

# The impact of post-disaster assistance on government perception: Evidence from Fiji

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## ABSTRACT

While some scholars have found that post-disaster government assistance benefits the incumbent, others have shown that incumbent effects are imperceptible or negative. This article contributes to this debate by using a regression discontinuity design of households affected by Tropical Cyclone Winston in Fiji, to show that the type of assistance provided is an important variable to understand the effects of aid on government support. Fijians receiving a post-disaster cash transfer are up to 20 percent more likely to be “very satisfied” with the government as opposed to those that did not. The probability further increases if the CT is provided along with in-kind benefits or vouchers but is not affected if citizens are also encouraged to use their own pension savings. This paper provides evidence in favor of an “attentive” citizen, capable of identifying government responses, and of possible effects of elite capture on the relationship between government and citizens.

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## 1. Introduction

Studies of whether the provision of public aid and relief after catastrophes, such as natural disasters, affect government support have arrived at extraordinarily diverse conclusions. On one hand, the “attentive” citizen theory contends that citizens can react rationally to a natural disaster by inferring government competence or redistributive preferences from its response (Drazen & Eslava, 2010; Lazarev, Sobolev, Soboleva, & Sokolov, 2014; Rogoff, 1990). On the other, solid evidence indicates that even among governments that have effectively distributed disaster aid, sometimes the effects on government support are inexistent or negative (Blattman & Niehaus, 2014; Heersink, Peterson, & Jenkins, 2017; Larreguy, Marshall, & Trucco, 2015).

This paper explores how evaluations of government performance change after a post-disaster CT is provided to citizens affected by Tropical Cyclone Winston (2016) in Fiji. Our contribution is to test whether program details, such as the type of benefit, matters for explaining differences in citizens’ views of the government. We explore whether receiving the CT alone or in combination with vouchers, in-kind transfers, or other types of transfers makes a difference in citizens’ views of the government. Additionally, we explore the effects of aid on government support among different

elites.

We selected this case because Pacific Island Developing States (PIDS), like Fiji, are particularly susceptible to climate variability caused by rapid environmental change (Jenkins & Jupiter, 2015). Actually, Fiji’s annual economic losses caused by flooding are expected to increase up to 300% due to climate change (Brown, Gray, & Roberts, 2015). As risks of climate change increase around the world, lessons from Fiji could be used to understand political outcomes around the world. Furthermore, this paper could provide valuable information to the government of Fiji that considers enhancing its capacity to deal with disaster management a key area of opportunity (Méheux, Dominey-Howes, & Lloyd, 2010).

We use Regression Discontinuity Design (RDD) to randomly select a group of post-disaster CT recipients and a group of non-recipients. Using this specification, we evaluate how citizens’ perceptions of the government change in response to getting a CT, and whether we could observe changes in citizens’ perceptions when a CT was designed to come along with other forms of transfers or aid. In other words, we exploit discontinuities in the probability of treatment to explore the heterogeneous effects of receiving a CT and other types of transfers on citizens’ views of government performance.

Our results provide evidence to sustain “attentive” reactions by citizens after catastrophic events. Even if citizens’ views of the government are negatively affected by the catastrophe, Fijians receiving a post-disaster CT are up to 20 percent more probable to be “very satisfied” with the government performance than those who did not receive a CT. The probability of being “very satisfied” further increases if the CT is provided along with in-kind food/water benefits, or with food/housing vouchers. Interestingly, the effects are inexistent when the CT is provided along with policies that encourage citizens to use their own pension savings to partially cover for their needs and is negative if the CT is delivered by non-government entities, rather than by the government itself. Furthermore, we found evidence of possible effects of elite capture on the relationship between government and citizens. In specific, our models show that the probability of being satisfied decreases for “high” status groups in comparison to “lower” status groups.

Overall, our results make two contributions to the existing literature. First, this paper contributes to providing evidence to the debates about the impacts of post-disaster aid by exploring an ignored variable: policy design. As of now, our understandings of how the variation in the design of government programs (i.e. the selection of a type of transfer) may create different political effects remains quite limited (De La & Ana, 2013; Mares & Carnes, 2009), particularly in post-disaster settings (Saraçoğlu & Demirtaş-Milz, 2014). Second, this article also contributes to a large literature that identifies how the type of aid that is provided may create different outcomes (Currie & Gahvari, 2008; Hidrobo, Hoddinott, Peterman, Margolies, & Moreira, 2014). While several evaluations have been conducted to understand how different types of transfers could create different benefits to their recipients (as measured by key social and economic indicators), we are not aware of any published study that focuses, as this one does, on exploring how policy design may affect the positive citizens’ views of the government. Most of the literature about types of transfers remains focused on understanding changes in consumer utility or in general social outcomes, not in its possibly political effects.

Our research is relevant because citizens’ subjective views of government performance are critical to electoral outcomes and regime stability (Fiorina, 1981; Key et al., 1966). Citizens tend to use subjective performance perceptions as an important indicator to evaluate the incumbent and thus, to decide their electoral support (Mares

& Carnes, 2009; Popkin & Popkin, 1994). If providing different types of transfers elicits different reactions from citizens, self-interested government actors may be inclined to provide the type of transfer that generates more positive reactions, and not necessarily the one that creates better development outcomes. Indeed, the political motivations behind the selection of different forms of benefits could end up being definitory of the policies that ultimately get implemented.

A more detailed description of our analysis and results is provided in the following six sections. The first section identifies the most relevant literature in the debate surrounding the effects of aid on government support and clarifies our contribution. The second section explores the context in which this paper was developed, a post-disaster environment in Fiji where different forms of post-disaster government assistance were provided. The third section describes our empirical specification, including data and descriptive statistics. The fourth section presents our results, statistical simulations and additional exercises. Finally, the fifth section concludes and proposes avenues for future research.

## 2. Disasters and Citizens' Perceptions of the Government

How exogenous events such as natural disasters shape citizens' perceptions of government and thus, government support is a longstanding debate.

Initially, the topic fit neatly into "blind retrospection" and "responsive electorate" theories (Gasper & Reeves, 2011). In these theories, citizens irrationally or blindly attribute blame for their circumstances to politicians (Chang & Berdiev, 2015).

Other branches of research soon showed that disasters could test the social contract and shake political structures (Siddiqi, 2014), empower radical groups and citizens (Siddiqi, 2018), and that aid could change citizens' perceptions (Arceneaux & Stein, 2006; Bechtel & Hainmueller, 2011; Gasper & Reeves, 2011; Healy & Malhotra, 2009). In other words, citizens were "attentive". They could engage and reward leaders in elections (Cole, Healy, & Werker, 2012; Finan & Schechter, 2012; Lawson & Greene, 2014; Lazarev et al., 2014; Reeves, 2011), and react rationally to aid by using it as a proxy to evaluate government competence (Drazen & Eslava, 2010; Manacorda, Miguel, & Vigorito, 2011).

More recently, other evidence displaced the "attentive" citizen theory and suggests the distribution of disaster aid may not benefit, or may negatively affect, governments. In the 1927 Great Mississippi Flood, counties that experienced extensive relief efforts awarded politicians 10 percentage points fewer votes (Heersink et al., 2017). In the 2004 summer hurricane season in Florida, voter turnout was lower among households who received aid from incumbent politicians (Chen, 2013). Aid does not equate to partiality, particularly among citizens who identify with other parties (Chen, 2013; Malhotra & Kuo, 2008).

Yet, exploring whether receiving a combination of cash aid and vouchers, in-kind transfers, or other transfers makes a difference in citizens' perceptions of the government, a variable long overlooked in the literature is teased out: policy design.

The current understanding of how the designs of government programs affects political variables remains limited (De La & Ana, 2013; Mares & Carnes, 2009), particularly when policies are implemented after a natural disaster (Hidrobo et al., 2014; Saraçoğlu & Demirtaş-Milz, 2014; Tappis & Doocy, 2018). The few existing studies on post-disaster settings explore how CTs and in-kind transfers impact key social and economic indicators, without exploring the consequences of designs for political

issues<sup>1</sup>.

In-kind transfers are recognized as social welfare maximizers. Government select the goods for consumption (building materials, food goods, etc.), maximizing the utility of taxpayers independently of the utility of transfer recipients. In-kind aid is provided because of bureaucratic self-interest, fear of creating a culture of dependency or “laziness” or of losing control (Harvey, 2007; Versluis, 2014). They can be more politically viable to implement, especially among populations who are not eligible for the programs but pay taxes (Bellemare, Barrett, & Just, 2013; De Janvry, Fafchamps, & Sadoulet, 1991; Epple & Romano, 1996). And they facilitate targeting by encouraging self-selection into and out of social protection programs (Alatas, Banerjee, Hanna, Olken, & Tobias, 2012; Moffitt, 1983; Nichols & Zeckhauser, 1982).

In post-disaster settings, in-kind aid largely is the norm (Harvey, 2007). When compared to cash, it has less distorting effects on prices (Cunha, 2014); is more desirable in environments of constrained credit or asymmetric information among agents (Currie & Gahvari, 2008); and promotes higher labor supply (Gahvari, 1994). Evidence indicates that in-kind aid effectively increases per capita caloric intake (Hidrobo et al., 2014), while vouchers and in-kind food assistance programs effectively increase household food security in post-emergency settings (Schwab et al. 2013).

Recipients of post-disaster transfers consistently prefer cash for its flexibility and discretion (i.e., no need to stand in long distribution lines) (Versluis, 2014); and distributors find cash easier and cheaper to transport (Hidrobo et al., 2014). When implemented at scale, cash has positive indirect market impacts (multiplier effects), injecting liquidity into and helping rebuild the local economy (Lehmann & Masterson, 2014).

Operationally, CTs are proven to be more cost-effective for implementing agencies and program recipients (Aker, Boumnijel, McClelland, & Tierney, 2016). Vouchers, as compared to CTS, have a higher cost per beneficiary, increase household savings less effectively, and improve household asset ownership and dietary diversity/quality similarly (Hidrobo et al., 2014; Tappis & Doocy, 2018). In Congo, for example, voucher households saved less than CT households over the life of an intervention (Aker, 2013).

In general, CTs promote an individual’s utility in ways that are efficient and flexible (Currie & Gahvari, 2008). Many theoretical models focusing on beneficiary utility maximization argue in favor of CTs, contending that only beneficiaries know the best use of their resources<sup>2</sup>. A comprehensive review of 149 impact evaluations shows most CT programs meet their primary objectives (Fernald, Kariger, Hidrobo, & Gertler, 2012), ranging from health (Gaarder, Glassman, & Todd, 2010) to education and economic variables. Evidence indicates CTs improve consumption, reduce poverty, improve dietary diversity, and even increase human capital investments (Baird, Ferreira, Özler, & Woolcock, 2013; Lehmann & Masterson, 2014).

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<sup>1</sup>Outside post-disaster settings, most literature exploring the type of transfer focuses on understanding the differentiated effects that the transfer may have on consumer utility or on general social outcomes (Cunha, 2014; Currie & Gahvari, 2008).

<sup>2</sup>Common fears related to providing cash to beneficiaries, such as misuse, abuse, or the consumption of undesirable goods, have been debunked. It is now well accepted that people tend to spend the additional income from CTs on the goods and services that they need most, rather than on entertainment, tobacco, or alcohol (Evans & Popova, 2014). For example, in the Philippines after typhoon Haiyan, people used CTs to buy food, shelter, agricultural inputs, medicine, school fees, clothing, hygiene products, fishing equipment, transportation, or to pay their debts (Cabot Venton, Bailey, & Pongracz, 2015). Interestingly, it has been proven that providing cash does not constrain the behavior of the recipients and is effective as a development tool (Currie & Gahvari, 2008).

### 3. Fiji’s case

Tropical Cyclone Winston (TC Winston) struck Fiji as a category 5 tropical cyclone on February 20, 2016, killing 44 people and cutting a swath of destruction across the country<sup>3</sup>. In the past four decades, Fiji reported at least 124 natural disasters, out of which half have been tropical cyclones (Lall, Suri, & Deichmann, 2006). A quite notorious disaster happened in 1931, when a hurricane and flooding inflicted greater harm, killing at least 225 people (Yeo & Blong, 2010).

Winston was not the exception. It severely damaged large public buildings (particularly schools) and the power, transportation, and communications infrastructure. The rapid-onset disaster affected the livelihoods of an estimated 485,000 (55 percent of the population) and damaged or destroyed over 30,000 households, displacing 130,000 (15 percent of the population) (The World Bank, 2016). Total damages were estimated at US\$959 million (The World Bank, 2016). Fiji’s housing, agriculture, and fisheries sectors were the hardest hit. The housing sector alone accounted for 59 percent of total damages. The agriculture and fishery sectors, which employ about 70 percent of the working-age population, accounted for 61 percent of total losses. Agriculture is expected to recover within three years. Fisheries are expected to recover in about ten years because of the damage to coastal mangrove and coral reef habitats.

In response to the disaster, the government provided a post-disaster CT (top-up benefit) to beneficiaries of regular CT schemes<sup>4</sup>, and provided other types of post-disaster assistance (Mansur, Doyle, & Ivaschenko, 2018). The post-disaster CT was equivalent to about three months of the regular CT, and was given to all registered beneficiaries, irrespective of whether they resided in more-, less-, or non-affected areas<sup>5</sup>. Post-disaster CTs were given on March 18, 2016, about one month after the tropical cyclone affected Fiji (Mansur et al., 2018).

Besides the post-disaster CT, the government provided other forms of assistance that can be broadly classified into three categories: in-kind, vouchers, and special access to savings from public pension funds (Mansur et al. 2018).

In the immediate aftermath of the storm, government relief efforts in the form of in-kind benefits such as food, water, shelter, and other goods were provided as humanitarian aid (Mansur et al., 2018). In-kind goods for the replanting of food crops began very soon after the cyclone hit, and had to be repeated in some areas due to the heavy flooding caused by a subsequent weaker cyclone. In-kind transfers were distributed primarily by Fiji’s government but also by relatives, non-governmental organizations, and the Australian, New Zealand, and French militaries.

Vouchers for housing and food were also provided. The government introduced the “Help for Homes” initiative, which provided a total of F\$70 million in vouchers to

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<sup>3</sup>Fiji is located in the Pacific Islands. It has a population of 910,000 (July 2015 estimate) and a total land mass of 18,274 square kilometers, consisting of 332 islands (about 110 are inhabited). Most of the population resides on the two main islands of Viti Levu and Vanua Levu. Fiji is a middle-income country with a per capita GDP of US\$9,000 PPP (2015 estimate) and a large tourism sector.

<sup>4</sup>Fiji’s CT program is unconditional and targets the poorest 10 percent of the population through a rigorous assessment process, involving household visits by a social welfare officer from the Department of Social Welfare and proxy means testing to identify households below a targeted threshold. Communities do not participate in aid-allocation decisions. Households receive a lump sum payment of F\$600 (US\$300) each month (Méheux et al., 2010).

<sup>5</sup>This decision was driven by the urgency of the situation (the need to respond), operational constraints (database not of sufficient quality to distinguish between affected and non-affected areas), the fact that current beneficiaries are disadvantaged anyway (even if they happen to be in non-affected areas), and the belief that inter-household sharing of resources would take place (e.g., households in non-affected areas would share the transfers with their extended kinship networks in affected areas) (Mansur et al., 2018).

low-income households that were damaged or destroyed by the cyclone (Mansur et al., 2018). Eligible households received an electronic card, which permitted them to spend the assistance on essential building materials at designated hardware retailers. The vouchers had to be used for repairs or reconstruction, and the amount depended on the extent of the damage incurred: F\$1,500 for houses with partial roofing damage; F\$3,000 for houses with extreme roofing damage; and F\$7,000 for houses that were destroyed (Mansur et al., 2018).

Lastly, active members of Fiji’s National Provident Fund (a contributory pension program) located in affected areas were allowed to withdraw up to F\$1,000, plus an additional F\$5,000 (Mansur et al., 2018). Withdrawals were authorized for a period of 60 days. Within the first two months of the disaster, 170,000 applications were approved, injecting around F\$250.2 million (equivalent to 3 percent of GDP) into the economy (Mansur et al., 2018). This was noteworthy, given the low average balance maintained by active members of the fund. Indeed, more than 75 percent of current members have less than F\$10,000 in their account.

#### 4. Research design

Our data were collected about four months after the cyclone in the geographic area with the highest concentration of disaster-affected households: the provinces of Ba and Ra<sup>6</sup> on the northern coast of Viti Levu<sup>7</sup>.

We conducted a Regression Discontinuity Design (RDD) to randomly select a representative set of post-disaster CT recipients and non-recipients in affected areas.

Applying a RDD requires two main conditions: (i) a continuous eligibility index, in other words, a continuous measure to rank the population of interest, such as a poverty index, a test score, or age; and (ii) a clearly defined cutoff score for the index, above or below which the population is classified as eligible for the program. Our evaluation satisfies both conditions: eligibility for the CT is based on a continuous poverty index, and the threshold level of the poverty index (cutoff score) is used to determine eligibility.

We select the treatment and control groups from the 20 percent below and above the eligibility threshold<sup>8</sup>. The decision to limit the sample to 20 percent below and above the threshold is based on the distribution of poverty scores. Approximately 50 percent of the total applicant households lie within the 20 percent cutoff below and above the threshold. One reason for choosing 20 percent is to have a reasonable sample size while minimizing the variation in poverty scores so that the control and treatment groups remain comparable. As suggested by Calonico et al. (2016), it is best to first select observations that are closest to the cutoff of the running variable, which in this

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<sup>6</sup>All welfare officer databases in the selected districts were included in the evaluation except for Ba. The Ba Department of Social Welfare office is large, with six welfare officers and a senior welfare officer. Also, it was not feasible to manually consolidate files from each of the welfare offices. So, this study randomly selected three of the six welfare office database sets.

<sup>7</sup>We excluded the island’s second largest city (Lautoka) and the provincial capital of Naitasiri (Vunidawa), as both were partially impacted, and it was not possible to determine whether beneficiaries were in an affected area.

<sup>8</sup>To select households from a sample frame, we used a two-stage stratified sampling. First, population points were randomly selected using a random start. Then, the same procedure was used to select a target number of households within a population point. Given the risk of beneficiary displacement because of TC Winston and of the inability to track beneficiaries’ new location, a reserve sample was created for each district. The records for each selected approved beneficiary were checked against the payments spreadsheet held by the DSW and were found, with very few exceptions, to be correct.

case is poverty score<sup>9</sup>.

The threshold is based on a poverty score, which is calculated using a proxy means test (PMT). Using the poverty threshold for the CT, we select treatment and control groups and expect them to have comparable baseline characteristics. The treatment group comprises the regular CT-accepted households (20 percent below threshold) in affected areas who receive an intervention (top-up benefit in the form of a post-disaster CT) post-TC Winston. The control group comprises households in affected areas who do not receive an intervention (top-up benefit in the form of post-disaster CT) post-TC Winston<sup>10</sup>.

A total of 2,749 households in cyclone-affected areas applied for a CT in 2015-2016 (pre-TC Winston). The distribution of the poverty scores ranged from 260 and 7,083, where the eligibility threshold is set at 1,400. To apply a stringent evaluation criterion, we consider only those households as treatment and control who have poverty scores below and above the threshold respectively.

Ultimately, 733 households, which represent 81 percent of the target households, were found and interviewed during the field work. This is considered an excellent result, given the difficulties of sampling in the affected regions in which many beneficiaries had been forced to evacuate their homes (e.g., stay with relatives/friends)<sup>11</sup>. All households were interviewed within a window of three weeks (the majority within two weeks), between June 7 and July 1, 2016.

Our dependent variable, citizens' views of the government performance, is constructed from household answers to the question: "On a scale of 1 to 5, with 1 being very bad and 5 being extremely good, in your opinion are you satisfied with the government's response to TC Winston?"<sup>12</sup> In our preferred econometric specification, the dependent variable is transformed to take values from 1 to 3, with 1 being unsatisfied; 2 being "Ok", and 3 being satisfied. For robustness checks, we use the 1 to 5 specifications. Both specifications show, on average, satisfaction with the government's emergency assistance<sup>13</sup>.

In terms of specification, we first use a one-way treatment threshold and then an interaction with one regressor.

A first specification, which evaluates changes in government approval ratings conditional on being benefited by the post-disaster CT, can identify a local average in

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<sup>9</sup>Calonico et al. (2016), "This recommendation is justified by the same assumptions underlying identification, estimation and inference methods based on continuity/smoothness of the unknown conditional expectations. In this framework, the parameter of interest is defined at the cutoff  $c$ , and hence having observations as close as possible to  $X_i = c$  is the most useful."

<sup>10</sup>The sampling procedure took advantage of two populations for which we had data. The first is regular CT recipients. This is people who had applied for the regular CT in 2015-16 (pre-TC Winston) and whose application had been scored and accepted. This group forms the universe for selecting the treatment group. The second is those who had applied for the regular CT in 2015-16 (pre-TC Winston) and whose application had been scored and declined, but with records and scores kept in the database. This group forms the universe for selecting the control group.

<sup>11</sup>We do not have information about the average time that it took to answer the questionnaire. However, we added the questionnaire as an appendix to the article such that readers can calculate the average time.

<sup>12</sup>This is not a measure of electoral support and was not supposed to be. Our paper explores citizens' subjective views of government performance rather than "electoral support" in an effort to contribute with a more holistic understanding of how a post-disaster CT may affect the government. Indeed, subjective views of government performance are strong indicators of electoral outcomes (Fiorina, 1981; Key et al., 1966) but are seldom the only thing that we should care about, see Popkin and Popkin (1994) and Mares and Carnes (2009) with an interesting discussion about this. Citizens' satisfaction with the government is critical, for example, to understand regime stability (Fiorina, 1981), turnout (De La & Ana, 2013) and even policy adoption (Alomari et al 2012).

<sup>13</sup>For the long specification (five levels), cases are distributed as: 11 for "very bad"; 87 for "bad"; 266 for "good/OK"; 213 for "very good"; and 154 for "perfect". For the short specification (three levels), cases are distributed as: 97 for "very bad" or "bad"; 266 for "good/OK"; and 367 for "very good" or "perfect".

treatment effects in the sense of [Imbens and Lemieux \(2008\)](#). Our first specification is given by(1):

$$Y_i = \beta_0 + \beta_1 x_i + \sum_{k=1}^K \beta_{k+1} w_{ik} + e_i \quad (1)$$

where  $Y_i$  is a categorical dependent variable measuring satisfaction with government performance,  $x_i$  is different from zero if household  $i$  receives a post-disaster CT, and  $w_{ik}$  is a vector of  $k$  variables containing controls.

Because a RDD is used to select the sample, we should not expect that parameter estimates are sensitive to removing or adding controls to the model. Yet, we use controls because adjusting for covariates can increase precision in the linear model. Specifically, adjusting for covariates increases the precision of the estimated treatment effect when these are predictive of the outcome and not correlated with the treatment variable. Controlling for covariates predictive of the outcome does increase efficiency when testing the null hypothesis of no treatment effect following a randomized study. When the sample size is small, it can be very helpful. We employ an ordinal choice model as our method of analysis. We use an ordered probit, because our dependent variable of interest (*citizens' views of the government*) is categorical (with either three or five categories) and ordered. We also conduct additional tests with ordered logits.

A second specification focuses on the identification of heterogeneous treatment effects within our RDD. Specifically, the heterogeneity of treatment effects pertains to interactions with exogenous observable variables, such as being a beneficiary of additional post-disaster assistance in the form of in-kind benefits, vouchers, or pension savings transfers. We exploit discontinuities in the probability of treatment conditional on receiving bundles of transfers (i.e., cash and another benefit). The result is a research design where Fiji's poverty threshold is an instrumental variable for the treatment status.

This specification, explicit in [Percoco \(2014\)](#) and [Fuchs-Schündeln and Hassan \(2016\)](#), has been used by many published papers, such as [Duflo \(2003\)](#) and [Becker, Egger, and Von Ehrlich \(2013\)](#). We rely on this method to compare average changes in citizens' views of the government for benefits not assigned according to the RDD threshold.

The model is given by the following equation(2):

$$Y_i = \beta_0 + \beta_1 x_i + \beta_2 z_i + \beta_3 x_1 z_i + \sum_{k=1}^K \beta_{k+3} w_{ik} + e_i \quad (2)$$

Where, in addition to the original model,  $z_i$  captures those receiving additional post-disaster assistance. Note that  $\beta_3$ , multiplies the interaction term  $x_i z_i$  and is the coefficient of interest. The estimate is(3):

$$\beta_3 = (z_{i,1} - z_{i,0}) - (x_{i,1} - x_{i,0}) \quad (3)$$

Three types of post-disaster transfers were evaluated in the model: in-kind, vouchers, and access to public pension savings. We create dummies for each. All models use

clustered errors. Table 1 presents the combinations of CTs that were received.

[Table 1 about here.]

In addition to bundles of transfers, we included an additional, preliminary, test for possible effects of elite status on citizens’ views of the government. This test was inspired by the work of Takasaki (2014), who showed that, in the short term and within villages, elite ethnic groups may receive benefits earlier after a disaster. He considers this as evidence of elite capture or possible corruption on the allocation of aid. Our contribution is to try to test whether elite status may have an effect on citizens’ views of the government, even if aid is not given to elite ethnic groups first. This should be considered preliminarily testing. Following the literature of “disconfirmation models”, where citizens’ evaluations of the government are largely determined by the differences between performance and expectations, we expect the elites may be less satisfied with the government if, because of elite status and possible capture, they generally have higher expectations of government’s reactions after a disaster.

We used two proxies to measure elite status. First, we created a variable indicating if the ethnic affiliation of the household head was i-Taukei (*Elite status*)<sup>14</sup>. We consider i-Taukei as an indirect measure of local elite because they tend to have more access to communal land (Bardhan & Mookherjee, 2006). Instead, Indo-Fijians tend to buy free-hold land. Land rights in Fiji are critical for income and social status (Kumar & Prasad, 2004).

Our second measure of elite status differentiates between elite groups who continue to live in their village (*i-Taukei village*), and elite groups who do not (*i-Taukei not-village*). In other words, this measure considers not only the difference between Indo-Fijians and i-Taukei, but also between two categories of i-Taukei. We do this distinction because the first group has occupancy rights and direct access to productive land, and the latter does not (Jones 2011)<sup>15</sup>.

All of our models have controls for severity of the damage. We use six variables.

First, we created a geo-referenced measure of whether a household’s nearest market had been closed or completely inaccessible because of TC Winston (*severity of the damage*) and a dummy for households who did not have a market even before TC Winston (*no market before*). These measures are useful because Winston’s devastation had a clear geographical pattern. Moreover, the cyclone scourged the rural areas of Fiji, where average household incomes are lower, housing is less substantial, and agriculture is the main source of income.

We also measure changes in sources of income because of TC Winston (*change in income source*). Households could report that their main source of income was: (1) casual wage income, (2) wages and salary, (3) agricultural income, (4) formal business income, (5) pensions, social transfers, and remittances, (6) other source, or (7) no source of income. The variable takes the value of 1 if the household reported a different main source of income before and after TC Winston, and 0 otherwise<sup>16</sup>.

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<sup>14</sup>Other ethnicities reported were almost entirely Indo-Fijian. Only two household heads reported “Other” ethnic affiliation. We also constructed a variable that measured the percentage of household members that reported to be “i-Taukei”. However, the variable is practically identical to *Elite status*.

<sup>15</sup>The present government has acted to reduce the opportunity for elite-capture by traditional chiefly hierarchies and to increase opportunity for Fijians (i-Taukei and Indo-Fijians) who do not live a traditional village lifestyle. The political authority of the Great Council of Chiefs, for example, has been abolished (Ratuva & Lawson, 2016).

<sup>16</sup>Note that, because the post-disaster CT was provided to all beneficiaries of the regular CT (independently of the damage) this control is not affected by the treatment. The same can be said of all the variables of “change” (see following paragraphs). In any case, and as a robustness test, all the models were tested with and without

Changes in housing are measured by a variable indicating if the household changed its ownership status of the dwelling they lived in after TC Winston (*change in housing*). Households could report that they: (1) own the living quarters, (2) rent from a private landlord, (3) rent from the Housing Authority, (4) occupy government or institutional housing, (5) occupy housing by leave of employer, or (6) occupy living quarters by some other way. The variable takes the value of 1 if the household reported a different ownership status before and after TC Winston, and 0 otherwise.

Changes in consumption patterns are measured (*change in consumption*). Households could report to have consumed less expensive food items because of TC Winston. The variable takes the value of 1 if after TC Winston they consumed less expensive food items, and 0 otherwise.

Finally, we measure changes in assets, with the ratio of assets lost divided by the total assets owned by the household before TC Winston (*change in assets*). Households could report having a car, a carrier/truck, a fridge, a computer, a video/TV, a radio, a washing machine, a gas stove, an outboard motor, a boat/canoe, a water pump, and/or a crush cutter. Households also could report if they still had those items after TC Winston. We calculate the ratio with the total items the household reported having after TC Winston divided by the total items the household reported having before TC Winston.

In addition to these six variables to control for severity of the damage, and to add further robustness to our model, we create a variable measuring how difficult it was for household members to obtain CTs (*cost of cashing transfer*). To do this, we calculate the cost that each beneficiary had to pay to access the benefit provided. The variable takes values from US\$0 to \$70 PPP (as reported by individuals themselves).

All our models control for the relevant socioeconomic and status characteristics of the households. This is relevant because the most vulnerable citizens may be prone to evaluate government performance more positively. Economic status, for example, plays an important role in determining how satisfied citizens are with government actions (Blanchflower & Oswald, 2004; Ferrer-i Carbonell & Frijters, 2004; Helliwell, Putnam, et al., 2004; Veenhoven, 1996). More specifically, Ghatak, Kumar, and Mitra (2016) show that individuals from affluent households are more likely to prefer cash to in-kind transfers than people from poorer households. Also, Kelly and Swindell (2002) find that racial minorities tend to be less satisfied with government services. This literature also confirms that positive evaluations are explained by relative income/salary. Easterlin (1974) and Lall et al. (2006) examine determinants of household satisfaction with the duration of the water supply. They note that satisfaction with this service provision increases as the households' service level improves, relative to that of its reference group. Li, Xiao, and Gong (2015) show that people who feel better off and perceive themselves as high-status, in relative terms, are more satisfied with the anti-corruption performance of the government.

Accordingly, we measure socioeconomic variables that are strongly correlated with income levels, such as the size of the household (number of members, logged- *Log Household size*), the ratio of household members who are children (child ratio), and the age of the household head (*household head age*). We understand the limitations of these proxies. More detailed information regarding income levels would have been ideal, but the context in which the survey was implemented was prohibitive.

Finally, we control for citizens' expectations of government actions. An important aspect of the literature argues in favor of "disconfirmation models." Here, citizens'

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these controls and the results did not change.

evaluations of the government are largely determined by the differences between performance and expectations. In other words, when the service provide is either unexpected or better than expected citizen’s positive views increase (Boulding, Kalra, Staelin, & Zeithaml, 1993; Fornell, Johnson, Anderson, Cha, & Bryant, 1996; Tversky & Kahneman, 1975). In another example, Montalvo (2009) studies citizens’ evaluations of municipal services and finds greater satisfaction with municipal services when citizens’ experiences were better than expected. As a proxy to control for expectations, we create a dummy variable to identify households that did not anticipate the government transfer they received (*surprise*).

Table 2 provides descriptive statistics conditional on whether the household received the post-disaster CT. Households who received post-disaster CTs express higher levels of government approval. Specifically, the number of households who respond “perfect” and “very good” to government efforts is greater for cash beneficiaries. As expected, controls show no meaningful differences.

[Table 2 about here.]

## 5. Results

Our results show the impact of a post-disaster CT on citizens’ views of government performance. Table 3 shows the results for receiving a post-disaster CT. Column (1) and (2) use a 1-to-3 dependent variable (short), and columns (3) to (4) show a 1-to-5 dependent variable (long). Odd columns show the effect of the post-disaster CT dummy, and pair columns show the effect of the post-disaster CT amount.

[Table 3 about here.]

As expected by “attentive” citizens theories, in all our models, receiving the post-disaster CT significantly increases positive views of government performance. Model 1 shows that those who receive the post-disaster CT have significantly more positive views of the government than those who do not. Model 2 shows that those who receive larger post-disaster CTs have more positive views of government performance. Our simulations show that for every F\$10 provided in cash, the percentage of citizens who report positive views of the government increases by 0.4 pp. Keeping all variables constant, those receiving a post-disaster CT are 20 percent more likely believe that government performance is “good” than those who do not. Models 3 and 4 are similar to models 1 and 2 but have a dependent variable of five levels. Keeping all variables constant, those receiving the post-disaster CT are 12 percent more likely to believe government performance is “very good”.

Our controls are significant for severity of damage and change in consumption, but not for the cost of cashing the transfer, household size, child ratio, age of household head, surprise transfer, or changes in income, housing, and assets. As expected, severity of damage is significantly and negatively related to citizens’ views of the government. Changes in consumption show that citizens affected by a natural disaster have significantly more negative views of the government. Elite status is not significant for the extended-form of dependent variable models. Households of i-Taukei ethnicity have lower levels of positive views of the government.

Table 4 shows the results for the second specification (i.e., heterogeneous effects). It can help evaluate changes in citizens’ views of government performance when cash

is provided along with other forms of transfers. Model 1 shows the impact of post-disaster CT with in-kind transfers, model 2 with vouchers, and model 3 with access to public pension funds.

Coefficients of the interactions between the post-disaster CT and other types of post-disaster transfers are significantly positive for in-kind transfers and vouchers but not for access to pension funds. Since we are calculating a non-linear model, the treatment effect is not the cross-difference but the difference between two cross-differences. Simulations show that model 1 (cash with in-kind transfers) yields the most significant effect, with 18 percent more likely to be “very satisfied.” Model 2 (cash with vouchers) yields increases of 13 percent, while the impact of model 3 (cash with access to public pension funds) is indistinguishable since the joint effect of cash and access to public pension funds is not statistically significant.

[Table 4 about here.]

In terms of controls, all models show significant severity for damage and change in consumption. For in-kind transfers and public pension funds, no market before and elite status are significant. For in-kind transfers and vouchers, child ratio and changes in assets are significant. Exclusively for in-kind transfers, household head age is significant. Exclusively for public pension funds, surprise and cost of cashing the transfer are significant. Finally, log household size and change in income source are never significant.

Table 5 shows the results of heterogeneous in-kind transfers and vouchers. We classify post-disaster in-kind transfers into four categories: (1) food and water, (2) shelter and housing, (3) personal items, and (4) productivity assets. We then create a dummy variable indicating whether the household received each one of these in-kind transfer categories. Columns 1 to 4 show the results for each specification. We also create specific dummies for each (voucher beneficiary food and voucher beneficiary housing); columns 5 and 6 show the results for each specification.

[Table 5 about here.]

The evidence of heterogeneous effects is strong. Simulations based on model 1 show that providing cash and in-kind food and water yields the largest significant effect, with 29 percent more probability of believing government performance is “very good”. Model 4 shows that providing cash and in-kind productivity items yields an increase of 16 percent in the probability. Providing cash and in-kind personal items yields an increase of 9 percent (model 3). Finally, providing in-kind shelter and housing (model 2), does not improve citizens’ views of the government. There are not significant heterogeneous effects for vouchers sub classified by type.

## 6. Additional Tests

Table 6 shows the results of five different models designed as additional tests. Model 1 shows the impact of the post-disaster CT when market services are disrupted. Model 2 evaluates the impact of actors other than the government (e.g., non-governmental organizations, the private sector, or other countries) on citizens’ views of the government. Model 3 to 5 show the impact of elite status on citizens’ views of the government.

[Table 6 about here.]

Column 1 reflects the impact of post-disaster CTs when citizens are not able to spend them. As expected, the joint effect between cash and market disruption was significant. We find that the impact of post-disaster CTs on citizens' views of government performance was highly dependent on the availability of markets. In areas with market access, 62 percent of post-disaster CT beneficiaries had positive views of the government. In areas without access to markets, 53 percent of post-disaster CT beneficiaries had positive views of the government, almost 10 pp lower. Variables such as ethnicity, no market access before TC Winston, and change in consumption patterns continue to be significant.

Finally, column 2 tests for in-kind transfers provided by "other" organizations (e.g., non-governmental organizations, the private sector, or other countries). We find that the impact of post-disaster CTs with transfers provided by other organizations has a significant and negative joint effect on positive views of government performance. In specific, 44 percent of those who received post-disaster CTs with an in-kind transfer from others had positive views of the government. Meanwhile, 57 percent of those who received post-disaster CTs without an in-kind transfer from others had positive views of the government almost 13 pp higher. Simulations show that the joint effect of post-disaster CTs with in-kind transfers from others decreases positive views of the government. This indicates that citizens can distinguish between aid sources.

Interestingly, columns 3 to 5 show evidence that local elites that receive cash have fewer positive views of the government than those who do not. The results hold for different specifications of elite status. From the simplest model (column 3), where we measure local elites as i-Taukei, to more complicated models, where we measure elite as i-Taukei that live in villages (column 4), or its inverse (column 5). Note that Indo-Fijians are more satisfied than, i-Taukei outside villages, and i-Taukei outside villages are more satisfied than i-Taukei in villages. This could be evidence that ethnic status, and possibly elite capture and corruption, may have an effect on the citizens' view of the government. This may be related to how elite status have higher expectations of the government.

## 7. Conclusion

This paper provides empirical evidence showing how different types of transfers may affect citizens' evaluations of government performance in post-disaster contexts. To date, most of the literature has been narrowly focused on understanding how the type of transfer affects consumption patterns and objective measures of well-being. Past scholarship has made little effort to determine how different forms of government intervention may affect how citizens evaluate government performance, especially after a major rapid-onset natural disaster. Because of this oversight, our contribution is much needed.

We collaborated with Fiji Bureau of Statistics to design our unique survey and to select a representative set of transfer recipients and non-recipients from areas affected by Tropical Cyclone Winston in 2016. Our methods controlled for the severity of damage, household income and status, citizens' expectations of government actions, and the magnitude of the transfers.

This paper provides evidence to sustain "attentive" reactions by citizens. Fijians receiving a post-disaster CTs are still up to 20 percent more likely to be "very satisfied" with government performance than those who did not receive a post-disaster CT. The probability of being "very satisfied" increases if the post-disaster CT is provided along

with in-kind food/water benefits or with food/housing vouchers. It disappears when the post-disaster CT is provided with policies that encourage citizens to use their own pension savings to partially cover for their affectations and is negative if the post-disaster CT is delivered by non-government entities, rather than by the government itself.

Furthermore, we provide evidence of how aid provision could be creating different views of the government among citizens with more privilege. In specific, we show that elite groups have fewer positive views on the government than non-elite groups. Future research along the lines of Takasaki (2014) could be interesting to conduct. Particularly, to show how ethnic status, elite capture and possible corruption, may change the relationship between citizens and governments.

Our results are critical to a more complex and deeper understanding of how the design of disaster relief policies is a relevant issue for the discipline. Given that some transfers please citizens more than others, we should expect that self-interested government actors, in a context of political competition, may prefer policies that maximize satisfaction to policies that would be optimal in a concrete socioeconomic sense.

Yet, we also understand the limitations of our approach. In Fiji, many residents are living in informal settlements or areas with very bad road links, where the damage caused by cyclones are usually significantly large and assist hardly reaches. Hence, conducting interviews in the most remote islands that were severely damaged was not possible. As a result, we centered our data collection in the provinces of Ba and Ra on the northern coast of Viti Levu.

Furthermore, there were some residents who had not received vouchers when the survey was implemented. Even for those that had received vouchers, construction materials were not available due to the huge demand and the delay of delivery. This means that, our results for vouchers, may be capturing only the lower bound of a possibly larger effect. Finally, we understand that it might be necessary to compare how the government provided aid previously and how citizens of Fiji perceived that aid.

More studies would need to be conducted to understand if other policy design factors could affect citizens' evaluations of government performance, not only in a post-disaster context but in general CTs.

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**Table 1.** Combination of transfers

	Received CT	Not received CT
Received in-kind	356	199
Not received in-kind	85	26
Received voucher	327	79
Not received voucher	114	146
Received access to pension savings	67	37
Not received access to pension savings	370	188

**Table 2.** Descriptive statistics

	Received CT	Not CT
<b>Citizens' views of the government</b>		
Very bad	1%	3%
Bad	9%	19%
Good/OK	31%	53%
Very good	32%	25%
Perfect	26%	13%
No market access after TC Winston ( <i>Severity of the damage</i> )	56%	74%
No market access before TC Winston ( <i>No market access</i> )	18%	17%
Change in income source after TC Winston ( <i>Change in income source</i> )	5.9%	8.9%
Change in housing ownership status after TC Winston ( <i>Change in housing</i> )	87%	89%
Change in consumption after TC Winston ( <i>Change in consumption</i> )	80%	79%
Percentage of assets lost during TC Winston ( <i>Assets lost</i> )	11%	15%
Average log household size ( <i>log household size</i> )	1.43%	1.50%
% of child members per household ( <i>child ratio</i> )	5.6%	7.8%
Household head ethnicity is i-Taukei ( <i>Elite status</i> )	67%	78%
Average household head age ( <i>household head age</i> )	56	50

**Table 3.** Randomized models for citizen’s views of government

	(1) Short	(2) Short	(3) Long	(4) Long
Cash beneficiary	0.5185*** (0.1192)		0.4631*** (0.1096)	
Cash amount		0.0009*** (0.0002)		0.0008*** (0.0002)
Severity of the damage	-0.4182*** (0.1088)	-0.4101*** (0.1090)	-0.3244*** (0.0977)	-0.3147*** (0.0980)
No market before	-0.2990** (0.1432)	-0.2827** (0.1429)	-0.2613** (0.1293)	-0.2493* (0.1291)
Change in income source	-0.0418 (0.1868)	-0.0548 (0.1866)	-0.1210 (0.1715)	-0.1286 (0.1715)
Change in housing	0.0835 (0.1478)	0.0786 (0.1478)	0.0536 (0.1358)	0.0492 (0.1357)
Change in consumption	-0.6796*** (0.1404)	-0.6554*** (0.1401)	-0.5831*** (0.1207)	-0.5664*** (0.1207)
Change in assets	-0.0895 (0.1546)	-0.0814 (0.1546)	-0.0755 (0.1426)	-0.0696 (0.1426)
Cost of cashing transfer	-0.0041 (0.0082)	-0.0041 (0.0082)	-0.0008 (0.0075)	-0.0008 (0.0075)
Log household size	0.0207 (0.0891)	0.0266 (0.0892)	0.0158 (0.0809)	0.0225 (0.0809)
Child ratio	0.5156 (0.4510)	0.5144 (0.4513)	0.2929 (0.4100)	0.2895 (0.4100)
Elite status	-0.3367*** (0.1129)	-0.3385*** (0.1129)	-0.0964 (0.1009)	-0.0997 (0.1009)
Household head age	0.0054 (0.0039)	0.0073* (0.0039)	0.0073** (0.0035)	0.0091*** (0.0035)
Surprise	-0.0847 (0.1201)	-0.0663 (0.1181)	0.0184 (0.1071)	0.0348 (0.1057)
Cut 1	-1.6155*** (0.3569)	-1.5137*** (0.3594)	-2.3688*** (0.3400)	-2.2777*** (0.3422)
Cut 2	-0.3811 (0.3528)	-0.2800 (0.3557)	-1.2264*** (0.3204)	-1.1375*** (0.3231)
Cut 3			-0.0070 (0.3162)	0.0810 (0.3194)
Cut 4			0.8680*** (0.3175)	0.9552*** (0.3209)
Observations	632	632	632	632

Note: \*p<0.1; \*\*p<0.05; \*\*\*p<0.01. For the long specification (5 levels), cases are distributed as: 11 for “very bad”; 87 for “bad”; 266 for “good/OK”; 213 for “very good”; and 154 for “perfect”. For the short specification (3 levels), cases are distributed as: 97 for “very bad” or “bad”; 266 for “good/OK”; and 367 for “very good” or “perfect”.

**Table 4.** Types of transfers

	(1)	(2)	(3)
Cash beneficiary	0.0958 (0.1132)	0.1236*** (0.0217)	0.5274*** (0.0198)
In-kind	-0.0883*** (0.0150)		
Cash*In-kind	0.5042*** (0.0512)		
Voucher		0.3477*** (0.0084)	
Cash*Voucher		0.3212*** (0.0194)	
FNPF			-0.0091 (0.0083)
Cash*FNPF			-0.0178 (0.0184)
Severity of the damage	-0.4481*** (0.1112)	-0.4865*** (0.1688)	-0.4332*** (0.0234)
No market before	-0.2931*** (0.0236)	-0.2032 (0.1586)	-0.3048*** (0.0089)
Log household size	0.0155 (0.1514)	-0.0084 (0.0626)	0.0115 (0.0213)
Child ratio	0.5187*** (0.1871)	0.5766*** (0.0615)	0.4794 (0.5011)
Elite status	-0.3500*** (0.1305)	-0.3767 (0.2329)	-0.3224*** (0.1106)
Household head age	0.0050*** (0.0007)	0.0037 (0.0027)	0.0053*** (0.0017)
Surprise	-0.0534 (0.0534)	-0.0193 (0.0525)	-0.0863*** (0.0109)
Change in income source	-0.0229 (0.1003)	-0.0055 (0.0438)	-0.0491 (0.1630)
Change in housing	0.0826** (0.0367)	0.1374 (0.1474)	0.0866 (0.1167)
Change in consumption	-0.7562*** (0.0767)	-0.7125*** (0.1082)	-0.6678*** (0.0192)
Change in assets	-0.1175*** (0.0211)	-0.1544*** (0.0068)	-0.0946 (0.1136)
Cost of cashing transfer	-0.0063 (0.0065)	-0.0062 (0.0065)	-0.0046*** (0.0012)
Cut 1	-1.8260*** (0.5271)	-1.7014*** (0.1872)	-1.6301*** (0.3288)
Cut 2	-0.5827 (0.4909)	-0.4313 (0.3133)	-0.3898 (0.3674)
Observations	632	632	628

Note: \*p&lt;0.1; \*\*p&lt;0.05; \*\*\*p&lt;0.01.

**Table 5.** In-kind transfers

	(1)	(2)	(3)	(4)	(5)	(6)
Cash beneficiary	-0.1418 (0.4997)	0.4543*** (0.0944)	0.4260*** (0.0720)	0.4483*** (0.0514)	0.2042** (0.0798)	0.4936** (0.2315)
Food/Water	-0.3349 (0.3616)					
Cash*Food/Water	0.8017* (0.4404)					
Shelter/Housing		0.1826** (0.0865)				
Cash*Shelter/Housing		0.1758 (0.1323)				
Personal items			0.2108*** (0.0758)			
Cash*Personal items			0.2368** (0.1084)			
Productivity				0.2106*** (0.0393)		
Cash*Productivity				0.4696*** (0.0568)		
Food voucher					0.2957*** (0.0510)	
Cash*Food voucher					0.2175 (0.2095)	
Housing voucher						0.3536*** (0.0218)
Cash*Housing voucher						-0.0197 (0.2798)
Severity of the damage	-0.4444*** (0.1122)	-0.4787*** (0.1395)	-0.5066*** (0.1390)	-0.4919*** (0.1462)	-0.4794*** (0.1753)	-0.4538*** (0.1554)
No market before	-0.3060*** (0.0413)	-0.2671*** (0.0050)	-0.2764*** (0.0292)	-0.3024*** (0.0346)	-0.2653 (0.1819)	-0.2630* (0.1385)
Log household size	0.0111 (0.1513)	0.0254 (0.1512)	0.0079 (0.1563)	-0.0086 (0.1618)	0.0008 (0.0623)	-0.0088 (0.0642)
Child ratio	0.5106** (0.2245)	0.3771* (0.2028)	0.5332*** (0.1658)	0.5687*** (0.1652)	0.5742*** (0.0705)	0.4934*** (0.0502)
Elite status	-0.3522*** (0.1305)	-0.3480** (0.1473)	-0.3547** (0.1509)	-0.3298** (0.1436)	-0.3231 (0.2104)	-0.3687 (0.2309)
Household head age	0.0048*** (0.0007)	0.0055*** (0.0009)	0.0059*** (0.0008)	0.0058*** (0.0008)	0.0048 (0.0029)	0.0043* (0.0024)
Surprise	-0.0510 (0.0543)	-0.0502 (0.0713)	-0.0380 (0.0747)	-0.0616 (0.0742)	-0.0497 (0.0528)	-0.0820 (0.0972)
Change in income source	-0.0129 (0.1103)	-0.0139 (0.1142)	-0.0271 (0.1063)	-0.0644 (0.1031)	-0.0189 (0.0410)	-0.0382 (0.0432)
Change in housing	0.0862** (0.0375)	0.1242** (0.0486)	0.1199** (0.0505)	0.1121** (0.0514)	0.1162 (0.1372)	0.1448 (0.1335)
Change in consumption	-0.7620*** (0.0786)	-0.7492*** (0.1257)	-0.7448*** (0.1216)	-0.7447*** (0.1437)	-0.7160*** (0.1039)	-0.6823*** (0.1150)
Change in assets	-0.1064*** (0.0186)	-0.1387*** (0.0516)	-0.1280** (0.0516)	-0.2094*** (0.0685)	-0.1114*** (0.0242)	-0.1521*** (0.0110)
Cost of cashing transfer	-0.0071 (0.0064)	-0.0048 (0.0048)	-0.0080* (0.0049)	-0.0111*** (0.0041)	-0.0078 (0.0064)	-0.0016 (0.0097)
Cut 1	-2.0609** (0.8800)	-1.6062*** (0.5222)	-1.6257*** (0.5301)	-1.6891*** (0.5886)	-1.7014*** (0.2618)	-1.6196*** (0.2194)
Cut 2	-0.8118 (0.8392)	-0.3600 (0.4756)	-0.3749 (0.4820)	-0.4288 (0.5359)	-0.4449 (0.3916)	-0.3721 (0.3370)
Observations	632	632	632	632	632	630

Note: \*p&lt;0.1; \*\*p&lt;0.05; \*\*\*p&lt;0.01.

**Table 6.** Additional tests

	(1)	(2)	(3)
Cash beneficiary	0.0743 (0.2059)	0.5744*** (0.1224)	0.9243*** (0.2113)
Severity of the damage	-0.8329*** (0.1915)	-0.4181*** (0.1092)	
Cash*Severity of the damage	0.6003*** (0.2257)		
Kind provided by others		0.3512 (0.3585)	
Cash*Kind by others		-0.7144* (0.4018)	
Elite status	-0.3529*** (0.1131)	-0.3509*** (0.1133)	0.0303 (0.1925)
Cash*Elite status			-0.5521** (0.2288)
i-Taukei Village			
Cash*i-Taukei Village			
i-Taukei not-village			
Cash*i-Taukei not-village			
Indo-Fijian			
Cash*Indo-Fijian			
No market before	-0.3239** (0.1440)	-0.2924** (0.1434)	-0.4649*** (0.1044)
Log household size	0.0217 (0.0890)	0.0321 (0.0895)	0.0232 (0.0892)
Child ratio	0.4977 (0.4517)	0.5521 (0.4524)	0.5152 (0.4507)
Household head age	0.0056 (0.0039)	0.0052 (0.0039)	0.0058 (0.0039)
Surprise	-0.0581 (0.1203)	-0.0636 (0.1206)	-0.1109 (0.1198)
Change in income source	-0.0502 (0.1867)	-0.0269 (0.1868)	-0.0186 (0.1860)
Change in housing	0.1047 (0.1487)	0.0722 (0.1483)	0.0652 (0.1469)
Change in consumption	-0.6752*** (0.1411)	-0.7268*** (0.1457)	-0.5377*** (0.1260)
Change in assets	-0.0968 (0.1550)	-0.1124 (0.1554)	-0.1299 (0.1552)
Cost of cashing transfer	-0.0048 (0.0081)	-0.0054 (0.0082)	-0.0023 (0.0082)
Cut 1	-1.9297*** (0.3786)	-1.6523*** (0.3599)	-1.1950*** (0.3806)
Cut 2	-0.6840* (0.3732)	-0.4122 (0.3557)	0.0382 (0.3782)
Observations	632	632	632

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