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Role of Bride Price in Africa: Upholding Child Marriages or Increasing Girls' Education?

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Abstract

This thesis is a literature review that investigates how a cultural norm, the bride price tradition, is directing people's economic behavior in Africa. Bride price is a marriage practice where the groom makes a payment to the bride's family upon marriage, either in the form of money, cattle, or commodities (Nyyssölä 2022). More specifically, this thesis investigates how bride price links to child marriage and women's education. Findings include that bride price appears to encourage parents to send their daughters to marriage early, as a way to smooth consumption under poverty (Corno and Voena 2023, Corno et. al 2020). On the other hand, bride price increases in a woman's education, therefore incentivizing parents to educate girls (Ashraf et. al 2020). Alternative methods for parents to smooth consumption and incentivizing girls' education are discussed. These methods include microfinance and conditional and unconditional cash transfer programs. From this discussion, it is concluded that microfinance holds potential to provide families with enough means to educate their daughters and thus prevent child marriage (Abdullah et. al 2015). When a cash transfer program is conditional on a girl's education, it appears to improve girls' schooling rates (Baird 2011).

Keywords Bride price, consumption smoothing, child marriage, women's education

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1. Introduction

There is a growing recognition that culture and social norms impact economic behavior and thus development at a larger scale; economic policies for development may have very different outcomes in different cultural contexts (Ashraf et. al 2020, World Bank 2015). This thesis investigates how one cultural norm, namely the bride price tradition, is directing people's economic behavior in Africa and how this resulting behavior affects outcomes related to gender equality. Bride price is a marriage practice where the groom makes a payment to the bride's family upon marriage, either in the form of money, cattle, or commodities (Nyyssölä 2022). Bride prices are practiced widely in most African, Middle Eastern, and some Southern American countries; roughly 75 % of the world's countries practice the tradition (Nyyssölä 2022).

The size of a bride price transfer is generally significant: Dekker and Hoogeveen (2002) conclude that bride price claims represent a substantial share of an average household's lifetime income. Anderson (2007) states that bride price payments can be sizable enough to affect the distribution of wealth in society, with the average magnitude ranging from a little over a year's income to as much as 7 to 8 years' annual income. However, there is strong variety between different regions; some ethnic groups exchange only small, symbolic payments, known as 'token bride price' (Murdock 1967).

Bride price is to be differentiated from dowry, which is a common marriage payment in India and its neighboring countries Bangladesh and Pakistan. In dowry, the transaction happens in the opposite direction: the bride's parents pay the groom for him to marry their daughter (Bhalotra 2020). Having occurred historically in Europe and Asia, dowry is more well-known in the Western world; however, bride price is and has been, throughout history, a much more common tradition. (Anderson 2007)

This thesis attempts to create a wider understanding of how and to what extent bride price, as a social norm, is shaping societies from a gender equality point of view. More specifically, I will study how bride price connects to child marriages and the level of education women acquire. If they are very low, the age of marriage and the level of education are strongly associated with negative socio-economic outcomes

for women, contributing to gender inequality and poverty (Corno and Voena 2023). Following that, I will briefly consider alternative ways to smooth consumption and incentivize parents to educate their daughters, only after implementing these would bans or restrictions on bride price have a possibility to be effective. Discussions on restricting or even abolishing bride price have been lively in Africa in recent years; concerns about the custom's impact on women's well-being and gender equality have been raised (Makoye 2013).

A clear example is when in 2007, a Ugandan women's rights organization, Mifumi, challenged the constitutionality of the bride price practice in Uganda. They claimed that by demanding a bride price from the groom, the bride's parents interfere with the couple's right to free will in entering the marriage; and having to pay bride prices leads men to treat their wives as 'their property', from whom perfect obedience is expected, thus violating the equality of the spouses in a marriage (Mujuzi 2010). In its decision, the Ugandan court held that the law protects the bride price practice as part of the culture, but claimed some features of the bride price custom to be unconstitutional; most notably, the common custom of the husband requiring his wife or her parents to refund the bride price in case of divorce (Mujuzi 2010). The Ugandan court has since prohibited these refund demands on the argument that it may trap women in unwanted marriages, but the bride price custom continues to be legal otherwise and widely in use (Mwesigwa 2015).

The rest of this thesis is structured as follows. In chapter 2, I will describe the bride price tradition's historical, and cultural background, as well as present economic concepts that I'm going to apply later in the thesis. In chapter 3, I will summarize three different papers on bride price's connection to child marriage and the level of education women acquire. In chapter 4, I will discuss microfinance, as well as cash transfer programs tied to education as tools to diminish the role of bride price in consumption smoothing and motivating girls' education. Chapter 5 concludes.

2. Background

2.1 Historical and cultural context of the bride price tradition

The practice of exchanging payments has been an important part of marriage all over the world for thousands of years. Since as early as 3000 BCE, there are records of ancient Egyptian and Mesopotamian civilizations paying bride prices. The Hebrews, Incas, and Aztecs also engaged in the practice, as did various Germanic tribes, who ruled Europe from 600 to 1000 CE. Ancient Greek city-states paid dowries instead, consistent with the Ancient Romans. (Anderson 2007)

Bride price-paying societies are typically characterized by women having a strong role in agriculture. In Africa, a commonly used farming method is direct sowing, which only requires a light hoe as a tool. This method makes farm work available to women and children, as opposed to heavy plowing of the soil, a method used in India and historically in Europe. Due to the difference in farming methods, women's labor has been more valuable in Africa compared to for example India. This is potentially one of the reasons why Africa practices bride prices while India practices dowry. (Alesina, Giuliano, and Nunn 2013, Nyssölä 2022)

Bride price societies are also typically patrilocal and patrilineal: upon marriage, women tend to move to live with their husbands' kin, and their children belong to the father's lineage (and not the mother's). In a system like this, bride price is considered as compensation to the bride's family for her and her future children's labor force, of which the husband's family will benefit after marriage. In Sub-Saharan Africa, bride price is also seen as an important way to strengthen ties between two kinship groups. (Anderson 2007)

Another typical feature of bride price-practicing societies is polygyny, the practice of men acquiring multiple wives. In Sub-Saharan Africa, where bride price is almost universal, 95% of the ethnic groups also practice polygyny. Polygyny is related to the social status of people in society: having multiple wives is a signal of wealth and the richest men usually aim to acquire many wives. Polygyny is made possible sometimes by the sizable age differences between the spouses: marriage happens typically earlier for women compared to men. (Goody 1973)

2.2 Economic concepts to be applied

This section defines some useful concepts to the discussion of outcomes under bride prices.

2.2.1. Consumption smoothing

Consumption smoothing refers to a strategy in which individuals are willing to hold their consumption level relatively stable throughout their lifetime. This follows from the fact that increasing consumption has diminishing marginal returns. In times when a person earns more than they need, they are willing to save or lend money. Vice versa, in times when a person earns less than what they would like to consume, or when they face an unexpected loss of income, called *a negative income shock*, they are willing to borrow money, use savings, rely on insurance, or cut down costs. (Algan, Carlin and Segal 2017)

Later in this thesis, I will discuss how even in the absence of insurance or credit markets, which are common tools for people to practice consumption smoothing, the desire and willingness to keep consumption at a relatively stable level throughout one's life is still present. In chapter 3, I will study how individuals who lack access to credit markets or insurance, may aim to use alternative, sometimes harmful ways to smooth consumption.

2.2.2. Why are the poor excluded from credit markets?

In traditional credit markets, banks face a *principal-agent problem* when giving out loans: they don't have the full information on the credibility of their customer - whether they are actually able to pay back the loan or if they will work hard enough to be able to pay it back. To address this issue, banks typically require collaterals and refuse to give credit to the poorest people, which makes it very hard for the poorest population to break out from poverty. (Bowles, Carlin and Segal, 2017)

In chapter 4, I will discuss how microfinance institutions try to overcome this problem of asymmetric information while providing loans to the credit-constrained population typically excluded from credit markets.

3. How does the bride price direct parents' behavior?

In this chapter, I will examine how bride price is shaping economic and social outcomes for women, and the reasons behind this. More specifically, I will study how bride price is directing parents' decisions on when and at what age, to marry off their daughters. I will summarize three different studies on the topic, assessing their methods and findings.

Deeply rooted in the cultures of African countries, bride price is a strong monetary incentive in multiple ways. Being a sizable transfer of money, which the parents of a girl receive at the time when they choose to give their daughter to marriage, it has been argued that the bride price acts as a source of informal insurance in regions where insurance and credit markets are imperfect. Corno and Voena (2023) and Corno et al. (2020) provide evidence to show that bride price is a way for families to smooth consumption if they face negative income shocks while their daughters are young. On the other hand, bride price gives an incentive for families to educate their daughters further because a more educated woman is worth more in bride price than an uneducated one. Ashraf et al. (2020) show in their study that educational attainment is higher among ethnic groups that practice bride price and that bride price is increasing in the education of a woman. I will next dive deeper into these two perspectives to understand when bride price motivates positive or negative consequences for girls.

3.1. Smoothing consumption with bride price and early marriage: Corno and Voena (2023)

Child marriages are still common in the poorest regions of the world. In Sub-Saharan Africa, 40% of women aged 20-24 years are child brides, ie. have been married by the time they turn 18 (UNICEF 2014). Literature has established a clear link between early marriages and early fertility. In Tanzania, the setting of the study by Corno and Voena (2023), the adolescent fertility rate is 123,65 births per 1,000 women aged 15-19, which is one of the highest in the world (World Development Indicator 2021).

Early marriage, as well as early pregnancies, are strongly associated with adverse economic and social outcomes for women, such as lower education level, less influence in household decision-making, lower use of preventive healthcare services, and higher rates of domestic violence, and this relationship is well established in the literature (Jensen and Thornton 2003; Field and Ambrus 2008). Ending child marriage has been named one of the UN's Sustainable Development Goals, and the World Bank and the International Center for Research on Women estimated in their report "Economic Impacts of Child Marriage" (2017) that ending child marriage would generate global benefits worth \$566 billion by the year 2030 through the resulting reduction in population growth alone. Understanding what exacerbates the persistence of child marriage is therefore crucially important. Corno and Voena (2023) study in their paper how bride price encourages early marriages when families face negative income shocks.

In Tanzania, where the study is focused, weather conditions have a strong impact on household incomes. Almost 80 % of the labor force (15-64 years) is employed in the agricultural sector; among women, the rate is even higher, at 90 % (International Labor Organization 2013). For this reason, the study uses anomalies in rainfall amounts as a proxy for negative income shocks and combines this data with survey information on the ages of marriages and bride price transfers.

They look at the situation through an economic model in which households that cannot borrow or save money are exposed to income shocks. They then estimate the parameters of this model to disentangle the significance of bride price and child marriage as informal insurance, in regions where traditional insurance and credit markets are imperfect.

3.1.1 Theoretical Model in Corno and Voena (2023)

The authors develop a model in which decisions are made by parents who have one daughter and who will receive the bride price payment upon the daughter's marriage, which can happen at whatever time the parents choose. The daughter is seen as an indivisible asset, whose labor either benefits her family, or, after marriage, the husband's family. The parents try to maximize their utility in deciding when to send their daughter off to marriage, and this is seen as an optimal stopping problem. The

model assumes that the exogenous income shock is assumed to affect the family in question alone: the income shock should not affect the general bride price level in the region, i.e. the amount of money parents can expect to receive when their daughter gets married.

In the model, parents try to maximize their expected utility. The parents' utility is modeled as constant relative risk aversion utility, for which the mathematical expression is

$$u(c_a) = \frac{c_a^{1-b}}{1-b}, b \geq 0, b \neq 1$$

where u describes the utility parents get, depending on the parents' wealth level (c_a), and how they view risk (b). b is known as the coefficient of relative risk aversion. The word 'constant' refers to the fact that in the CRRA utility, b stays the same for all levels of wealth (c), ie. the individual's attitude towards risk doesn't change with wealth (Back 2010).

In the study, parents' consumption c_a consists of parents' income, and the bride price they obtain (BP_a), or alternatively parents' income increased by a percentage e , which describes the daughter's contribution to the household earnings, e being either negative or positive. So we have

$$c_a = y_a + BP_a \text{ or } c_a = y_a(1 + e)$$

where y_a is the parents' income, and a denotes the time period we are looking at and the daughter's age. The parents' income is dependent on the weather: a function of the current state of nature s_a , so we write $y_a(s_a)$.

The state of nature, here mostly referring to the amount of precipitation, is a stochastic process: the occurrence of a particularly strong deviation from an average level of yearly rainfall, ie. a flood or a drought, is determined randomly according to some probability distribution. And since income depends on rainfall, it means income y_a is also an independent and identically distributed stochastic process. Finally, the model assumes that income $y_a(s_a)$ has no impact on the demand for brides by potential husbands.

What's important about the parents' utility, regarding this thesis, is that the graph of the CRRA utility function has a concave shape: the curve flattens towards larger values of c_a . This means that when the wealth level grows high enough, an additional unit of consumption provides smaller and smaller increments in utility (this is known as diminishing marginal utility). This also means that the lower the initial level of consumption is, the more value an additional unit of consumption can provide (Back 2010). This explains the model's main prediction, which is that a drop in income y_a increases the probability for marriage to occur at age a , in the same period that the shock occurs.

Since credit markets are missing, it is argued that the bride price payment is one of the few ways a poor family can earn such a high¹ amount of money quickly, when a sizable portion of their income is lost to a drought or a flood.

3.1.2 Data used in Corno and Voena (2023)

Corno and Voena study the Kagera Health and Development Survey, designed by the World Bank and the University of Dar es Salaam in the Kagera region, Tanzania. They use survey results from 2010 and 2004 for information on the respondents' year of birth, time of marriage, original home village, and what, if any, wealth transfers were made between families at the time of marriage. Most individuals (82 %) reported that a bride price was paid in their marriage.

The study combines the survey information on marriage ages and payments with data on Kagera's historical rainfall amounts from the Modern-Era Retrospective Analysis for Research and Applications (MERRA) database at the NASA Langley Research Center. For each village and each year, they calculate how much a given year's precipitation amount deviates from the village's annual historical mean. More sizable deviations are known as rainfall shocks, and the authors use these as a proxy for exogenous income shocks that families face: a bad rainfall year affects families' crop yields and consequently their income, to a large extent.

¹ In the sample, the mean bride price stands at 97,298 Tanzanian shillings (about 45 USD), corresponding to roughly 20 % of the average annual consumption reported by respondents.

Running the regression between rainfall shocks and people's consumption, Corno and Voena find that deviation from the historical average level of rainfall immediately transfers into consumption reductions in the period after a rainfall shock happens. This not only suggests that people's incomes depend on weather, but also that their assets are not fully insured, nor do they seem to accumulate assets to smooth consumption; instead they live hand to mouth.

Using rainfall shocks as a proxy for an income drop fits rather well to estimating the causal effect of an income drop on early marriage. Rainfall shocks occur randomly, every family in the area is equally likely to face one, and the study shows that a rainfall shock actually translates to reduced consumption. Therefore it can be argued that income drops due to exogenous reasons, that is it's not due to other factors affecting the family that might also affect the decision of when a daughter is sent to marriage. This, along with using control variables, helps isolate the causal effect.

3.1.3 Empirical strategy and results in Corno and Voena (2023)

To study the causal effect of rainfall shocks and drops in income on the probability of girls getting married before turning 18, Corno and Voena (2023) estimate the following linear probability model:

$$Y_{i,v,y} = \alpha + \sum_a \beta_a \text{Rainfall Shock At Age } a_{i,v,y} + \lambda X_{i,v,y} + \delta_v + \gamma_y + \epsilon_{i,v,y}$$

where $Y_{i,v,y}$ takes value one if person i , in village v , born in the year y , got married by the year they turn 18, and value zero, if they didn't. Variable *Rainfall Shock At Age* $a_{i,v,y}$ captures how much the year's rainfall amount deviates from the region's annual mean. The coefficient β therefore depicts the causal effect of a rainfall shock on the probability of marriage.

$X_{i,v,y}$ is a vector of controls that includes the education level of the parents, whether the family lives in a rural or an urban area, or in an inadequate type of dwelling, and the family's ethnicity. The authors also control for village fixed effects (δ_v) and year of birth fixed effects (γ_y), this way removing the effect of village-specific characteristics independent of time, as well as characteristics special to certain age

groups that don't go away with time (such as marriage legislation changes in some particular years) that might also affect when girls get married.

From estimating this equation with a regular ordinary least squares regression for a sample of women, they first conclude that women exposed to adverse rainfall shocks during their teenage years indeed have a substantially higher probability of getting married by 18 years old. The magnitude of the effect is significant: a one standard deviation increase in the variable capturing rainfall shocks throughout the girl's teenage years, is associated with a 10.7 percentage points higher probability of early marriage, significant at a 5% level.

Running the same regression for a sample of males, they find that the coefficients for *Rainfall shock at age a* are negative and not statistically significant, meaning that, in stark contrast, income shocks do not increase the probability of early marriage for boys, but instead, if anything, delay it to later ages.

The findings align with the earlier presented theoretical framework: in the face of an income shock, parents are more likely to sell off their daughters, but not their sons, to receive the bride price payment.

The takeaway from Corno and Voena (2023) is that in Tanzania, households that lack access to credit markets i.e. don't accumulate assets and whose property is uninsured, have a strong incentive to and indeed do send their daughters off to marriage when facing negative income shocks, as a form of consumption smoothing. One motivating factor for this is obtaining the bride price payment.

3.2. Strengthening the understanding of the role of bride price as a predictor for early marriage: Corno et al. (2020)

To further disentangle the role of the bride price payments as a tool to smooth consumption, I will next go over a study by Corno et al. (2020), called "Age of Marriage, Weather Shocks, and the Direction of Marriage Payments". In this study, a similar causal effect between weather shocks and the age of marriage for girls is studied, however in two different contexts: first in all of Sub-Saharan Africa, where the bride price tradition is almost universal, and then in India, where the practice of dowry is prevalent, i.e. the direction of the marriage payment is the opposite: the

parents of the bride pay the groom at the time of marriage. The findings of the study support the conclusions drawn from the above-presented study by Corno and Voena (2023): in regions where bride price is practiced, weather shocks seem to lower the average age of marriage for girls, whereas, in regions where dowry is practiced, girls' marriages seem to be delayed as a result of weather shocks. This supports the argument of bride price being an important tool to smooth consumption for the families of young girls.

3.2.1 Theoretical framework in Corno et al. (2020)

Similarly to the previous study, Corno et al. (2020) assume that households' preferences follow the CRRA utility function, markets are incomplete in that households can't borrow or save money, and the society is patrilocal, meaning that after marriage, the wife moves to live with the husband's family i.e. her labor only benefits them.

It is further assumed that a family's sons always contribute to the family budget more than what they consume; daughters' contribution may exceed or stay below the amount they consume, however always staying below what that sons contribute. In other words, sons who live at home are seen, in monetary terms, as more valuable members of the household than daughters who live at home.

In the model, households' utility consists of their income, temporary idiosyncratic income, the daughter's contribution to the family budget, bride price transfer which they receive when she gets married, and from other benefits from having the girl married, for example positive social stigma for no longer having an unmarried daughter. It follows from this that a necessary condition for a child marriage to happen is that a bride price payment is greater than what the daughter contributes to the family budget: otherwise, letting go of the girl would only decrease the family's payoff.

While Corno and Voena (2023) assumed that the demand for brides is unaffected by families' aggregate income, here Corno et al. (2020) allow the demand and supply of brides to respond to changes in aggregate income; the effects are opposite under a bride price system compared to a dowry system. The model predicts that under bride

price, the demand for brides increases with aggregate income: when families with a son get more money, they are more capable and willing to acquire a wife for their son. Similarly, supply for brides decreases with aggregate income: richer families are less willing to sell their daughters to marriage underaged.

By comparison, under dowry, the supply of brides increases with aggregate income while demand for brides decreases with aggregate income, due to the opposite direction of marriage payments.

The model also predicts that the frequency of child marriage depends on the level of marriage payments. The authors argue that the average level of marriage payment at which the demand and supply of brides meet determines the quantity of child marriage.

Finally, and most importantly, the model predicts that among groups that use bride price, the frequency of child marriage increases when families' income drops. On the contrary, when the prevailing marriage payment is dowry, a lower aggregate income predicts a drop in the frequency of child marriage.

3.2.2. Data used in Corno et al. (2020)

The main data source used in the study is the Demographic and Health Surveys (DHS). DHS are household-level surveys carried out in developing countries around the world; the DHS program is funded by the U.S. Agency for International Development. For Sub-Saharan Africa, the authors study the DHS from 31 different countries collected between 1994 and 2013. For India, they use the DHS collected in 1998. The final sample includes over 300,000 women in Sub-Saharan Africa and over 60,000 women in India; in this group of observations, the mean age at first marriage is only 18.6 years in Africa and 17.7 years in India, with the lowest possible age for marriage being considered 12 years. Child marriage threatens a significant share of women and girls: 44.7% of women in the sample in Africa and 54.1% in India get married before they turn 18.

Similarly as in the previously described Corno and Voena (2023), Corno et al. (2020) merge the Demographic and Health survey data with data on variation in local

rainfalls across the years, this time from a database provided by the University of Delaware.

Unlike Corno and Voena (2023), where a rainfall shock was defined as a positive or negative deviation from the average annual rainfall levels, here Corno et al. (2020) define a rainfall shock as a drought in which a calendar year rainfall stays below the 15th percentile of that location's historical rainfall distribution. They argue that a drought like this is a suitable proxy for an income shock: a 15th-percentile drought has a significant impact on crop yields and therefore also on people's incomes. Each location is considered equally likely to experience such a drought, so rainfall realizations are independent and identically distributed. Thus, we can again treat this as exogenous variation in income, independent of other factors.

3.2.3. Empirical strategy and results in Corno et al. (2020)

In a quite similar way to Corno and Voena (2023), the study examines how much rainfall shocks, and therefore, drops in income, impact the timing of marriage in Sub-Saharan Africa and India. More specifically, they estimate the probability of marriage for woman i entering her first marriage at age t with an OLS regression, as follows:

$$M_{i,g,k,t} = X_{g,k,t}\beta + \alpha_t + \omega_g + \gamma_k + \epsilon_{i,g,k,t}.$$

Here, the dependent variable, $M_{i,g,k,t}$, is a binary variable equal to 1 in the year the woman gets married, and zero otherwise. The variable $X_{g,k,t}$ measures weather conditions: included in $X_{g,k,t}$ is a dummy indicator for a drought occurring in a given year. Therefore, β is the main coefficient of interest and measures how much an increase in the probability of a drought increases the probability of a marriage.

The study controls for age-fixed effects (α_t), accounting for the fact that marriage has a different probability to occur at different ages; location-fixed effects (ω_g), controlling for unobservable economic, geographic, or cultural characteristics specific to some villages which might affect the timing of marriage, as well as year-of-birth fixed effects (γ_k).

They run this regression separately for samples of women living in Sub-Saharan Africa and India. In the sample of Sub-Saharan African women, the resulting β -coefficient is 0.0037, meaning a 0.37 percentage point increase in the probability of a marriage in the occurrence of an adverse income shock, ie. a drought. This translates to a net increase in the probability by 3.3 %. However, in the sample of Indian women, the β -coefficient is negative, -0.0041, meaning a 0.415 percentage point decrease, (which corresponds to approximately 2.8 % decline) in the probability of a marriage in the face of a negative income shock.

With all the control variables in use and with the drop in income being due to a randomly occurring drought, it can be argued that the only difference explaining the opposite signs of the coefficients in the two samples is the difference in the direction of marriage payments. This supports the argument found previously in Corno and Voena (2023), that marriage payments are a way for poor families to smooth consumption: in areas where the shock-facing family is to receive the payment, the payment is brought forward (girls will marry earlier), whereas in regions where the bride's parents are the ones who pay, the payment is delayed (daughters are sent to marriage later).

3.3. Incentivizing further education with a higher bride price: Ashraf et al. (2020)

In contrast to the two papers reviewed above, Ashraf et. al (2020) discuss how the presence of the bride price tradition has been observed to increase female education, as a more educated daughter will earn a higher bride price to her parents.

Increasing girls' education is undoubtedly one of the most important goals the global community currently has. In their book “What Works in Girls’ Education” (2016), Sperling and Winthrop present convincing evidence for how educating girls yields numerous positive outcomes globally, for example, increased economic growth and agricultural productivity, reduced rates of HIV and AIDS, malaria, and infant mortality, reduced rates of child marriage, and smaller and more sustainable families, just to name a few. They call girls’ education “the world's best investment with the widest-ranging returns.” Although there has been positive development in women's education in recent decades, the state of girls’ education is still very poor in

developing nations. According to Winthrop and McGivney (2014), about 75% of girls start primary school in Sub-Saharan Africa, but only 8% finish lower secondary school. It's therefore crucially important to study which mechanisms might support or hinder female education.

To investigate how bride price may positively impact girls' education rates, Ashraf et al. examine the results of a school construction project in which over 60,000 new primary schools were built in Indonesia, and find that only in ethnic groups that practice bride price, girls' educational attainment rose significantly; in all other groups, there was no effect. They also examine a more recent school construction program in Zambia in the 1990s, and find similar effects.

I will next present the theoretical model they construct, then discuss the data they use, and summarize their empirical strategy and results.

3.3.1. Theoretical model in Ashraf et al. (2020)

In this model, parents aim to maximize their utility in two periods: in the period before the daughter gets married, and in the period after she has gotten married. Parents gain utility from consumption and their daughter's well-being.

The authors assume that marriage surplus, which they define as the difference between the value of marriage and each spouse's values when remaining single, i.e. the combined value of their labor market earnings, is increasing in education of the bride and the groom.

The model predicts that educated women will earn a higher bride price than uneducated women. This prediction follows from the fact that there are generally more educated men than educated women, so educated women are scarce in the population. Another property of this model is that educated people, wanting to maximize marriage surplus, prefer to marry those who also are educated, since the combined labor market earnings would be lower when an educated person marries an uneducated person. Finally, the model predicts that the probability that girls receive education is higher among ethnic groups that practice bride price.

3.3.2 Data used in Ashraf et al. (2020)

Indonesia and Zambia are both home to various ethnic groups that practice bride price to different degrees: some practice it extensively, some practice only token bride price, and some don't practice it at all. However none of the ethnic groups in Indonesia or Zambia practice dowry. Therefore, this within-population variety in the practice of bride price makes the countries suitable settings for studying the effect of the bride price tradition on education.

When looking at Indonesia, the study examines the Indonesian Sekolah Dasar INPRES school construction program, which built 61,807 new primary schools between 1974 and 1980. The authors study two rounds of the Indonesian Family Life Survey from 2000 (Strauss et al., 2004) and 2003 (Strauss et al., 2009), and the Indonesian Intercensal Survey from 1995 (Minnesota Population Center, 1995) for information on respondents' bride price transfers, ethnicities, education outcomes, and birth years. They later replicate the results in a larger data set, using the 2010 Indonesia Census.

To study the effects of the bride price tradition on education in Zambia, the authors utilize the Zambia Fertility Preferences Survey (ZFPS) (Ashraf et al. 2017), and the Zambian Demographic and Health Survey (DHS). Conducted in 2014 in Lusaka, a poor region in Zambia, the ZFPS provides information on local people's beliefs and attitudes around the bride price tradition and education. Four studied rounds of the DHS (from 1996, 2001, 2007 and 2013) provide information on for example how the building of additional schools impacts school enrollment.

3.3.3 Empirical strategy & results in Ashraf et al. (2020)

First, Ashraf et al. (2020) test the first prediction of the model, whether the bride price actually increases in the education level of a woman. They run a regression where the dependent variable is the logarithm of bride price amount paid, and the explanatory variables are three dummy variables for primary, junior secondary, and senior secondary school, which each equal one if a married woman completed that school. They control for the husband's and wife's ages, their ethnicities, polygynous marriage, the wife being a Muslim, and the wife's wealth level before marriage.

Results are clear: they find that in Indonesia, women who complete primary school earn on average 58 % higher a bride price compared to women who have no education at all. For those women who graduate from junior secondary school, the average bride price is 67 % higher; and for senior secondary school graduates, even 85 % higher. The findings in Zambia point in the same direction. Girls who complete primary school earn bride prices 2.3 % higher than girls without education; junior secondary and senior secondary graduates observe an increase in their bride prices by 26 % and 39 %, respectively.

These findings are statistically significant, suggesting a very strong relationship between a woman's education and the bride price she earns, consistent with what the model described earlier predicted.

Next, the authors estimate whether the model's second prediction, i.e. that bride price ethnic groups have higher rates of female education, holds true. They do this by running a regression where the dependent variable is $I^{enrolled}$, a binary variable equal to one if a girl has received an education, explained by an independent variable $I^{bride\ price}$, an indicator for whether or not the ethnic group practices bride price.

The coefficient of $I^{bride\ price}$, β_1 is the coefficient of our interest, and the results are the following: β_1 equals 0.041 or 0.049 in the Indonesian sample, and 0.021 or 0.012 in the Zambian sample, depending on controls and the fineness of fixed effects. Statistically significant, this implies that in Indonesia, the presence of the bride price tradition in the community increases the likelihood of a girl receiving education by 4.1-4.9%, while in Zambia, this figure is 1.2-2.1%. This supports the second prediction provided by the model.

Finally, Ashraf et al. (2020) look at how much of an effect building new schools in Indonesia and Zambia had on girls' school enrollment rates both in groups that practice bride price and in groups that don't. They find evident differences between these groups, demonstrated below.

They estimate an equation where the dependent variable is an indicator variable equal to one if the girl completed primary school. The explanatory variable is an interaction between a dummy for whether or not the respondent belongs to an age

group that experienced the school building program at the right age, another dummy indicating whether the ethnic group of the respondent practices bride price, and a variable for the number of schools built per 1,000 school-aged children.

They find that building one additional school per 1000 school-aged children in Indonesia, increased girls' school enrollment by 2.5 percentage points in ethnic groups that practice bride price while in groups that don't, there was no statistically significant effect.

For Zambia, they estimate a very similar equation. The dependent variable y is again a binary variable equal to one if the girl is enrolled in primary school. The explanatory variables are interactions between a measure for school construction, and an indicator variable for whether the ethnic group in question practices bride price. The results of the estimation are also clear: building a new school increased the likelihood of a girl getting an education by 4.2 percentage points when looking at a group where bride price is practiced; and in groups where no bride price is practiced, the coefficient of interest is close to 0 and statistically insignificant, suggesting that the school expansion program did not affect girls' schooling.

In all of the above-presented regressions, the authors include control variables for e.g. the family's ethnicity, the wife's wealth level before marriage, her and the husband's ages, the wife being Muslim, the marriage being polygynous, fixed effects for the bride's age and location, aiming to remove omitted variable bias from the estimated coefficients.

Based on the results from these three regressions, we can say that the earned bride price is indeed higher when an educated woman gets married; education rates seem to be higher among groups that practice bride price; and school construction programs have had a significant effect only among groups that practice bride price within studied regions. Robust and clear, these findings point out that while on one hand, bride price was earlier linked to early marriages when families face large negative income shocks, on the other hand, it also serves as a monetary incentive to give girls higher education.

3.4. Are these findings in conflict?

We've now reviewed three robust and clear study results, two of which imply that bride price strongly increases the probability of child marriage, which would imply that girls' education also stays low because of bride price; and one which suggests that, on the contrary, the bride price transfers encourage parents to keep their daughters in school. This section discusses how these two somewhat conflicting study results relate to one another and what may be different between these settings that might explain the different results.

One distinguishable factor behind the almost opposite effects of bride price transfers lies in the families' initial wealth level. Families that are a little bit wealthier, and not in immediate need of a large amount of money, can wait until their daughter has completed school before marrying her. The higher bride price awaiting parents at the end of their daughter's schooling allows them to directly partake in the returns of the daughter's education.

However, for families whose income is the lowest, experiencing a drought or a flood that causes a huge drop in income, simply leaves them with no other option than to look for replacing income anywhere they can find, and to obtain it immediately. In the absence of proper credit markets, selling the daughter to marriage young becomes a 'necessity' even if they could get a higher bride price later. These results suggest that there is a certain wealth level below which families are so poor that the higher bride price as a result of the daughter's education is not alluring enough, because they won't survive without the money for that long.

In other words, families value education more than obtaining the bride price sooner, if only their initial wealth level is past a certain threshold. Bride price therefore motivates both negative and positive consequences for girls. In the next chapter, I will investigate how the negative consequences could be erased by replacing bride price with something more sustainable.

4. Discussion: Alternative ways to smooth consumption and incentivize girls' education

Accelerating climate change will likely increase the frequency of adverse weather shocks, such as droughts and floods in the coming decades (IPCC 2023). As the three above-mentioned studies suggest, bride price currently plays a role in how poor people cope with adverse income shocks, which inevitably follow when people's main livelihoods are strongly dependent on the weather; as well as how parents make decisions on their children's education. If governments are ever to abolish the bride price or diminish its harmful effects by restricting the amounts that are paid, as has been discussed (see e.g. Mujuzi 2010), something more sustainable should replace bride price in these roles. In this chapter, I will investigate possible solutions for what could replace bride price as an incentive to educate girls and to smooth consumption when negative income shocks occur.

4.1. Microfinance

Microfinance refers to financial services, such as loans, savings, and insurance offered to low-income clients who generally lack access to traditional banking services. Collaterals are typically not required with microfinance, where the purpose is to help clients start or expand a small business, helping them break out from poverty without making them dependent on conventional subsidies or financial aid. Most microfinance institutions target women as their customers. (Campbell 2010)

A typical feature of microcredit is group lending: microloans are given to groups of people who meet weekly to discuss repayments. The groups are formed voluntarily. Each customer gets their own loan, but if one person from the group fails to pay back, the whole group is denied subsequent loans. This diminishes the lender's risk of facing a default: each borrower has an incentive to only let trustworthy people in their group, and group members are encouraged to help each other e.g. in the occurrence of a bad rainfall year. (Morduch 1999)

This solves the problem of asymmetric information (i.e. the principal-agent problem) on the bank's side: the bank doesn't need to know which clients are trustworthy, when the clients are incentivized to continuously monitor each other. Most major

microfinance programs have exhibited loan repayment rates extraordinarily high, over 95 % in most instances (Morduch 1999).

Akotey and Adjasi (2018) studied the potential of microfinance in Ghana as a way for families to smooth consumption. They found that households who participated in microinsurance were significantly less likely to reduce the number of daily meals to cope with negative income shocks. They therefore conclude that microinsurance can offer a considerable way for the poorest to practice consumption smoothing.

Abdullah, Qureshi, and Quayes (2015) examine microfinance in Bangladesh and its impact in the context of child marriages and female empowerment. They show that younger wives are much more vulnerable to domestic violence and generally have little bargaining power within the household. Based on this, they argue that access to their own money through microfinance could empower them, gaining them more independence. They find that microcredit is able to empower women - however, only those who were not victims of child marriage. The authors conclude though, that by reaching out to unmarried young girls and their mothers, microfinance institutions can help *prevent* child marriage by providing families with the means to educate their daughters.

4.2 Education reward programs

Simply building new schools didn't raise girls' school enrollment as was hoped in Indonesia and Zambia as demonstrated by the study by Ashraf et al (2020); only after adding the presence of bride price did the desired impact start to show. I will next consider the fact that maybe for an actual detectable impact on girls' education, a direct monetary incentive for parents needs to be present.

Baird, McIntosh and Ozler (2011) study a cash transfer program in Malawi, in which families of school-aged girls were divided into three groups: receiving either a conditional cash transfer based on their daughters' school attendance, an unconditional cash transfer, or none at all. Here, the conditional cash transfer program would mimic the increased bride price transfer, being an amount of money that parents, and in some experiments, also the girl herself, receive only if she goes to school.

The authors find that all cash transfer programs improve the recipients' school enrollment and learning outcomes as compared to the control group, however, the improvements in school outcomes are significantly higher in programs in which the reward is conditional on school attendance. The effects are only 43 % as large in the unconditional cash transfer group compared to the group that receives subsidy conditionally.

The study by Baird, McIntosh and Ozler (2011), as well as other existing literature, also point out that unconditional cash transfer programs do improve important social outcomes. Teenage pregnancy rates and the number of early marriages were significantly lowered in the unconditional cash transfer group in the study. However, increasing *education* rates seems to be more effective if schooling is directly tied to monetary rewards.

5. Conclusion

In three-quarters of the world's countries, marriage involves often significant payments exchanging hands (Nyyssölä 2022). Bride price is a widely-practiced phenomenon, the impact of which on women's well-being and equality in marriage has been questioned, but which is also rooted deeply in African culture. The studies reviewed in this thesis suggest that bride price encourages poor families to send their daughters away to marriage too young while they cope with poverty (Corno and Voena 2023). Child marriages appear to become much more likely if a poor family faces a sizable negative income shock in communities where bride price is practiced, as compared to communities that practice dowry, where marriages are generally delayed after a drop in income (Corno et. al 2020).

On the other hand, educated women earn higher bride prices to their families when they get married. This creates a direct incentive for parents to keep girls in school. School construction programs in Indonesia and in Zambia have only managed to raise female school enrolment rates in communities where bride price is prevalent. (Ashraf et. al 2020)

However, there are other ways to help people living in extreme poverty to cope with it and to break away from it. Microfinance institutions grant small loans for groups of people who help each other to repay them and start small businesses (Morduch 1999). With microcredit, poor families could gather the means to educate their daughters and shield them from becoming victims of child marriage (Abdullah, Qureshi and Quayes 2015). More conventional, direct subsidy programs have also been observed to improve important social outcomes, both when they are unconditional, and when they are tied to, for example education (Baird, McIntosh and Ozler 2011).

Rates of child marriage and female education are some of the worst in the world in Sub-Saharan Africa (UNICEF 2014, Winthrop and McGivney 2014). Whether bride price is one of the reasons, is not completely clear, but if the practice is ever to be abolished, restricted, or reformed to promote more equal marriages, alternative mechanisms should replace bride price first in the roles it currently plays.

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