Coming together: role of marriage in assorting household educational and geographical capital in rural lowland Nepal

Akanksha A Marphatia[1*], Naomi M Saville[2], Dharma S Manandhar[3], Gabriel Amable[1], Mario Cortina-Borja[4], Alice M Reid[1+] and Jonathan CK Wells[4+]

+Joint senior authors

[1] Department of Geography, University of Cambridge, 20 Downing Place, Cambridge CB2 3EN, UK
[2] Institute for Global Health, University College London, 30 Guilford Street, London WC1N 1EH, UK
[3] Mother and Infant Research Activities, G.P.O. Box 921, Kathmandu, Nepal
[4] Population, Policy and Practice Research and Teaching Department, UCL Great Ormond Street Institute of Child Health, 30 Guilford Street, London WC1N 1EH, UK

*Corresponding author: +44 (0) 7855 833 229, aam54@cam.ac.uk

AA Marphatia: aam54@cam.ac.uk
NM Saville: n.saville@ucl.ac.uk
DS Manandhar: dsm@mira.org.np
G Amable: gabriel.amable@geog.cam.ac.uk
M Cortina-Borja: m.cortina@ucl.ac.uk
AM Reid: amr1001@cam.ac.uk
JCK Wells: jonathan.wells@ucl.ac.uk

Declaration of interests
None

Data accessibility statement
Contact Dr Naomi Saville, n.saville@ucl.ac.uk to access the Low Birth Weight South Asia Trial data used for these analyses.

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ABSTRACT

This paper investigates how educational and geographic capital are assorted among households in rural Nepal, and how women's marital age may shape this distribution. Our focus on the timing of marriage adds a new dimension to studies of geographies of youth and marital assortment, while our emphasis on the physical and spatial attributes of households leads us to propose the concept of geographic capital, operationalized here as agrarian landholding and access to rural markets. Using data on 17,284 women from rural lowland Nepal, heat tables showed substantial pairing amongst uneducated spouses, whereas educated men married women with varying levels of schooling, partly because fewer women were educated. Multivariable logistic regression models showed that the odds of marrying an educated man increased substantially for women with secondary education, and vice versa. Educated women were also more likely to marry into households with geographic capital. However, land owning husbands tended to marry younger wives, perhaps because the natal home was prepared to marry daughters earlier in order to access this geographic capital. The youngest-marrying women were least likely to marry into households with accessibility to markets. Our findings may help understand the decisions of both a woman's natal and marital household over the timing of her marriage, and the investment in her formal education. These patterns have implications for both spouses because capital not only shapes marital pairing, but also the spatial niche of the household within which women and their children will experience their life-course.

Keywords: Women's early marriage, educational and household geographic capital, assortative mating, heat tables, logistic regression, rural lowland Nepal

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1. INTRODUCTION

Marriage provides a means for connecting families, and transmitting cultural, social and economic capital (Bourdieu, 1986). However, to date, the social geography of marriage has been addressed primarily in high-income countries, focusing on the role of spatial proximity in marital matches (Ekamper et al., 2011; Haandrikman, 2019). Although Pande (2014) explores how arranged marriages are practiced by the South Asian diaspora in Britain, further research is needed on how, within rural South Asia, these marriages physically relocate women into the new landscape of their marital homes, and expose them to new forms of capital. Since arranged marriages represent an economic transaction between families, households may leverage different attributes of prospective spouses, such as formal education, to access greater levels of capital. However, few studies have considered whether the timing of women's marriage and the geographic capital of martial households shape the outcome of these decisions.

Whereas previous work has addressed the socio-economic factors associated with the likelihood of girls marrying 'under-age' (defined as <18 years by the United Nations) (Bajracharya & Amin, 2012; Sah, 2018), our interest here is in understanding the implications of variability in marriage age. Using data on 17,284 married women from lowland Nepal, our study investigates whether women's greater educational attainment and later age at marriage are associated with marrying a man with greater levels of educational and geographic capital. We use 'capital' as a generic term for quantifying attributes that can be

leveraged in marital matches (Becker, 2002; Bourdieu, 1986; Kaplan et al., 2003). Understanding the factors associated with women attaining greater capital of diverse forms in the marital home is important, because it is within this spatial niche that women will experience their life-course and shape their children's development (Cummins, Curtis, Diez-Roux, & Macintyre, 2007; Schwartz, 2013).

In this analysis, we first examine a key social construct relevant to marital matches, specifically how educational capital is assorted through marriage. Education is an attribute that both spouses can potentially contribute themselves, but also one that can be accessed from their partner. Studies generally find prospective partners are likely to show some matching on education level (Smits et al., 1998). Incorporating the timing of women's marriage in such research is important in settings like Nepal, where marriage tends to coincide with an end to formal schooling (Sekine & Hodgkin, 2017).

Second, we emphasize the role of household 'geographic capital' within this transaction. We define geographic capital as physical and spatial attributes of place in relation to a household's ownership of agrarian land and proximity to local markets, which feature prominently in the lives of our rural population. Our approach differs from Jalan and Ravallion's (2002) use of the term geographic capital in relation to place-related markers. Ghimire and Axinn (2010) use a similar geographic concept of 'neighborhood characteristics,' finding that both agrarian land use and spatial proximity to non-family services predict the timing of first birth in Chitwan Valley, Nepal. Thapa's (1989) study of family formation in Nepal suggests land use may be an important factor in rural marriages, but lacked the data to

investigate this hypothesis. The importance of agrarian land in rural Nepalese households is thus well-established, but its role in marriage matches remains unknown.

Agrarian land can also be an economic marker of geographic capital in providing the main form of income and livelihood, contrasting with material assets or housing characteristics (Fisher & Naidoo, 2016). As a productive asset, subsistence farming provides household food security, with benefits for nutritional status (Harris-Fry et al., 2018). This is particularly true in the fertile and agriculturally productive rural Terai, and where 80% of the population participate in subsistence agriculture (MOHP et al., 2017).

We treat accessibility of households to the nearest rural markets (known as 'bazaars') as a potential means not only for broadening access to resources, food and income earning opportunities (including selling produce), but also for expanding social capital (Cummins et al., 2007).

In turn, geographic capital of the marital household may be associated with the husband's educational capital, which is likely to intersect with caste. For example, land is very unequally distributed in Nepal. High-caste Hindus own most of it while lower caste workers with little or no land provide agricultural labour in a patron-client system (Cameron, 1995).

2. METHODS

2.1 Conceptual framework

Our novel conceptual framework brings together different aspects of capital gained by women and men through marriage (**Figure 1)**.

Figure 1. Conceptual framework of the assortment of household educational and geographic capital through marriage

Educational capital reflects the investment of the natal household in building knowledge and skills, usually acquired through formal schooling (Kaplan et al 2003). In turn, this education may be leveraged in marital matches to access educated and wealthier households (Fafchamps & Shilpi, 2011). Education and marriage age represent portable aspects of capital that women bring into the marital household.

In the rural subsistence economy of the Terai, geographic capital is likely to play a key role in marital matches. In our analysis, this term brings together physical and spatial markers of households: agrarian land indexes household wealth and food security, while proximity to bazaars reflects accessibility to desirable resources and social connections. However, geographic capital differs from educational capital in assortative mating, because women change residence at marriage and cannot carry these natal household attributes with them. Instead, geographic capital represents fixed attributes of the marital home.

Using this framework, we seek to understand the role of marriage in assorting household educational and geographic capital in rural lowland Nepal. Our study aims to answer the following questions: 1) is there marital pairing in education? 2) does greater educational attainment offer a payoff for both women and men in marrying an educated spouse? 3) does women's greater educational attainment offer a payoff in terms of marrying into a household with greater geographic capital? and 4) do payoffs in these different capital components vary according to the age at which women marry?

2.2 Field sites and data collection

Data come from the cluster-randomized controlled Low Birth Weight South Asia Trial, conducted across 80 geographic clusters (Village Development Committees, VDCs) in southern Dhanusha and Mahottari districts in the Nepal Terai region, bordering Bihar state in India. The Maithili-speaking Madhesi ethnic group populate these districts. The Nepal Health Research Council and UCL granted ethical approval for the trial, and along with the University of Cambridge, also this secondary analysis.

Fieldworkers administered oral questionnaires to 24,682 married pregnant women aged 10-49 years. These data are ideal for providing a new perspective on marital pairing around various forms of capital in an under-researched population. Geographic capital may be particularly important in this rural agrarian context, and our study is unique in having data on land holding and accessibility to markets. The main livelihood of our population is subsistence farming of rice, wheat and pulses, with 63% producing their own staple foods, 24% sharecropping, 31% exchanging labour for food, and 79% purchasing food items from bazaars (Saville et al., 2020). Understanding access to geographic capital through marriage may therefore shed unique insights into the persistence of women's early marriage despite efforts to legislate a minimum marriage age of 18 years (Government of Nepal, 1971).

Throughout Nepal, marriage is usually arranged by parents or relatives within similar ethnic, caste and religious groups (Samuels et al., 2017). Marriage traditions differ by caste and social norms relating to women's education, marriage behavior and timing (Bista, 1996; Sah, 2018). Generally, the wealthiest, advantaged Brahmin Hindu caste typically marry their daughters young, before menarche, whereas the poorer disadvantaged Dalit Hindu caste tend to delay

marriage to benefit from their daughter's economic contribution to the household (Bennett, 1983; Sah, 2018). The predominant Hindu marriage custom is village exogamy, nearer to cities (presumably to access resources), whereas Muslims tend to favour inter-cousin marriage in nearby villages (Bennett, 1983; Niraula & Morgan, 1996). The ideal age at marriage of men tends to reflect parental attitudes towards timing of childbearing and expectations for old-age care; husbands are generally older and more educated than their wives (Niraula & Morgan, 1996).

Whether the Maithili-speaking Madhesi group in Dhanusha and Mahottari districts have similar practices requires further research. Strict socio-cultural norms dictate women's early marriage (median age 16.5 years) and childbearing (MOHP et al., 2017). Women have little schooling and low levels of agency, especially over the timing of their marriage and choice of spouse (Niraula & Morgan, 1996).

2.3 Data analysis

We test for biases in characteristics between women with geographic capital measured in natal versus marital households using chi-squared tests (categorical variables) and non-parametric *k*-sample analysis of variance (Kruskal-Wallis test; continuous variables). Women's age is reported in completed integer years as median and interquartile range (IQR), given the skewed distribution.

Our central hypothesis is 'women's greater educational attainment and a later age at marriage are associated with marrying men with greater levels of educational and geographic capital.' To answer our first research question, 'is there marital pairing in education?' we use

heat tables to describe spousal education across four levels of formal schooling: none, 1-5 years (primary), 6-8 years (lower-secondary) and ≥9 years (secondary or higher). We describe pairing by education levels in absolute numbers, and as a percentage within husbands' or wives' education groups.

To answer research questions 2-4, we fit multivariable logistic regression models. Models estimate the probabilities, derived from Odds Ratios (OR) with 95% Confidence Intervals (CI), of four types of pay-offs: a man marrying an educated woman; a woman marrying an educated man; a woman marrying into a household with agrarian land; and accessibility to the nearest bazaar. We test associations of these dependent variables with the following explanatory variables: women's education and marriage age, husbands' education, and caste. Caste is categorized into three groups: disadvantaged (Muslim, Dalit), middle (Janjati, various Madhesi castes) and advantaged (Yadav, Brahmin). Models adjust for women's age to control for increasing levels of education over time. 'No education', 'marriage at 10-14 years' and 'disadvantaged caste' are the reference groups. Interaction terms between marriage age and education examine whether education has larger effects within some groups of women's marriage age than others. We multiply the Nagelkerke's (NK) pseudo R^2 value by 100 to show the proportion of variance explained in our outcomes.

Using 3D plots, we illustrate the interactive association between (a) wife's education and marriage age with husband's education, and (b) husband's education and wife's marriage age with wife's education.

Adjustment for random effects of within-cluster variability are not reported as there were no substantive changes in results. Analyses were performed in Stata IC 15.1 (Stata Corp., College Station, TX) and SPSS 26 (IBM Corp., Armonk, NY).

2.4 Variables

Our analysis includes 17,284 women. Of the total 24,682 women, we excluded 2,932 with missing data on key variables, 1,041 where the household where geographic capital was measured was unspecified, and 3,425 where geographic capital was measured in the natal household (**Supporting Information SI1**). There were differences between women with geographic capital measured in their natal versus marital household, but the magnitudes of effect were small, and are not expected to bias our results (**Supporting Information SI2).**

Table 1 describes the variables used in our analysis. Dependent variables 'educated husband' and 'educated wife' show that 40% of husbands and 26% of wives had completed ≥6 years of schooling. Our third dependent variable, 'marital household's agrarian landholding' describes owning any land (≥0.01 hectares) which applied to 65% of families. The median level of agrarian land was 0.17 hectares (IQR 0.68). Our fourth dependent variable, 'accessibility to bazaar,' refers to proximity to a space containing stands (rather than fixed shops) where local farmers and traders bring their produce to sell. We measured this in minutes rather than physical distance because the time taken to reach bazaars is a more functional assessment of accessibility. Using the usual mode of transport, greater accessibility to the nearest bazaar was defined as ≤25 minutes travel, which applied to 74% of households. The median time to reach the nearest bazaar was 15 minutes (IQR 20).

Our explanatory variables include spousal education level, caste and wife's marriage age. About 35% of women had married during childhood (10-14 years), 55% during adolescence (15-17 years) and only 11% after 18 years, the legal minimum age of marriage. Caste composition was 35% disadvantaged, 43% middle and 22% advantaged.

Table 1. **Descriptive statistics of variables (*n*=17,284)**

	Frequency	**%**
Dependent variables		
Educated husband		
None to primary (0-5 years)	10,318	59.7
Lower-secondary/higher (≥6 years)	6,966	40.3
Educated wife		
None to primary (0-5 years)	12,827	74.2
Lower-secondary/higher (≥6 years)	4,457	25.8
Marital household's agrarian landholding		
Landless	6,039	34.9
Any land (0.01 to 41.5 acres)	11,245	65.1
Marital household's accessibility to bazaar		
Far from bazaar (≥26 minutes)	4,520	26.2
Close to bazaar (≤25 minutes)	12,764	73.8
Explanatory variables		
Wife's age (y)	21 (Median)	6 (IQR)
	Frequency	**%**
Wife's education level (y)		
None	10,990	63.6
Primary (1-5 years)	1,837	10.6
Lower-secondary/higher (≥6 years)	4,457	25.8
Wife's marriage age (y)		
10-14 years	5,995	34.7
15 years	4,428	25.6
16-17 years	5,016	29.0
≥18 years	1,845	10.7
Husband's education level (y)		
None	8,252	47.7
Primary (1-5 years)	2,066	12.0
Lower-secondary/higher (≥6 years)	6,966	40.3
Caste		
Disadvantaged: Dalit, Muslim	5,990	34.7
Middle: Janjati, various Madhesi	7,440	42.8
Advantaged: Yadav, Brahmin	3,894	22.5

IQR, Interquartile Range.

3 RESULTS

3.1 Spousal pairing by education

Heat tables illustrate social pairing by education level (**Figure 2**). Green shaded areas indicate the lowest numbers/frequencies, and red shaded areas the highest. Heat table **(a)** shows that within the whole sample, the commonest pattern was for uneducated men and women to marry one another, primarily because uneducated men and women dominated the data set. Heat table **(b)** shows that 87% of uneducated men married uneducated women, and 47% of highly educated men married highly educated women. However, the remaining educated men married women of lower education levels, with 25% of highly educated men marrying uneducated women. Heat table **(c)** shows that 65% of uneducated women married uneducated men, and 74% of highly educated women married highly educated men. However, 35% of uneducated women married men with some education.

Figure 2. Heat tables of spousal pairing by education level in (a) absolute numbers, and as a percentage within (b) husbands' or (c) wives' education groups

3.2 Likelihood of gaining educational capital at marriage

Table 2 (Models 1 and 2) investigates the chance of marrying an educated man, and how this relates to women's marriage age and caste. Results show clear assortative mating, with education of one spouse strongly associated with education of the other. A woman's marriage age was associated with greater education of both parties, but much more strongly for her own education than her husband's. This is expected in the context of our study because it is rare for women who marry young to have achieved higher levels of education (Marphatia et al., 2020; Sekine & Hodgkin, 2017). Being from a higher caste was associated with increased

likelihood of marrying an educated spouse. The greater variance in wife's education (45.0%) than in husband's education (36.9%) explained by these models may be due to the larger contribution of women's marriage age in the wife's education model.

Table 2. Multivariable logistic regression of factors associated with marrying an educated spouse and into a marital household with geographic capital

	Model 1 **Husband ≥6 years education** (*n*=17,284)[1] NK=0.369			**Model 2** **Wife ≥6 years education** (*n*=17,284)[2] NK=0.450			**Model 3** **Agrarian landholding** (*n*=17,284)[3] NK=0.267			**Model 4** **Close accessibility to bazaar** (*n*=17,284)[4] NK=0.010		
Predictors	**OR**	**95% CI**	***p*-value**	**OR**	**95% CI**	***p*-value**	**OR**	**95% CI**	***p*-value**	**OR**	**95% CI**	***p*-value**
Wife's age (y)	0.98	0.97, 0.99	<0.001	0.83	0.81, 0.84	<0.001	1.01	1.00, 1.02	0.005	0.99	0.99, 1.00	0.265
Wife's education (y)	Ref=no education			Na			Ref=no education			Ref=no education		
1-5 years	3.52	3.17, 3.92	<0.001				1.31	1.17, 1.48	<0.001	1.08	0.96, 1.21	0.205
≥6 years	11.25	10.24, 12.36	<0.001				2.37	2.17, 2.64	<0.001	1.33	1.20, 1.47	<0.001
Wife's marriage age (y)	Ref=10-14 years			Ref=10-14 years			Ref=10-14 years			Ref=10-14 years		
15 years	1.17	1.06, 1.29	<0.001	1.43	1.27, 1.60	<0.001	0.90	0.82, 0.99	0.024	0.79	0.73, 0.87	<0.001
16-17 years	1.06	0.96, 1.16	0.242	2.34	2.09, 2.61	<0.001	0.86	0.79, 0.94	<0.001	1.09	1.00, 1.19	0.050
≥18 years	1.31	1.15, 1.50	<0.001	4.39	3.79, 5.08	<0.001	0.71	0.63, 0.81	<0.001	1.01	0.89, 1.14	0.921
Husband's education (y)	Na			Ref=no education			Ref=no education			Ref=no education		
1-5 years				2.19	1.87, 2.55	<0.001	1.79	1.60, 1.99	<0.001	0.84	0.76, 0.94	0.002
≥6 years				10.95	9.85, 12.18	<0.001	2.74	2.51, 3.00	<0.001	0.95	0.87, 1.04	0.262
Caste[5]	Ref=Disadvantaged			Ref=Disadvantaged			Ref=Disadvantaged			Ref=Disadvantaged		
Middle	2.37	2.17, 2.59	<0.001	2.90	2.59, 3.25	<0.001	2.08	1.93, 2.24	<0.001	0.97	0.90, 1.05	0.503
Advantaged	3.26	2.95, 3.60	<0.001	2.94	2.59, 3.33	<0.001	7.39	6.58, 8.30	<0.001	0.86	0.78, 0.95	0.002
Constant	0.23		<0.001	1.19		0.201	0.45		<0.001	3.25		0.001

[1]*n*=10,318 husband's education 1-5y vs. *n*=6,966 husband's education ≥6 years. [2]*n*=12,827 wife's education 1-5y vs. *n*=4,457 wife's education ≥6 years. [3]*n*=6,039 no land vs. *n*=11,245 owns land. [4]*n*=4,520 far from bazaar vs. n=12,764 near bazaar. [5]Caste groupings include Disadvantaged: Dalit, Muslim. Middle: Janjati, various Madhesi. Advantaged: Yadav, Brahmin.

Interactive associations of spousal education and wife's marriage age are illustrated in 3D plots (**Figure 3,** data in **Supporting Information SI3**). With husbands' education as the outcome, there was a strong dose-response association with wives' education, and this varied moderately by wives' marriage age **(a)**, but with the interaction term significant (*p*=0.010). With wives' education as the outcome, there was a much stronger interaction (*p*=0.002) between wives' marriage age and husbands' education. Among uneducated men, their wives' education did not vary in association with their marriage age; whereas among educated husbands, a wife's education was strongly associated with her marriage age **(b)**.

Figure 3. 3D plots of **(a)** the association of wives' education and marriage age with husbands' education, and **(b)** the association of husbands' education and wives' marriage age with wives' education

3.3 Likelihood of women marrying into a household with geographic capital

Table 2, Model 3 shows that agrarian landholding is associated with higher caste, more education of both spouses, and younger age at marriage for wives. The interaction between wives' education and their marriage age was not significant (*p*=0.7). This model explained 26.7% of the variance of women marrying into a landholding family.

Table 2, Model 4 shows that accessibility to the nearest bazaar increases in association with wives' higher education, but is reduced for wives marrying at 15 years, less educated husbands and advantaged castes. The interaction between wives' education and their marriage age was not statistically significant (*p*=0.2). The low proportion of variance explained by this model (1.0%) suggests that other factors make higher contributions to the variation in bazaar accessibility.

4 DISCUSSION AND CONCLUSION

The unique role of marriage in determining the lived experience of women is substantially shaped by their access to different types of capital in the marital home. In the Nepal Terai, marriage arises through negotiation between households, and families may leverage different traits of women and men to optimise the match. Our focus on the timing of marriage adds a new dimension to studies of marital assortment and geographies of youth. Our inclusion of household geographic capital (agrarian landholding and bazaar accessibility) is also important, and remains overlooked in studies of marital matching.

We found substantial but not perfect matching amongst uneducated spouses. Educated men married women with varying levels of schooling, partly because fewer women were educated (Schwartz, 2013). Crucially, this offers less educated women the opportunity to 'move up' the socio-economic ladder, whereas uneducated men are typically constrained to marrying uneducated women (Fafchamps & Shilpi, 2011). In patriarchal societies, women may gain few benefits from their own education, hence any benefits accessed through their husband's educational and geographic capital take on extra significance.

Informal knowledge, such as farming practices, household and care work, may be highly valued in marital matches on account of the gendered roles of women in this society (Gram et al., 2017). This may partly explain why 74% of the women in our study were uneducated.

More educated men, and those from higher castes, owned more agrarian land. For women, greater education, but not later marriage, increased the odds of marrying into a landholding household. Education may therefore be more of a bargaining tool to link with landholding

households. Girls may also be married earlier by their natal family to leverage access to agrarian land, and hence also economic and food security.

Women marrying at 15 years were less likely than other groups to marry into households near bazaars, which may reflect their involvement in farming and greater adherence to traditional early marriage practices in households further from markets. In contrast, more educated and later marrying women may seek a household closer to a bazaar to access education, healthcare, etc. for their children. Conversely, women marrying earliest (10-14 years) may be likely to pair with landless men, who are living closer to bazaars to find work. Irrespective of the household's accessibility to bazaars, young married Madhesi women will have few opportunities to expand their individual social capital given their restricted physical mobility outside of home (Clarke et al., 2014).

The potential longer-term benefits of gaining agrarian land in the marital home may help explain why some families marry their daughters before the legal age of 18 years in Nepal. Nonetheless, how families balance the perceived benefits and costs of education and early marriage requires further research (Ansell, Hajdu, van Blerk, & Robson, 2019). To date, few geographers researching youth issues have focused on adolescent marriage, which is surprising given that 20% of women aged 20-24 years in the Global South marry under-age (UNICEF, 2021). Our markers of 'household geographic capital,' agrarian landholding and bazaar accessibility, were important for marital matches in our rural agrarian context, but this approach requires further theoretical development and application.

Limitations include lack of data on husband's marriage age, and other traits of the wives' natal home that may index marital pairing. However, there is little indication that men's age matters for marital matches in Nepal (Niraula & Morgan, 1996). A potential bias in our sample is the inclusion of younger women, all of whom married relatively young, thus reducing the variance in marriage age in the most recent cohort; however, since **Supporting Information SI4** shows similar results after excluding women <18 years, there is no evidence that this sampling approach affected our findings. We could not explore whether women actually accessed or controlled martial household capital. Whether distance between natal and marital homes plays a role in marriage decisions requires further research. The socio-cultural context of our study may reduce generalisability of our results to other populations, but the overall associations may be widely applicable in South Asia.

In conclusion, our study sheds new light on the way in which family investment in education, and the timing of marriage, shape young women's access to different forms of marital household capital. These factors also influence the educational capital accessed by husbands. Emphasising geographic capital in these patterns is crucial because the spatial niche of the marital home shapes the life-course experience of women and their children.

REFERENCES

Ansell, N., Hajdu, F., van Blerk, L., & Robson, E. (2019). “My happiest time” or “my saddest time”? The spatial and generational construction of marriage among youth in rural Malawi and Lesotho. *Transactions of the Institute of British Geographers*, 184–199. https://doi.org/10.1111/tran.12211

Bajracharya, A., & Amin, S. (2012). Poverty, marriage timing, and transitions to adulthood in Nepal. *Studies in Family Planning*, *43*(2), 79–92. https://doi.org/10.1111/j.1728-4465.2012.00307.x

Becker, G. S. (2002). The age of human capital. In E. P. Lazear (Ed.), *Education in the twenty-first century* (pp. 3–8). Stanford:USA: Hoover Institution Press.

Bennett, L. (1983). *Dangerous Wives and Sacred Sisters. Social and Symbolic Roles of High-Caste Women in Nepal.* New York: USA: Columbia University Press.

Bista, D. B. (1996). *People of Nepal*. Kathmandu: Nepal: Ratna Pustak Bhandar.

Bourdieu, P. (1986). The forms of capital. In J. Richardson (Ed.), & R. Nice (Trans.), *Handbook of Theory and Research for the Sociology of Education* (pp. 241–258). Westport: USA: Greenwood.

Cameron, M. M. (1995). Transformations of gender and caste divisions of labor in rural Nepal: Land, hierarchy, and the case of untouchable women. *Journal of Anthropological Research*, *51*(3), 215–246. https://www.jstor.org/stable/3630359

Clarke, K., Saville, N., Bhandari, B., Giri, K., Ghising, M., Jha, M., … Prost, A. (2014). Understanding psychological distress among mothers in rural Nepal: A qualitative grounded theory exploration. *BMC Psychiatry*, *14*(1), 60. https://doi.org/10.1186/1471-244X-14-60

Cummins, S., Curtis, S., Diez-Roux, A. V., & Macintyre, S. (2007). Understanding and representing 'place' in health research: A relational approach. *Social Science & Medicine*, *65*(9), 1825–1838. https://doi.org/10.1016/j.socscimed.2007.05.036

Ekamper, P., van Poppel, F., & Mandemakers, K. (2011). Widening Horizons? The Geography of the Marriage Market in Nineteenth and Early-Twentieth Century Netherlands. In E. R. Merchant, G. D. Deane, M. P. Gutmann, & K. M. Sylvester (Eds.), *Navigating Time and Space in Population Studies* (pp. 115–160). Dordrecht: Springer Netherlands.

Fafchamps, M., & Shilpi, F. (2011). *Education, Preferences, and Household Welfare.* Oxford: UK: CSAE. Available at https://core.ac.uk/download/pdf/6265606.pdf (accessed 25 April 2021).

Fisher, B., & Naidoo, R. (2016). The Geography of Gender Inequality. *PLOS ONE*, *11*(3), e0145778. https://doi.org/10.1371/journal.pone.0145778

Ghimire, D. J., & Axinn, W. G. (2010). Community context, land use, and first birth. *Rural Sociology*, *75*(3), 478–513. https://doi.org/10.1111/j.1549-0831.2010.00019.x

Government of Nepal. (1971). *Marriage Registration Act, 2028 (1971)*.

Gram, L., Morrison, J., Sharma, N., Shrestha, B., Manandhar, D., Costello, A., … Skordis-Worrall, J. (2017). Validating an Agency-based Tool for Measuring Women's Empowerment in a Complex Public Health Trial in Rural Nepal. *Journal of Human Development and Capabilities*, *18*(1), 107–135. https://doi.org/10.1080/19452829.2016.1251403

Haandrikman, K. (2019). Partner choice in Sweden: How distance still matters. *Environment and Planning A: Economy and Space*, *51*(2), 440–460. https://doi.org/10.1177/0308518X18786726

Harris-Fry, H. A., Paudel, P., Shrestha, N., Harrisson, T., Beard, B. J., Jha, S., … Cortina-Borja, M. (2018). Status and determinants of intra-household food allocation in rural Nepal. *European Journal of Clinical Nutrition*, 1. https://doi.org/10.1038/s41430-017-0063-0

Jalan, J., & Ravallion, M. (2002). Geographic poverty traps? A micro model of consumption growth in rural China. *Journal of Applied Econometrics*, *17*(4), 329–346. https://doi.org/10.1002/jae.645

Kaplan, H., Lancaster, J., & Robson, A. (2003). Embodied capital and the evolutionary economics of the human life span. *Population and Development Review*, *29*, 152–182. https://www.jstor.org/stable/3401350

Marphatia, A., Saville, N. M., Amable, G. S., Manandhar, D. S., Cortina-Borja, M., Wells, J. C., & Reid, A. M. (2020). How much education is needed to delay women's age at marriage and first pregnancy in lowland Nepal? *Frontiers in Public Health*, *7*(396), 1–17. https://doi.org/10.3389/fpubh.2019.00396

MOHP, New ERA, & ICF International. (2017). *Nepal Demographic and Health Survey 2016*. Kathmandu: Nepal: Ministry of Health and Population Nepal. Available at https://www.dhsprogram.com/pubs/pdf/fr336/fr336.pdf (accessed 16 March 2021).

Niraula, B. B., & Morgan, S. P. (1996). Marriage Formation, Post-Marital Contact with Natal Kin and Autonomy of Women: Evidence from Two Nepali Settings. *Population Studies*, *50*(1), 35–50. https://doi.org/10.1080/0032472031000149036

Pande, R. (2014). Geographies of Marriage and Migration: Arranged Marriages and South Asians in Britain. *Geography Compass*, *8*(2), 75–86. https://doi.org/10.1111/gec3.12112

Sah, N. (2018). Socio-demographic correlates of age at marriage in Nepal: An empirical analysis. *Nepal Population Journal*, *18*(17), 1–22. https://doi.org/10.3126/npj.v18i17.26373

Samuels, F., Ghimire, A., Tamang, A., & Uprety, S. (2017). *Exploring Nepali adolescents' gendered experiences and perspectives*. London: UK: GAGE. Available at https://www.gage.odi.org/publication/nepali-adolescents-gendered-experiences-and-perspectives/ (accessed 20 April 2021).

Saville, N., Manandhar, D. S., & Wells, J. C. (2020). *Trial experience and data capture in the Low Birth Weight South Asia Trial, a large cluster-randomised controlled trial in lowland Nepal*. London: UK: UCL Discovery. Available at https://discovery.ucl.ac.uk/id/eprint/10120616/ (accessed 20 April 2021).

Schwartz, C. R. (2013). Trends and Variation in Assortative Mating: Causes and Consequences. *Annual Review of Sociology*, *39*(1), 451–470. https://doi.org/10.1146/annurev-soc-071312-145544

Sekine, K., & Hodgkin, M. E. (2017). Effect of child marriage on girls' school dropout in Nepal: Analysis of data from the Multiple Indicator Cluster Survey 2014. *PLOS ONE*, *12*(7), e0180176. https://doi.org/10.1371/journal.pone.0180176

Smits, J., Ultee, W., & Lammers, J. (1998). Educational homogamy in 65 countries: An explanation of differences in openness using country-level explanatory variables. *American Sociological Review*, 264–285. https://doi.org/10.2307/2657327

Thapa, S. (1989). The ethnic factor in the timing of family formation in Nepal. *Asia-Pacific Population Journal*, *4*(1), 3–34.

UNICEF. (2021, February). Global database on child marriage. Retrieved 8 June 2021, from https://data.unicef.org/topic/child-protection/child-marriage/

Figure 1. Conceptual framework of the assortment of household educational and geographic capital through marriage

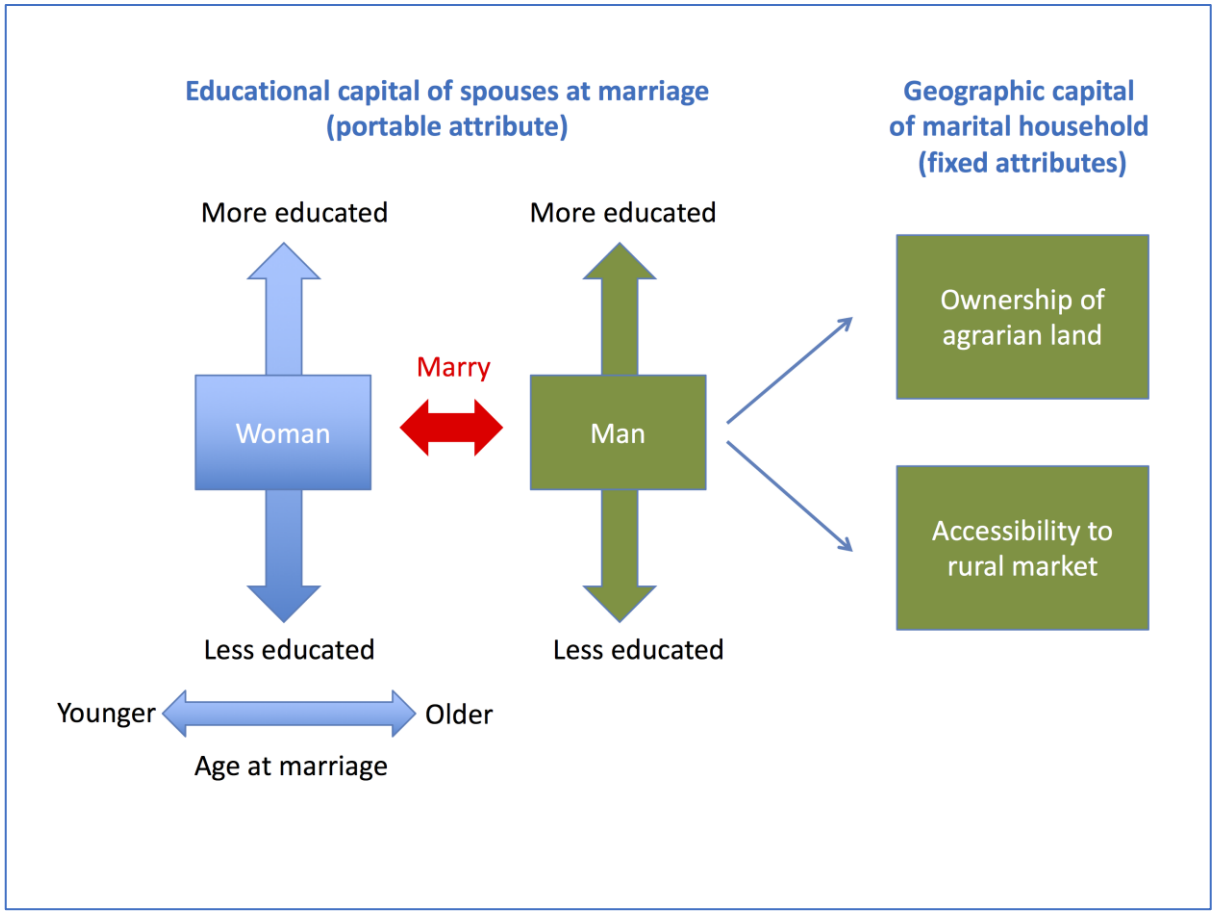

Figure 2. Heat tables of spousal pairing by education level in (a) absolute numbers, and as a percentage within (b) husbands' or (c) wives' education groups

(a) Absolute numbers

	Husband's education				
Wife's education	Uneducated (0y)	Primary education (1-5y)	Lower secondary education (6-8y)	Secondary or higher education (≥9y)	**Total row (*n*)**
Uneducated (0y)	7,161	1,422	1,341	1,066	10,990
Primary education (1-5y)	562	317	488	470	1,837
Lower secondary education (6-8y)	356	204	450	743	1,753
Secondary or higher education (≥9y)	173	123	413	1995	2,704
Total column (*n*)	8,252	2,066	2,692	4,274	17,284

(b) As a percentage within husband's education

	Husband's education			
Wife's education	Uneducated (0y)	Primary education (1-5y)	Lower secondary education (6-8y)	Secondary or higher education (≥9y)
Uneducated (0y)	86.8	68.8	49.8	24.9
Primary education (1-5y)	6.8	15.3	18.2	11.0
Lower secondary education (6-8y)	4.3	9.9	16.7	17.4
Secondary or higher education (≥9y)	2.1	6.0	15.3	46.7
Total column (100%)	100	100	100	100

(c) As a percentage within wife's education

	Husband's education				
Wife's education	Uneducated (0y)	Primary education (1-5y)	Lower secondary education (6-8y)	Secondary or higher education (≥9y)	**Total row (100%)**
Uneducated (0y)	65.2	12.9	12.2	9.7	100
Primary education (1-5y)	30.6	17.3	26.5	25.6	100
Lower secondary education (6-8y)	20.3	11.6	25.7	42.4	100
Secondary or higher education (≥9y)	6.4	4.5	15.3	73.8	100

Figure 3. 3D plots of (a) the association of wives' education and marriage age with husbands' education and (b) the association of husbands' education and wives' education