

# Displacement, a step on *women's marriage*? Natural disasters and cultural norms

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## Abstract

This paper provides evidence that exposure to forced displacement during women's adolescence leads to an earlier entry into the marriage market. Using a shock to displacement, induced by the staggered occurrence of earthquakes in Indonesia, I show that when a household is displaced, affected young women experience a 47% increase in their average annual marriage hazard. Relying on individual-level longitudinal data, I find that women's response increases with the existence of cultural norms that add further economic incentives to their households. Results that suggest three main mechanisms: bride price, matrilineal traditions and assimilation with the local population at their destination as coping strategies with the negative economic shock of displacement.

*Keywords:* internal displacement, timing of marriage, cultural norms, Indonesia, earthquake

*JEL Classification:* D15, J12, Q54.

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# 1 Extended Abstract

Marriage decisions are critical factors of human capital investments, fertility preferences and bargaining power for women ((Vogl 2013), (Tertilt 2005), (Chiappori and et.al. 2018)). Notably, the age of marriage has long-lasting socioeconomic and health consequences for both women and their children. It has been documented how adverse income shocks affect the timing of marriage ((Corno and Voena 2016), (Corno and et.al. 2020)). Yet, we know far less about how forced displacement impacts the marriage decisions of young women.<sup>1</sup> Are these decisions merely a spot benefit-cost calculus or are there specific factors that lead displaced parents to change their preferences?

Forced displacement is a critical and growing concern. Today, one per cent of humanity is displaced and there are twice as many forcibly displaced people than in 2011 (UNHCR 2020).<sup>2</sup> Displacement diverges from other income socks, it shifts the demographic composition of marriage markets at origin and destination. Lastly, 86 per cent of forcibly displaced people in the world are hosted by developing countries (UNHCR 2020), where marriage is often regulated by traditional customary norms (e.g. bride payments, kinship, polygyny or matrilineality). Cultural norms that, although could be considered as socially undesirable, can facilitate better outcomes by alleviating market incompleteness ((Greif 1993) (Ashraf and et.al. 2020)).

This paper examines the impacts of forced displacement on the timing of marriage of displaced young women and particularly focuses on the hazard of early marriage, defined as marriage before the age of 18. This paper finds evidence that exposure to forced displacement during women's adolescence leads to an earlier entry into the marriage market. There are three main results. First, using an exogenous shock for displacement in Indonesia, I show how displaced parents significantly anticipate the marriage of their young daughters. Second, exploiting within country variation in the persistent engagement in traditional norms, I find that displaced parents' response increase with the existence of marriage norms that provide with additional economic incentives. Third, I show how an outflow of displaced population have negative side-effects on the timing of marriage of the young women stayed behind at origin.

To establish these results, I exploit a shock to displacement, induced by the staggered exogenous

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<sup>1</sup>(Nakamura and et.al. forthcoming) and (Deryugina and et.al. 2018), both, show the economic consequences of displacement.

<sup>2</sup>In 2011 the total number of forcibly displaced population was just under 40 million (UNHCR 2020)

occurrence of destructive earthquakes in Indonesia to implement a difference-in-difference strategy. And, I take advantage of the ethnicity variation in the persistent engagement in traditionally customary norms in Indonesia to evaluate if households change their preferences when it exists a marriage norm that alters their economic return. Namely, I look at bride price- a transfer from the groom and/or his family to the bride's parents upon marriage- and matrilocal -whereby the husband goes to live with the wife's community- traditions.

This setting yields four useful sources of variation: i) geographic and over-time variation in displacement induced by the staggered occurrence of destructive earthquakes in Indonesia from 1994 to 2014 , ii) household variation in the exposure to an earthquake, spatially linking the intensity of an earthquake at each particular location and a household location at grill-cell level, iii) variation in the age of exposure, using individual longitudinal level data that allow me to track individuals across years and subdistricts, and iv) ethnicity level variation in the traditional practice of cultural norms, together with their current and individual engagement.

I first show that women's timing of marriage is positively affected by displacement. Women who experience an earthquake and were displaced as a result between ages 12 and 22, are 1.7 percentage points more likely to get married in the same year. The effect is significant at the 1% level and economically important, corresponding to a 47% increase in the average annual marriage hazard. No effect in timing of marriage is found when restricting to marriage before the age of 18. For this to identify a causal effect, it must be the case that displaced and non-displaced women are on parallel trends. I provide evidence supporting this assumption using an event study specification that allows the relative effect of displacement in displaced and non-displaced women to vary over time. I address as well a standard empirical challenge in the migration literature: self-selection. In order to reduce the scope for self-selection into displacement I restrict my sample to large enough earthquake, control for the socioeconomic differences between displaced and non-displaced women, and test for further robustness checks. To overcome the self-selection into destination, I show descriptively that almost 70% of women move within the same district, and that results do not change when comparing with their female siblings.

I then ask how marriage norms affect the impacts of displacement on women's age of marriage. I find that the displacement average effect masks important heterogeneity that depends on the economic return of a group's marriage custom. In particular, my results show that bride price and

matrilocal traditions means additional economic incentives for displaced parents to marry their daughters earlier, incentives that shape the economic behaviour of displaced households. The point estimates are 74% higher among bride price women compared with non-bride price women and almost twice bigger among matrilocal women compared with non-matrilocal women.

The second focus of this paper is to understand the mechanisms underlying the link between forced displacement and timing of marriage. There are three potential main mechanisms: bride price as a consumption smoothing mechanism, a change in household composition as a coping strategy driven by matrilocal norms, and a need to assimilate with local population at destination. Firstly, displaced parents encourage their children's marriage to alleviate their financial constraints after displacement, larger amounts of money at marriage are received if their daughters are better educated (Ashraf and et.al. 2020). Secondly, displaced parent increases their aggregate labor return if their daughter's spouse join their household at the moment of marriage. Economic return that may help to alleviate the adverse economic shock of displacement. Thirdly, the marriage of their young daughters may be a quick way to assimilate with local population at destination and increase their socioeconomic network. The proposed mechanisms speak in favor to considering marriage as a coping strategy with the adverse economic shock of displacement, and how displaced parents take advantage of their cultural norms to try to maximize their economic returns.

Having shown that forced displacement affects the age of marriage of displaced young women, I then analyze if the outflow of displaced population has spillover effects on the women left behind at origin. I find that the outflow of displaced population in turn increases the probability of early marriage for the young women stayed behind at origin. This effect corresponds approximately to a 65% increase in the annual early marriage hazard for the young women left behind.

I then move to examining an important implication of the timing of marriage: timing of fertility and matching of couples. I show that displacement also affects the timing of first fertility, its effects corresponds to a 8.8-7.4% increase in their annual fertility hazard. I find that displacement does not impact the matching of couples in their education and age gap, and displaced women are not more likely to be in polygynous marriages or to marry a displaced man.

These results have several potential policy implications. First, this paper sheds light on the fact that the negative impacts of displacement start at an early age. Displacement early in life can determine women's lives. By documenting one potential cause of the anticipation of

marriage, this paper helps to understand what potential policies would be well-advised to reduce the consequences of displacement for children. Second, these findings highlight the importance of culture in shaping economic behavior of displaced populations. Understanding the role of cultural norms can contribute to policy design and evaluation. Third, this paper also contributes to the current global discussion on the impacts of climate change.

These findings adds to three strands of the literature. They build on an emerging literature on the consequences of forced displacement for migrants themselves ((Nakamura and et.al. forthcoming); (Chyn 2018); (Sacerdote 2012)). Most empirical studies in this area have analyzed education, economic, or political outcomes. For example, (Rozo and Vargas 2021) and (Sequeira and et.al. 2021) examine the impact of forced displacement on electoral outcomes, investments in human capital and occupational choices. Research related to internally displaced persons has tended to focus on civil conflicts or forced re-settlements settings (see (Becker and Ferrara 2019) for results from a recent survey). In contrast, there is little research exploring the effect of forced displacement on marriage outcomes using natural events (Lu and Bharadwaj 2021).

Additionally, this paper belongs to the large literature on the importance of traditional norms on determining women's outcomes ((Corno and et.al. 2020); (Ashraf and et.al. 2020); (Bau 2021)), as well as the literature on the determinants of marriage markets in developing countries ((Banerjee and et.al. 2013); (Chiappori and et.al. 2017); (McGavock 2021); (Greenwood and et.al. 2017)). I contribute to this literature by showing a new determinant of the timing of marriage, and quantifying how marriage traditional norms shape the economic behaviour of displaced population.

Finally, this paper contributes to the literature that studies how households respond to the impacts of natural disasters ((Deryugina and et.al. 2018); (Khanna 2020); (Kirchberger 2017); (Gignoux and Menéndez 2016)). I provide evidence of the unequal distribution of the consequences of natural hazards across sociodemographic characteristics (i.e. age, gender, education, etc). In the context of forced migration in developing countries, I contribute to this research agenda by showing that displaced and stayers suffered different effects.

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