Return Migration after the Tsunami in Indonesia

EXTENDED ABSTRACT FOR PAA 2011

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Following a large-scale natural disaster, housing displaced populations and facilitating return movements are among the foremost issues facing disaster relief agencies. Given the inherent difficulties in data collection in this context, previous disaster studies in the developing world have rarely had access to before-and-after data or to large and representative household samples, leaving many questions about disaster-induced mobility unanswered. To address this lacuna, we use data from a unique longitudinal study, the Study of the Tsunami Aftermath and Recovery (STAR), implemented in Sumatra, Indonesia following the 2004 Indian Ocean Tsunami. Drawing on baseline data from a national household survey conducted prior to the tsunami, the study has collected five waves of panel data from more than 20,000 surviving adults from tsunami-affected and adjacent areas. Displacement was a major consequence of the tsunami, but the temporal pattern and selectivity of displacement and return migration have not previously been described[1].

In this paper, we use detailed migration histories collected in STAR waves 2 and 3 to investigate mobility in the first 2.5 years following the tsunami. We consider both movements in and out of the community (*desa*) of origin (displacement and return migration), as well movements in and out of camps for the displaced and other temporary settlements (camp entry and exit). Figures 1 and 2 display the temporal trajectory of these four populations movements by the level of tsunami damage. Displacement occurred primarily in the first month. By post-tsunami month 11 one half of those displaced from severely damaged areas had returned. Nearly all camp entries occurred in months 1 and 3 and the majority of exits occurred by month 8 for those from severely damaged areas. Despite these movements, a significant proportion of individuals from severely damaged areas were still displaced and/or in a camp as of month 30.

To examine the selectivity of these forms of mobility, we estimate multinomial logit models of displacement/return and camp entry/exit for individuals from severely and moderately damaged areas (Table 1). These models include predictors at individual, household and community levels, as well as subdistrict fixed effects, corrections for clustering and sampling weights. Notably, older individuals and those born in the district were more likely to return among the displaced, and older individuals were also more likely to exit camps, but education, wealth and gender did not affect who returned or exited. In the full paper, we will discuss the implications of these findings for migration studies and future disaster relief efforts.

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[1] Gray, C., E. Frankenberg, T. Gillepsie, C. Sumantri and D. Thomas. (2009). Tsunami-induced Displacement in Sumatra, Indonesia. Paper presented to the International Union for the Scientific Study of Population. Marrakech, September 27-October 2.

Figure 1. Displacement and return migration over time by level of damage.

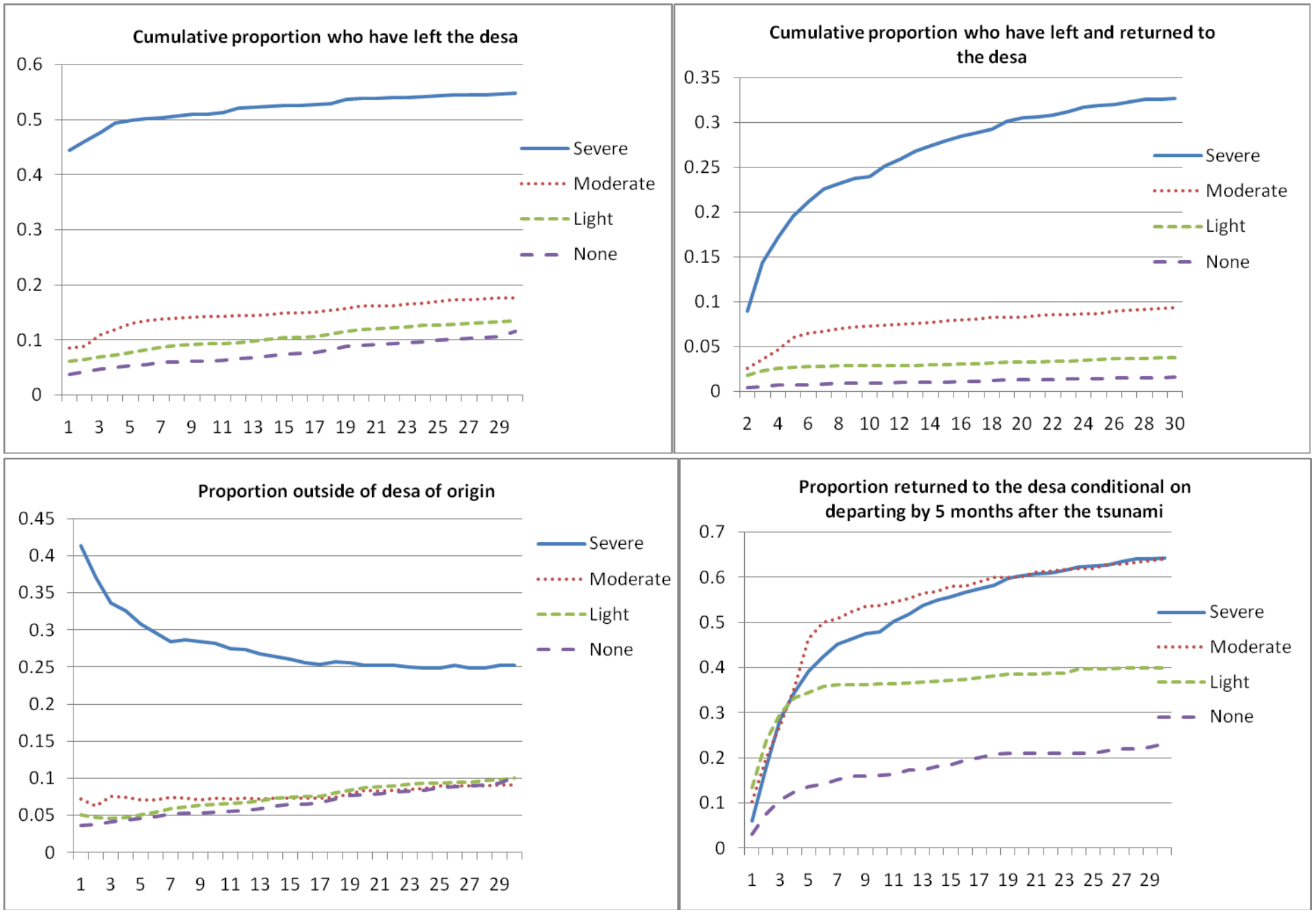

Figure 2. Camp entry and exit over time by level of damage.

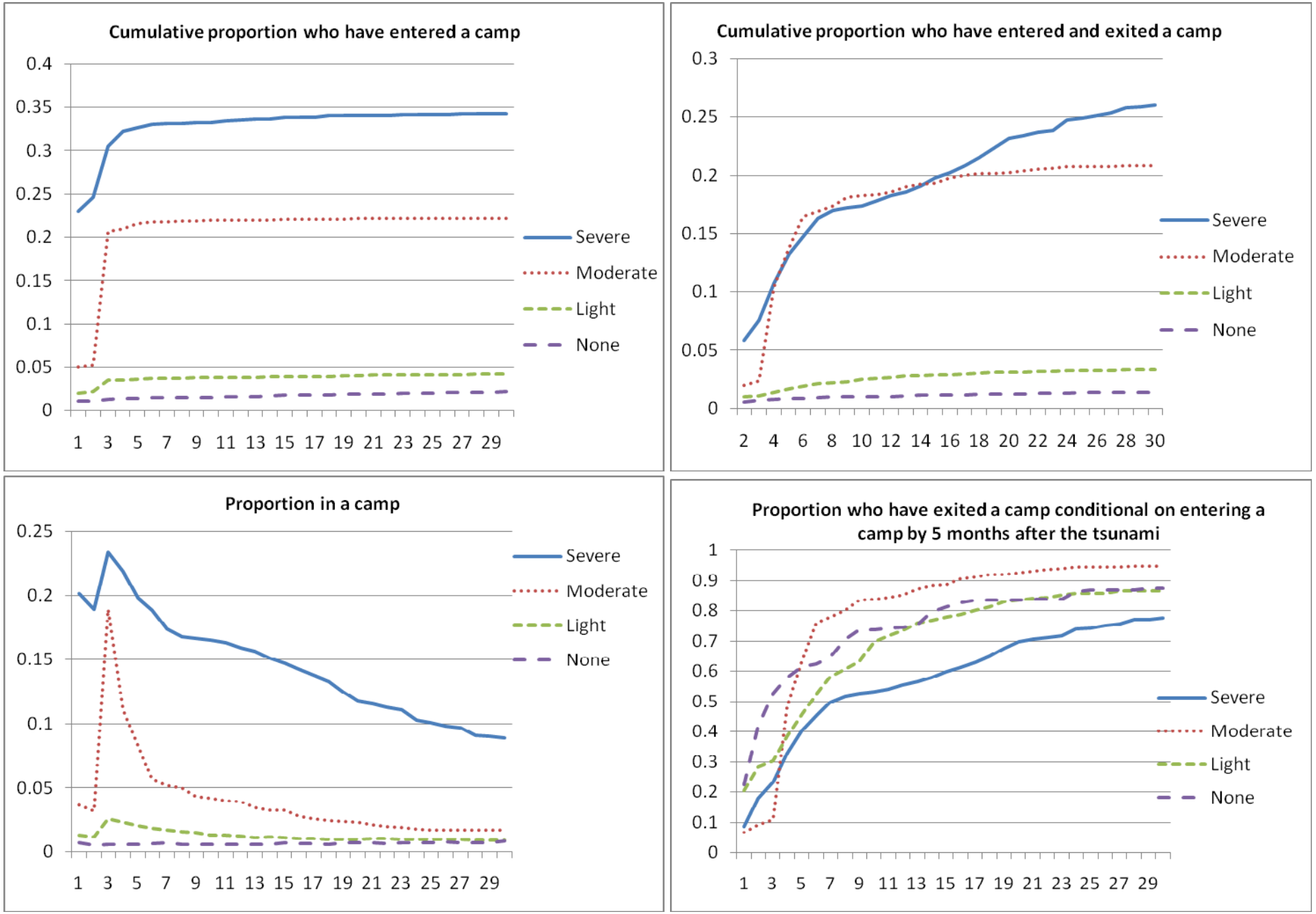

Table 1: Multinomial logits of displacement/return and camp entry/exit for moderately and severely damaged areas.

	Model 1				Model 2		
Predictor	Displaced and not returned vs stayed	Displaced and returned vs stayed	Displaced and returned vs not returned	Late mover vs stayed	Entered camp and did not exit vs did not enter	Entered camp and exited vs did not enter	Entered camp and exited vs did not exit
	1 vs 0	2 vs 0	2 vs 1	3 vs 0	1 vs 0	2 vs 0	2 vs 1
Female	0.93	1.00	1.07	0.61 **	0.99	0.89	0.90
Age 12-19	0.90	0.82	0.91	1.53	0.44 **	0.67 **	1.52
Age 30-39	0.59 **	0.78	1.32	0.42 **	0.76	0.82	1.08
Age 40-49	0.51 **	0.82	1.61 *	0.19 **	0.58	0.81	1.40
Age 50+	0.35 **	0.82	2.32 **	0.35 *	0.30 **	0.70 *	2.31 *
Born in district	0.48 **	0.79	1.62 **	0.36 **	0.77	1.10	1.42
Married	0.72	0.81	1.12	0.89	0.98	1.08	1.10
Years of education	1.03	1.06 **	1.02	1.08 *	0.92 **	0.97 *	1.05
Household size	0.99	0.97	0.98	0.97	1.02	0.99	0.97
Female head	0.84	0.77	0.92	1.18	1.41	1.14	0.81
lnPCE Rp	0.95	0.92	0.97	0.82	0.51 *	0.91	1.77
Grew rice	0.55 *	0.54 *	0.99	0.80	0.99	1.21	1.23
House destroyed	13.79 **	7.89 **	0.57 *	1.93	19.70 **	4.97 **	0.25 **
House damaged	2.47 **	3.01 **	1.22	0.96	3.16 *	2.24 **	0.71
HH death in tsunami	1.40	1.89 *	1.36	1.23	1.29	1.43	1.10
Severe damage	1.07	0.94	0.88	1.12	0.41 *	0.60	1.48
Urban	1.32	2.36 *	1.78	2.33 *	1.68	1.98 *	1.18
Kecamatan fixed effects	Yes				Yes		
N	6892				6897		

* p<0.05, ** p<0.01

Outcome	**Value**	**Category**	**Frequency**	**Definition**
Displacement/return	0	Stayed	4,419	Did not leave desa by 6/07
	1	Displaced and not returned	815	Left desa by 5/05 and not returned by 6/07
	2	Displaced and returned	1,457	Left desa by 5/05 and returned by 6/07
	3	Late mover	201	Did not leave desa by 5/05 but left by 6/07
Camp entry/exit	0	Did not enter	4,894	Did not enter camp by 5/05
	1	Entered camp and did not exit	311	Entered camp by 5/05 and did not exit by 6/07
	2	Entered camp and exited	1,692	Entered camp by 5/05 and exited by 6/07