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Weather Shocks and Bride Kidnapping in Kyrgyzstan*

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Abstract

This study investigates the understudied relationship between climate shocks and gender discrimination. Utilizing data from the Life in Kyrgyzstan Survey, we empirically demonstrate that insufficient winter precipitation significantly raises the likelihood of bride kidnapping and influences societal attitudes towards this practice in Kyrgyzstan. Our analysis reveals heterogeneity in the effects, with individuals from lower-income households being more susceptible to positive attitude shifts. Additionally, the presence of daughters in households correlates with negative attitudes toward bride capture. We do not find heterogeneous responses to the shocks based on gender and education levels. These findings shed light on the gendered consequences of climate change in developing countries and emphasize the necessity of implementing gender-sensitive adaptation strategies.

Keywords: climate shocks, marriage market, bride kidnapping

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1 Introduction

Climate change is one of the most pressing global challenges of our time, with significant implications for the environment, the economy, and human well-being (IPCC, 2022). Developing countries are particularly vulnerable to the impacts of climate change, given their limited resources, weak infrastructure, and high dependence on natural resources (Hsiang and Kopp, 2018; IPCC, 2022). Therefore, understanding the implications of climate change for developing countries is crucial for policymakers, scholars, and practitioners alike.

Despite nature's impartiality, the consequences of climate change are not gender-neutral either. This is primarily attributed to discriminatory social norms, pre-existing gender inequalities in society, and unequal power relations between women and men (Rao et al., 2010; Reggers, 2019; Terry, 2009). Such factors make women more susceptible to the consequences of climate change (Oswald Spring, 2019; Reggers, 2019).

One of the ways women can be adversely affected by climate change is through increased incidents of harmful marriage practices. Banerjee et al. (2013) argue that the degree to which a country's marriage institutions favor men, such as patrilocality and concern for girl's "purity," can help explain low female labor-force participation, reduced investment in female human capital, and a higher tolerance for gender-based violence. The economic literature already contains a lot of research on the effects of various climate shocks on one particular practice - child marriage (Pope et al., 2022). This literature shows that the effect of shocks on child marriage varies significantly depending on cultural contexts and norms. In societies where a bride price is customary (e.g. Vietnam and countries in Sub-Saharan Africa), such shocks can raise the likelihood of child marriage as families may consider selling their daughters to offset economic losses. Conversely, in societies where dowry is the norm (e.g. India), shocks can decrease the probability of child marriage as the girls' families may not have the resources to meet the requirements for the dowry (Corno, Hildebrandt, and Voena, 2020; Tsaneva, 2020; Trinh Zhang, 2021).

This paper studies another harmful marriage practice - bride kidnapping or marriage by cap-

ture, in which a man abducts the woman he wishes to marry. According to a report by the United Nations, several countries, including Kyrgyzstan, Kazakhstan, Armenia, Ethiopia, Georgia, Moldova, and Uzbekistan, among others, have documented cases of bride kidnapping (United Nations Entity for Gender Equality and the Empowerment of Women (UN Women), 2018). Bride kidnapping poses significant dangers to the victims, including severe physical, psychological, and social consequences. It can result in forced marriage, sexual and physical violence, unwanted pregnancies, social isolation, and mental health issues. The United Nations considers bride kidnapping a form of violence against women and girls that infringes upon their human rights and can negatively affect their physical and mental well-being (United Nations Entity for Gender Equality and the Empowerment of Women (UN Women), 2018). Despite being detrimental, bride kidnapping receives little to no attention in the larger gender economics literature.

Despite sharing the unfortunate label of harmful marriage practices, bride kidnapping presents a fundamentally different dynamic than child marriage. While child marriage often involves economic transactions where parents receive payments or benefits from the other side, bride kidnapping eliminates any such transaction. In the case of bride kidnapping, the abductor, the prospective husband, forcibly takes the woman he intends to marry without offering any form of compensation to her family. This absence of a transactional element accentuates the coercive nature of bride kidnapping, making it not just a financial arrangement but a stark violation of a woman's autonomy and consent. This distinction is essential as it influences societal attitudes and impacts the victims differently. Understanding these unique features of bride kidnapping enriches the analysis of its correlation with climate shocks, thereby enhancing the depth of the discussion on gender-specific repercussions of climate change.

Our study aims to contribute to this gap by examining how climate shocks affect incidence and attitudes towards bride kidnapping in Kyrgyzstan - a landlocked country in Central Asia that is highly vulnerable to climate change and also has the highest rates of bride kidnapping in the world (United Nations Population Fund (UNFPA), 2018). By addressing the

existing gap in the literature, our study aims to add to a fuller understanding of how climate shocks can disproportionately affect women, particularly by exacerbating harmful marriage practices. Our research not only examines the actual incidence of bride kidnapping but also explores societal attitudes toward this practice. This aspect of our study contributes to the literature, as previous studies did not study the question due to a lack of data.

Furthermore, our contribution extends beyond the realms of gender economics and environmental literature as it holds relevance for the general public and policymakers. The issue of bride kidnapping is particularly poignant in Kyrgyzstan, where it raises questions about whether it is a crime or a tradition to be respected. Recent incidents, such as the tragic murders of Burulai Turdaaly Kyzy in 2018¹ and Aizada Kanatbekova in 2021², who were both killed by their abductors due to neglect from police and government, have garnered significant attention from both national and international media and led to eruptions of protest in the largest cities of Kyrgyzstan. (see Figure 1). However, we must also consider the countless silent victims who suffer mentally and possibly physically due to the persistence of this harmful practice. By shedding light on these connections policymakers can incorporate this knowledge when formulating policies to mitigate the consequences of climate change and create a safer, more equitable environment for women.

We use monthly weather data on precipitation and a panel survey from Kyrgyzstan to answer our research question. The identification strategy employed in this study capitalizes on the exogenous and random variation in rainfall/snowfall patterns, specifically focusing on the occurrence of dry winters. By leveraging the timing of these shocks, the study aims to establish a causal relationship between the scarcity of precipitation and its impact on bride kidnapping occurrences and attitudes. The findings of this study provide evidence that climate shocks, particularly insufficient winter precipitation, have significant implications for bride kidnapping and the attitudes associated with the practice, with dry winters causing

¹retrieved from <https://www.hrw.org/news/2018/05/31/young-womans-murder-kyrgyzstan-shows-cost-tradition>

²retrieved from https://centralasiaprogram.org/bride-kidnapping-kyrgyzstan-reflection-conservative-values#_ftn1

higher rates of bride-kidnapping marriages and shifting attitudes towards a more positive view on this tradition.

Our analysis reveals the intricate interplay between climate change and bride kidnapping in Kyrgyzstan, highlighting the nuanced nature of the consequences resulting from climate change. The relationship between dry winters, socio-economic factors, and attitudes towards bride kidnapping is complex and multi-faceted. One of the key findings is the crucial role of income as a determinant, as individuals from lower-income backgrounds display a higher susceptibility to attitude shifts. This suggests that economic vulnerability may exacerbate the impact of climate shocks on societal perceptions and behaviors.

Gender differences did not emerge as statistically significant; the study indicates a similar response to climate shocks among both males and females. We also did not find evidence that education level changes the effect of dry-winter shocks on attitudes. This implies that the influence of climate-related factors transcends gender and educational boundaries and affects the attitudes of individuals across the spectrum. Furthermore, the presence of daughters in households seems to play a role in shaping negative attitudes toward bride kidnapping, suggesting the potential influence of familial dynamics in perpetuating or challenging harmful practices.

The rest of the paper has the following structure. Section 2 describes the climate specifics of Kyrgyzstan and the bride kidnapping practice. Section 3 summarises the data. Section 4 justifies the empirical strategy of the paper. Section 5 presents the results of the analysis. Section 6 concludes.

2 Background

2.1 Climate in Kyrgyzstan

Kyrgyzstan, a mountainous country in Central Asia, faces various climate change challenges, including melting glaciers, changes in precipitation patterns, and increased frequency of extreme weather events such as floods and droughts. According to the National Communication of the Kyrgyz Republic to the UNFCCC (Ministry of Energy and Industry of the Kyrgyz Republic, 2016), "climate change is expected to have significant impacts on key sectors in Kyrgyzstan, such as agriculture, water resources, health, energy, and infrastructure." Climate change can significantly impact the country's economy, which relies heavily on agriculture and livestock farming. Moreover, it can exacerbate existing social and economic challenges, including poverty, food insecurity, and gender inequality.

According to the World Bank (2021), Kyrgyzstan faces several challenges related to water resources, including water scarcity, inadequate infrastructure for irrigation, and water pollution. These issues have significant implications for agriculture, a critical sector of the Kyrgyz economy. Agriculture accounts for approximately one-third of Kyrgyzstan's GDP and employs more than half of the country's workforce (World Bank, 2021). The Climate Risk Index 2022 report by Germanwatch (2022) states that Kyrgyzstan is ranked among the countries most affected by extreme weather events from 2001 to 2020. One of the main factors contributing to this status is changes in precipitation patterns, particularly the increasing frequency and intensity of droughts and floods. We focus on precipitation shocks as the key variables of interest.

In recent years, agriculture in Kyrgyzstan has suffered a lot due to climate shocks. The country's agricultural lands faced an unprecedented drought and lack of irrigation water. Farmers attended numerous rallies and demanded that the authorities take action to preserve the crops.³ The situation with insufficient water supply is majorly attributed to the

³retrieved from <https://economist.kg/novosti/2021/08/11/zasuha-i-potopy-chno-proishodit-s-klimatom-kyrgyzstana-i-pochemu-dalshe-budet-huzhe/?ysclid=ldcz4v41x93397284>

lack of snow during the winter, according to BIOM (2021), a public non-profit voluntary organization unifying young specialists, scientists, and leaders who participate in addressing environmental problems of the Kyrgyz Republic and Central-Asian region. In Kyrgyzstan, water influx in river systems largely relies on seasonal snow accumulation. Recent observations reveal a trend of reduced snowfall during winter seasons. Consequently, insufficient meltwater from seasonal snow cover has impeded river flow during the spring-summer period, leading to a shortage of water volume required to fill regional reservoirs to desired levels (BIOM, 2021). In addition, sufficient precipitation plays a pivotal role in the agricultural sector by serving as a vital water resource for crop cultivation. Snowfall plays a significant role in nourishing the soil, replenishing groundwater reserves, and fostering optimal plant growth. Another crucial aspect of winter snowfall in Kyrgyzstan is its protective capacity, shielding winter crops from harsh cold temperatures and gusty winds while facilitating adequate soil aeration owing to its loose composition. Data from the Ministry of Agriculture in Kyrgyzstan reveals that inadequate snowfall in some years resulted in notable losses ranging from approximately 10% to 15% in winter crop yield. ⁴ Based on the information above, we use the variable that indicates insufficient snowfall in winter compared to the historical mean (or dry winter) as our climate shock variable.

2.2 Bride kidnapping in Kyrgyzstan

One particular issue of gender inequality in Kyrgyzstan is bride kidnapping, a form of forced marriage involving the abduction of young women by men who wish to marry them without their consent. Bride kidnapping is known as "ala kachuu," which translates as "to take and run away." Bride kidnapping is a widespread practice in Kyrgyzstan, and it has serious social, economic, and psychological consequences for women and their families (United Nations Entity for Gender Equality and the Empowerment of Women (UN Women), 2018). According to The Commission on Security and Cooperation in Europe (CSCE) (2017) data,

⁴retrieved from <https://ru.sputnik.kg/20190219/kyrgyzstan-zima-posledstviya-ehnergetika-poliv-1043407465.html/>

an estimated 12000 young women are kidnapped and forced to marry their abductors yearly in Kyrgyzstan. As many as one out of five are raped in the process. The National Statistical Committee in 2017 estimated that up to 20% of marriages in Kyrgyzstan result from bride kidnapping⁵, and United Nations Population Fund (UNFPA) (2018) estimates this number to be as high as 35%.

Bride kidnapping became illegal in 1994, but the practice continues today, especially in rural areas (The Commission on Security and Cooperation in Europe (CSCE), 2017). The laws forbidding bride kidnapping in Kyrgyzstan have been largely ineffective due to cultural acceptance of the practice - Kleinbach, R., Ablezova, M., Aitieva, M. (2005) reported that 38% of the population considers bride kidnapping a "good traditional way to get a bride.". Despite the prevalence of this practice in Kyrgyzstan, only 79 incidents were officially reported to the Ministry of Internal Affairs between 2014 and 2016 (Bengard, A., 2017).

Traditionally, young women can reject marriage by abduction, but there are strong incentives against it. Becker, C. M., Mirkasimov, B., Steiner, S. (2017) show that women who decline a proposal of kidnapping are less likely to find an appropriate partner with equal social and economic status afterward due to women's reputations being compromised by spending time at the abductor's house. It is also considered shameful for the woman's household if she refuses the proposal (Kleinbach, R., Ablezova, M., Aitieva, M., 2005; Naumova, O., 2016). The girl's family may pressure her to agree to the marriage and comply with social norms. While bride kidnapping occurs in various parts of the world, it has been reported to be more prevalent in Central Asia compared to other regions.

Although we do not know the exact reason why the practice is so persistent in this region, there are several factors that contribute to the higher occurrence of bride kidnapping. First, cultural and historical factors: bride kidnapping has deep cultural roots in Central Asia, particularly among certain ethnic groups. It has been practiced for centuries and is often associated with local traditions, customs, and notions of honor. Central Asia has a his-

⁵retrieved from https://24.kg/obschestvo/45809_kraji_nevest_vkyrgyzstane_kakim_issledovaniyam_verit/

tory of nomadic traditions, where male dominance and patriarchal norms were prevalent (Becker, A., 2019). These traditions often included bride kidnapping as a means for men to assert their power and control over women, perpetuating the practice over generations. The cultural acceptance and historical continuity contribute to its persistence in the region. Second, socioeconomic conditions, such as poverty and limited access to education and employment opportunities, can contribute to the prevalence of bride kidnapping. In some cases, men resort to kidnapping because they lack the financial means to afford a traditional marriage dowry or cannot meet the expectations set by the bride’s family. Third, weak law enforcement and inadequate legal frameworks to address bride kidnapping contribute to its persistence. In some cases, local authorities and communities may turn a blind eye to the practice, viewing it as a part of tradition or considering it a private matter between families. Lastly, limited awareness about women’s rights and gender equality can perpetuate the practice of bride kidnapping. Insufficient education and awareness campaigns addressing the negative consequences and human rights violations associated with this practice hinder progress in combating it effectively (United Nations Entity for Gender Equality and the Empowerment of Women (UN Women), 2018).

3 Data

To answer the research question we use two data sources. The first is the Life in Kyrgyzstan Survey (LiK)⁶, an ongoing longitudinal survey in Kyrgyzstan. The survey follows 3000 households and more than 8000 individuals across all seven regions (oblasts) of Kyrgyzstan, as well as the two administratively separate cities of Bishkek and Osh. This creates a nationally representative dataset encompassing both rural and urban areas and Northern and Southern regions. The sample was initially selected based on the 2009 national population census, and the survey was conducted six times: first in the autumn of 2010 and then repeated in 2011, 2012, 2013, 2016, and 2019. The LiK survey is suitable for our study since

⁶retrieved from <https://datasets.iza.org/dataset/124/life-in-kyrgyzstan-study-2010-2019>

it contains information about how marriages happened (love marriage, arranged, kidnapping) and attitudes towards bride kidnapping. In addition to information about bride kidnapping, LiK also has data on the socio-economic and demographic characteristics of households and individuals in Kyrgyzstan, which allows us to investigate possible channels as well as other detrimental effects that climate shocks have on women.

Many datasets provide information about precipitation and temperature. Examples include the dataset produced by the Climatic Research Unit at the University of East Anglia, weather data obtained from the Center for Climatic Research at the University of Delaware, and NASA MERRA-2. These datasets provide information about precipitation and temperature on grids of 0.5 by 0.5 degrees, corresponding to about 50 by 50 kilometers. We use weather data obtained from the Climatic Research Unit at the University of East Anglia⁷, particularly data about temperature and precipitation, which we use to investigate the effect of insufficient precipitation on marriage practices.

After combining the data about precipitation and temperature with different waves from LiK, we now have the individual-year panel dataset, which contains information about individuals in Kyrgyzstan with several socio-economic characteristics and the history of climate shocks experienced each year. Table 1 below shows the summary statistics of our panel dataset.

In our analysis, we extract precipitation data on a monthly scale to account for droughts during the survey period. We define our draught measure, dry winter, as a dummy variable, which equals one if the average deviation of winter precipitation from the historical mean of winter precipitation in this district (calculated from 1980 to 2019) is more than 1.5 standard deviations in the left part of the distribution, zero otherwise. Put simply, our dry winter variable equals one for a given year in a given district if there was too little snow compared to what is the historically normal amount of snow in that district. Firstly, snowfall in a particular district by itself influences the amount of water in the ground in that district. Secondly, in Kyrgyzstan, the implementation of irrigation systems is primarily district-based rather

⁷retrieved from <https://www.uea.ac.uk/groups-and-centres/climatic-research-unit>

Table 1: Summary Statistics

Statistic	N	Mean	St. Dev.	Min	Max
HH Members	42,789	6.28	2.60	1	20
Dry Winter	42,789	0.11	0.31	0	1
Age	42,789	37.35	16.87	15	105
Female	42,789	0.51	0.50	0	1
Rural	42,789	0.77	0.42	0	1
Married	42,789	0.61	0.49	0	1
Single	42,789	0.27	0.44	0	1
Year	42,789	2,013.53	3.08	2,010	2,019
Year Married	2,017	1,998.27	9.82	1,981	2,013
Age at Marriage	2,017	20.79	2.87	14	36
Husband Age at Marriage	2,017	24.36	4.14	16	99
Bride Kidnapped	2,017	0.14	0.35	0	1
Lost Love	11,622	-0.88	1.46	-3	3
Domestic Violence	11,622	-0.68	1.22	-3	3
Burdensome Demands	11,622	-0.63	1.17	-3	3
Cut From Friends	11,622	-0.50	1.17	-3	3

Notes: The table outlines summary statistics for all important variables used in the regressions. Dry winter is a dummy variable indicating that the amount of precipitation in the winter of the year of marriage was lower than the historical mean by 1.5 standard deviations. Year Married, Age at Marriage, Husband's Age at Marriage, and Bride Kidnapped are cross-sectional and available only for 2010, 2011, 2012, and 2013. The last four variables are measures of attitude toward bride kidnapping evaluated as self-reported likelihoods of events (Lost Love, Domestic Violence, Burdensome Demands, and Being Cut Off from Friends) happening in marriage initiated with bride kidnapping. Likelihoods are measured from 1 very possible to 4 impossible and standardised by subtracting similar scores for love marriage.

than nationwide (World Bank, 2021). The country has a diverse landscape, with variations in water availability, climate, and agricultural practices across different regions. As a result, irrigation systems are developed and managed at the district level to cater to each area's specific needs and conditions. This characteristic of the irrigation system in Kyrgyzstan is one of the reasons it suffers from a lack of coordination in addressing challenges such as aging infrastructure and inadequate investments in irrigation infrastructure modernization.

However, it allows us to build our identification by matching winter precipitation to districts and creating the Dry Winter variable for individuals living in these districts.

The LiK survey gives information about how marriages happen for respondents: was it a love marriage, arranged marriage, or did it happen through bride kidnapping? This question allows us to study how dry-winter shocks can affect the incidents of marriages through bride kidnapping. We define our measure of a bride kidnapping as one for a woman in a year when the marriage happened if it happened through bride kidnapping, and zero if the marriage for a woman occurred through love or was arranged. Our set includes women only to avoid the issue of double-counting.

In the last two waves of LiK there is also a section that asks about attitudes toward bride kidnapping. Respondents have to rank the following from 1 (very possible) to 4 (impossible) for bride kidnapping and love marriage: Separation from someone who one really loved/hoped to marry; Domestic violence and abuse by a husband toward wife; Burdensome demands on wife, e.g., work/serve husband's family; Be cut off from friends. To account for a general shift in attitudes toward marriage, we define our measure of the acceptability of bride kidnapping as the difference, or "gap," between the scores assigned to bride kidnapping and love marriage within each category. This gap can range from -3 to 3, with a larger gap indicating a greater acceptance of bride kidnapping relative to love marriage. For example, a gap of 3 for the outcome of domestic violence means that a respondent ranked the likelihood of domestic violence as "impossible" in the context of marriage by bride kidnapping but as "very possible" for love marriage. This suggests that the respondent considers bride kidnapping to be safer than love marriage in terms of how likely a woman will experience domestic violence. On the other hand, a gap of -3 means that a respondent ranked the likelihood of domestic violence as "very possible" in the case of a marriage by bride kidnapping but as "impossible" for love marriage. The final scores are normalized by zero mean and the standard deviation one. We link the residence of respondents who answer attitudes questions to the dry-winter shocks in the year the survey was conducted.

4 Identification Strategy

The amount of rainfall/snow in a particular location is exogenous and varies over time. Therefore, the identifying variation in our study arises from the random timing of the shocks of dry winters. We estimate two models. First, using a sample of women, we estimate the probability of the Marriage by bride kidnapping BK_{idt} of a woman i living in location d (a district in Kyrgyzstan) at a year when the marriage happened t as follows:

$$BK_{idt} = \alpha + \beta * DryWinter_{idt} + \gamma * X_{idt} + \mu_t + \mu_d + \epsilon_{idt}$$

where i indexes women, d indexes districts, and t indexes the year of marriage. X_{idt} is a vector of the control variables of the woman, μ_t and μ_d are time and district fixed effects. BK_{idt} is the bride kidnapping variable, which equals one if the marriage happened through kidnapping, and zero if it is a love/arranged marriage. For this model, we use a dataset of women that contains information on how the marriage happened. As marriages are one-time events, we use district fixed effects rather than individual ones in this analysis.

Our second model is the following:

$$ATT_{idt} = \alpha + \beta * DryWinter_{idt} + \gamma * X_{idt} + \mu_t + \mu_i + \epsilon_{idt}$$

where i indexes individuals, d indexes districts, and t indexes the year of the interview. X_{idt} is a vector of the control variables of the individual, μ_t and μ_i are time and individual fixed effects. The outcome variable ATT_{idt} is a variable that captures attitudes of individual i towards bride capture - the larger the ATT_{idt} , the more accepting is individual i of the bride capture tradition. This regression analysis is done on the set of all individuals that responded to the bride kidnapping attitudes questions in the survey. The variable $DryWinter_{idt}$ is a dummy that equals one if district d was hit by climate shock, zero if not - this is our variable of interest in both models. We cluster standard errors on the district level to allow serial

correlation across individuals in the same area. We observe 112 districts in our datasets.

5 Results

In this section, we present the main results of our study. We first examine the overall impact of climate shocks, specifically inadequate winter precipitation, on incidents of bride kidnapping and associated attitudes. Subsequently, we delve into a more nuanced analysis by considering different sub-samples and interaction terms including gender, compositions of children, education, and income levels.

5.1 Occurrences of Bride Kidnapping

Table 2 demonstrates the effect of dry winters on the occurrences of bride kidnapping in districts of Kyrgyzstan. Column 1 reports the estimated coefficient of the regression without control variables, and Column 2 does so with control variables. Since the data on the timing of marriage is recall data, we have limited information about the socioeconomic characteristics of the woman in the year when the marriage happened. The information we do have and include in the control variables is whether a woman was living in a rural or urban area, her age at marriage, and the age of her groom at marriage. We include district and time-fixed effects to control for unobserved heterogeneity across different time periods and districts. The standard errors are clustered at the district level.

Our findings suggest that insufficient snowfall during winter increases the incidents of bride kidnapping over the number of love/arranged marriages in Kyrgyzstan districts. If the district experiences the shock of dry winter, it is associated with a 10-11 percentage point increase in the probability of marriage through bride kidnapping for women. The average rate of bride kidnapping in the districts without dry winter in our data is 16.5 %. As discussed in the section with the overview of bride kidnapping in Kyrgyzstan, the rate of marriages through bride capture in the literature is up to 20-35%. The effect we find is

Table 2: The Impact of the Climate Shock on Bride-Kidnapping Rate

	Bride Capture (1)	Bride Capture (2)
Dry Winter	0.104** (0.051)	0.106** (0.051)
Controls	N	Y
Year FE	Y	Y
District FE	Y	Y
Observations	3,744	3,744

Note: *p<0.1; **p<0.05; ***p<0.01

Notes: Bride Capture is a dummy variable that equals one if the marriage happened by bride kidnapping. The average rate of Bride Kidnapping for those unaffected by the shock regions is 16.5 %. Dry Winter is a dummy variable indicating that the amount of the precipitations in the winter of the year of marriage was lower than the historical mean by 1.5 standard deviations. Year and district fixed effects are included. Standard errors are clustered by the district. Controls include rural/urban residency, the bride's age at marriage, and the groom's age at marriage.

substantial, but given the frequency of dry-winter shock (11%), the overall rate is within the limits of the rate given by literature sources. We also note that according to the World Bank, the percentage of the rural population in Kyrgyzstan is 63% ⁸, while in our sample, it is 77%. Since the rural population is oversampled and bride capture is more attributed to the rural areas, this might suggest a lower average rate of bride kidnapping and a smaller effect of dry winter for the overall population of Kyrgyzstan. Our positive effect of dry winter on the incidents of bride kidnapping is in line with findings of the previous literature that demonstrated a positive effect of climate shocks on the occurrences of child marriages in societies where bride price is customary.

5.2 Attitudes toward Bride Kidnapping

We have identified evidence indicating that dry winters have a substantial impact on the actual occurrence of bride kidnapping incidents in Kyrgyzstan. As a next step, we aim to examine the dynamics of attitudes towards bride kidnapping, specifically focusing on how they evolve following dry winters.

Table 3 examines the impact of climate shocks on attitudes towards bride kidnapping. The table shows the effect of a dry winter on attitudes toward various events that might occur in a marriage that begins with a bride kidnapping. These events include "separation from someone who one really loved" (Lost Love), "domestic violence and abuse" (Domestic Violence), "burdensome demands on wife" (Burdensome Demands), and "being cut off from friends" (Cut From Friends). For those categories, a higher score indicates a stronger acceptance of bride kidnapping relative to love marriage. Consequently, a positive coefficient suggests that respondents perceive an adverse event (i.e., Domestic Violence) to be less likely in bride-capture marriages compared to love marriages following a dry-winter shock.

The results in Table 3 indicate that experiencing a dry winter is positively and significantly associated with an increase in the standardized scores for all four types of attitudes

⁸retrieved from <https://data.worldbank.org/indicator/SP.RUR.TOTL.ZS?end=2021&locations=KG&start=2000>

Table 3: The Impact of the Climate Shock on Attitudes Toward Bride Kidnapping

	Lost Love	Domestic Violence	Burdensome Demands	Cut from Friends
	(1)	(2)	(3)	(4)
Dry Winter	1.108*** (0.184)	0.571*** (0.161)	0.498*** (0.152)	0.514*** (0.149)
Controls	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Indiv FE	Y	Y	Y	Y
Observations	11,622	11,622	11,622	11,622

Note:

*p<0.1; **p<0.05; ***p<0.01

Notes: Each column represents a type of attitude toward bride kidnapping. Respondents answer how likely different events are to occur in a marriage that began with the bride being kidnapped. The events are 'separation from someone who one really loved', 'domestic violence and abuse', 'burdensome demands on wife', and 'being cut off from friends'. Respondents can range the answer from 1 to 4 where 1 is 'very possible' and 4 is 'impossible'. The scores are standardized by subtracting similar scores for love marriage. Dry Winter is a dummy variable indicating that the amount of the amount of precipitation in the winter of the year of marriage was lower than the historical mean by 1.5 standard deviations. Year and Region fixed effects are included. Standard errors are clustered by region. Controls include the age of the bride at marriage and the age of the groom at marriage. Average values for 'Lost Love', 'Domestic Violence', 'Burdensome Demands', and 'Cut from Friends', respectively, are -0.88, -0.68, -0.63, -0.5. Controls include: age, marriage status, gender, residence status.

toward bride kidnapping. The effect of a dry winter ranges from 0.429 to 0.766 standard deviations, all significant at the 1% level, implying that experiencing a dry winter leads to an increase in the standardized scores for all measured attitudes. This suggests that dry winters not only increase the likelihood of bride capture but also change attitudes towards the potential negative outcomes of marriages that begin with bride kidnapping. Specifically, after experiencing a dry winter, respondents perceive these negative outcomes as more unlikely to occur in marriages from bride kidnapping relative to love marriages. Therefore, our findings suggest that dry-winter shocks affect both real incidents of bride kidnapping and attitudes towards this practice.

People in affected areas adjust their attitudes towards bride kidnapping in response to climate shocks, making them more accepting of this harmful practice. As previously mentioned, although the laws of Kyrgyzstan prohibit bride kidnapping, it continues to exist due to societal acceptance, resulting in a very low number of incidents officially reported to the Ministry of Internal Affairs. Since the persistence of this tradition is primarily attributed to the cultural acceptance of bride kidnapping, a positive shift in attitudes towards bride kidnapping after climate shock could be a mechanism for higher incidents of marriages through bride kidnapping. We explore further nuances of this mechanism in the next section.

5.3 Heterogeneity Analysis

In this section, our aim is to investigate the potential variations in attitudes towards bride kidnapping across different sub-samples of our dataset in response to dry winters. Since we do not have much information about women in the years when marriage happens, we cannot perform a heterogeneity analysis on the actual incidents of bride kidnapping. However, the richness of the LiK survey allows us to do this analysis for the attitudes part of the results. We aim to explore the factors that contribute to either exacerbating or improving the issue of a positive shift in attitudes toward bride kidnapping amid climate shocks.

First, we explore the impact of climate shocks on attitudes toward bride kidnapping for the

groups of respondents from high-, middle-, and low-income households by adding respective interaction terms. Table 4 presents an examination of the interaction between income levels and climate shocks on attitudes towards bride kidnapping. This analysis uncovers the differential impact of a dry winter on various income brackets. The results from Table 4 add another layer to the narrative by suggesting that income might serve as a significant mechanism in mediating the relationship between climate shocks and attitudes towards bride kidnapping. When climatic conditions like a dry winter occur, they can intensify economic stress, particularly among lower-income households. These households often rely heavily on weather-dependent sectors such as agriculture and livestock, making them more susceptible to the adverse effects of climate shocks.

The coefficients of the interaction terms Dry X Low and Dry X Mid indicate the differential effects of dry winters on attitudes towards bride kidnapping for different income groups. A dry winter, in combination with low income, has a more pronounced impact on attitudes towards bride kidnapping across all categories relative to the high-income group (our reference group). This effect is statistically significant at the 5% level for the likelihood of lost love, burdensome demands, and being cut off from friends and at the 1% level for the likelihood of domestic violence.

Furthermore, middle-income households also show some changes in their attitudes, albeit to a lesser extent. It seems that while the economic strains caused by climate shocks might affect them, the magnitude is comparatively lower, potentially due to their more robust financial buffers. However, dry winter seems to have a statistically significant effect only on the likelihood of being cut off from friends, as indicated by the significant coefficient on Dry X Mid in column 4.

For the reference high-income group, dry-winter shock actually has a negative effect in all the categories of the dependent variable, meaning that for this group, attitudes shift from favoring bride kidnapping.

The disparity of these effects highlights that the implications of climate shocks like dry

Table 4: The Impact of the Climate Shock on Attitudes Toward Bride Kidnapping, Interaction Term Income

	Lost Love	Domestic Violence	Burdensome Demands	Cut from Friends
	(1)	(2)	(3)	(4)
Dry Winter	-0.002 (0.212)	-0.369** (0.185)	-0.421** (0.175)	-0.734*** (0.176)
Low Inc.	-0.093 (0.081)	-0.023 (0.070)	0.016 (0.067)	-0.027 (0.067)
Mid Inc.	0.093 (0.059)	0.069 (0.051)	0.066 (0.049)	0.056 (0.049)
Dry X Low	0.677* (0.398)	0.953*** (0.348)	0.800** (0.329)	0.790** (0.331)
Dry X Mid	0.266 (0.267)	0.330 (0.233)	0.159 (0.221)	0.443** (0.221)
Controls	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Indiv FE	Y	Y	Y	Y
Observations	10,178	10,178	10,178	10,178

Note:

*p<0.1; **p<0.05; ***p<0.01

Notes: Each column represents a type of attitude toward bride kidnapping. Respondents answer how likely different events are to occur in marriage starting with the bride's kidnapping. The events are 'separation from someone who one really loved', 'domestic violence and abuse', 'burdensome demands on wife', and 'cut off from friends'. Respondents can range the answer from 1 to 4 where 1 is 'very possible' and 4 is 'impossible'. The scores are standardized by subtracting similar scores for love marriage. Dry Winter is a dummy variable indicating that the amount of precipitations in the winter of the year of marriage was lower than the historical mean by 1.5 standard deviations. Year and Region fixed effects are included. Standard errors are clustered by region. Controls include the age of the bride at marriage and the age of the groom at marriage. Average values for 'Lost Love', 'Domestic Violence', 'Burdensome Demands', and 'Cut from Friends', respectively, are -0.88, -0.68, -0.63, -0.5. Controls include age, marriage status, gender, and residence status. 'Low Inc.' is a dummy variable indicating the individual's income is below the 25th percentile; 'Mid. Inc.' is between the 25th and 75th percentiles.

winters are not uniform across income groups, underscoring the importance of considering socio-economic stratifications in the evaluation of climate impacts on societal attitudes. Based on our findings, it can be inferred that the shift in attitudes towards bride kidnapping following dry-winter shocks is more pronounced among lower-income individuals.

The results support the idea that the mechanism behind shifting towards more positive attitudes to bride kidnapping after dry-winter shock might lie in men being too poor to attract a bride and facing tightening liquidity constraints. Bride kidnapping, in this case, allows them and their household to economize on paying the "kalym" but still get married. In times of economic duress, harmful practices such as bride kidnapping might appear as a potential avenue for households to ensure marital alliances without bearing the costs associated with traditional marriages. Consequently, climate shocks like dry winters could heighten acceptance or tolerance towards bride kidnapping among lower-income households, reflecting their struggle to cope with worsening economic conditions. This shift in attitudes might, in turn, lead to an increase in real incidents of bride kidnapping.

These findings suggest that income level potentially moderates the effect of dry winters on attitudes toward bride kidnapping, particularly influencing how individuals perceive the likelihood of adverse outcomes in marriages initiated by such practices. These observations deepen our understanding of how climate shocks intersect with economic conditions to shape societal attitudes towards harmful practices like bride kidnapping.

Table 5 explores gender differences in the impact of the dry winter on attitudes toward bride kidnapping. Specifically, we examine the interaction between gender (female) and the dry winter. The analysis explores whether there is a difference in the attitudinal response to climate shocks between male and female respondents. The coefficient for 'Female' is insignificant across all categories, suggesting that gender on its own does not contribute significantly to the variance in attitudes toward bride kidnapping. Furthermore, the interaction term 'Dry X Female' is not significant in any of the outcomes. This suggests that the effect of a

Table 5: The Impact of the Climate Shock on Attitudes Toward Bride Kidnapping: Gender

	Lost Love	Domestic Violence	Burdensome Demands	Cut from Friends
	(1)	(2)	(3)	(4)
Dry Winter	1.153*** (0.255)	0.426* (0.223)	0.525** (0.210)	0.387* (0.206)
Female	0.020 (0.292)	-0.292 (0.256)	-0.279 (0.241)	-0.204 (0.236)
Dry X Female	-0.093 (0.363)	0.297 (0.318)	-0.056 (0.299)	0.262 (0.293)
Controls	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Indiv FE	Y	Y	Y	Y
Observations	11,622	11,622	11,622	11,622

Note:

*p<0.1; **p<0.05; ***p<0.01

Notes: Each column represents a type of attitude toward bride kidnapping. Respondents answer how likely different events are to occur in marriage starting with the bride's kidnapping. The events are 'separation from someone who one really loved', 'domestic violence and abuse', 'burdensome demands on wife', and 'cut off from friends'. Respondents can range the answer from 1 to 4 where 1 is 'very possible' and 4 is 'impossible'. The scores are standardized by subtracting similar scores for love marriage. Dry Winter is a dummy variable indicating that the amount of precipitations in the winter of the year of marriage was lower than the historical mean by 1.5 standard deviations. Year and Region fixed effects are included. Standard errors are clustered by region. Controls include age, marriage status, gender, and residence status.

dry winter on attitudes toward bride kidnapping does not vary significantly between males and females.

To summarize, our analysis suggests that the effect of the dry winter on attitudes towards bride kidnapping is not significantly different between genders. Both males and females tend to undergo similar shifts in their attitudes after experiencing the shock. This implies that income, rather than gender, has a greater influence on shaping these attitudes.

Furthermore, our findings indicate that the change in attitudes is likely occurring at the household level rather than being driven solely by men. It is probable that the presence of young daughters in a household plays a role in influencing this change rather than gender itself. Next, we will delve deeper into this aspect.

Table 6 investigates the interaction between the dry winter and the daughters' share in shaping attitudes toward bride kidnapping across the following categories: lost love, domestic violence, burdensome demands, and being cut off from friends. This analysis enables us to understand whether the effect of dry winters on attitudes towards bride kidnapping varies depending on the presence of sons or daughters in the household. Our hypothesis is that it might not be the gender that is important for our effect but rather the presence of daughters in the households. Families with daughters might be more empathetic towards the abducted women and, consequently, exhibit a smaller shift in attitudes.

The interaction term 'Dry X Share' is negative and significant across all four categories, suggesting that households with a larger share of daughters might experience less of a shift in attitudes following a dry winter. In particular, a unit increase in the share of daughters in a household during a dry winter decreases the score change for 'lost love', 'domestic violence', 'burdensome demands', and 'being cut off from friends' by 0.814, 0.743, 0.328, and 0.683, respectively. This suggests that the presence of daughters in a household may indeed invoke more empathetic views toward abducted women, attenuating the impact of climate shocks on attitudinal shifts. These findings underscore the complex interplay of familial composition and climate shocks in shaping societal attitudes toward bride kidnapping, highlighting

Table 6: The Impact of the Climate Shock on Attitudes Toward Bride Kidnapping, Interaction Term Daughters' Share

	Lost Love	Domestic Violence	Burdensome Demands	Cut from Friends
	(1)	(2)	(3)	(4)
Dry Winter	0.290* (0.171)	0.188 (0.151)	-0.126 (0.142)	0.251* (0.143)
Daughters Share	0.118 (0.104)	0.014 (0.092)	-0.116 (0.087)	0.127 (0.087)
Dry X Share	-0.814*** (0.212)	-0.743*** (0.187)	-0.328* (0.177)	-0.683*** (0.178)
Controls	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Indiv FE	Y	Y	Y	Y
Observations	8,727	8,727	8,727	8,727

Note:

*p<0.1; **p<0.05; ***p<0.01

Notes: Each column represents a type of attitude toward bride kidnapping. Respondents answer how likely different events are to occur in marriage starting with the bride's kidnapping. The events are 'separation from someone who one really loved', 'domestic violence and abuse', 'burdensome demands on wife', and 'cut off from friends'. Respondents can range the answer from 1 to 4 where 1 is 'very possible' and 4 is 'impossible'. The scores are standardized by subtracting similar scores for love marriage. Daughters Share is a share of the number of females under 25 in the total number of HH members under 25. Dry Winter is a dummy variable indicating that the amount of the precipitations in the winter of the year of marriage was lower than the historical mean by 1.5 standard deviations. Year and Region fixed effects are included. Standard errors are clustered by region. Controls include age, marriage status, gender, and residence status. Average values for 'Lost Love', 'Domestic Violence', 'Burdensome Demands', and 'Cut from Friends', respectively, are -0.88, -0.68, -0.63, -0.5.

the potential role of familial empathy as a mitigating factor.

Lastly, Table 7 examines the interaction between the dry winter and low education in shaping attitudes toward bride kidnapping. The variable low education is a dummy variable indicating whether an individual has less than eight years of education (primary education). The analysis again focuses on the self-reported likelihood of different outcomes associated with bride kidnapping, including lost love, violence, burdensome demands, and being cut off from friends.

None of the coefficients for the interaction term reach statistical significance. Specifically, the coefficients for the interaction term (DW X Low Educ) in all four dimensions (lost love, violence, burdensome demands, and cut off from friends) are not statistically significant. The lack of statistical significance and coefficients of different signs suggest that there is no discernible pattern in the relationship between the dry winter and attitudes toward bride kidnapping among individuals with low education. The coefficients for the interaction term do not provide evidence to support the notion that the dry winter has a differential impact on attitudes toward bride kidnapping based on education level. People with a lower educational level tend to give higher scores across all categories. This suggests that they often believe adverse events are less likely to occur in marriages resulting from kidnappings compared to love marriages. However, the coefficients are also statistically insignificant.

In summary, our investigation into the heterogeneity of attitudes toward bride kidnapping reveals several insights. Examining attitudes across income groups, we uncover pronounced disparities. Individuals from low-income households demonstrate a notably positive shift in perceiving bride-kidnapping marriages as less prone to domestic violence and lost love due to dry winters. This change in attitude somewhat reduces in intensity among middle-income households but is still discernible. High-income households, conversely, show a negative shift. Such patterns hint at an underlying mechanism where, in the face of economic challenges exacerbated by climatic adversities, traditional practices like bride kidnapping might be seen as economically viable methods to alleviate financial burdens, such as avoiding "kalym" pay-

Table 7: The Impact of the Climate Shock on Attitudes Toward Bride Kidnapping: Education Interaction

	Lost Love	Violence	Demands	Cut Friends
	(1)	(2)	(3)	(4)
Dry Winter	1.360*** (0.233)	0.689*** (0.207)	0.857*** (0.195)	0.571*** (0.191)
Low Educ.	0.265 (0.338)	0.272 (0.299)	0.221 (0.281)	0.001 (0.276)
Wint. X Low Educ	-0.693 (0.703)	0.742 (0.623)	-0.975* (0.586)	0.070 (0.574)
Controls	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Indiv FE	Y	Y	Y	Y
Observations	9,500	9,500	9,500	9,500

Note:

*p<0.1; **p<0.05; ***p<0.01

Notes: This table analyzes the interaction terms of low education. The dependent variable is the attitude toward bride kidnapping measured by the self-reported likelihood of lost love, domestic violence, burdensome demands, or being cut from friends in marriage initiated by bride kidnapping (standardized by self-reported likelihood of domestic violence in love marriage). Low Education is a dummy variable indicating that the individual has less than 8 years of education. Dry Winter is a dummy variable indicating that the amount of the precipitations in the winter of the year of marriage was lower than the historical mean by 1.5 standard deviations. Year and Individual fixed effects are included. Standard errors are clustered by region. Controls include age, marital status, residency status, and gender.

ments.

Another mechanism relates to our results on gender differences. Climate shocks could potentially impinge on the perception of male masculinity. As communities transition into a "survival mode" due to the stresses of climate shocks, men might feel their traditional roles as providers and protectors are threatened, leading them to assert their masculinity in other domains, including upholding traditional practices like bride kidnapping. However, our findings indicate that both males and females demonstrate similar shifts in attitudes, suggesting that the potential threat to masculinity might not be the dominant factor influencing attitudes in the context of this study.

On scrutinizing the influence of daughters' share in households, our findings are not uniformly statistically significant, but a trend emerges. Households with a higher proportion of daughters lean towards a less favorable view of bride kidnapping, especially in the dimensions of domestic violence, post a dry-winter shock. This could be indicative of families being more empathetic or protective, possibly fearing the potential repercussions for their own daughters in a society where bride kidnapping has become more normalized.

Finally, we explore the interaction between the dry-winter shock and low education levels. One might hypothesize that in economically constrained settings exacerbated by climate shocks, families might prioritize immediate survival needs over long-term educational investments, thereby inadvertently fostering environments where traditional beliefs flourish over more contemporary or progressive ones. In such contexts, even individuals with prior education might find their attitudes aligning more with age-old customs as they seek solace or coherence in familiar societal structures amidst the chaos of environmental unpredictability. Our results do not support this channel since the coefficients for the interaction term are neither consistent in direction nor statistically significant. This suggests that education might not act as a robust buffer against traditional norms, at least in the context of this study. Even amidst broader education, deep-seated cultural norms and practices might persist, especially when communities face external pressures or challenges. Our analysis predominantly

focuses on the immediate aftermath of short-term climatic shocks; hence we do not rule out the possibility that the education channel can have profound impacts on shaping attitudes over the long term.

6 Conclusion

Our study investigates the relationship between climate shocks, specifically insufficient precipitation in winter, and the incidence and attitudes towards bride kidnapping in Kyrgyzstan. This harmful marriage practice has significant negative consequences for the victims, including forced marriage, sexual and physical violence, unwanted pregnancies, social isolation, and mental health issues. Our findings demonstrate that climate shocks, such as insufficient precipitation in winter, increase the likelihood of bride kidnapping and positively shift attitudes towards this practice.

The paper's results highlight the complex interplay between climate change and bride kidnapping in Kyrgyzstan and emphasize that the consequences of climate change are not homogeneous. Our analysis underscores the complexity of the relationship between dry winters, socio-economic factors, and attitudes toward bride kidnapping. Income appears to be a crucial determinant, with lower-income individuals exhibiting a more susceptible attitude shift. Gender differences, while not significant, indicate a similar response to the shock among males and females. The presence of daughters in households suggests a potential influence in shaping negative attitudes.

Our results support the economic rationale behind more positive attitudes towards the bride-kidnapping practice in light of climate stress: lower-income households, perhaps driven by financial constraints, are more likely to reconcile with bride kidnapping as an acceptable norm, possibly viewing it as a strategy to navigate economic hardships.

On the other hand, our findings challenge the hypothesis that gender dynamics, par-

ticularly male dominance or attempts to assert masculinity, especially in the face of environmental stressors, play a primary role in perpetuating bride kidnapping. Both men and women seem to react similarly to climate shocks, suggesting that the practice is not merely an expression of male control or an outcome of heightened masculinity during tough times.

Our research has important implications for policymakers, as it suggests that climate change adaptation strategies need to consider not only the environmental and economic impacts of climate change but also its social and gender dimensions. This includes addressing harmful marriage practices like bride kidnapping, which can be exacerbated by climate shocks, and understanding the diverse ways in which climate change affects different groups within society.

Furthermore, our study contributes to a growing body of literature that seeks to understand the gendered dimensions of climate change impacts and highlights the need for more research on the links between climate change, gender inequality, and social norms in developing countries. By examining the implications of climate change for bride kidnapping in Kyrgyzstan, we have shed light on an under-researched aspect of the relationship between climate change and harmful marriage practices.

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Appendix

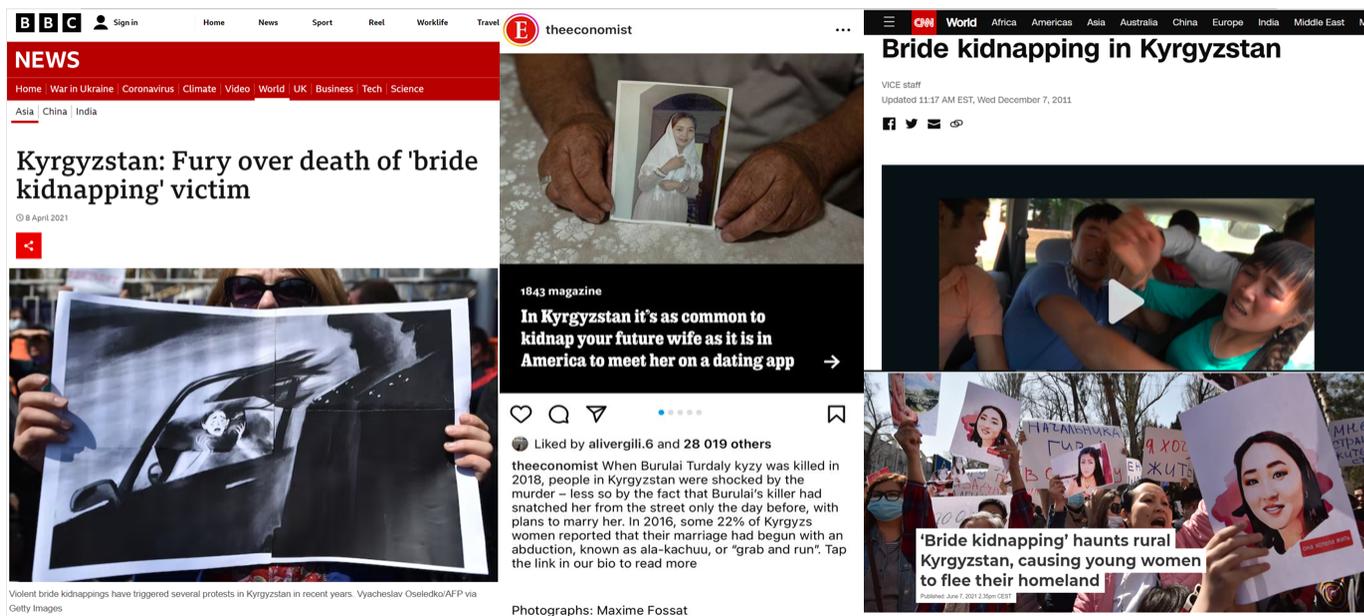


Figure 1: Media Coverage of the Protests against Bride Kidnapping in Kyrgyzstan

Table 8: Summary Statistics by Marriage Practice

Variable	Levels	n	\bar{x}	Min	Max
Age	arranged marriage	571	34.1	18	58
	bride capture	281	35.3	18	54
	love marriage	1165	33.5	18	59
	all	2017	33.9	18	59
Age When Married	arranged marriage	571	20.7	16	35
	bride capture	281	20.2	15	29
	love marriage	1165	21.0	14	36
	all	2017	20.8	14	36
Husband Age When Married	arranged marriage	571	24.5	18	51
	bride capture	281	24.6	17	60
	love marriage	1165	24.2	16	99
	all	2017	24.4	16	99

Table 9: Summary Statistics by Gender

Variable	Levels	n	\bar{x}	Min	Max
Age	Female	5636	41.58	17	95.00
	Male	5173	40.80	17	92.00
	all	10809	41.21	17	95.00
Empl. Decions: Myself	Female	5636	0.16	0	1.00
	Male	5173	0.17	0	1.00
	all	10809	0.17	0	1.00
Rural Residence	Female	5636	0.72	0	1.00
	Male	5173	0.75	0	1.00
	all	10809	0.73	0	1.00
Married	Female	5636	0.69	0	1.00
	Male	5173	0.73	0	1.00
	all	10809	0.70	0	1.00
BK Attitudes	Female	5636	14.03	6	24.00
	Male	5173	14.02	6	24.00
	all	10809	14.03	6	24.00
HH Income	Female	5636	129.55	0	2698.41
	Male	5173	137.47	0	2698.41
	all	10809	133.34	0	2698.41
Have Permanent Job	Female	5636	0.08	0	1.00
	Male	5173	0.15	0	1.00
	all	10809	0.11	0	1.00

Abstrakt

Tato studie zkoumá nedostatečně prostudovaný vztah mezi klimatickými šoky a diskriminací na základě pohlaví. S využitím dat z průzkumu Life in Kyrgyzstan Survey empiricky dokazujeme, že nedostatečné zimní srážky významně zvyšují pravděpodobnost únosu nevěsty a ovlivňují společenské postoje k této praxi v Kyrgyzstánu. Naše analýza odhaluje heterogenitu účinků, přičemž jednotlivci domácností s nižšími příjmy jsou náchylnější k pozitivním změnám postojů. Přítomnost dcer v domácnostech navíc koreluje s negativními postoji k únosům nevěst. Nenacházíme heterogenní reakce na šoky na základě pohlaví a úrovně vzdělání. Tato zjištění osvětlují genderové důsledky změny klimatu v rozvojových zemích a zdůrazňují nutnost implementace genderově citlivých adaptačních strategií.

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