes: \*\*\* indicates statistical significance at the 1% level. Standard errors are clustered at the ethnic and country level using the approach of Cameron, Gelbach, and Miller (2011). All estimations include: country, individual, and pixel controls; region fixed effects; ethnic fixed effects; 2nd-order RD polynomial of distance to national border; and the year of the survey. Refer to the Appendix for details on the data.

Recall from Section 2 that the stronger marital property rights (*community marital property*) in civil law countries do not apply to polygynous marriages or to Muslims. We should therefore not expect to find a significant correlation between a common law system and female HIV rates for these two populations for whom the default regime is *separate marital property* in both civil and common law countries. To test for these heterogeneous effects in the data we estimate (4.1) on different samples. The fourth column of Table 1 reports the estimation results for the targeted group, i.e., non-Muslim and non-polygynous women residing within 100 km from a national border with different legal origins. The last column describes the results from an analogous estimation on the corresponding non-targeted group, i.e., Muslim and/or women in polygynous marriages. We see that the positive correlation between common law and female HIV only holds for non-Muslim and non-polygynous women. By contrast, there are no significant effects for the sample comprised only of Muslim and/or polygynous women. Therefore the key correlation only exists for those women who should be affected by the differences in marital property law across civil and common law countries.

We now turn to analogous estimations for men. Table 2 below presents the baseline results from estimating (4.1), where  $Y_{rcepi}$  is the probability that a randomly selected male  $i$  tested positive for HIV.<sup>38</sup> Each of the

<sup>38</sup>The sample of men with HIV information is smaller than for women, as the DHS surveys test a relatively smaller proportion of the men for HIV.

specifications include all of the controls, as well as ethnic and region fixed effects, and a second-order RD polynomial of the distance from the centroid of each pixel to the national border with different legal origins.

Table 2 - HIV Positive (Males aged 15-49)

Variable	Whole Sample			Non-Muslim/ Non-Polygynous	Muslim/ Polygynous
	≤ 200 km	≤ 150 km	≤ 100 km	≤ 100 km	≤ 100 km
Common Law	0.001 (0.006)	0.001 (0.005)	-0.001 (0.005)	-0.003 (0.005)	0.002 (0.01)
Observations	50754	40780	31189	24261	6928

Notes: \*\*\* indicates statistical significance at the 1% level. Standard errors are clustered at the ethnic and country level using the approach of Cameron, Gelbach, and Miller (2011). All estimations include: country, individual, and pixel controls; region fixed effects; ethnic fixed effects; 2nd-order RD polynomial of distance to national border; and the year of the survey. Refer to the Appendix for details on the data.

We see from the first three columns of Table 2 that there are no significant positive impacts of common law on male HIV rates, the estimated coefficient is close to zero and insignificant. In the last two columns of Table 2, we construct a targeted group, i.e., non-Muslims and men not in a polygynous marriage, and a non-targeted group, i.e., men married to Muslim women or in a polygynous marriage. We again find no significant effects of common law on HIV prevalence for these two different samples of men.

## 5.2. Contraception Use

These previous results demonstrate that countries with common law have significantly higher rates of female HIV prevalence and that the correlation only pertains to those women affected by the differences in marital property laws. We conjecture that this link between female HIV prevalence and marital property laws is due to women’s lower capacity to negotiate safe sex practices in common law countries. We now turn to a more direct investigation of this channel by exploring the empirical relationship between legal origins and contraception use.

The DHS surveys ask women their current contraception method. We focus on whether or not a woman uses a contraception method which requires the consent of her male partner such as: condom, abstinence, or the withdrawal method (or *coitus interruptus*). Incidentally all three of these methods reduce female risk of

contracting HIV compared with contraception methods that are primarily the responsibility of women; such as the pill, injections, female sterilization, norplant, lactational amenorrhea, or IUD.<sup>39</sup> Of those women who do use contraception (which is only 21% of the sample): 30% use a method which relies on consent from their husband and could prevent them from contracting HIV. Of those women who use such contraception: 57% use a condom, 29 % rely on abstinence, and 13% use the withdrawal method.

Table 3 below reports the results from an estimation of equation (4.1), where the dependent variable is instead “Protective Contraception”, which is equal to one if a woman uses a condom, abstinence, or the withdrawal method. This variable is equal to zero if a woman does not use any contraception, or uses the pill, injections, female sterilization, norplant, lactational amenorrhea, or IUD.

*Table 3 - Protective Contraception (Females aged 15-49)*

Variable	Whole Sample			Non-Muslim/ Non-Polygynous	Muslim/ Polygynous
	≤ 200 km	≤ 150 km	≤ 100 km	≤ 100 km	≤ 100 km
Common Law	-0.018*** (0.006)	-0.019*** (0.006)	-0.019*** (0.007)	-0.024*** (0.01)	-0.008 (0.007)
Observations	117263	97285	76698	55261	21437

Notes: \*\*\* indicates statistical significance at the 1% level. Standard errors are clustered at the ethnic and country level using the approach of Cameron, Gelbach, and Miller (2011). All estimations include: country, individual, and pixel controls; region fixed effects; ethnic fixed effects; 2nd-order RD polynomial of distance to national border; and the year of the survey. Refer to the Appendix for details on the data.

We see from Table 3 that all else equal, women residing in common law countries are significantly less likely to use a contraception method requiring consent from her male partner, and incidentally protecting her from contracting HIV. The estimated coefficient of -0.019, reflects about a 30% decrease (as the sample mean of this variable is 0.06) in women using protective contraception in common law compared to civil law countries.

<sup>39</sup>Of the three methods, coitus interruptus is the least effective at preventing male-to-female HIV transmission however it can provide some protection (refer to Sznitman et. al. 2009 for references). Table A10 in the Appendix reports analogous results to Table 3, where we instead exclude this contraception method.

These results line up with our central hypothesis that weaker marital property rights (common law) make women less able to negotiate safe sex with their husbands. As before, if this is indeed the correct channel, we should expect this significant correlation only for women to whom these marital property rights apply. The fourth column of Table 3 reports the estimation results for the targeted group, i.e., non-Muslim and non-polygynous women living within 100 km from a national border with different legal origins. The last column describes the results from an analogous estimation on the non-targeted group, i.e., Muslim and/or women in polygynous marriages. Indeed, we see that the negative correlation between common law and protective contraception only holds for non-Muslim and non-polygynous women. By contrast, the estimated coefficient is insignificant for the sample comprised only of Muslim and/or polygynous women. As before, the key correlation only exists for women who are affected by the differences in marital property law across civil and common law countries.

From the DHS surveys, we have the identical contraception use information for men as we do for women. Correspondingly we construct an analogous measure of protective contraception use by men. We estimate this probability using (4.1) and report the results in Table 4 below. These findings corroborate the evidence found for women in Table 3 above. Men are significantly less likely to have used a contraception method that prevents the spread of HIV in common law countries. As before, this result holds only for the sample of men for whom the legal variation is relevant, (i.e., non-Muslims and men not in polygynous marriages).

*Table 4 - Protective Contraception (Males aged 15-49)*

Variable	Whole Sample			Non-Muslim/ Non-Polygynous	Muslim/ Polygynous
	$\leq 200$ km	$\leq 150$ km	$\leq 100$ km	$\leq 100$ km	$\leq 100$ km
Common Law	-0.07*** (0.02)	-0.07*** (0.02)	-0.07*** (0.02)	-0.08*** (0.02)	-0.003 (0.02)
Observations	81873	67887	52902	46016	6886

Notes: \*\*\* indicates statistical significance at the 1% level. Standard errors are clustered at the ethnic and country level using the approach of Cameron, Gelbach, and Miller (2011). All estimations include: country, individual, and pixel controls; region fixed effects; ethnic fixed effects; 2nd-order RD polynomial of distance to national border; and the year of the survey. Refer to the Appendix for details on the data.

### 5.3. Female Bargaining Power

The fact that women in common law countries are less likely to use contraception techniques both reducing their risk of contracting HIV and requiring male compliance is consistent with weaker marital property laws rendering them less able to negotiate safe sex practices. We now turn to measures that reflect women’s ability to negotiate safe sex within the household to further explore this hypothesis.

The first variable is a measure of female property rights. The more recent DHS surveys<sup>40</sup> ask women if they own land or other property (such as their house). We restrict our sample to those women who are divorced or widowed and check whether the probability that a previously married woman owns property is correlated with the legal origins of the country where she resides. A second set of variables pertain to women’s decision making within the household. DHS surveys have a module focused on capturing relative decision making power where they ask women: “Who usually decides about  $X$ ?”, where the possible responses are: “respondent”; “husband”; or “respondent and husband jointly”; and  $X$  refers to “major household purchases”, “health care for the wife”, and “visits to the wife’s family and relatives”.<sup>41</sup> We create a variable which is equal to one if the respondent has any decision making within the household (i.e., alone or with her husband) and equal to zero if instead only her husband decides with regards to the different household decisions. Another question speaks directly to safe sex negotiations and asks “Is a wife justified in asking her husband to use a condom if he has an STI (sexually transmitted infection)?”.

In this section, we present the results from estimating (4.1) for these different measures of female autonomy. It will be seen that they are all significantly negatively correlated with common law. Before presenting these results, we first provide a graphical illustration of these RD estimates. The two figures below plot the predicted outcomes for the property ownership variable (for previously married women) and an index of female decision making power (constructed from the four questions described above) for individuals within 5 kilometer bins, using a second order RD polynomial on distance to the border with different legal origins. Positive values, on the horizontal axis, reflect 5 *km* bins in common law countries and negative values reflect 5 *km* bins in

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<sup>40</sup>We have this information on property ownership for 16 countries. These are Burkino Faso, Burundi, Cameroon, Chad, Cote d’Ivoire, Ethiopia, Gabon, Guinea, Liberia, Mali, Nigeria, Namibia, Rwanda, Sierra Leone, Senegal, and Zimbabwe.

<sup>41</sup>In the survey, they also ask questions where  $X$  refers to: “daily purchases”, “what should be cooked”, and “wife’s own earnings”. These questions are asked for a much smaller sample of women so we leave them out of the estimations here to insure a sufficiently large sample size. However, we obtain very similar results if we include these questions into the analysis as well. That is, all of these alternative indicators of female autonomy are also significantly lower in common law countries.

civil law countries. We see from Figures 4(a) and 4(b) below that both measures of female autonomy are significantly lower in common law countries. The data used for Figure 4(a) is much noisier, as the sample of previously married women is very small, however the negative relationship between common law and female property ownership is apparent and will be further confirmed in the subsequent estimation results.

Figure 4(a) – Own Property (Females)

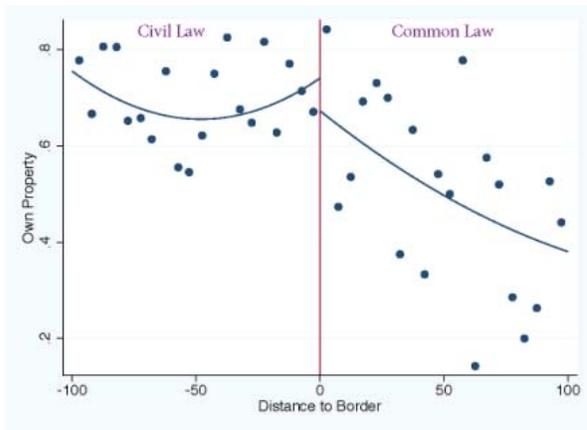
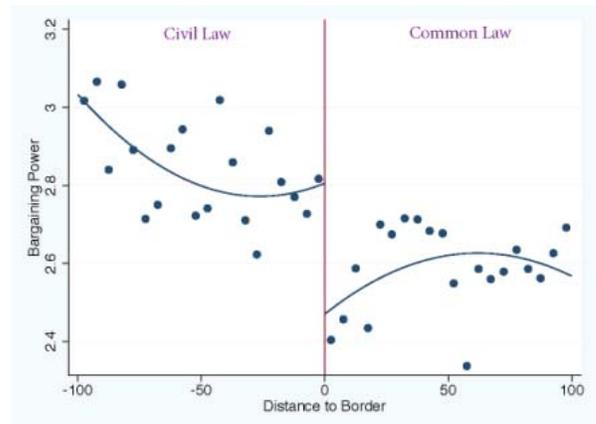


Figure 4(b) – Bargaining Power (Females)



In Table 5 below, we report the results for estimating (4.1) for female property ownership (for the sample divorced or widowed women). In this case, we restrict the sample (of previously married women) to those residing within 300 km, 250 km, and 200 km of a national border with different legal origins. If we instead restricted it to within 100 km, as with the other variables, we are left with too small of a sample. We see that there is indeed a negative and significant correlation between property ownership for this group of women and common law. That is, in common law countries previously married women own significantly less property than their civil law counterparts in Sub-Saharan Africa. The data does not record whether formerly married women were in polygynous marriages, but does indicate whether they are Muslim - allowing a test for heterogeneous effects in this group. From the last two columns of Table 5, we see that the negative and

significant correlation between common law and property ownership only holds for the previously married non-Muslim women. The estimated coefficient for Muslim women is zero.

*Table 5 - Property Ownership (Previously Married Females aged 15-49)*

Variable	Whole Sample			Non-Muslim	Muslim
	≤ 300 km	≤ 250 km	≤ 200 km	≤ 200 km	≤ 200 km
Common Law	-0.18*** (0.07)	-0.19*** (0.08)	-0.18** (0.09)	-0.24** (0.11)	-0.08 (0.13)
Observations	2627	2450	2325	1875	450

Notes: \*\*\* indicates statistical significance at the 1% level. Standard errors are clustered at the ethnic and country level using the approach of Cameron, Gelbach, and Miller (2011). All estimations include: country, individual, and pixel controls; region fixed effects; ethnic fixed effects; 2nd-order RD polynomial of distance to national border; and the year of the survey. Refer to the Appendix for details on the data.

In Table 6 below, we report the results from estimating (4.1) for an index variable which is the summation of four dummy variable measures of female autonomy (which we estimate independently in Table A11 in the Appendix). The first is equal to one if women report that they are able to negotiate safe sex with their husbands in the case that he has an STI, and zero otherwise. The next three dummy variables, capture whether women report having decision making power in household decisions regarding outside visits, large purchases, and women’s own health care. We see a consistently negative relationship between this index of female autonomy and weaker marital property laws (common law). Once again, the relationship only holds for those women for which the legal variation is relevant (non-Muslim and non-polygynous).<sup>42</sup>

<sup>42</sup>In Table A11 in the Appendix, we report the results from estimating (4.1) for the separate measures of female bargaining power. The first column pertains to whether women are able to negotiate safe sex with their husbands in the case that he has an STI. We see that the incidence of this being the case is significantly lower in common law countries. Comparing the upper and lower panels, we see that this negative relationship only holds for those women who should be affected by the differences in marital property laws (i.e., non-Muslim and non-polygynous). In the next three columns of Table A11, we provide the estimates for analogous regressions on women’s relative bargaining power for the three household decisions described above. We again, see a consistently negative relationship between these measures of female autonomy and weaker marital property laws (common law). Once again, the relationship only holds for those women for which the legal variation is relevant.

Table 6 - Female Bargaining Power (Females aged 15-49)

Variable	Whole Sample			Non-Muslim/ Non-Polygynous	Muslim/ Polygynous
	$\leq 200$ km	$\leq 150$ km	$\leq 100$ km	$\leq 100$ km	$\leq 100$ km
Common Law	-0.59*** (0.12)	-0.58*** (0.13)	-0.57*** (0.12)	-0.60*** (0.17)	-0.16 (0.30)
Observations	51163	44041	34716	22067	13643

Notes: \*\*\* indicates statistical significance at the 1% level. Standard errors are clustered at the ethnic and country level using the approach of Cameron, Gelbach, and Miller (2011). All estimations include: country, individual, and pixel controls; region fixed effects; ethnic fixed effects; 2nd-order RD polynomial of distance to national border; and the year of the survey. Refer to the Appendix for details on the data.

## 6. The Reach of Statutory Law

We have demonstrated a significantly positive correlation between common law and female HIV prevalence rates. We conjecture this happens because weaker property rights under common law upon marital dissolution reduce female threat points in household bargaining, weaken their ability to negotiate safe-sex practices, and raise their susceptibility to HIV. The empirical results provided in the previous section lend support for this channel. A final consideration for this to be a viable explanation is that the formal legal system must be applicable in determining threat points. Alternatively, does the reach of the legal system, in sub-Saharan African countries with poor state capacity, extend to the private lives of women?

Particularly in remote areas there is limited access to the formal court system, and traditional forums still exist with varying degrees of statutory law enforcement. Given this consideration, we might expect the significant impacts of common law to be lower in more remote areas. To test this hypothesis, we rely on our pixel level measure of satellite images of light density at night. Following a series of recent papers, we consider this measure to be a good proxy measure for local economic development across Africa.<sup>43</sup> We construct a measure, “luminosity”, which is equal to one if the pixel is lit at night and zero otherwise. In our sample, only 40% of pixels show any light at night. In Table 7 below, we report results from estimations of (4.1) which include an additional term where the dummy variable reflecting common law ( $L_{rc}$ ) is interacted

<sup>43</sup>Refer to several papers cited in the work of Michalopoulos and Papaioannou (2013).

with this luminosity dummy variable. We restrict our sample to the target group (i.e., non-Muslim and non-polygynous) residing within 100 km from a national border with different legal origins and focus on our key outcomes of interest from the previous section. In the first column of Table 7, it is demonstrated that the significant positive correlation between female HIV rates and common law applies mainly in areas with higher luminosity. The other key results of the previous section likewise follow, where protective contraception use (by both men and women) is significantly lower in common law countries in the high luminosity areas (compared to the low luminosity areas). Indicators of female autonomy, like property rights and relative household bargaining power, are similarly significantly lower in high luminosity areas. For all of our key outcomes, a similar relationship holds with common law in the low luminosity areas but the estimated coefficient is typically much smaller and insignificant (with the exception of condom use for males).

*Table 7 - Interactions with Remoteness - Non-Muslim/Non-Polygynous ( $\leq 100$  km)*

Variable	HIV Positive (Females)	Protection (Females)	Protection (Males)	Property (Females)	Bargaining Power (Females)
Common Law	0.004 (0.007)	-0.008 (0.009)	-0.07*** (0.02)	-0.05 (0.26)	-0.22 (0.14)
Common Law*Luminosity	0.025*** (0.001)	-0.018** (0.010)	-0.04** (0.02)	-0.10** (0.05)	-0.24* (0.14)
Observations	55507	51028	48235	1565	28686

Notes: \*\*\* indicates statistical significance at the 1% level. Standard errors are clustered at the ethnic and country level using the approach of Cameron, Gelbach, and Miller (2011). All estimations include: country, individual, and pixel controls; region fixed effects; ethnic fixed effects; 2nd-order RD polynomial of distance to national border; and the year of the survey. Refer to the Appendix for details on the data.

## 7. Alternative Channels

A threat to the identification of the effects of legal origins claimed here could arise from important unobservables that are alternatively driving the results described above. Though including ethnic fixed effects, a host of fine grained geographic, economic, and environmental controls, and a regression discontinuity approach

should control for potentially confounding factors, it is still possible that channels other than the hypothesized one of within household bargaining power may be in operation. Here we explore some plausible alternative explanations for the correlation between common law and female HIV prevalence.

### 7.1. Economic development

A first possibility is that legal origins work through other institutional channels which in turn affect economic development outcomes and thus HIV infection rates. However, the legal origins literature has emphasized positive aspects of common law (compared to civil law) for development outcomes in contrast to the negative consequence of common law – increasing female HIV rates – found here.<sup>44</sup> Thus, if anything, common law should be positively correlated with unobservables determining better health outcomes via its positive impact on economic growth. The first five columns of Table 8 below check to see if legal origins has any significant impact on other key health outcomes available in the DHS Surveys. Columns three to five report the results from estimating (4.1) for individual female health outcome measures like BMI and Rohrer’s indices, and whether women tested positive for anemia. We see from the results that there is no significant relationship between common law and the two body mass indices, however, consistent with the legal origins literature, we see a positive impact of common law and better health outcomes for women in terms of rates of anemia. That is, women residing in common law countries are significantly less likely to have tested positive for anemia. The first two columns of Table 8 instead consider important health outcomes for young children in Africa; vaccination rates and the incidence of malaria. The DHS surveys collect information on vaccination rates for all young children residing in a given household. We construct an additive index for the different diseases a given child has been vaccinated against. These include: BCG (tuberculosis), DPT (diphtheria, pertussis (whooping cough), and tetanus), Polio, Yellow Fever, Rota Virus, Pneumococcal, and Measles. For a sub-sample of countries, the DHS surveys perform Malaria Parasitemia tests on children aged 0 to 5 years. We have this information on malaria infection rates for 19 countries in Africa.<sup>45</sup> We see from the first two columns of Table 8 below, that there is no significant relationship between common law and these two important health

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<sup>44</sup>There is also a significant literature examining the effects of colonial origins. There too, former British colonial rule tends to be positively correlated with economic development outcomes. See for example, Dupraz (2015) and the references there in.

<sup>45</sup>The countries are: Angola, Benin, Burkino Faso, Burundi, Cameroon, Democratic Republic of the Congo, Cote d’Ivoire, Ghana, Liberia, Madagascar, Malawi, Mali, Mozambique, Nigeria, Rwanda, Senegal, Tanzania, Togo, and Uganda.

indicators for young children; vaccination rates and malaria incidence.<sup>46</sup> Using available data in the DHS surveys, we also checked whether access to public health infrastructure varies by legal origins. Individuals were asked whether they have access to a public health facility with regards to obtaining condoms and also HIV testing, approximately 30% responded yes for both of these. In Table A5 of the Appendix, we see that these two variables are not significantly different in common and civil law countries.

Related work by Oster (2012) focuses on the role of increased trade and the consequent larger number of truck drivers and other temporary migrants who are more likely to contract HIV.<sup>47</sup> It is conceivable then that common law is positively correlated with increased trade, and this channel drives the results here. For this to be the case, the trade channel should be most directly relevant for males (who are more likely to be truck drivers and temporary migrants). However, we do not find that common law has any positive significant impact on male HIV rates, as seen from Table 2 in Section 5. Though not reported here, we also ran a set of estimations including country-level exports (corresponding to the year of the survey) as a regressor. Again, there are no significant impacts of exports on male HIV infection rates.<sup>48</sup> We also included exports as a regressor in the estimations on female HIV rates, where, again, exports have no statistically significant impact on female HIV rates, but the positive and significant correlation between female HIV rates and common law persists. On a related note, using pixel level GIS data, we also checked whether distance to colonial trade routes and railways is significantly determined by common law.<sup>49</sup> We report these results in Table A5 of the Appendix where it is demonstrated there is no statistically significant relationship.<sup>50</sup>

We have also run a series of estimations on individual female HIV rates controlling for alternative country-level variables such as the various measures of contractual institutions from Acemoglu and Johnson (2005). We also include as controls measures for conflict collected by the Peace Research Institute of Oslo (PRIO), since higher HIV rates have been associated with conflict areas (Spiegel et. al. 2007). The positive correlation between common law and individual female HIV rates persists irrespective of any other country-level controls

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<sup>46</sup>We also ran estimations separately for girls and boys - the results are the same across these two samples.

<sup>47</sup>Oster (2005) also points to the importance of epidemic timing to explain differences across Africa. We do not expect that legal origins determines the inception of HIV in a given country, but rather the subsequent spread of infection to women. Moreover, our key results are robust to including country-level HIV prevalence in 1990 (the first year of consistent data collected by UNAIDS).

<sup>48</sup>It is important to note that Oster (2012) exploits changes in exports over time to identify the effects on HIV rates. Here we are relying on cross-sectional variation.

<sup>49</sup>Refer to the work of Jedwab and Moradi (2016) and Jedwab, Kerby, and Moradi (2017) on the role of railways in Africa.

<sup>50</sup>In Table A5, we also checked whether distance to Protestant and Catholic missions are important determinants, but there is no significant relationship.

we include, such as the ones just mentioned, but also demographic variables (male and female population, religion, ethnic fractionalization) and disease-related variables.<sup>51</sup>

*Table 8 - Alternative Outcomes ( $\leq 100$  km)*

	Vaccination (Children)	Malaria (Children)	BMI (Women)	Rohrer (Women)	Anemia (Women)	Circumcision (Men)	Affairs (Men)	Affairs (Women)
Common Law	0.06 (0.62)	0.06 (0.06)	-19.4 (20.1)	-5.1 (13.7)	-0.84*** (0.21)	0.01 (0.04)	-0.03 (0.02)	0.03 (0.02)
Observations	75677	37915	25525	25525	18675	53903	66347	82213

Notes: \*\*\* indicates statistical significance at the 1% level. Standard errors are clustered at the ethnic and country level using the approach of Cameron, Gelbach, and Miller (2011). All estimations include: country, individual, and pixel controls; region fixed effects; ethnic fixed effects; 2nd-order RD polynomial of distance to national border; and the year of the survey. Refer to the Appendix for details on the data.

## 7.2. Sexual Behaviour

There are also several non-competing alternative explanations for the variation in HIV infection rates across countries in sub-Saharan Africa. The explanation in this paper should be seen as complementary to these. But for the purposes of this paper’s contribution, what is important to verify is that it is not these already well known avenues that are driving the results we find here. We now aim to do this.

Case and Paxson (2013) emphasize the role played by education in explaining regional differences in Sub-Saharan Africa. They demonstrate that areas where HIV grew the most quickly tended to have higher levels of female education which lead to delayed marriage and increased non-marital sexual activity during the decades before the AIDS crisis was recognized.<sup>52</sup> Though not reported here, we have run a set of estimations to determine if this channel is confounding the results here but find no evidence for this. In particular, our key coefficient of interest is largely unaffected if we include different educational categories in our estimations.

<sup>51</sup>UNAIDS also provides information on country-level variables directly relevant to the HIV epidemic, such as health spending directed towards: access to antiretroviral treatments, blood screening, and information and education campaigns. There is no significant correlation between these variables and common law in country-level regressions.

<sup>52</sup>Bongaarts (2007), Monjok et. al. (2007) and others also emphasize the role of age at marriage.

We do not find any significant effects if we interact female education with legal origins on female HIV rates. Moreover, we also do not find that common law is a significant determinant of marriage rates or age at marriage.

This paper has emphasized the role played by marital property laws in determining safe sex practices and in turn female HIV rates. It is conceivable that married women with greater relative household bargaining power (via civil law) are likewise able to negotiate fewer extra-marital affairs on the part of their husbands; thereby reducing directly male HIV rates. However, we find no evidence to support this channel. The number of extra-marital sexual partners for men (and women) are not significantly positively related to common law, as demonstrated in the last two columns of Table 8 above. Other factors that are known to determine female HIV infection rates, like HIV knowledge, prevalence of testing, and access to condoms are also not significantly correlated with legal origins (refer to Table A5 in the Appendix).

Other research on HIV prevention in Sub-Saharan Africa particularly highlights the positive role of male circumcision, which could again be correlated with our measure of common law.<sup>53</sup> The DHS surveys collect information on whether men are circumcised. Approximately 64% of our sample of men are circumcised. In the sixth column of Table 8, we present the results from estimating (4.1) for whether a given male is circumcised and we find no significant relationship with common law.

Other cultural factors include the ritual of female genital mutilation and rates of polygyny. In the interests of brevity we do not report these here, but again we do not find any significant correlation between common law and these alternative outcomes in our data.<sup>54</sup>

### 7.3. Customary law

Another channel of effect could be arising from the differential application of customary law in parts of Sub-Saharan Africa.<sup>55</sup> As discussed in Section 2, legal development associated with colonization gave rise to the

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<sup>53</sup>According to the WHO there is compelling evidence that male circumcision reduces the risk of heterosexually acquired HIV infection in men by approximately 60%. The evidence includes three randomized controlled trials (Bailey et. al. 2007, Gray et. al. 2007, and Auvert et. al. 2005).

<sup>54</sup>Using the ethnicity-level data in the Murdock Ethnographic Atlas, we also do not find any significant correlation with legal origins and any gender-related ethnic trait (e.g. polygyny, patrilocal, patrilineal, endogamy, sexual segregation, brideprice, role of female labour in a number of activities). Using the pixel level GIS data, we also checked whether distance to colonial missionaries is significantly correlated with common law. We find that it is not (refer to Table A5 in the Appendix).

<sup>55</sup>Refer to Bubb (2013) for an interesting RD analysis of the incorporation of customary law with regards to land.

ubiquitous phenomenon of legal pluralism in the relationship between customary and state law. Customary law is not codified but is a sometimes powerful body of rules governing personal status, communal resources, and local organization, typically affecting individuals within a specific kinship and lineage group. Customary law is generally disadvantageous to women, with men traditionally administering marital property and with no recognition of non-monetized contributions. Husbands usually have control over assets during marriage. In some cases women even lose the property they brought to the marriage in case of divorce (World Bank 2012). It is conceivable that the different formal legal systems (inherited from the colonists) vary to the degree to which they accommodate customary laws in a way which could explain the correlation we observe here. Civil law, as a system of statutes emphasizing written argument, may less easily coexist with customary law, which is non-codified. Whereas common law, which emphasizes a process rather than the application of a code, is in some ways more flexible and possibly more accommodating of customary law. Were this to be true, the variation in legal origins could be picking up systematic variation in the application of customary laws. Using data put together from Hallward-Driemeier (2011) we have information on whether the constitution of a country recognizes customary laws, and the degree to which these customary laws are exempt from the principal of nondiscrimination. Using this information we are able to construct a country level index that codifies the extent to which customary laws are formally recognized and allowed to discriminate. Though not reported here, these estimations demonstrate that there is no significant relationship between this variable and female HIV rates. Moreover our key result is robust to including this index, and there is no significant correlation between common law and this customary law index at the country level. We also checked for a significant correlation between common law and other measures of alternative legal regimes, such as an index which quantifies the legality of violence against women.<sup>56</sup> Again, these different legal factors are not significantly correlated with legal origins.

Another finding which goes against this alternative reasoning is that legal origins do not significantly determine outcomes for women in polygynous marriages, which are more likely to be subject to customary family law. If it were the case that civil law more easily accommodates customary law (which discriminates

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<sup>56</sup>Information on customary law come from JuriGlobe (<http://www.juriglobe.ca>). The legality of violence against women quantifies laws against: domestic violence, sexual assault or rape, and sexual harassment. The index uses information on any legislation that is already in place, being planned, drafted or reviewed, and the absence of any such legislation. This data come from the OECD Gender, Institutions, and Development Database (GID-DB).

against women), then we should expect that women in customary marriages (i.e., polygynous) to have worse bargaining outcomes, and hence higher HIV rates, in civil law countries relative to common law ones. However, we find no such effects - rather the variation in legal origins explored here has no significant impact on any of the relevant outcomes for women in polygynous (i.e. customary) marriages.

## 8. Conclusion

Female HIV infection rates in Sub-Saharan Africa appear to be significantly lower in civil law countries compared to their common law counterparts. Civil law countries in Sub-Saharan Africa are distinct from common law ones in three key ways that seem to contribute to this: they provide explicit recognition of unpaid contributions to the household, joint ownership of all property within marriage, and give explicit protection to wives upon marital dissolution. These stronger female marital property laws in civil law countries lead to greater bargaining power in the households and enable women to negotiate safer sex practices. Leaving married women in civil law countries less vulnerable in the face of a massive health shock that, as a result, disproportionately affected women in common law countries. International organizations and policy makers have emphasized the role of female legal rights in explaining this feminization of HIV. This paper provides evidence in support of this channel. Moreover, it suggests the sorts of policies that could easily be implemented to enhance female rights and reduce infection. Legal reform towards more equitable marital property rights has the potential to significantly decrease female HIV infection rates in common law countries. The results are also consistent with the push from governments, women's rights organizations and NGOs who advocate improving women's access to the law by decentralizing offices and providing paralegal and legal aid services to women unable to access formal courts.

The main mechanism highlighted in this paper concerns women in monogamous marriages contracting HIV from their infected spouse. Research has emphasized how marriage is a risk factor for younger women who typically match with men who are older than themselves. Young married women are more likely to be sexually active, engage in frequent unprotected sex, and have infected partners, relative to their unmarried counterparts (Clark 2004). The role of concurrent sexual partnerships in married men is increasingly recognized as an important component of HIV transmission to their spouses (Mah and Halperin 2010).<sup>57</sup> As a

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<sup>57</sup>Estimates reveal that married men in Sub-Saharan Africa are more than five times more likely to report extra-marital affairs

result, married women are overwhelmingly at risk not because of their own behaviour but because of their husband's.<sup>58</sup> This mechanism, however, on its own cannot explain why overall female HIV rates are so much higher than those of males in Africa. However, it is consistent with this phenomenon taking into account other factors. First off, the prevalence of polygynous marriage (and low female bargaining power in these customary marriages) could explain higher female to male HIV rates across both common and civil law countries. The mechanism here would tip this relative ratio even higher in common law countries. Secondly, we may well expect the higher bargaining power of married women in civil law countries to extend to unmarried women or to women more generally. Given the high incidence of extra-marital affairs among men, we might anticipate the young women engaged in these relationships to have greater sexual bargaining power in civil law countries. As their outside option is to marry in the future with higher bargaining power. In the same vein, the married men having affairs have lower relative bargaining power in their own marriages in civil law countries. Therefore, for this population of women as well, we should expect lower HIV infection rates in civil law countries, which could also explain the overall differences across men and women. A final factor to mention is there may well be other mechanisms outside of marriage at play, such as less sexual violence in society as a whole in civil law countries.

Before concluding, it is important to point out certain caveats which are relevant to generalizing from the results of this paper. The first is the limited number of ethnic groups, which can be used to identify the effects of legal origins in the ethnic fixed effects regressions. This is due to both data limitations (HIV testing and GPS information were collected only for a subsample of the DHS surveys) and historical coincidence (it is a limited number of ethnic groups that not only cross country borders but also have different legal origins).

The second important caveat is to do with the regional variation in legal origins across the continent of Africa. There is no variation in legal origins in central Africa nor in north Africa. In both of these regions,

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than married women. In the individual-level data used in this paper 26% of married men reported having sex with someone other than their wife in the past 12 months, whereas 5% of married women did. Refer also to Glynn et al. (2001).

<sup>58</sup>Epidemiological models suggest the high rates of male sexual partnering contributes greatly to the magnitude of HIV infection rates in Sub-Saharan Africa. It is conjectured that female sex workers can serve to seed the epidemic in most monogamous women through contact with promiscuous husbands (Anderson et al. 1991). Recent work by economists, Pongou and Serrano (2013), demonstrates how a random distribution of HIV in a dynamic model of infidelity, where men have more than one sexual partner but women do not, can explain the HIV gender gap found in Sub-Saharan Africa. Greenwood et al. (2013) develop a choice-theoretic general equilibrium search model to study the HIV epidemic and risky sexual behaviour. Relationships between teenage girls and older men, known as "sugar daddies", are also common (Dupas 2011). There is often a transactional element to these relationships, where sex is exchanged for material goods or other support (Pettifor et al. 2004).

there is only civil law. We do have variation in legal origins in west, east and southern Africa. It is due to these regional differences, that our preferred empirical specification includes regional fixed effects. This being said, it is important to note that legal origins cannot explain the variation in HIV rates across countries within north and central Africa. This is not that relevant for north Africa since there is almost no HIV in this region. Moreover, since the overwhelming majority of the population in this region are Muslim, the variation in legal origins and its impact on marital property law explored here would not apply. HIV rates in west Africa, which is also predominately Muslim, are lowest after north Africa and remain relatively moderate. However, for central Africa, there are significant rates of HIV. In fact, central Africa is where high levels of the virus were first observed on the continent in the late 1970s (Chin 1990). As a result, by the mid 1980s the HIV epidemic seemed worst in this area compared to east, west, and southern Africa (Janssens et al. 1997). However, since then HIV prevalence has remained relatively stable in central Africa, in contrast to many parts of east and most of southern Africa where the HIV epidemic has run an explosive course since the early 1990s (Buve et al. 2002).

The hypothesis put forth in this paper could potentially explain some of these regional differences. The literature has already emphasized that high endemic areas are characterised by disproportionately higher HIV rates for younger women relative to their male counterparts. Buve et al (2002) suggest that high prevalence among younger women could be critical in provoking and maintaining an explosive HIV epidemic. As younger age groups substantially outnumber older people in Africa, high rates of HIV infection in young women have more heavily weight overall HIV levels than do high rates in older men (Laga et al. 2001). One could conjecture that the weak property rights for women in common law countries in east and southern Africa have contributed to the significantly higher HIV rates among young married women in these regions. By contrast, where civil law and better female property rights apply in central Africa, the spread of HIV to married women is somewhat mitigated; as a result the virus has remained relatively stable in the overall population and has not reached the dramatic levels of the eastern and southern regions.

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