

[ADRN Issue Briefing]

Natural Disasters and Women's Rights in Vietnam

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Vietnam is a developing country with about 75% of people living in a rural area as of 2008 (Vietnam Households Living Standards Survey 2008). Although most Vietnamese people's livelihood depends on agricultural activities, agricultural income is very volatile. This is partly because agriculture is affected heavily by natural disasters such as typhoons, storms, floods, droughts, landslides, animal and livestock epidemics, plant disease, and insects. According to the World Bank report (2010), natural disasters caused the loss of about 1 to 1.5 percent of annual GDP during the period 1989 – 2008 in Vietnam. Vietnam is also one of the most vulnerable countries to climate change in the world (Dasgupta, et al. 2009). In an agricultural society like Vietnam, men play an important role in cultivation, therefore gender inequality still exists. The World Bank (2011) report shows that gender disparity remained in Vietnam even though there has been significant progress in poverty, wellbeing, employment and livelihoods, and political participation. Gender inequality is also reflected in the aspect of domestic violence. General Statistics Office of Vietnam (2010) reports that 58 percent of women suffered at least one type of domestic violence: physical, sexual, and emotional. Likewise, Luke et al. (2007) carried out a survey in the Nghe An province that indicated that 37% of wives have experienced physical violence.

Women's Empowerment Caused by Relative Decline of Men's Contribution to Household Income

A large body of literature shows that improving the socio-economic status of women can increase their power within households. Allendorf (2007) argues that women's ownership of land increased their power in household decisions. Panda and Agarwal (2005) find that women with immovable property (land or a house) tend to face a significantly lower risk of marital violence than women without property. In addition, female participation in the labor force increases women's power and gives women more control to allocate the resources within households (Quisumbing and Maluccio 2003, Anderson and Eswaran 2009). Women's participation in microcredit programs is positively associated with women's empowerment while men's access to credit has negative impacts on women's empowerment (Pitt et al. 2006; Hashemi et al. 1996). Women with higher educational levels

were found to be more empowered in decision-making processes (Sofia and Pervaiz, 2018; Samarakoon and Parinduri, 2014). The employment of women also positively impacts their participation in decision-making on their own health care, large household purchases, visits to family or relatives, and daily spending (Sofia and Pervaiz, 2018).

These findings suggest that women have more bargaining power within the family when they participate in economically sustaining the household. However, little is known about how the decrease in men's economic contribution to the family impacts women's empowerment. In the case of farming-dependent households, natural disasters reduce men's economic contribution to household income. Natural disasters usually devastate farming conditions so that men who used to be primary breadwinners fall into unemployment or under-employment. The reduction of the male contribution to household income is expected to lead to the loss of power vis-à-vis female members in decision-making processes. Accordingly, one can predict the effect natural disasters has on women's empowerment through the decreased men's economic status.

Analysis of the Vietnamese Data

The main objective of this study is to investigate the association between natural disasters and women's empowerment in rural Vietnam. This study leverages the 2008 and 2010 Vietnam Access to Resources Household Surveys, and household fixed-effects to establish the causal relationship between natural disasters and women empowerment. The types of natural disasters include floods, droughts, typhoons, landslides, animal/livestock epidemics, plant disease, and insects, which had occurred in a commune in the past three years.

Natural disasters cause rural households to lose income significantly. Table 1 reports the estimated results on household loss by share of farm income. There is strong evidence on the positive impact of the number of natural disasters on the household loss due to natural disasters (Column 1). The number of natural disasters also has significant and positive impacts on household loss for all subsamples (Columns 2 to 4). However, natural disasters have greater impacts on households with a decrease of the household loss by 8.7 percent for households with a low share of farm income, by 10 percent for households with an average share of farm income, and by 14.6 percent for households with a high share of farm income.

[Table 1] Impacts of natural disasters on the household loss by share of farm income

	Whole sample	Low share of farm income	Average share of farm income	High share of farm income
	(1)	(2)	(3)	(4)
Number of natural disasters	0.118*** (0.028)	0.087** (0.036)	0.100** (0.042)	0.146*** (0.043)
<i>N</i>	3858	1286	1286	1286
adj. <i>R</i> ²	0.039	0.037	0.043	0.060

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors in parentheses. The regressions control for characteristics of households such as: household size, education of household head, number of household members of active age (15-55/66), number of girls aged less than 5, number of females aged 15 to 60, number of females aged 60 above, and characteristics of communes such as: dummy variable for bank for social policy, dummy variable for bank for agriculture

and rural development, dummy variable for having irrigation facilities, dummy variable for good quality of main irrigation canals, dummy variable for good quality of tertiary canal, dummy variable for good quality of public well, dummy variable for good quality of dike. The regressions also control for household-level fixed-effects and year fixed-effects. Standard errors are clustered at the commune level.

Table 2 shows that the number of natural disasters is positively associated with women's empowerment. The results are strong for different measures of women's empowerment. Specifically, an additional number of natural disasters increases the probability of women's empowerment on visits to family or relatives by 0.5 percent. The figure is similar for women's empowerment on daily purchases. Also, an additional number of natural disasters increases the probability of women's empowerment on contraception by 0.8 percent, on their own health by 0.5 percent, on child schooling by 1 percent, on child health by 0.9 percent, and on having a child by 0.6 percent.

Table 2: Impacts of Natural Disasters on Index and Number of Women Empowerment

	Visits	Daily purchases	Large purchases	Contraception	Their own health	Child schooling	Child health	Having a child
	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Number of natural disasters	0.005* (0.003)	0.005* (0.003)	0.003 (0.003)	0.008** (0.003)	0.005* (0.003)	0.010*** (0.003)	0.009*** (0.003)	0.006* (0.003)
<i>N</i>	3858	3858	3858	3858	3858	3858	3858	3858
adj. <i>R</i> ²	0.092	0.091	0.062	0.024	0.088	0.044	0.047	0.030

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors in parentheses. The regressions control for characteristics of households such as: household size, education of household head, number of household members of active age (15-55/66), number of girls aged less than 5, number of females aged 15 to 60, number of females aged 60 above, and characteristics of communes such as: dummy variable for bank for social policy, dummy variable for bank for agriculture and rural development, dummy variable for having irrigation facilities, dummy variable for good quality of main irrigation canals, dummy variable for good quality of tertiary canal, dummy variable for good quality of public well, dummy variable for good quality of dike. The regressions also control for household-level fixed-effects and year fixed-effects. Standard errors are clustered at the commune level.

This study also indicates that the number of natural disasters undermines men's power relative to women's power due to a fall in agricultural income. In an agricultural society, men's physical strength plays an essential role in cultivating activities. As such the decrease in agricultural income leads to a fall in men's power and an increase in women's power. Likewise, Table 3 provides strong evidence on the positive impact the number of natural disasters has on women's empowerment in households with a high share of farm income in 2008. There is no evidence of the impact the number of natural disasters has on women's empowerment in households with a low share of farm income. In a nutshell, female power increases in farming-dependent households when natural disasters hit rural Vietnam.

**Table 3: Impacts of Natural Disasters on Women's Empowerment
by Share of Farm Income in 2008**

	Low share of farm income	Average share of farm income	High share of farm income
	(1)	(2)	(3)
Panel A1: women's empowerment on visits			
Number of natural disasters	0.000 (0.004)	0.005 (0.004)	0.008* (0.004)
adj. R^2	0.080	0.075	0.141
Panel A2: women's empowerment on daily purchases			
Number of natural disasters	0.000 (0.004)	0.005 (0.004)	0.009** (0.004)
adj. R^2	0.088	0.076	0.125
Panel A3: women's empowerment on large purchases			
Number of natural disasters	0.001 (0.004)	0.005 (0.004)	0.004 (0.004)
adj. R^2	0.067	0.048	0.094
Panel A4: women's empowerment on contraception			
Number of natural disasters	0.004 (0.005)	0.015*** (0.004)	0.006 (0.005)
adj. R^2	0.034	0.041	0.050
Panel A5: women's empowerment on their own health			
Number of natural disasters	0.000 (0.004)	0.006 (0.004)	0.009** (0.004)
adj. R^2	0.090	0.075	0.117
Panel B1: women's empowerment on child schooling			
Number of natural disasters	0.006 (0.005)	0.011** (0.004)	0.012*** (0.005)
adj. R^2	0.040	0.032	0.071
Panel B2: women's empowerment on child health			
Number of natural disasters	0.004 (0.005)	0.009** (0.004)	0.013*** (0.005)
adj. R^2	0.038	0.030	0.084
Panel B3: women's empowerment on having a baby			
Number of natural disasters	-0.001 (0.005)	0.007 (0.005)	0.011** (0.005)
adj. R^2	0.027	0.023	0.061
N	1286	1286	1286

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors in parentheses. The regressions control for characteristics of households such as: household size, education of household head, number of household members of active age (15-55/66), number of girls aged less than 5, number of females aged 15 to 60, number of females aged 60 above, and characteristics of communes such as: dummy variable for bank for social policy, dummy variable for bank for agriculture and rural development, dummy variable for having irrigation facilities, dummy variable for good quality of main irrigation canals, dummy variable for good quality of tertiary canal, dummy variable for good quality of public well, dummy variable for good quality of dike. The regressions also control for household-level fixed-effects and year fixed-effects. Standard errors are clustered at the commune level.

Conclusion

To draw a solid conclusion, the findings are put into perspective. Natural disasters make most rural households suffer economically. However, there is a silver lining effect in increasing female power vis-à-vis men in the household decision-making. Other negative shocks such as the current COVID-19 pandemic and war also positively change gender inequality. For instance, Alon et al. (2020) find that the economic downturn due to the current COVID-19 pandemic increased gender equality. Child care needs have increased dramatically following the closures of schools and daycare centers. Many fathers have to take main responsibility for child care, which leads to erosion in social norms as to a lopsided distribution of the division of labor in housework and child care between men and women. Shatnawi and Fishback (2018) state that World War II caused a substantial increase in wartime demand and post-war demand for female workers in manufacturing compared with the setting in 1941. How negative shocks and crises change female household power needs to be studied further. ■

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