

Paper:

Targeting Vulnerable People with a Social Safety Net: Lessons from the CFW Program for the 2011 Great East Japan Earthquake and Tsunami Disaster

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The Emergency Job Creation (EJC) program in which unemployed people are hired for recovery works funded by the government was introduced after the 2011 earthquake and tsunami disaster in Japan. The program is very similar to Cash for Work (CFW) programs that are often implemented as social safety nets (SSNs). This paper evaluates how the EJC program targeted those most in need. From four projects, 938 participants were sampled and simple selection bias tests were conducted among job applicants in the region where the project was undertaken. Participants of the EJC program included more single females and irregular workers than the population group, thus demonstrating the EJC's self-targeting function. Around 80% of participants were without dependent family members implying that there are two types of potential participants: those who prefer limited responsibilities with relatively low wages, and those who prefer a larger burden of responsibility with relatively higher wages. Because the wages provided by the EJC program may be high enough for the former, but too low for the latter, the program eventually excluded the second group. Similar programs in future should provide other types of jobs corresponding to people's preferences. Previously unemployed participants were likely to be those who lost their houses; that damage had pushed them into the labor market. Because of the relatively minor existing SSN for housing damage, the EJC program served as an important safety net for disaster-affected people without a private safety net such as insurance.

Keywords: social safety net (SNN), public works (PW), cash for work (CFW), self-targeting, livelihood recovery

1. Introduction

The concept of disaster risk has been broadening. Disaster risk is not just a threat to lives and property, but has economic, social, cultural, and environmental aspects [1]. Based on such an understanding of disaster risk, social

safety nets have been recognized as key elements of a disaster resilient society. Actually, the Sendai Framework for Action in 2015 has noted that inclusive policy and social safety nets should be strengthened at the national and local levels [2].

The 2011 earthquake and tsunami disasters in Japan, triggered by an earthquake with a magnitude of 9.0, which struck in the Pacific offshore of northeastern Japan (Tohoku region) on March 11, 2011, were challenging disasters for the country's existing social safety net. Official statistics show that the number of refugees exceeded 450,000 people. A large portion of them were rendered homeless. In fact, 121,809 houses totally collapsed or were washed away, and approximately one million housing units collapsed partially. In addition, many people lost their livelihoods. Almost all infrastructure was wiped out by the overwhelming tsunami, and most formal economic activities disappeared for a certain period of time, in some severely affected regions. The area surrounding the Fukushima Dai-ichi nuclear power plant experienced a similar situation. Approximately 85,000 people were mandatorily relocated by the Japanese government in order to protect them from exposure to the radiation released by the nuclear power plant accident. That relocation eventually deprived most of them of their livelihoods, especially in the agricultural and service sectors. A private think tank estimated that roughly 140,000–200,000 people lost their jobs. In addition, it was not expected that those people could return to their original jobs quickly because the damage was too severe to assume that the industries that had existed could recover their former positions.

The government established several social safety net programs immediately after the disaster to cope with the harsh situations of the people affected. The Emergency Job Creation (EJC) Program was one of those, in which unemployed people are hired for recovery works and paid from the fund provided by the government. EJC programs created more than 200,000 jobs in two years subsequent to the disaster, as much as 20 percent of new job opportunities in the disaster-affected regions, and undoubtedly improved a labor market that would otherwise have had an excess supply of labor.



The purpose of this paper is to examine the impact of the EJC program as a social safety net (SSN) program in disaster and emergency situations. It is important to know who actually benefitted from the program, because past experiences worldwide and academic research show that targeting is the one of the most crucial and challenging issue for SSN programs [3–7]. If the EJC projects failed at targeting the people who needed the jobs most, the program could be regarded as inefficient and should be reconsidered because it may have deprived the labor force of jobs in private industries that were trying to recover.

Thus, we analyze the data on the attributes of all 938 workers who were engaged in four projects under the EJC program until recently; three of them were community workers in the temporary housing village, while the others worked as assistant staff to local government. The paper is organized as follows: In Section 2 we review the discussion concerning the Cash for Work (CFW) program, a similar program to EJC. Section 3 explains EJC and other related programs in Japan to identify the institutional arrangements of the Japanese SSN in disasters. Section 4 is devoted to explaining the data and its collection. Section 5 analyses the data and investigates who benefitted by the programs. Section 6 is devoted to discussion and conclusions.

2. Cash for Work as a Tool for Social Safety Nets

CFW is a kind of conditional cash transfer program in which the beneficiaries are expected to engage in certain work for disaster recovery in return for the assistance they receive [8]. CFW has been commonly accepted as a technique of humanitarian assistance by international NGOs [8, 9], donor organizations [10], and governmental organizations. CFW has been developed as a tool for intervention under insecure food circumstances, such as drought [9, 10] and its applicability has been expanded to other natural disasters such as cyclones [11] earthquakes and tsunami [12, 13], military conflicts [10], and financial crises [14]. Because of this applicability and plenty of experiences in implementing it, CFW has been regarded as one of the tools for SSNs [4].

2.1. CFW as Cash Transfer Program

In order to understand the attributes of CFW as a tool for SSN, CFW can be defined according to two characteristics. The first is that CFW is providing security for people by direct cash transfers, in contrast to food for work (FFW) programs, which involve direct (in-kind) food transfers. FFW was developed in the 1970s in the sub-Saharan region by a number of NGOs, governmental organizations, and the World Food Program, as a tool for giving incentives to farmers in famine regions to improve their diets, and mitigate future risks to soil and water conservation [15]. It was a common tool for humanitarian famine interventions. In the 1980s, however, there was an

increased awareness of the superiority of cash in several respects. According to Harvey [10], the first advantage is that cash enables beneficiaries to choose what they want more flexibly and thereby improve their welfare. The second is that managing cash is efficient while food delivery requires more costs for storage, transport, and delivery. The third is the economic impact where distributing cash means it is spent in the local market and generates more income by the so-called “multiplier effect.” The fourth is that cash may give the beneficiary a sense of dignity, as it empowers them to make decisions concerning their lives. There has been a question of whether providing cash has less impact FFW on beneficiaries’ nutrition owing to the discretion regarding consumption; however, studies show that even cash may have improved people’s nutrition status significantly [16].

2.2. CFW as a Conditional Program

Although the World Bank has not classified CFW as a conditional cash transfer (CCT) but as public works (PW) in their categorization of SSN [4], conditionality is another important characteristic for understanding the nature of CFW. In any CFW program, people can receive cash support as long as they provide their labor. This conditionality is expected to function as an incentive to people to engage in recovery works, and promote recovery and mitigation of future risks. This benefit has been also emphasized by many promoters of CFW [8, 9].

Conditionality also has been regarded as advantageous in terms of targeting. Funds for assistance are always limited and should therefore be distributed in efficient ways, in which the poor receive more. CFW is supposed to attract only the people who should work and otherwise would experience hunger, if the wages being paid for their work were set any lower. Organizers of the CFW program therefore do not have to prioritize potential participants, which is often costly and difficult to do. This function is called “self-targeting” in economic theory. Moreover, this is the reason why CFW wages should be set lower than the market level [8, 17], but in practice this is very hard to do [18].

However, the efficiency of targeting in CFW is a challenging issue, contrary to economic theory. Doocy et al. [12] showed the difficulty the CFW program in Ache experienced following the tsunami disaster in 2005. Although the majority of CFW participants had no other source of income, and 93% of their income was attributed to CFW, multiple members in 68% of households participated in the program and their family incomes were reported to be relatively high. The experience in Liberia shows that about 80% of beneficiaries could be defined as poor, and therefore targeting was successful [14]. The findings by Echevin [19] were more challenging, concluding that CFW in Haiti after the 2010 earthquake was not well targeted. His finding was that CFW income was a main source of income for very few households, and the poorest people had not benefitted from the project. Rather, Echevine [13] pointed to the possibility that CFW

in Haiti had deprived labor market of potential workers. Unconditional cash transfers (UCT) have been discussed as a better tool than CFWs to overcome the targeting problem. For example, The Hunger Safety Net Program (HSNP) in Kenya, a world famous UCT program, has exhibited high performance in poverty reduction. Despite the program targeting villages whose poverty rate is relatively high, the program has benefitted the most vulnerable and poorest people [20] and has done so in Malawi and Mozambique [21]. However, there is also evidence of poor targeting under UTC schemes [22–24]. This evidence shows that targeting performance is not determined by the existence of conditionality in the program, but is a matter of program design, targeting mechanisms and procedures, and the institutional arrangement of other SSN programs.

3. Cash Transfer Programs in Japan

3.1. Existing Social Safety Nets in Emergency

Japan has several cash transfer programs. The largest one is public assistance to individuals, which has about 2.1 million recipients and allocates 3.7 trillion yen annually. This is a regular program in which households whose income falls below a certain level can receive money from national and local governments.

There are several other programs in case of emergency. The first is the “Condolence payment for disaster victims and the disabled” in which households that have lost members can receive from JPY 2.5 million to 5 million, and the person who has been seriously injured and remains disabled can receive JPY 1.25–2.5 million. The second program is the livelihood rehabilitation support program, in which households whose house—that they own and live in—has been damaged, can receive rehabilitation support of JPY 3 million maximum. In addition, monetary donations from non-affected populations are often distributed in case of large disasters.

While almost all affected people are eligible for the program outlined above, a certain portion of households can receive additional cash by buying insurance against natural disaster losses. For example, earthquake insurance could cover up to half of one’s housing loss at current price. Other mutual aid programs, such as the Japanese Agricultural Cooperative (JA), National Federation of Workers and Consumers Insurance Cooperative (Zenrosai), and COOP also provide disaster-related insurance. We can call them private safety nets (in comparison to social safety nets).

The amount of transfer in the 2011 Tohoku earthquake and tsunami disaster is shown in **Table 1**. The total amount of cash transfer can be estimated as at least JPY 3.16 trillion, which was as much as 0.6% of Japanese GDP in that year. If we assume that the total number of beneficiaries was 400,000 households, (roughly the sum of the number of houses totally and partially collapsed), the average amount of cash transferred was 7.9 million,

Table 1. Amount of cash transferred to the affected people in the 2011 Tohoku earthquake and tsunami disasters.

Program		Amount paid (in Million JPY)	Source
Government program	Condolences payment program	42,779	Cabinet Office
	Livelihood rehabilitation program	314,762	
Donation	Japan Red Cross Society (JRCS), Central Community Chest in Japan (CCCJ)	414,740	JRCS, CCCJ
Subtotal of Social Safety Net		772,281	
Insurance	Earthquake insurance	1,234,593	The general insurance association in Japan
	JA, Zenrosai, and COOP	1,160,700	JA, Zenrosai, and COOP
Subtotal of Private Safety Net		2,395,293	
Total		3,167,574	

which is more than twice the rate of Japanese per capita GDP (JPY 3.71 million at 2011).

This table also shows that the portion of SSN over the private safety net was very small, and made up only 24% of the total cash transfer. I categorized donations as part of the SSN as they target all of the affected populations. These are not institutionalized, but very formal system of safety net. In addition, it should be noted that considerable amount of informal cash transfer might have also existed among relatives, co-workers, members of co-operatives and religious groups, which cannot be observed as a statistical figure.

In 2011, the ratio of the earthquake insurance policyholders held compared to all eligible households was 56.7% in Iwate, 81.1% in Miyagi, and 58.1% in Fukushima prefecture. This means that the rest of the households had to rely on the SSN alone. If we assume that SSN funds are distributed to the 400,000 equally, then the average cash amount from SSN was 1.9 million, or as much as 51% of per capita GDP. These facts imply a huge gap between those who had private safety net and who did not in cash being transferred. Therefore, there were a certain demand for gaining cash during the recovery process by those who did not have private safety net.

3.2. CFW Program in Japan

To fill the gap, the Japanese government implemented the Emergency Job Creation (EJC) program immediately after the disasters of 2011. The program was based on the national government providing funds for local governments and private businesses to employ disaster victims who had lost their jobs, in work that was related to disaster response, recovery, and reconstruction. The total amount of funds allocated for this program during the two-year period after the disasters was JPY 400,000 million (USD 3,800 million). **Table 2** shows the number of participants of the EJC program by sector and prefecture.

The total number of participants is 126,800, from FY2011 to FY2015, of which 57,886 (45.6%) are in Fukushima prefecture. The reason for Fukushima's prominent use of EJC is partly because Fukushima prefecture required many laborers for radiation monitoring and decontamination, and for patrolling the mandatory evacuation area. In the areas in which many people evacuated, there was much demand for job opportunity by farmers, fishermen, and self-employed workers who lost their livelihood because of the mandatory evacuation [24].

EJC is a very similar tool to CFW, however, there are several differences between these two programs. The first is the diversity of work provided by the programs. While jobs provided by traditional CFW programs mainly involve manual work for reconstruction and cleanups for recovery, EJC provides various work in many fields as **Table 2** shows. It should also be noted that EJC provides little manual work, but considerable clerical work, light work, community and welfare work, which are not seen in traditional CFW.

The second difference is more fundamental. EJC is basically a policy for reducing unemployment, not for livelihood support. This distinction is not necessarily clear because providing jobs to the disaster-affected unemployed is almost the same as livelihood support for them. However, under the EJC program, the only requirement for participants was that they were unemployed when they applied to the program, and had been in disaster-affected prefectures at the date the disaster occurred. It does not necessarily mean that they were directly affected by the disaster. Moreover, the project organizers, subsidized by the EJC program, have great discretion concerning the selection of workers from applicants. Some projects, such as those introduced in the next section, try to hire the people who are the most in need of employment, but this is not mandatory. Primarily, the project organizers try to hire someone who is capable, and suitable for their own mission.

The third difference comes from the fact that the program is administrated by labor officials. All projects under EJC programs must comply with the labor laws and regulations. This is beneficial for protection of workers, but was impediment for efficient targeting and job creation as traditional CFW has been pursuing. First, the wages set in the EJC program should be set higher than the minimum wages mandated by labor officials in each prefecture, and promoting self-targeting by capping the wages has certain limitations. The second is that the project organizer is required to have all participants have social insurance such as worker's accident compensation insurance, employment insurance, medical insurance, and pension insurance.

This imposed a huge burden of paperwork on the project organizers, and became a bottleneck to creating a larger number of jobs. Therefore, the number of participants in each project under EJC is relatively small. As **Table 3** shows, more than 85% of the projects have fewer than ten workers. Most of the projects that have very large number of participants are organized with support of pri-

Table 2. Number of Participants of EJC program from FY2011 to FY2015 in three major affected prefectures.

Number of participants	Number of projects	%	Cumulative ratio
Less than 5	985	72.9%	72.9%
6 to 9	171	12.6%	85.5%
10 to 29	120	8.9%	94.4%
30 to 49	25	1.8%	96.2%
50 to 69	16	1.2%	97.4%
70 to 99	7	0.5%	97.9%
100 to 199	14	1.0%	99.0%
200 to 299	4	0.3%	99.3%
300 to 499	4	0.3%	99.6%
500 and more	6	0.4%	100.0%
Total	1,352	100.0%	

Source: Labor Division of Iwate, Miyagi, and Fukushima Prefecture. Compiled by the author.

Table 3. Project size composition.

Field of projects	Iwate	Miyagi	Fukushima	Total
Nursery, welfare	1,011	1,788	2,633	5,432
Parenting	262	1,026	648	1,936
Medical work	121	551	614	1,286
Industrial promotion	3,456	3,207	5,964	12,627
Information & communication	816	927	800	2,543
Tourism	1,140	1,437	1,958	4,535
Environment	1,892	2,143	3,887	7,922
Agriculture and fishery	5,479	3,265	2,608	11,352
Safety	351	2,934	3,815	7,100
Education and environment	1,189	6,216	4,870	12,275
Others	4,270	11,243	22,772	38,285
Temporary civil officers	2,604	11,518	7,317	21,439
Not categorized	44	24		68
Total	22,635	46,279	57,886	126,800

Source: Labor Division of Iwate, Miyagi, and Fukushima Prefecture

vate staffing agencies, some of which are introduced as a sample in this study. Eventually those participants are expected to work regularly, and are paid monthly. This is in contrast to traditional CFW in which there is no formal labor contract between organizer and participants, people are paid daily in cash, and therefore there is a large number of participants.

However, there is still a good reason to categorize EJC as a form of CFW despite the major differences between the two. Even though CFW is an initiative for emergency interventions, organizers of CFW programs should comply with labor laws as long as they are implemented for the sake of the participants. Thus continuity between regular social protection or SSN programs and emergency intervention is challenging but a necessary issue, as Slater et al. [26] have pointed out. The Japanese lessons are very important for understanding how CFW works under an established SSN program, a concern for all countries that are trying to construct an SSN for citizens.

4. Data

The four sample projects shown in **Table 4** were chosen for this analysis to investigate the attributes of the participant workers in the EJC program. There are two ratio-

Table 4. Sample projects overview.

Group Projects	Iwate			Miyagi
	Otsuchi	Kamaishi	Ofunato	Ishinomaki
Mission	Community support work in temporary housing villages.	Community support work in temporary housing village.	Welfare and operational works for the residents in temporary housing villages.	Assistant work for Ishinomaki city government.
Work contents	<ul style="list-style-type: none"> · Community support work. · Delivery of newsletter and brochures from municipal governments. · Provision of inquiry counter for the residents. 	<ul style="list-style-type: none"> · Community support work. · Delivery of newsletter and brochures from municipal governments. · Provision of inquiry counter for the residents. 	<ul style="list-style-type: none"> · Community support work. · Delivery of newsletter and brochures from municipal governments. · Provision of inquiry counter for the residents. 	<ul style="list-style-type: none"> · Clerical works, such as reception desk for registration of individual assistance programs. · Light manual works, such as school bus driver for the refugee children, funeral works for the dead, etc.
Survey date	March 4, 2014	March 13, 2014	March 4, 2014	August 13–20, 2014
Total number of participants as of the survey date	137	136	141	524
Employer	Private staffing agency	Local and native NPO	Private staffing agency	Private staffing agency
Wages	<ul style="list-style-type: none"> · JPY 850 per hour for general staff. · JPY 240,000 per month for manager. · JPY 210,000 per general manager. 	<ul style="list-style-type: none"> · JPY 142,650 for general staff. · JPY 202,650 for manager. 	<ul style="list-style-type: none"> · JPY 850 per hour for general staff. · JPY 240,000 per month for manager. · JPY 210,000 per general manager. 	<ul style="list-style-type: none"> · JPY 5,600 to 6,000 per day for clerical work. · JPY 825 to 1,025 per hour for light manual work. · JPY 8,200 to 8,300 per day for special manual work.

nales for selecting these samples. One is that the mission of these projects – community support in temporary housing village and work assisting municipal governments – is very common in every disaster-affected municipality. Moreover, participants of selected projects were not required to have any special skills, apart from some necessary communication skills.

All of these projects had more than 130 participants, which made them relatively larger than others. The wages paid do not vary very much across these programs and were not so low as to expect self-targeting from the participants. For example, the Otsuki and Ofunato projects paid JPY 850 per hour, about 30% higher than the minimum wage being applied in Iwate (JPY 653) in 2012. However, compared to that of regular workers, the wages of these projects are not as high as average. For example, a monthly salary in the Kamaishi project was JPY 142,650, whereas the average for Iwate workers was JPY 227,134 in 2012, according to the Basic Survey of Wage Structure of the Ministry of Health, Labor, and Welfare. In general, the wages are not as low as those of part-time workers, but were lower than the average wage of regular workers.

This study collected the data on personal attributes of all participants from the CVs that their employer held. No private information such as names, residential addresses, phone numbers or date of birth was collected. This collection was done under the cooperation and with the guidance of the employers. All these procedures were re-

viewed and approved in advance by the Research Ethics Committee of the authors' affiliated organizations.

In order to understand the EJC targeting, this study conducted simple selection bias tests from a population group. Job applicants in the region where the project was undertaken can be defined as a population group, because all participants must have enrolled as job applicants at the public employment agencies (called "Hello work" in Japan). The statistics on population groups were derived from an "employment status survey" conducted by the Ministry of Internal Affairs and Communications in 2012. The samples are grouped geographically into two areas: Miyagi and Iwate. However, it should be noted that the Iwate group were all in community work, while the Miyagi group were engaged in assistance work to the government. We have to be aware that the difference between participants of these two groups can mostly be attributed to the different work in which they were engaged. We henceforth describe the bias caused by the different work as the employer's selection bias.

We assumed that the Iwate and Miyagi sample groups were selected from all job applicants in their respective prefectures. The z test was conducted for a null hypothesis that the parameters of the sample were equal to those of the population groups. If bias existed for people in adverse conditions, the EJC program could be regarded as one with self-targeting functions.

Table 5. Age of participants.

		Sample group		Population group		
		Project participants		Job seekers (non workers)		
		Total	Ratio	Total	ratio	<i>z statistic</i>
Iwate	Less than 20	3	1%	1,700	5%	-1.53
	20 to 29	44	11%	6,400	17%	-3.14**
	30 to 39	58	14%	7,600	21%	-3.11**
	40 to 49	112	27%	6,900	19%	5.72**
	50 to 59	94	23%	6,400	17%	3.55**
	60 to 69	93	22%	5,900	16%	4.57**
	70 and above	10	2%	1,600	4%	-1.47
	Iwate	414	100%	36,700	100%	
Miyagi	Less than 20	16	3%	4,800	6%	-2.12*
	20 to 29	132	25%	19,900	25%	-0.02
	30 to 39	113	22%	15,500	20%	1.29
	40 to 49	122	23%	12,700	16%	5.88**
	50 to 59	87	17%	11,900	15%	1.11
	60 to 69	47	9%	11,800	15%	-3.23**
	70 and above	7	1%	2,000	3%	-1.28
	Miyagi	524	100%	78,900	100%	

Source: Ministry of Internal Affairs and Communications (2012) "Employment Status Survey"

Notes: *, ** represents 5% and 1% significance respectively.

Table 6. Sex and education of participants.

		Sample group			Population group			
		Project participants			Job seekers (non workers)			
		N	Total	%	N	Total	%	<i>z statistic</i>
Females	Iwate	264	414	64%	19,700	36,700	54%	8.26**
	Miyagi	333	524	64%	45,700	78,900	58%	5.29**
BA or higher degree holders	Iwate	26	414	6%	3,300	32,500	10%	-2.17*
	Miyagi	70	524	13%	9,900	65,300	15%	-1.17

Source: Ministry of Internal Affairs and Communications (2012) "Employment Status Survey"

Notes: *, ** represents 5% and 1% significance respectively.

4.1. Testing of Self-Targeting

The first concern was the age of the participants. According to **Table 5**, it is very obvious that the younger people whose ages are between 20 to 39 are selected less, while people between the ages of 40 to 70 are selected more, often in Iwate. However, this is not true for participants in the Miyagi project who are relatively younger than the population group. These results may imply that the bias is because of employers' selection, rather than self-targeting, because the Iwate project may have needed older participants with plenty of life experience, in order for them to serve as community workers, while those in Miyagi may have been required to have a certain level of IT and paperwork skill in order to work for the Ishinomaki municipal government.

Table 6 shows the participants' sex and education. The percentage of female participants in the sample is 64% for both Iwate and Miyagi. However, the percentage of

female participants in the population group was higher in both areas: 54% and 58%, respectively. According to the tests, the null hypothesis is rejected for both Iwate and Miyagi sample. This result could be an instance of self-targeting, but there is still some possibility of employer's selection bias. In regard to education, only 6% and 13% of participants in Iwate and Miyagi, respectively, have BA or higher degrees. This is significantly lower than that of job seekers in Iwate. Degree level education is also lower among Miyagi participants, but not significantly. This may be because the works provided in Miyagi required a higher minimum level of education than usual from participants.

Table 7 shows the number of participants with spouses. In total, 45% and 40% of the participants in the sample group of Iwate and Miyagi, respectively, have spouses. These figures are much lower than those of the population group of workers and job seekers. It should be noted, however, that this is true only for female partici-

Table 7. Participants with spouse, by sex.

	Number of having spouse	Sample group Project participants			Population group Job seekers (non workers)			
		N	total	ratio	N	total	ratio	<i>z statistic</i>
Iwate	Male	66	150	44%	6,300	17,000	37%	3.64**
	Female	120	262	46%	11,400	19,700	58%	-8.01**
	Total	186	412	45%	17,700	36,700	48%	-2.51*
Miyagi	Male	57	158	36%	9,700	33,200	29%	4.17**
	Female	126	305	41%	24,400	45,700	53%	-8.48**
	Total	183	463	40%	34,100	78,900	43%	-3.24**

Source: Ministry of Internal Affairs and Communications (2012) “Employment Status Survey”

Notes: *, ** represents 5% and 1% significance respectively.

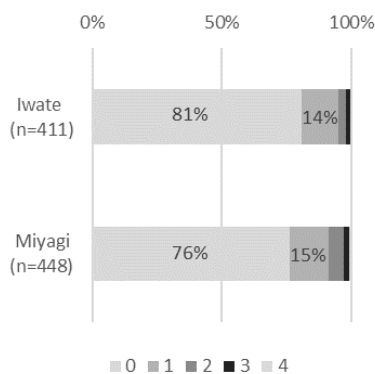


Fig. 1. Participants' number of dependents.

pants. Male participants have rather higher rates of having a spouse, but this may be because the male workers are older.

When we look at the number of dependents of EJC participants, most do not have dependents (Fig. 1). This fact implies that for the married participants, the wages paid to EJC participants are only a marginal source of their household income.

When we look at Table 8, the number of participants who had worked as regular workers prior to their current job is very much smaller in the sample group than in the population group. Program participants who have had regular work were only 7% and 16% in Iwate and Miyagi, respectively, whereas jobseekers in the same areas were 42% and 36%, respectively. As was mentioned earlier, Japanese labor laws require employers to ensure their workers have unemployment insurance. Thus most regular workers who lost their jobs because of the disaster would receive an insurance payment. Therefore, the regular worker ratio of the population group would be little smaller if we restrict the group to the disaster-affected regions.

Yet the fact shown so far gives a more plausible explanation: the EJC attracts participants who have fewer opportunities to be hired as regular workers, namely, females with lower levels of education. EJC participants

were required to be unemployed when they participated in the program. Table 9 summarizes the length of time being unemployed prior to participation in the EJC program. Iwate and Miyagi show different trends. Miyagi participants have relatively shorter lengths of unemployment. Iwate participants have longer lengths of time being unemployed compared to the population group.

Why do Iwate program participants have a longer unemployment period than those in Miyagi? The plausible explanation is that a larger percentage of Iwate participants had lost their houses in the disasters. As much as 34.5% of Iwate participants have been living in temporary houses provided by government, compared to 10% in Miyagi. Moreover, there are significant differences between temporary house residents and the others in the length of unemployment prior to participation in EJC (Fig. 2). This implies that many of the participants, such as housewives or retired population who lost their houses, had not previously been in the labor force. The EJC program provided additional sources of income for their households to recover assets lost to damage.

5. Discussion and Conclusion

Since the EJC program is primarily intended to reduce the number of those in unemployment, not every project is intended to target the vulnerable population. Nonetheless, participants of the EJC in Iwate exhibit more attributes of vulnerability, such as being older and having less education than job seekers, and are more likely to be single females and not regular (i.e., full time) workers. Participants in Miyagi are not as vulnerable as those in Iwate in terms of age and education, but include more single females and non-regular workers. In this sense, EJC programs demonstrate a self-targeting function.

However, around 80% of participants do not have dependent family members. The income from the EJC program may not be enough to raise others, and hence many single people and people whose family members have other sources of income have participated in the projects. This implies that those who have dependents and need a

Table 8. Ratio of participants who were regular workers prior to their current job.

	Sample group Program participants			Population group Job seekers (non worker with job experience)			
	Priorly regular worker	Total	Ratio	regular worker	Total	Ratio	Z statistic
Iwate	30	414	7%	13,500	32,500	42%	-28.73**
Miyagi	82	524	16%	23,200	65,300	36%	-19.87**

Source: Ministry of Internal Affairs and Communications (2012) “Employment Status Survey”

Notes: *, ** represents 5% and 1% significance respectively.

Table 9. Length of time being unemployed prior to participating in the program.

Length of time being unemployed	Sample group Program participants		Population group Job seekers (non worker with job experience)			
	N	Ratio	N	Ratio	z statistics	
Iwate	Less than 1 month	44	11%	8,100	25%	-4.90**
	Less than 1 year	245	62%	19,600	60%	1.02
	1 year to 1 year and 11 month	59	15%	5,500	17%	-1.11
	More than 2 years	92	23%	6,200	19%	2.58**
	Total	396	100%	32,500	100%	
Miyagi	Less than 1 month	190	36%	16,900	26%	7.26**
	Less than 1 year	421	80%	39,200	60%	16.85**
	1 year to 1 year and 11 month	56	11%	12,700	19%	-4.22**
	More than 2 years	51	10%	11,600	18%	-3.96**
	Total	528	100%	65,300	100%	

Source: Ministry of Internal Affairs and Communications (2012) “Employment Status Survey”

Notes: *, ** represents 5% and 1% significance respectively.

higher salary are excluded from the program.

How can this happen? It is easily understood if we suppose that there are two types of potential participants. The first type prefers limited responsibilities and burdens, with relatively low wages. This type includes people who are single, or housewives whose family has other sources of income, or an older person who has already retired and has pension income. The second type of participants prefers to have a larger burden of responsibility, with relatively high wages. This type includes those who need to provide for their family members, such as fathers or single mothers of young children.

The wages paid in the EJC program are higher than the minimum wage, but far lower than the monthly average of the labor market. This wage level was higher for the first type of people, so they are willing to participate. However, it is lower for the second type of people. As a result, they may have chosen to emigrate outside of the disaster-affected area to seek more suitable job opportunities. This explanation can be applied without any contradiction to the fact that more vulnerable people, such as female-led households and households whose agricultural assets had been damaged, declined to participate in the CFW pro-

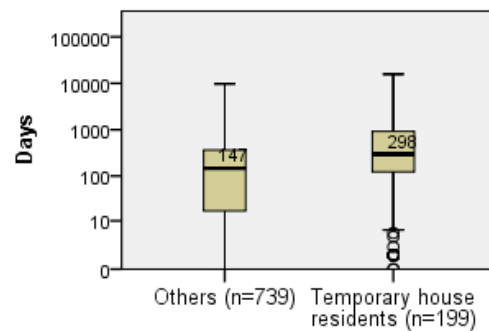


Fig. 2. Distribution of days of unemployment prior to participation in the EJC program, by residence.

gram [13].

This finding is very important because it implies that the existing recommendation of CFW to set wages lower than the market level be reconsidered. Setting low wages will cause so called “exclusion error,” that exclude the second type of participants from the program, although their demand for job opportunities is no less than those of the first group. The most appropriate way to reduce

the exclusion error may be to use a screening method, in which two type of jobs correspond to the two types of potential participants. In the context of Japan, the EJC program should provide a different type of work where the salary is as high as the market average, but involves greater responsibilities and scope of work. This enables the second type of people to participate in the program, and would contribute to increasing the effectiveness of the EJC program as a SSN tool.

Finally, we found that participants who have not been in the workforce before the earthquake were likely to be those who lived in temporary houses. Disaster damage had pushed them into the labor market to recover their lost assets. As noted previously, the existing SSN for housing damage is relatively minor in comparison to private safety nets such as insurance. This fact implies that the EJC program served as an important safety net for those without a private safety net.

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