

THE PERSISTENCE OF INTENSIVE KINSHIP: WHY PAKISTAN HAS THE HIGHEST RATES OF COUSIN MARRIAGE IN THE MODERN WORLD**

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ABSTRACT

BACKGROUND

Consanguineous marriages are common globally and constitute an estimated 10.4% of all marriages worldwide. Literature on consanguineous marriages mostly explores the effects of consanguinity on child health. In this analysis we explore instead what leads people to marry genetic relatives. We specifically examine the functions that these marriages might serve in different economic circumstances and how they may be related to cultural norms and dowry payments.

OBJECTIVE

We use intensive vs. extensive kinship patterns to study consanguineous marriage patterns in Pakistan, which has the highest rate of cousin marriage in the world. Our theoretical framework contrasts motivations to move from a strategy of solidifying/reinforcing (intensive kinship) vs. expanding (extensive kinship) existing kin networks in response to economic development. Using this framework allows us to predict that factors related to traditional, intensive kinship systems will increase the likelihood of consanguineous marriage, whereas higher market engagement and aspects of family, kinship, and marriage systems, associated with extensive kinship systems, will decrease the likelihood of consanguineous marriage. We also discuss why cousin marriage rates in Pakistan are so high as compared to other parts of the world.

METHODS

Analysis is based on a geographically stratified sample of 1,011 married couples from the Punjab province in Pakistan, 64% of whom were married to either first or second cousins. We apply a multivariate logistic regression model to examine the effects of cultural norms, dowry, and economic development as potential drivers of consanguineous marriages. We also examine the reasons stated for either marrying consanguineously or not, and use multivariate regression to explore whether there are different marriage patterns across different types of cousins.

RESULTS

Our results show that factors related to traditional intensive kinship systems: arranged marriage, large social networks of relatives, and consanguinity of parents' marriage all increased the likelihood of a marriage being consanguineous. In contrast, the likelihood of having a consanguineous marriage decreased with higher market engagement and extensive kinship motivations: higher levels of husband's education, participation in co-education, greater distance between the natal homes of spouses, and less pressure from the family for endogamous marriage. For women, consanguineous marriages were more likely to be "marrying down", highlighting that intensive kinship may be preferred by families with more traditional backgrounds even when this has socioeconomic costs for daughters. Reasons given for marrying cousins primarily relate to marriages being arranged by parents or grandparents who desired such matches, while reasons for not marrying cousins are related to either lack of availability of cousins or low status/suitability of available cousins. Marital patterns across different types of cousins are quite similar.

CONCLUSIONS

As predicted, factors related to traditional intensive kinship systems increased the chance of

consanguineous marriages while the likelihood of marrying a cousin decreased with higher market engagement and with cultural aspects of family, kinship, and marriage systems associated with market economies and extensive kinship systems. Similarly consistent with the intensive kinship framework, comparisons of Pakistan to other countries in South Asia, and also to countries with high rates of consanguinity, suggest the importance of low levels of secondary and female education, high fertility, and high rates of population growth in the maintenance of high rates of cousin marriage.

CONTRIBUTION

Previous research on the determinants of consanguineous marriages in Pakistan has mainly used case studies or descriptive evidence with limited predictors relevant to consanguinity. Our study uses detailed information on marriage characteristics such as cost of the wedding paid by both groom and bride's families, how the marriage was arranged, number of cousins of the bride and groom, place of residence before marriage, consanguinity of parents' marriages, wife's ownership of assets, and reasons why couples married consanguineously. Our study also adds to the existing literature by interpreting our results in the context of intensive vs. extensive kinship systems which allows us to both predict the likely correlates of consanguineous and non-consanguineous marriages and connect patterns in Pakistan with patterns in other parts of the world.

I. INTRODUCTION

Cousin marriage is the most common form of kin marriage cross-culturally (Bittles, 2012). Although globally rates of consanguineous marriage have been declining, consanguinity continues to be common in many present-day populations (Bittles, 2012) and is practiced by an estimated 10.4 percent of the current world population (Bittles & Black, 2010). Consanguineous marriages are especially common in North and Sub-Saharan Africa, the Middle East, Central and South Asia, and many emigrant communities from these regions to Europe, North America, and Oceania (Bittles, n.d.; Bittles et al., 1991). Marriage practices are an important aspect of the social, cultural, economic, and political foundations of a society (Bildirici et al., 2009; Bittles, 2012; Do et al., 2013; Edlund, 2018; Hussain & Bittles, 2000; Sailer, 2003; Schulz et al., 2019; Woodley & Bell, 2013). Some recent studies have attributed the lower levels of democracy and economic development to higher prevalence of consanguinity in Middle Eastern and South Asian countries because ? (e.g. Bildirici et al., 2009; Edlund, 2018; Sailer, 2003; Schulz et al., 2019; Woodley & Bell, 2013) highlighting the need to explore consanguinity as more than a mere cultural or social factor and examine its potential relationship with various aspects of economic development.

Although consanguinity has often decreased in concert with economic development and modernization (Bittles, 2012; Schulz et al., 2019) and has been in decline in countries across Africa and Asia, it has continued to be a common practice in Pakistan to the present. Pakistan has one of the highest-known rates of cousin marriage in the world, with 49.6 percent of ever-married women being related to their husbands as first cousins, and another 8.3 percent as second cousins (NIPS & ICF, 2019). These rates have decreased slightly from 50.3 percent and 10.9 percent in 1991 respectively (NIPS and Macro International, 1992), indicating the decline

has been both modest and slow. This information raises an important question: while consanguinity is being eroded elsewhere, why has it remained so common in Pakistan? The high rates of consanguinity in Pakistan provide an ideal setting to examine the causes of cousin marriage. Moreover, because Pakistan is currently the sixth most populous country in the world. Thus, this paper sheds light on a unique feature of how families form in the Pakistani population with potential implications for other population processes including changing fertility and mortality.

The existing literature on consanguineous marriages mostly explores the effects of consanguinity on child mortality and health outcomes (Bittles & Black, 2010a; Bittles & Black, 2010b). Although these studies show mixed results, they generally show negative but modest effects of consanguinity on child health. Some recent studies, however, have shown that many of these previous estimates of negative outcomes are likely biased on the high side (i.e. they overestimate the harm) and falsely precise (Mobarak et al., 2019; Romdhane et al., 2019). In this paper we set aside considerations of child health outcomes and explore instead what leads people to marry consanguineously, specifically examining the functions that such marriages may serve in different economic circumstances and how they relate to cultural norms.

Many of the social and economic advantages of cousin marriages have been identified and these benefits for Middle Eastern and South Asian populations have been discussed widely. These advantages include maintaining social capital, simplified premarital negotiations, reduced or delayed dowry payments, strengthening of family ties, assurance of knowing a spouse before marriage, lower domestic violence, social protection through greater compatibility of the bride with her in-laws, and maintenance of family land holdings (Agha, 2016; Bittles, 2012; Bittles, 1994; Do et al., 2013; Hussain, 1999; Joshi et al., 2008; Lieven, 2012). In contrast, globalization,

improved education, and economic development are often considered important factors for decreasing rates of consanguineous marriages by expanding the potential marriage pool in many populations (Bittles, 2012).

In this paper we seek to address two related questions. First, in order to answer the question of *What drives cousin marriages within Pakistan?* we seek to identify which characteristics are most strongly associated with cousin marriage along with those which are most strongly associated with marriage outside the kin group. Second, to answer the question *Why are cousin marriages more common in Pakistan compared to other nations in the region and the world?* we use our micro-level results to examine macro-level patterns across nations and discuss potential reasons why it has continued to be such a common practice in Pakistan.

To help answer these questions, we use the framework of intensive and extensive kinship networks? (Schulz et al. 2019; Shenk et al., 2016; Walker & Bailey, 2014). This perspective, combined with a review of the literature on the correlates of cousin marriage globally, allows us to make two predictions. First, that factors related to traditional, intensive kinship systems--e.g., participation in agriculture and other traditional subsistence occupations, more limited engagement with the market economy, arranged marriage, and more common interaction with and cooperation with kin--will increase the likelihood of consanguineous marriage. Second, that higher market engagement and associated aspects of family, kinship, and marriage systems--e.g., a shift away from traditional occupations and arranged marriage, and greater engagement in cooperation with non-kin in market-oriented jobs--will decrease its likelihood.

Previous research on the determinants of consanguineous marriages in Pakistan has mainly used case studies or descriptive evidence (Afzal et al., 1994; Agha, 2016; Ahmad et al., 2016; Hakim, 1994; Hussain & Bittles, 1998, 1999; Jabeen & Malik, 2014; Jacoby & Mansuri,

2010; Khan & Mazhar, 2018; Qidwai et al., 2003; S. A. Shami et al., 1990; Sajjad A. Shami et al., 1994; Sthanadar et al., 2014; Wahab & Ahmad, 1996; Yaqoob et al., 1993). Meanwhile, most quantitative studies only focus on a limited set of predictors, with many using the Pakistan Demographic and Health Survey (Afzal et al., 1994; Hussain & Bittles, 1999; Hussain & Bittles, 1998), which lacks detailed information on marriage characteristics such as cost of the wedding paid by both groom and bride's families, how the marriage was arranged, number of cousins of the bride and groom, place of residence before marriage, consanguinity of parents' marriages, wife's ownership of assets, and reasons why couples married consanguineously. Our study adds to the literature by studying a wide range of predictors made possible by the detailed data collected through Punjab Consanguinity Survey. Our study also adds to the literature by framing our results in the context of intensive versus extensive kinship systems which allows us to both predict the likely correlates of consanguineous and non-consanguineous marriages and connect the patterns in Pakistan with those in other parts of the world.

The rest of the paper is organized in the following manner. In Section II, we provide a brief overview of the correlates and predictors of consanguineous marriages globally as well as in Pakistan. In Section III we describe intensive and extensive kinship systems and their relevance to the Pakistani context. We discuss our data and methods in Section IV. In Sections V and VI we describe our findings and discuss our results by comparing them with other South Asian countries and other countries with high rates of consanguinity. We conclude in Section VI with a discussion of the key limitations, policy implications, and areas for future research based on our findings.

II. CORRELATES/PREDICTORS OF CONSANGUINEOUS MARRIAGES

Based on our analysis of the literature, and to more clearly organize our results and discussion, we divide our predictors into a) those representing economic development and industrialization (Afzal et al., 1994; Hussain & Bittles, 1998; Surender et al., 1998; Wahab & Ahmad, 1996), b) those representing shifting cultural norms (Buttenheim & Nobles, 2009; Hussain, 1999), and c) those related to marriage costs and the practice of dowry, since a large literature suggests that consanguineous marriages may entail lower dowry expectations in South Asia, providing another motivation for families to prefer to marry cousins (Agha, 2016; Badaruddoza & Afzal, 1995; Bittles, 1994; Do et al., 2013; Hussain, 1999; Mobarak et al., 2013; Mobarak et al., 2019). We discuss each of these correlates of consanguineous marriages below.

a) Industrialization and Economic Development

Many aspects of social change related to industrialization and economic development are shown to decrease consanguineous marriages (Calderon et al., 1993; Chandrasekar et al., 1993; Peña et al., 2002). These changes include shifts in occupation, land ownership, education, residence patterns, family structure, and family size (Shenk et al., 2016). In agricultural economies, the motive to retain and/or consolidate family land through marriage has been shown through an association between land ownership and consanguineous marriages (Calderon et al., 1993; Hakim, 1994; Strickland & Tuffrey, 1997). A shift away from agricultural occupations among grooms is also linked to a decline in cousin marriages (Chandrasekar et al., 1993). In addition, Mobarak, Kuhn, & Peters (2013) found that, in Bangladesh, families that experienced a positive wealth shock were less likely to marry their daughters to relatives. Research across the

globe also suggests that higher levels of education of both the bride and groom are associated with lower chances of a consanguineous marriage (Barbour & Salameh, 2009; A.H. Bittles & Black, 2010; Hakim, 1994; Hussain & Bittles, 1998; Sureender et al., 1998). Urbanization is also negatively correlated with consanguinity (Afzal et al., 1994; Alan H. Bittles et al., 1991; Hussain & Bittles, 1998, 2000; Sureender et al., 1998; Wahab & Ahmad, 1996) and one study showed that a bride's rural residence during childhood is positively associated with consanguinity (Islam, 2012). Finally, while not an economic change per se, some authors have also argued that a population wide reduction in fertility rates—commonly seen alongside industrialization as part of the demographic transition—can reduce rates of consanguinity by reducing the number of cousins who are eligible for consanguineous marriages in the next generation (Barkat & Basten, 2014; Chandrasekar et al., 1993). Reduced fertility rates may therefore produce a shift away from cousin marriage that coincides with rising economic development, but which occurs through a demographic rather than an economic pathway.

In Pakistan, studies have found higher rates of consanguineous marriages in rural as compared to urban areas (Afzal et al., 1994; Hussain & Bittles, 1998; Yaqoob et al., 1993). Furthermore, first and second generation migrants in urban areas from rural areas of Pakistan are also more likely to marry consanguineously than non-migrants in urban areas (?) (Hussain & Bittles, 1998) and Pakistani couples from higher socioeconomic backgrounds have lower rates of consanguineous marriages than the couples in the lowest strata (Afzal et al., 1994; Hussain & Bittles, 1998; Yaqoob et al., 1993). Studies from Pakistan also show that consanguineous marriages are more common among illiterate women or those who had only primary level education (Afzal et al., 1994; Hussain & Bittles, 1998). Although one study from India showed that consanguineous couples are more likely to live in extended families (Hussain & Bittles,

2000), in Pakistan, consanguinity appears frequently in both nuclear and extended households (Hussain & Bittles, 1998).

b) Cultural Norms

Some studies suggest that socio-cultural traditions and behavioral inclinations continue to influence preference for consanguineous marriages despite economic development (Gunaid et al., 2004). For instance, research shows that couples whose parents were consanguineously married are also more likely to marry consanguineously (Hussain & Bittles, 1998) and lower age at marriage of both brides and grooms has been associated with consanguineous marriage (Shami, Schmitt, & Bittles, 1990). The positive marriage outcomes associated with marrying relatives may also play a role in encouraging consanguinity. Both qualitative and quantitative studies have shown that consanguineous marriages are strongly associated with marital stability, lower likelihood of divorce, and a better relationship between spouses (Islam, 2012; Jacoby & Mansuri, 2010; Mobarak et al., 2019) ; Religion may also play some role in these marriages and consanguineous marriage is commonly observed in Muslim populations (Bittles, 2012; Gunaid et al., 2004; Reniers, 2001) even though there is no specific guidance in Islamic teachings about cousin marriages (Bittles, 2012). Nevertheless it is still considered a “time-honored” tradition amongst many Muslims (Bittles, 2012; Hussain, 1999).

Socio-cultural norms have been pointed to as one of the main reasons for high rates of consanguinity in Pakistan (Hakim, 1994). In a qualitative study, respondents reported that consanguineous marriages are a matter of pride in Pakistan as they indicate that the family is “sought after” and in good standing with relatives (Hussain, 1999). Moreover, marriages within castes (kin are automatically caste members) may also be preferred; Shami, Grant and Bittles

(1994) found that 46% of Pakistani marriages were consanguineous and an additional 38% of marriages were within the caste, leaving only 16 percent of marriages with people outside the caste. Another study showed that in Pakistan the percentage of consanguineous marriages was highest among the castes of *Bains-Rajput* (76 percent), *Mughal* (70 percent), and *Jatt* (67 percent) (Jabeen & Malik, 2014), groups that include many rich peasants and landlords with motivations to keep land in the family (Rahman, 2012). In Pakistan, cousin marriages are perceived to be better for marital stability and to promote compatibility between both the couple and between the bride and her mother-in-law (Hakim, 1994; Jacoby & Mansuri, 2010). Consanguineous marriages may also be preferred because unfavorable characteristics of both the bride and groom such as their health may be more easily overlooked when marrying within the family (Hakim, 1994).

c) Dowry and Marriage Costs

Consanguineous marriages have been found to reduce the economic burden of marriage expenses on parents. This is especially relevant in South Asia where the practice of dowry has been widespread historically and has become even more common in recent decades (e.g., Makino, 2019; Roulet, 1996; Sheel, 1997; Srinivas, 1984) and where marriage payments can represent a substantial economic burden to families (Anderson, 2003; Gondal, 2015). Several studies find that those marrying consanguineously may be able to pay a lower dowry, or may not need to pay a dowry at all (Badaruddoza & Afzal, 1995; A. Bittles, 1994; Do et al., 2013) while in other cases consanguinity may allow a deferral of dowry payments until after the wedding (Mobarak et al., 2019). For example, women in Bangladesh were 6-7% less likely to bring a dowry at the time of marriage if the marriage was consanguineous (Do et al., 2013). Studies also

show that an increase in dowries in Bangladesh and India is associated with a decline in consanguineous marriages (Badaruddoza & Afzal, 1995; Do et al., 2013).

While dowry is normatively practiced in Pakistan, some research notes that economic considerations of dowry are an integral but less explicit part of marriage decision-making than they are in other parts of South Asia (Hussain, 1999). Hussain (1999), for example, asserts that, unlike in India and Bangladesh, dowry in Pakistan does not generally include cash payments to the groom's family as 'groom price'. Furthermore, results from qualitative studies show that dowry was not commonly mentioned as one of the reasons for cousin marriages—though authors did note that the size of the dowry was a consideration in opting for cousin marriage (Agha, 2016; Hussain, 1999). The study participants also mentioned that the size and demand for dowry was lower and more realistic in case of cousin marriages (Agha, 2016; Hussain, 1999). The ease of pre-nuptial negotiations both financially and logistically has also been highlighted as one of the reasons why Pakistani parents prefer kin marriages for their children (Hakim, 1994) and qualitative work has revealed that the need to pay higher dowry in case of non-consanguineous marriages to protect the future needs of the bride may also play a role (Hussain, 1999).

III. INTENSIVE VERSUS EXTENSIVE KINSHIP SYSTEMS

Several researchers (Bailey, Hill, and Walker 2014; Shenk et al. 2016; Schulz et al. 2019; Walker and Bailey 2014) have interpreted patterns of consanguineous marriage both within and between societies through the lens of intensive vs. extensive kinship systems. This work suggests that individuals and families making marriage decisions face a trade-off between either expanding their social networks (extensive kinship pattern) or reinforcing existing kin ties

(intensive kinship pattern). Extensive kinship networks are created through exogamy and widen the social network of the individual, creating more kin and a more diverse set of social ties (Walker and Bailey 2014). Although extensive kinship systems are common in many small-scale societies, they commonly characterize industrialized societies (Shenk et al. 2016). In extensive kinship systems consanguineous marriage is generally rare and may be the subject of strong social taboos (Lee 1984) or, in contrast, may be viewed as a missed opportunity to create new social ties and broaden one's kin network (Shenk et al. 2016).

Intensive kinship systems (Bailey, Hill, and Walker 2014; Bugos 1985; Shenk et al. 2016; Walker and Bailey 2014), on the other hand, are formed through norms of consanguineous marriage which result in dense networks of kin who can cooperate to perform subsistence tasks, engage in the defense of property, and/or avoid the division of property (Bahrami-Rad, 2019). Consanguineous marriages help to create such networks by reinforcing existing kin ties while avoiding creating new ties that would entail new social obligations. Importantly, in societies with intensive kinship networks, consanguineous marriages allow kin groups to limit the subdivision of property and/or the sharing of property with non-kin through marriage (e.g., Goody 1976; Harrell 1997; Obeyesekere 2008; Yalman 1967; Bahrami-Rad, 2019). This may be one reason that intensive kinship systems are so common in rural agricultural societies prior to economic development (Walker and Bailey 2014), where heritable wealth in animals or land are crucial for survival and social status (e.g. Borgerhoff Mulder et al. 2010; Shenk et al. 2010).

Shenk et al. (2016) proposed that societies may shift from intensive to extensive kinship systems as they move from an agricultural to a market economy. In intensive agricultural systems, cooperation is needed within families and kin networks to handle the high demands of agricultural work. It is also important to keep parcels of land intact and within families to

maintain wealth and access to agricultural resources. Consanguineous marriages advance these goals by concentrating kinship ties which ensures both labor and land ownership.

Consanguineous marriages are generally arranged by parents and focus on endogamy within families or related groups (such as lineages or castes) which promotes reciprocal and overlapping ties. [In this system?] extended families are common, and post marital residence is generally with kin. In contrast, as agricultural societies undergo economic development, the need for labor cooperation is reduced as an increasing amount of labor takes place in the market. Likewise, as land becomes less important for earning a living, the importance of defending or keeping it within the same family is reduced. As economies develop both consanguineous and arranged marriages become less common, and a preference for marrying kin is replaced by a preference for marrying within one's social class. As market integration continues, families require more mobility to respond to job opportunities, and children become less financially and socially reliant on parents. Consequently, families become increasingly nuclear, neolocal, and more widely dispersed. Kinship systems become more bilateral and individuals become increasingly focused on forging broader social networks that include non-kin which are more useful for making connections that could lead to better job opportunities or marriage prospects.

Following the framework developed in Shenk et al. (2016), we predict that the commonly observed decrease in consanguineous marriage as societies industrialize and urbanize is related to the social shift from an intensive kinship to an extensive kinship system. This perspective allows us to predict that factors related to agricultural subsistence or traditional intensive kinship systems (e.g., engagement in agriculture, land ownership, arranged marriage) will increase the likelihood of a marriage being consanguineous while higher market engagement and aspects of family and marriage systems associated with market economies (e.g., higher levels of education,

engagement in market-related or education-based occupations, love marriage) will decrease the likelihood of marrying kin.

Intensive and Extensive Kinship in Pakistan

Many aspects of the economy and culture of Pakistan make sense in the light of the intensive kinship framework. Arranged marriage is the most common form of marriage in Pakistan (Agha, 2016), and, more often than not, the groom and his family exercise more agency than the bride and her family. Marriage proposals are usually initiated by the groom's family and marriages are patrilocal which means that the bride moves to the groom's family home after marriage. While marriage costs are shared between groom's and bride's families, due to the increasing practice of dowry, costs have become increasingly skewed towards bride's families (Anderson, 2003).

Due to lower levels of industrialization and education levels, social networks in rural areas of Pakistan may be relatively smaller and less diverse (Miguel et al., 2006). Unmarried people, "boys" and "girls" in local parlance regardless of age, generally rely on their existing family networks to find spouses. Grooms with stable livelihoods are likely to be in high demand in the marriage market whereas girls are weighted more on their beauty and their ability to perform household chores. Marriages are mostly arranged by parents or grandparents, often to "strengthen the relationship" between two families.

There are a number of economic and cultural motivations underlying kin marriages in Pakistan. For instance, more than a third of the total employed population works in agriculture (World Bank, 2020), thus land distribution is an important consideration while making marriage decisions. Also because parent's land is divided equally among sons, and in some cases daughters also get half the share of sons, the land tends to become fragmented over time. To

counter this trend, families try to marry their children with cousins to keep family land consolidated.

As in most intensive kinship systems, kin marriages also increase the potential for cooperation due to common interests. For example, because relatives already know each other, these marriages are able to capitalize on existing relationships which also make it easier for families who are already familiar with one another to negotiate marriage decisions. When a dispute occurs, close relatives know both the bride and groom and can help resolve issues. As part of a society where bonds of caste, kinship and tribe are still very strong in many communities despite modernity and improvements in economy, Pakistanis have traditionally looked at marriage as a means to create and reinforce social and political alliances. Therefore, the couple getting married may have little say in their own marriage; the greater good of the extended family trumps individual choice when it comes to deciding the marriage partner. Influential kinship groups and clans leverage alliances through marriage to increase their political power against other kinship groups and to bolster their ability to negotiate better services and patronage from the state (Gazdar, 2007).

In addition to these economic and cultural motivations for cousin marriage that often rely on intensive kinship networks Pakistan also has a demographic structure that enables a high rate of cousin marriage (Barkat & Basten, 2014). Although fertility rates have been declining in Pakistan, they have not fallen at the same rate that they have in neighboring South Asian countries. For instance, in the period 1975-1980, Pakistan and Bangladesh both had high total fertility rates (TFR) of 6.6 births per woman. However, the rate of decline diverged thereafter (Ezeh et al., 2012) with the current TFR in Pakistan falling to 3.6 in in Pakistan as compared to 2.3 in Bangladesh (NIPORT & ICF, 2019; NIPS & ICF, 2019). If nothing else these higher

fertility rates alone are likely to lead to a greater availability of cousins for marriage than is true in societies with lower fertility, enabling cousin marriage to continue as a demographic option in Pakistan in a way that it is not in lower fertility societies where cousins of the opposite gender may be too old, too young, or simply not exist.

IV. DATA AND METHODS

Analysis is based on a geographically stratified sample of 1,011 married couples from Punjab province. These data were collected in 2009-10 as part of the Punjab Consanguinity Survey conducted by Chaudhry using a three-stage clustered random sampling technique. First, nine out of the Punjab province's 35 districts were randomly selected, three districts each from the north, central, and southern regions of the Punjab. The sampling frame utilized was that of the UNICEF's Multiple Indicator Cluster Survey (2007-08), where the province was broken down into 6,368 clusters of households that were representative at the tehsil (sub-district) level. In the second stage, 70 clusters (45 rural and 25 urban) were chosen from the 9 districts according to district population shares. In the third stage, 12 households were selected from each urban cluster and 16 households were selected from each rural cluster. Interviews of 1,020 households were conducted in October 2009. See Mobarak et al. (2019) for more details on the objectives of the Punjab Consanguinity Survey.

Within a sampled household, the married couple who was closer to 45 years of age was chosen as a focal couple. Both husband and wife were interviewed when possible, however, due to the relative unavailability of husbands at the time of data collection, the quantitative part of the analysis is based on wives' responses. We dropped nine cases as at least 11 out of 22 variables of interest for these cases were missing. For the rest of the 1,011 cases, we impute missing data with multiple imputation by chained equations (MICE) using the statistical package

in Stata. The largest amount of missingness in the sample is in the amount spent on the wedding by the husband's family (18.4%), dowry amount (17.5%), and husband's occupation (16.4%). All other variables contain less than 6% missingness. We performed 20 imputations.

Additionally, we used Pakistan Demographic and Health Surveys (PDHS) for sensitivity analysis. While comparing the consanguinity rates between PDHS 2006-07 and the Punjab Consanguinity Survey, we noticed that even though the overall rates of cousin marriage are similar (60.7% vs. 63.6% respectively), the Punjab Consanguinity Survey provides a more precise breakdown of the proportion of marriages between first cousins and second cousins (**Figure 1**). This is probably because of the more detailed nature of the questions that were asked as part of the Punjab Consanguinity Survey and suggests that the data in the PDHS may not be accurate in terms of the fraction of each type of cousin marriage.

-- Figure 1 about here --

We applied multivariate logistic regression to examine the effects of economic development, cultural norms, and dowry as potential drivers of consanguineous marriages. The binary outcome variable we use includes both first and second cousin marriages. The list of specific variables used as proxies of economic development, cultural norms, and dowry are shown below. In selection of these covariates, we were cautious about the issue of temporal ordering. We assumed that husband's current occupation was the same as his occupation at the time of marriage, which we believe is a reasonable assumption given that in Pakistan men commonly delay marriage until they are established in an occupation. Other than this, we only use information that we believe represents the characteristics of the couple or their families at or before the time of marriage as predictors in the model.

Our model took the following form:

$$\text{Consang}_i = \alpha + \beta_1 X_i + \beta_2 E_i + \beta_3 C_i + \beta_4 D_i + \varepsilon_i \quad (i)$$

$\text{Consang}_i = 0$ = not a cousin, 1 = cousin

X_i = Demographic control variables (type of marriage (arranged, arranged love, or love), cohort of marriage, wife's age at marriage, number of wife's siblings, number of wife's cousins, number of husband's cousins)

E_i = Economic factors (wife's and husband's education, whether both wife and husband attended co-education, percent of total value of assets of which the wife is primary owner, and husband's current occupation)

C_i = Cultural factors (whether husband's parents' and wife's parents' marriages are consanguineous, location of wife's residence before marriage, requirement from husband's family to marry a specific caste/clan)

D_i = Dowry-related factors (dowry amount spent by wife's side, whether wife's family made dowry payments after marriage)

The survey asked the focal couples about the dowry amount paid by the wife's family and also the expenditure on the wedding by the husband's parents at the time of the wedding. Since the year of marriage for the focal couple varied from 1957 to 2009, we made consumer price index (CPI) adjustments for these amounts based on prices in 2010. We then transformed these CPI adjusted amounts into *logarithmic* values and set $\log 0$ to 0.

Additionally, we used equation (ii) to examine if the amount spent on the wedding by groom's family predicts consanguinity. In this equation W_i represents the amount spent on the wedding by groom's parents, commonly known in the local language as *Walima*. This equation does not include the dowry amount to avoid the issue of multicollinearity in the model as the data showed a correlation coefficient of $r^2=0.60$ between dowry and *walima*.

$$\text{Consang}_i = \alpha + \beta_1 X_i + \beta_2 E_i + \beta_3 C_i + \beta_4 W_i + \varepsilon_i \quad (ii)$$

Next, to study the reasons given for marrying first cousins or not marrying first cousins, we report frequencies of qualitative responses to questions from the Punjab Consanguinity Survey about why individuals married or did not marry a cousin. Here we analyzed responses from both the husbands and wives.

V. RESULTS

A majority of the focal couples in our analysis were married consanguineously (64%): 39% were first cousins and 25% were second cousins. The average age of the wife was 38 years compared to 43 years for husbands. More than three-quarters of the marriages were arranged by the families of the couple (76%), another 20% were reported as “arranged love” marriages (the couple decided [who?] they wanted to marry but the parents approved and arranged the match), whereas only 4% were reported as “love” marriages which, by definition, usually preclude parental approval (**Table 1**). Wives had an average of 30 cousins compared to 28 cousins reported by their husbands. On average, wives owned 26% of the total assets in the household; wife’s ownership of assets generally implies that the wife brought the asset with her into marriage or inherited the asset from her natal family.

-- Table 1 about here --

Results from bivariate logistic regressions between the outcome variable consanguineous marriage and the control and predictor variables are presented in **Table 2**. These results show that as compared to arranged marriages, “arranged love” marriages were significantly more likely to be cousin marriages. It also shows that cousin marriages were significantly less common among those whose husbands were involved in business as compared to agriculture related occupations. There was no association between the likelihood of cousin marriage and the

log of dowry amount paid by bride's family in the bivariate model, however, those grooms whose parents spent more than 500,000 rupees on the wedding were significantly less likely to marry consanguineously.

-- Table 2 about here --

Multivariate regression results show that after controlling for demographic, economic, cultural, and dowry-related factors, there was no statistically significant difference between arranged, "arranged love", and love marriages (**Table 3A**). As compared to the cohort of marriages before 1980, marriages in the 1990s and 2000s were less likely to be consanguineous, however, the results were not significant (**Table 3A**). Nevertheless, this indicates a decreasing trend in cousin marriages among the sampled couples. Women who got married after the age of 25 were less likely to marry consanguineously as compared to those who got married earlier than 25 years of age, however, the results were not statistically significant. As expected, both the number of wife's and husband's cousins increased the log odds of cousin marriages by 0.015 (p-value=0.001) and 0.010 (p-value=0.028) respectively. The log odds of consanguineous marriage decreased significantly with the bride's number of siblings. This suggests that once other siblings have exhausted the options of appropriate cousins for marriage, or have fulfilled the family responsibility of marrying a cousin, the remaining siblings are less likely to marry consanguineously.

-- Table 3A about here --

Next, **Table 3B** presents the multivariate results for the covariates related to economic factors while controlling for demographic, cultural, and dowry-related predictors. Wife's education level is not associated with cousin marriage; however, husband's secondary or higher level of education decreased the log odds of cousin marriages by 0.383 (p-value=0.088) as

compared to those with no education. Wife's schooling in a co-educational institution was not associated with cousin marriage, however, if husband attended a co-educational institution, his log odds of cousin marriage were lower by 0.748 (p-value=0.013) than those who went to boys-only schools. Contrary to the bivariate model, husband's occupation was not associated with consanguinity in the multivariate model (**Table 3B**). For every one percentage increase in the ownership of wife's assets in the household, the log odds of consanguineous marriage increased by 0.528 (p-value=0.015).

-- Table 3B about here --

In **Table 3C** we examine the multivariate results related to cultural factors while controlling for demographic, economic, and dowry-related predictors. The log odds of cousin marriage increased significantly by 0.702 (p-value<0.001) and 0.976 (p-value<0.001) if wife's parents and husband's parents had consanguineous marriages, respectively. A woman's log odds of marrying consanguineously were significantly lower if her natal place of residence was not in the same village where she was living with her husband at the time of the survey. Furthermore, the results presented in **Table 3C** show that the log odds of cousin marriage increased significantly by 0.618 (p-value<0.001) if there were compulsions from husband's family to marry someone from a specific caste/clan.

-- Table 3C about here --

-- Table 3D about here --

In **Table 3D**, we examine the association of dowry-related factors with consanguinity. The multivariate results show that neither of the dowry-related factors—dowry amount, and whether the bride's family made dowry payments after marriage—were associated with consanguineous marriage. Further, in **Table S1** we show the results of a multivariate analysis

modeling the association between dowry amount and consanguinity by only controlling for select variables as a robustness check on the dowry results. Our goal is to avoid over controlling for related factors to ascertain whether there are in fact any effects of dowry variables. Therefore we took the following control variables out of the analysis: wife's education, husband's education, wife or husband attended a co-educational institution, percent of total value of household assets the wife is primary owner, husband's current occupation, wife's natal place of residence, and if bride's family made dowry payments after marriage. Most of the variables were shown to be unassociated with cousin marriages in the main model. The results presented in **Table S1** show that *log* dowry amount of 5.7 (Rupees 500,000) or more was significantly less likely to be associated with cousin marriage as compared to *log* dowry amount of 4.7 (Rupees 50,000) or less ($p=0.044$).

In **Table 4**, we examine the association of the *walima* amount and cousin marriage. The results presented in this table correspond to the model presented in equation (ii). These multivariate results show that a couple's log odds of marrying consanguineously were significantly lower when the groom's family spent Rupees 500,000 or more on the wedding as compared to those who spent less than Rupees 50,000 ($p=0.048$). In **Table S2** we adopt the same approach to that of **Table S1** to test if the amount spent on the wedding by husband's parents is associated with consanguinity by controlling only a limited set of covariates. Here the results again indicate that the likelihood of cousin marriage decreases with higher amounts spent on the wedding by husband's parents.

-- Table 4 about here --

Qualitative findings show that 84% of the women reported parental choice as one of the main reasons for marrying a first cousin, while another 19% of women cited grandparents' wish

as a reason for marrying their cousin. Responses of husbands were similar to those of wives (**Table 5A**). Among those who did not marry their cousins, a majority of wives reported that “none of my available cousins were good enough” (47%), followed by “found a better match than cousins” (46%), and “no cousin available” (43%) (**Table 5B**). The order of responses by husbands was slightly different than that of wives: a majority of them responded that they “found a better match than cousins” (46%), followed by no cousin available (45%). Note that multiple responses were allowed for these questions.

-- Table 5A about here --

-- Table 5B about here --

Table S3 shows the results from a multinomial logistic regression. In this table we study the predictors of each kind of cousin marriage: second cousin, father’s brother’s son, father’s sister’s son, mother’s brother’s son, and mother’s sister’s son. The results show limited variation in predictors for each type of cousin marriage. Some of these results are consistent with the main results across all cousin types whereas other results from the full sample appear to be driven by certain categories of cousins.

VI. DISCUSSION

Research Question 1: What drives cousin marriages within Pakistan?

As predicted, results show that factors related to traditional intensive kinship systems -- large social networks of cousins, arranged marriage, consanguinity of parents’ marriage, marrying within close geographic proximity, and restricting marriage within one’s caste or clan-- all increased the chance of consanguineous marriage while the likelihood of marrying a relative decreased with higher market engagement and with cultural aspects of family, kinship, and

marriage systems that are positively associated with market economies -- higher levels of husband's education, husband's co-education, greater distance between the natal homes of spouses, and less pressure from the family for endogamous marriage. Economic, cultural, and demographic factors were all included among the significant variables in the model, —and all significant results were in the predicted directions, presenting a picture consistent with our prediction that cousin marriage patterns reflect relative engagement in the market economy and related motivations for pursuing intensive or extensive kinship strategies.

Poorer and less educated people with more traditional occupations such as farming have more limited means of establishing new social networks through school or work, thus it is strategic for people in this position to double down on their existing networks by reinforcing them through marriage. In contrast, families with more education, wealth, and more market-oriented jobs have much better means of establishing new social networks through school, work, or travel, and are thus in a better position to adopt an extensive kinship marriage strategy that may have benefits for them as part of the market economy. These patterns are not just reflected in whether individuals marry cousins or not, but also in the distance between the home of the bride and groom, since cousin marriages occur over a shorter distance while marriages with non-kin are significantly more likely to occur outside of the village and *tehsil*.

A key finding from our analysis is that from the bride's and bride's family's financial perspective, non-cousin marriages were more likely to be “marrying up” and consanguineous marriages more likely to be “marrying down.” Wife's ownership of household assets was significantly associated with consanguineous marriage, highlighting that for women consanguineous marriages were more likely to be hypogynous (i.e., a marriage where the woman marries down), potentially owing to pressure from relatives or a strong motivation to reinforce

family ties. A related result showing that more money spent on the wedding by the groom's parents was negatively associated with consanguineous marriage also highlights this idea that wealthier grooms were not marrying consanguineously. This suggests that in a developing economy still experiencing economic growth, extensive kinship may be preferred over intensive kinship for families who are wealthier or more market-integrated while intensive kinship (signified through cousin marriages) may still be preferred by families with more traditional occupations and lower socioeconomic status even when this has socioeconomic costs for daughters. While **Table S1** shows evidence that higher dowries are also associated with a lower likelihood of cousin marriage, this finding is not as robust as that for *walima*, suggesting that wealthy parents of daughters may not be as willing as wealthy parents of sons to marry their daughters outside of the family. This pattern suggests that parents may perceive either more benefits or less risk in marrying daughters to cousins than do the parents of sons. This finding is also consistent with other research on South Asia that emphasizes parental concerns about the risks of daughters marrying out (Hamamy et al., 2011; Jacoby & Mansuri, 2010), but may also indicate that the parents of daughters are more constrained in making marriage decisions. In contrast, grooms and grooms' parents have more autonomy in marriage decisions, which may explain why husband's co-education has significantly higher impact than co-education of wives. And even though a higher amount of money spent on the wedding by the groom's parents was negatively associated with consanguineous marriages, we do not know the direction of this association, i.e. whether groom's families spend more money on the wedding when they are marrying their son out of the family or if the wealthy families chose *a priori* to marry their sons to unrelated brides.

Restricting marriage within one's caste or clan was highly significantly associated with intensive kinship patterns. Gazdar (2007) argues that “zaat”, “biraderi”, and “qaum” (all different local names for caste or clan in Pakistan) are a key dimension of economic, social, and political interactions in Pakistani society. Rahman (2012) further suggests that as castes are typically based on the traditional family occupation, therefore, they also form the basis for socioeconomic class structure in rural Pakistan. These castes operate like ethnic groups where kinship group ties are used to negotiate market ties and political coalitions (Gazdar, 2007).

The qualitative results in **Table 5A** show overwhelming support for the idea that parental choice may increase rates of cousin marriage, partially supporting the idea of cultural motivations for the practice. While reporting the reasons for marrying consanguineously, a majority reported that they married their cousins because it was their “parent's choice” or that their “grandparents wished so” while much smaller numbers reported economic motivations such as not being able to afford the dowry payment, or wishing to keep money/assets in the family. Yet “parents' choice” could easily be a gloss for other forms of explanation, and it is also likely that some brides (most interviewees were women) were not aware and thus not able to report of all of their parents' motivations. Note that the fact that multiple responses were allowed means that the marriage being the parents' choice does not preclude people also reporting dowry and money/assets as explanations.

As we have found in previous work (Shenk et al., 2016), the qualitative results for why people did not marry cousins (**Table 5B**) were more telling than their reasons for why they did. Two of the three most common responses to this question were that the respondent had “found a better match than cousins” or that “none of the available cousins were good enough” suggesting economic and status related motivations for marrying outside of the family. A similarly common

response was that there was “no cousin available” which is more likely to be true in lower-fertility, more highly market-integrated families. These results are consistent with an increasing emphasis on extensive kinship under conditions of economic development and/or personal engagement with market-driven ways of life.

A much smaller proportion of people expressed sentiments that they had avoided marrying a cousin because it was “not right” or “inferior,” or were worried about “health concerns” or another type of “negative effect,” suggesting a real but limited impact of anti-cousin marriage social norms on marriage decisions--though even being aware of or holding such beliefs could be plausibly interpreted as a proxy for market integration and internalization of the ideology of extensive kinship.

Finally, **Table S3** shows a breakdown of key predictors across different types of cousins. One finding is that arranged love marriages are more likely to occur with second cousins than first cousins. About one in five marriages in Pakistan are “arranged love marriages” (**Table 1**). A majority of these marriages are consanguineous marriages: our data shows that 72 percent of arranged love marriages were consanguineous marriages, and respondents also mention love (though infrequently) as a reason for marriage with a first cousin in **Table 5A**. These findings suggest two things. First, that in the rural Pakistani setting, where conservative cultural norms enforce gender segregation of boys and girls, cousins are often the only people of the opposite sex that many people can interact with in their youth. Second, it suggests that parents are likely to approve of and formalize marriage arrangements between cousins even if they start as love matches. A similar trend was observed in Bangladesh where matrilineal parallel cousins were more likely to report their marriages as love marriages (Shenk et al., 2016), likely for similar social reasons.

Apart from this finding, the general patterns are quite similar across different types of cousins and reinforce the findings from **Tables 3, 4 and 5**. Availability of cousins on either the wife's or husband's side positively predicts cousin marriage across most types of cousins, as does the fact that the parents of wives or husbands are themselves married to cousins. All types of cousin marriages are associated with lower rates of marriage outside of the village or more distant locations. There are also consistent with results showing that husbands whose families required them to marry within a particular caste or clan are more likely to be married to cousins, and that, in contrast, husbands with more education or who had attended a co-educational institution were less likely to be married to cousins. These findings are consistent with the interpretations offered above, and compatible with an interpretation of a shift from intensive to extensive kinship networks related to economic development and the integration of families into the market economy.

While over a decade has past since the data for this paper were collected in 2009, meaning our findings are more do not cover the most recent trends than most publications on this topic. Furthermore, we have no evidence that there have been anything but minor changes in the rates of consanguinity in Pakistan from the time of data collection to the present; data from the PDHS 2017-18 show very similar rates of cousin marriage for Punjab (NIPS & ICF, 2019) (**Figure 1**) as we see in our 2009 data. The data are of also more appropriate for addressing the questions we are asking, making the strengths of using this dataset far outweigh the limitations. , We acknowledge that dowry and other cost related data are hard to collect in surveys, which may mean that our related results are prone to recall bias and/or social desirability bias—though no more so than other surveys. Finally, there is another potentially significant limitation to this research involving the broad use of new transformative communication technology. We

recommend that future research explore the impact of the recent proliferation of mobile phones and access to the internet in Pakistan on “love marriages”. In 2005 only 12% of the country’s population had access to mobile phones compared to about 52% in 2020 (Stryjak & James, 2016), and anecdotal evidence from throughout South Asia (including Pakistan) suggests that access to mobile phones and social media has increased access to potential marriage partners outside of the family, and thus may have increased the rates of love marriages, arranged love marriages, and extensive marriage patterns even among arranged marriages.

Research Question 2: Why are cousin marriages so common in Pakistan compared to other nations in the region and the world?

Of key interest for research on consanguineous marriage is the question of why rates of cousin marriage vary so much internationally. Given that Pakistan has one of the highest rates of consanguineous marriage in the modern world, any study of cousin marriage in Pakistan—especially any study that attempts to understand variation in local behavior—may shed light on the question of variation in cousin marriage cross-culturally. While our data do not allow for cross-national comparisons of a statistical nature, we examine the question of why rates of cousin marriage are so high in Pakistan compared to other countries in the region and the world using the framework of extensive vs. intensive kinship patterns and national statistics relevant to these patterns.

-- Table 6 about here --

Table 6 compares Pakistan with India and Bangladesh on several important socioeconomic and development indicators that have been associated with rates of consanguineous marriage. At 58 percent, Pakistan’s rates of consanguinity are remarkably higher

than those of neighboring India (9.3 percent) and Bangladesh (17.6 percent), countries with which Pakistan shares many cultural similarities along with a long colonial history under the British and precolonial history under the Mughal Empire. This table supports the contentions that Pakistan's lagging economic development and higher fertility rates may be key factors in the very different rates of consanguinity across the region. While many variables do not show meaningful differences between the nations, two clusters of variables/differences stand out.

Most notable are the lower rates of female literacy and lower enrollment in secondary education in Pakistan as compared to Bangladesh or India, especially for girls and women. Research shows that declining consanguinity levels in South India during the 1990s were explained by rising ages at marriage and women's education levels over time (Audinarayana & Krishnamoorthy, 2010). In this regard, lower female education levels in Pakistan as compared to other South Asian countries could be a major determinant of higher consanguinity rates in Pakistan. There are two likely mechanisms here. First, more educated girls would be likely to have higher value on the marriage market as education for girls is often considered a valuable characteristic for the brides of men who are better-educated and have more market-oriented jobs (Haveman & Wolfe, 1984). Second, consistent with our findings for rural Punjab, school attendance—and particularly secondary school attendance—may directly promote exposure to potential marriage partners or their family members. Alternatively, school attendance may also increase ideational orientation away from cousin marriage and towards partners outside of the family.

Also notable are differences in fertility rates between Pakistan, in comparison to India and Bangladesh, as indicated by a higher total fertility rate, a lower contraceptive prevalence rate, and a much higher rate of population growth. Higher fertility rates also have two likely

mechanisms through which they may affect consanguinity. First is the association of high fertility with traditional occupations such as agriculture (Dribe et al., 2014) and traditional household strategies including early marriage for children (particularly girls), both of which are also common in intensive kinship systems. A second effect of higher fertility is the continued availability of cousins who serve as potential marriage partners. As societies have smaller families on average, individuals have fewer cousins and thus are less likely to have cousins who are the right age and social status to make good marriage partners. We know from the results discussed above that the number of cousins is strongly associated with the likelihood of cousin marriage in Pakistan, thus the maintenance of higher fertility is likely to perpetuate or allow the practice to continue in Pakistan while lower rates of fertility have likely already undermined cousin marriage in India and Bangladesh. Moreover, very few studies collect data on actual numbers of cousins, meaning that this variable—while potentially highly important—is often excluded from relevant studies, leading to what is likely a common overestimation of the importance of other factors correlated with cousin availability across many studies.

Finally, **Table 7** compares Pakistan to other countries with rates of consanguineous marriage above 30 percent across several development indicators. The patterns revealed are similar to those just discussed. Many countries listed show comparatively low enrollment in secondary education overall and for women (with the Gulf States of Iran, Kuwait, and Saudi Arabia being the exceptions). Many countries similarly have low female labor force participation—with Pakistan being right in the middle of this distribution. Many countries also have high population growth rates by international standards and those that are lower (i.e. Iran) have had very recent and rapid fertility declines (Abbasi-Shavazi & McDonald, 2006) which may not yet have manifested their full effect on the marriage market. Likewise, many countries

show high fertility rates—very often 3 or 4 children per women, high for the modern world—and again the countries with lower rates (e.g. Iran, Kuwait, Libya, Saudi Arabia) have experienced recent fertility declines (World Bank, 2020) that may not yet have affected the marriage market. These findings are all consistent with the predictions made by the intensive vs. extensive kinship model given the lower rates of economic development, particularly in terms of their effects on the roles of women, and the large families that make cousin marriage a demographically viable strategy.

-- Table 7 about here --

Despite Pakistan's location in South Asia, whereas most of the nations in **Table 7** (with the exception of Afghanistan) are in the Middle East or North Africa, the trends in the variables discussed are remarkably consistent. The one partial exception is the oil-rich Gulf States that present somewhat of a contrast to the patterns among the other countries on the table in that they have higher levels of education, higher Human Development Index scores, and lower rates of cousin marriage. Again, this is not surprising given the exceptionally rapid rate of economic development in these nations and the corresponding recent and rapid rate of demographic change (Bloom & Canning, 2004). Historical, cultural and demographic data suggest that several decades ago these nations would have looked more consistent with the other nations in the table.

All nations in the table have relatively low Democracy Index scores, consistent with the argument made by some researchers that a high density of consanguineous kinship networks inhibits democracy (Bildirici et al., 2009; Edlund, 2018; Sailer, 2003; Schulz et al., 2019; Woodley & Bell, 2013) —though the causal direction of this effect is not clearly established, and it may well be that less democratic contexts experience slower rates of economic development which perpetuate social and economic motivations to participate in intensive kinship systems.

While we are not in a position to test this idea with the data used in this paper, we should point out that this is not a new idea—anthropologists and others have long argued that citizenship undermines kinship and that the creation of modern nation states has necessitated the undermining of power held traditionally by ruling families, clans, or castes and the uniting of power in a single ruler or national government (e.g. Goody, 1983). While Pakistan has been independent since 1947, and a democracy for most of this time, the many disruptions in democracy along with longstanding traditions of the importance of lineages and tribal identity in many regions of Pakistan (Rahman, 2012), may present a direct impetus for the maintenance of family ties to enhance political solidarity within and among families. Cousin marriage is a very direct and time-tested way to both create and cement the ties between families that are central to human social organization (e.g. Lévi-Strauss, 1969), thus it is not surprising that it may continue to serve this purpose in modern Pakistan.

Finally, all nations in the table have a high percentage of Muslim citizens. While some have argued that cousin marriage is common in Muslim nations due to religious affiliation, this is likely to be a partial explanation at best (Bittles, 2012). While Islam certainly allows for cousin marriage, it does not prescribe it (Bittles, 2012). In addition, there are many other countries in the world (including Bangladesh, discussed in **Table 6**) with large Muslim populations but much lower rates of cousin marriage—and many nations or communities with high rates of cousin marriage both currently and historically where Islam is absent (Bittles, 2012).

Schulz et al. (2019) argue that intensive kinship systems shaped psychology differently in different parts of the world, focusing on historic processes that occurred prior to the early modern trends towards industrialization and economic development. Our argument, following Shenk et al. (2016), emphasizes the subsequent effect of industrialization and economic

development as they begin to effectively unravel motivations for traditional intensive kinship systems. Cousin marriage may persist at such high levels in Pakistan due to a combination of low levels of secondary and women's education, low levels of female labor market participation, high fertility and population growth, and potentially also the importance of lineages and tribal identities in local economic and political systems. Yet whatever the reasons, Pakistan has retained such high rates of cousin marriage into the modern era, these are likely to be undermined by further economic development, urbanization, and shifts towards lower fertility.

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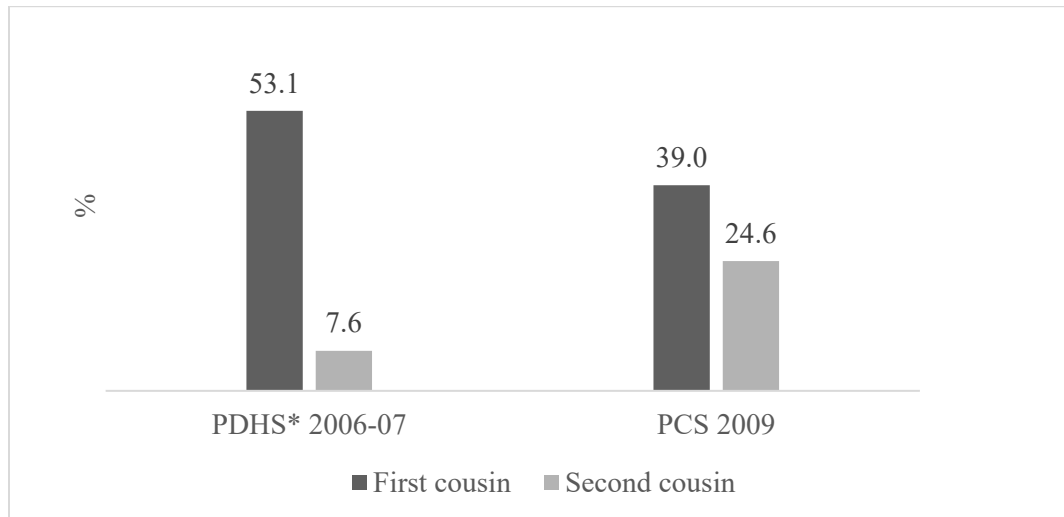
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To add later

TABLES AND FIGURES:

Figure 1: Comparison of the type of cousin marriages measured in PDHS and Punjab Consanguinity Survey



Notes: *The calculations from PDHS are based on Punjab province only.

This figure compares consanguinity rates between PDHS 2006-07 and Punjab Consanguinity Survey 2009. It shows that even though the overall rates of cousin marriages are somewhat similar (60.7% versus 63.6%) the Punjab Consanguinity Survey provides a more precise measure of the marriages between second cousins. This is probably because of a more detailed nature of questions that were asked as part of the Punjab Consanguinity Survey.

Table 1: Summary statistics (N=1,011)

Variable	N	%	Mean
Consanguineous marriage			
Not a cousin	368	36.4	
Any cousin	643	63.6	
Consanguineous marriage			
Not a cousin	368	36.4	
First cousin	395	39.1	
Second cousin	248	24.5	
Consanguineous marriage			
Father's own brother's son	124	12.3	
Father's own sister's son	88	8.7	
Mother's own brother's son	102	10.1	
Mother's own sister's son	81	8.0	
Second cousin	248	24.5	
Other relative	8	0.8	
No kinship	360	35.6	
Type of marriage			
Arranged	768	76.0	
Arranged love	206	20.4	
Love	37	3.6	
Cohort of marriage year			
Before 1980	168	16.6	
80's	257	25.4	
90's	345	34.1	
2000's	242	23.9	
Wife's age (years)			37.91
Husband's age (years)			43.45
Woman's age at marriage			
<18 years	317	31.3	
18-25 years	572	56.6	
More than 25 years	122	12.1	
Number of wife's cousins			30.45
Number of husband's cousins			28.10
Number of wife's siblings			
None	19	1.9	
1-2	100	9.9	
3-5	425	42.0	
6 or more	467	46.2	
Wife's education			
No schooling	697	68.9	
Some schooling	195	19.3	
Secondary+	119	11.8	

Variable	N	%	Mean
Husband's education			
No schooling	412	40.8	
Some schooling	297	29.4	
Secondary+	301	29.8	
Wife attended a co-educational institution	44	4.3	
Husband attended a co-educational institution	77	7.6	
Percent of total value of assets the wife is primary owner			25.8
Husband's occupation			
Agriculture	222	22.0	
Business	112	11.1	
Skilled labor	114	11.3	
Unskilled labor	405	40.1	
Salaried	158	15.6	
Wife's parents are consanguineous	566	55.9	
Husband's parents are consanguineous	563	55.7	
Where did woman live before marriage?			
Same village	529	52.3	
Other, within <i>tehsil</i>	223	22.0	
Other, within province	220	21.7	
Other province or abroad	39	3.9	
Husband's family required him to marry someone from a specific caste/clan	487	48.1	
Real dowry amount			
<50,000	251	24.8	
50,000-100,000	159	15.7	
100,000-200,000	236	23.4	
200,000-500,000	232	22.9	
500,000+	133	13.2	
Bride's family made dowry payments after marriage?	9	0.9	
Real <i>walima</i> amount*			
<50,000	203	20.1	
50,000-100,000	175	17.3	
100,000-200,000	233	23.1	
200,000-500,000	248	24.6	
500,000+	152	15.0	
N	1,011	100.0	

Note: *Amount spent on the wedding by husband's parents; both dowry and *walima* amounts are CPI adjusted for prices in 2010.

Table 2: Bivariate logistic regression results predicting consanguineous marriage

Variable	Coefficient
Type of marriage (ref: arranged)	
Arranged love	0.473***
Love	0.193
Cohort of marriage year (before 1980)	
80's	-0.023
90's	-0.142
2000's	0.008
Woman's age at marriage (<18 years)	
18-25 years	0.041
More than 25 years	-0.054
Number of wife's cousins	0.013***
Number of husband's cousins	0.013***
Number of wife's siblings (None)	
1-2	1.073**
3-5	0.949**
6 or more	0.808*
Wife's education (No schooling)	
Some schooling	-0.202
Secondary+	-0.452**
Husband's education (No schooling)	
Some schooling	-0.400**
Secondary+	-0.597***
Wife attended a co-educational institution	-0.508
Husband attended a co-educational institution	-0.807***
Percent of total value of assets the wife is primary owner	0.496***
Husband's occupation (Agriculture)	
Business	-0.441*
Skilled labor	-0.064
Unskilled labor	-0.127
Salaried	-0.261
Wife's parents are consanguineous	1.056***
Husband's parents are consanguineous	1.244***
Where did woman live before marriage? (Same village)	
Other, within <i>tehsil</i>	-0.841***
Other, within province	-0.721***
Other provinces or abroad	-0.243
Husband's family required him to marry someone from a specific caste/clan?	0.506***
Log dowry amount (up to 4.7)	
4.7-5.0	0.195
5.0-5.3	-0.023
5.3-5.7	-0.117
5.7+	-0.422*
Bride's family made dowry payments after marriage?	0.136
Log <i>walima</i> amount (up to 4.7)	
4.7-5.0	-0.306
5.0-5.3	-0.188
5.3-5.7	-0.353
5.7+	-0.623***

*** p<0.01, ** p<0.05, * p<0.10; both dowry and the *walima* amounts are CPI adjusted for prices in 2010.

Table 3A: Multivariate logistic regression results predicting consanguineous marriage (showing demographic characteristics only)

	1	2	3	4	5	6
Type of marriage (ref: arranged)						
Arranged love	0.285 (0.199)	0.305 (0.200)	0.320 (0.201)	0.277 (0.203)	0.258 (0.203)	0.238 (0.205)
Love	-0.057 (0.414)	-0.062 (0.415)	-0.069 (0.418)	-0.093 (0.421)	-0.141 (0.424)	-0.187 (0.426)
Cohort of marriage year (Before 1980)						
80's		0.220 (0.239)	0.192 (0.241)	0.124 (0.244)	0.101 (0.245)	0.076 (0.249)
90's		-0.062 (0.238)	-0.092 (0.241)	-0.293 (0.250)	-0.359 (0.253)	-0.370 (0.258)
2000's		0.130 (0.267)	0.138 (0.274)	-0.107 (0.284)	-0.190 (0.287)	-0.207 (0.292)
Woman's age at marriage (<18 years)						
18-25 years			0.177 (0.170)	0.198 (0.172)	0.194 (0.172)	0.195 (0.173)
More than 25 years			-0.166 (0.261)	-0.075 (0.265)	-0.055 (0.267)	-0.058 (0.267)
Number of wife's cousins						
				0.017*** (0.004)	0.014*** (0.005)	0.015*** (0.005)
Number of husband's cousins						
					0.009** (0.005)	0.010** (0.005)
Number of wife's siblings (None)						
1-2						1.245** (0.584)
3-5						1.105** (0.549)
6 or more						0.822 (0.550)
Economic factors	Yes	Yes	Yes	Yes	Yes	Yes
Cultural factors	Yes	Yes	Yes	Yes	Yes	Yes
Dowry-related	Yes	Yes	Yes	Yes	Yes	Yes

*** p<0.01, ** p<0.05, * p<0.10; standard errors are presented in parentheses. This table presents log odds from the multivariate logistic regression. The coefficients are only presented for those variables that we classified as demographic characteristics of the focal couple. However, these models control for economic variables, cultural variables, and dowry-related variables.

Table 3B: Multivariate logistic regression results predicting consanguineous marriage (showing economic variables only)

Variables	1	2	3	4	5	6
Wife's education (No schooling)						
Some schooling	-0.222 (0.200)	-0.067 (0.210)	-0.026 0.212	-0.004 (0.213)	-0.005 (0.214)	-0.002 (0.216)
Secondary+	-0.354 (0.252)	-0.156 (0.274)	-0.052 0.280	-0.009 (0.283)	-0.018 (0.283)	-0.016 (0.290)
Husband's education (No schooling)						
Some schooling		-0.377** (0.190)	-0.363* 0.191	-0.311 (0.192)	-0.307 (0.193)	-0.315 (0.195)
Secondary+		-0.434** (0.206)	-0.428** 0.207	-0.329 (0.211)	-0.315 (0.211)	-0.383* (0.224)
Wife attended a co-educational institution			-0.670* 0.364	-0.473 (0.376)	-0.440 (0.378)	-0.430 (0.379)
Husband attended a co-educational institution				-0.803*** (0.299)	-0.757** (0.300)	-0.748** (0.301)
Percent of total value of household assets the wife is primary owner					0.503** (0.215)	0.528** (0.216)
Husband's current occupation (Agriculture)						
Business						-0.251 (0.304)
Skilled labor						-0.119 (0.306)
Unskilled labor						-0.211 (0.223)
Salaried						0.112 (0.275)
Demographic factors	Yes	Yes	Yes	Yes	Yes	Yes
Cultural factors	Yes	Yes	Yes	Yes	Yes	Yes
Dowry-related	Yes	Yes	Yes	Yes	Yes	Yes

*** p<0.01, ** p<0.05, * p<0.10; standard errors are presented in parentheses. This table presents log odds from the multivariate logistic regression. The coefficients are only presented for those variables that we classified as economic factors. However, these models control for demographic variables, cultural variables, and dowry-related variables.

Table 3C: Multivariate logistic regression results predicting consanguineous marriage (showing cultural variables only)

Variables	1	2	3	4
Wife's parents are consanguineous	1.027*** (0.146)	0.659*** (0.158)	0.669*** (0.162)	0.702*** (0.164)
Husband's parents are consanguineous		1.008*** (0.163)	0.976*** (0.166)	0.976*** (0.167)
Where did woman live before marriage? (Same village)				
Other, within <i>tehsil</i>			-1.120*** (0.193)	-1.165*** (0.195)
Other, within province			-0.765*** (0.192)	-0.823*** (0.195)
Other province or abroad			-0.287 (0.395)	-0.254 (0.400)
Husband's family required him to marry someone from a specific caste/clan?				0.618*** (0.155)
Demographic factors	Yes	Yes	Yes	Yes
Economic factors	Yes	Yes	Yes	Yes
Dowry-related	Yes	Yes	Yes	Yes

*** p<0.01, ** p<0.05, * p<0.10; standard errors are presented in parentheses. This table presents log odds from the multivariate logistic regression. The coefficients are only presented for those variables that we classified as cultural factors. However, these models control for the demographic characteristics of the focal couple, economic, and dowry-related variables.

Table 3D: Multivariate logistic regression results predicting consanguineous marriage (showing dowry-related variables only)

Variables	1	2
<i>Log dowry amount (up to 4.7)</i>		
4.7-5.0	-0.031 (0.266)	-0.030 (0.267)
5.0-5.3	-0.222 (0.245)	-0.223 (0.245)
5.3-5.7	-0.105 (0.245)	-0.115 (0.246)
5.7+	-0.450 (0.292)	-0.469 (0.293)
Bride's family made dowry payments after marriage		0.608 (0.821)
Demographic factors	Yes	Yes
Economic factors	Yes	Yes
Cultural factors	Yes	Yes

*** p<0.01, ** p<0.05, * p<0.10; standard errors are presented in parentheses. Both dowry and the amount spent on the wedding are CPI adjusted for prices in 2010. This table presents log odds from the multivariate logistic regression. The coefficients are only presented for those variables that we classified as dowry-related factors. However, these models control for the demographic characteristics of the focal couple, economic, and cultural variables.

Table 4: Multivariate logistic regression results predicting consanguineous marriage (showing *walima*-related variables only)

Variables	1	2
<i>Log walima</i> amount (up to 4.7)		
4.7-5.0	-0.256 (0.281)	-0.261 (0.281)
5.0-5.3	-0.160 (0.264)	-0.170 (0.265)
5.3-5.7	-0.413 (0.274)	-0.414 (0.273)
5.7+	-0.625* (0.319)	-0.633** (0.320)
Bride's family made dowry payments after marriage		0.511 (0.811)
Demographic factors	Yes	Yes
Economic factors	Yes	Yes
Cultural factors	Yes	Yes

*** p<0.01, ** p<0.05, * p<0.10; standard errors are presented in parentheses. Both dowry and the amount spent on the wedding are CPI adjusted for prices in 2010. This table presents log odds from the multivariate logistic regression. The coefficients are only presented for those variables that we classified as dowry-related factors. However, these models control for the demographic characteristics of the focal couple, economic, and cultural variables.

Table 5A: Reasons why married first cousin? (N=395)

Reason	Wife		Husband	
	N	%	N	%
Parents' choice	331	83.8	319	80.8
Grandparents wished so	75	19.0	50	12.7
Fell in love with cousin	26	6.6	19	4.8
No such proposal from outside	13	3.3	10	2.5
Could not afford dowry payment for outsider	15	3.8	0	0.0
Did not receive full information on prospective grooms/brides	3	0.8	6	1.5
To keep money/assets within the family	1	0.3	5	1.3

Note: Multiple responses were allowed

Table 5B: Reasons why not married first cousin? (N=616)

Reason	Wife		Husband	
	N	%	N	%
Found a better match than cousins	284	46.1	286	46.4
No cousin available	266	43.2	278	45.1
None of the available cousins were good enough	292	47.4	198	32.1
My family believes marrying cousins is not right	81	13.1	63	10.2
My family thinks that marrying cousins is inferior to marrying outside	51	8.3	42	6.8
Health concerns for future children	57	9.2	39	6.3
My family was worried that marrying cousin can have a negative effect on the family in general	60	9.7	38	6.2
Could not afford the dowry payment	20	3.2	8	1.3

Note: Multiple responses were allowed

Table 6: Comparison of selected South Asian countries for rates of consanguineous marriage and socioeconomic and development indicators

Indicator	Pakistan	India	Bangladesh	Citation
Consanguinity rate	57.9	9.3	17.6	(NIPS & ICF, 2019) (IIPS & ICF, 2017) (Mobarak et al., 2019)
Median age at (first) marriage	20.4	18.6	16.1	(NIPS & ICF, 2019) (IIPS & ICF, 2017) (NIPORT & ICF, 2016)
Singulate Mean age at marriage (SMAM)	23.0	20.7	19.2	(UN Department of Economic and Social Affairs, 2015)
Adult literacy rate	55	63	58	(UNESCO, 2014)
Adult female literacy rate	40	51	53	(UNESCO, 2014)
Gross enrolment ratio in secondary education (%)	35	63	52	(UNESCO, 2014)
Gross enrolment ratio in secondary education (%) (females)	30	60	56	(UNESCO, 2014)
Female labor force participation (% of female population age 15+)	24	23	36	(World Bank, 2020)
Population growth rate (%)	2.06	1.04	1.05	(World Bank, 2020)
Total fertility rate	3.6	2.2	2.3	(NIPS & ICF, 2019) (IIPS & ICF, 2017) (NIPORT & ICF, 2019)
Contraceptive prevalence rate	34.2	53.5	61.9	(NIPS & ICF, 2019) (IIPS & ICF, 2017) (NIPORT & ICF, 2019)
Life expectancy at birth	67.1	69.4	72.3	(UNDP, 2018)
Infant mortality (deaths per 1000 live births)	62	41	38	(NIPS & ICF, 2019) (IIPS & ICF, 2017) (NIPORT & ICF, 2016)
GDP (per capita current US \$)	1,482	2,010	1,698	(World Bank, 2020)
Population living in rural areas (%)	63	66	63	(World Bank, 2020)
Human development index value	0.560	0.647	0.614	(UNDP, 2018)
Human development index rank	152	129	135	(UNDP, 2018)
Percent Muslim	96.5	15.4	90.8	(Pew Research Center, 2020)
Democracy Index Score	4.64	7.69	5.86	(The Economist Intelligence Unit, 2014)
Democracy Index Rank	107	33	84	

Table 7: Comparison of selected countries with high rates of consanguineous marriage (>30%) for socioeconomic and development indicators

Indicator	Reference country**	High-income countries			Upper-middle- income countries			Lower-middle income countries		Lower-income countries		Citation
	Pakistan	Kuwait	Saudi Arabia	Iran	Iraq	Libya	Mauritania	Sudan	Afghanistan	Yemen		
Consanguinity rate	57.9	48.2	33.6	38.6	33.0	48.4	47.2	49.5	46.2	33.9		
Singulate Mean age at marriage (SMAM)	23.0	27.5	24.9	23.5	22.0	29.2	21.6	21.9	21.2	23.0	(UN Department of Economic and Social Affairs, 2015)	
Adult literacy rate	55	94	87	85.0	78	90	59	72	24.0*	65	(UNESCO, 2014) *(CSO et al., 2017)	
Adult female literacy rate	40	92	82	81	71	83	52	63	53	49	(UNESCO, 2014)	
Gross enrolment ratio in secondary education (%)	35	109	107	86	35	--	27	39	49	46	(UNESCO, 2014)	
Gross enrolment ratio in secondary education (%) (females)	30	111	101	84	27	--	25	36	34	35	(UNESCO, 2014)	
Female labor force participation	24	57.3	23.5	16.6	12.4	25.7	29.2	24.5	11.7*	5.8	(World Bank, 2020) *(CSO et al., 2017)	
Population growth rate (%)	2.06	1.98	1.80	1.39	2.32	1.5	2.78	2.39	2.38	2.36	(UNDP, 2018)	
Total fertility rate	3.6	2.1	2.4	2.1	3.8	2.3	4.6	4.5	4.6	3.9	(World Bank, 2020)	
Contraceptive prevalence rate	34.2	52	24.6	77.4	52.8	27.7	17.8	12.2	22.5	33.5	(World Bank, 2020)	
Life expectancy at birth	67.1	75.4	75	76.5	70.5	72.7	64.7	65.1	64.5	66.1	(UNDP, 2018)	

Indicator	Reference country**	High-income countries		Upper-middle- income countries			Lower-middle income countries		Lower-income countries		Citation
	Pakistan	Kuwait	Saudi Arabia	Iran	Iraq	Libya	Mauritania	Sudan	Afghanistan	Yemen	
Infant mortality (deaths per 1000 live births)	62	6.7	6	12.4	22.5	10.2	51.5	42.1	47.9	42.9	(World Bank, 2020)
GDP (per capita current US \$)	1,482	33,994	23,339	5,628	5,834	7,242	1,189	977	521	944	(World Bank, 2020)
Population residing in rural areas (%)	63	0	16.2	25.1	29.5	19.9	46.3	65.4	74.5	63.4	(World Bank, 2020)
Human development index value (2018)	0.560	0.808	0.857	0.797	0.689	0.708	0.527	0.508	0.496	0.463	(UNDP, 2018)
Human development index rank (2018)	152	57	36	129	120	110	161	168	170	177	(UNDP, 2018)
Percent Muslim	96.5	70.7	92.7	99.5	99.1	96.6	99.1	90.7	99.7	99.1	(Pew Research Center, 2020)
Democracy Index											(The Economist Intelligence Unit, 2014)
Score	4.64	3.78	1.82	1.98	4.10	4.82	4.17	2.54	2.48	2.79	
Rank	107	120	160	157	113	101	111	151	154	148	
Citation for consanguinity rates	(NIPS & ICF, 2019)	(Al-Kandari & Crews, 2011)	(El-Mouzan et al., 2007)	(Saadat et al., 2004)	(COSIT, 2005)	(Broadhead, RC and Sehgal, 1981)	(Hammami et al., 2005)	(Saha et al., 1990)	(Saify & Saadat, 2012)	(Jurdi & Saxena, 2002)	

Note: List of countries prepared based on (Alan H. Bittles, n.d.) and (Tadmouri et al., 2009). We included those countries in this table that had a national-level estimate of consanguinity available for the period post 2000 and the prevalence of consanguinity was more than 30 percent of all marriages.

**The income classification of countries is based on World Economic Situation Prospects (United Nations, 2020) where Pakistan is classified as a lower middle income country.

ANNEX:

Table S1: Multivariate logistic regression results predicting consanguineous marriage (selected variables to check if dowry amount predicts consanguinity)

Variables	Coefficient	p-value
Log dowry amount (up to 4.7)		
4.7-5.0	0.068	0.790
5.0-5.3	-0.194	0.403
5.3-5.7	-0.227	0.328
5.7+	-0.526**	0.044
Type of marriage (ref: arranged)		
Arranged love	0.276	0.149
Love	0.112	0.780
Cohort of marriage year (Before 1980)		
80's	-0.059	0.802
90's	-0.492**	0.039
2000's	-0.377	0.155
Woman's age at marriage (<18 years)		
18-25 years	0.105	0.523
More than 25 years	-0.058	0.818
Number of wife's cousins	0.013***	0.004
Number of husband's cousins	0.010**	0.023
Number of wife's siblings (None)		
1-2	1.021*	0.069
3-5	0.884*	0.094
6 or more	0.637	0.227
Wife's parents are consanguineous	0.732***	0.000
Husband's parents are consanguineous	0.932***	0.000
Husband's family required him to marry someone from a specific caste/clan?	0.575***	0.000

*** p<0.01, ** p<0.05, * p<0.10

Table S2: Multivariate logistic regression results predicting consanguineous marriage (selected variables to check if amount spent on the wedding by husband's parents predicts consanguinity)

Variables	Coefficient	p-value
Log <i>walima</i> amount (up to 4.7)		
4.7-5.0	-0.323	0.213
5.0-5.3	-0.205	0.403
5.3-5.7	-0.447*	0.069
5.7+	-0.740***	0.009
Type of marriage (ref: arranged)		
Arranged love	0.207	0.287
Love	0.070	0.862
Cohort of marriage year (Before 1980)		
80's	-0.107	0.654
90's	-0.573**	0.019
2000's	-0.500*	0.070
Woman's age at marriage (<18 years)		
18-25 years	0.097	0.556
More than 25 years	-0.016	0.950
Number of wife's cousins	0.013***	0.003
Number of husband's cousins	0.009**	0.032
Number of wife's siblings (None)		
1-2	1.037*	0.064
3-5	0.921*	0.079
6 or more	0.680	0.195
Wife's parents are consanguineous	0.722***	0.000
Husband's parents are consanguineous	0.943***	0.000
Husband's family required him to marry someone from a specific caste/clan?	0.598***	0.000

*** p<0.01, ** p<0.05, * p<0.10

Table S3. Multinomial logistic regression results for the predictors of different types of cousin marriages

Predictors	Type of cousin (ref=no kinship, N=360)				
	Father's brother's son (<i>Chacha's son</i>)	Father's sister's son (<i>Phuppo's son</i>)	Mother's brother's son (<i>Mama's son</i>)	Mother's sister's son (<i>Khala's son</i>)	Second cousin
N	124	88	102	81	256
Type of marriage [ref: Arranged]					
Arranged love	0.054	0.231	-0.331	-0.114	0.457**
Love	0.075	0.269	-0.160	0.206	-0.255
Number of wife's cousins	0.013**	0.013	0.016**	0.010	0.011**
Number of husband's cousins	0.019**	0.011	0.016**	0.011	-0.002
Wife's parents are consanguineous	0.350	0.823***	0.649**	0.427	0.805***
Husband's parents are consanguineous	1.073***	0.993**	1.179***	1.077***	0.771***
Where did woman live before marriage? [ref: Same village]					
Other, within <i>tehsil</i>	-1.278***	-1.115**	-1.239***	-1.042***	-0.726**
Other, within province	-1.707***	-0.839**	-1.212***	-0.400	-0.448**
Other province or abroad	-0.785	0.638	-0.160	-1.265	0.124
Husband's family required him to marry within a specific caste/clan	0.814***	1.084***	0.946***	0.789***	0.103
Husband attended a co-educational institution	-0.206	-0.512	-1.001*	-1.597**	-1.124**
Percent of total value of household assets the wife is primary owner	0.460	0.841**	0.314	0.609*	0.350
Husband's education [ref: No schooling]					
Some schooling	-0.923**	-0.205	-0.152	-0.504	-0.053
Secondary+	-0.664*	-0.435	-0.347	-0.154	-0.374*

*** p<0.01, ** p<0.05, * p<0.10; This table presents log odds from the multinomial logistic regression.