

Are special economic zones a curse on those "chosen" to be evicted? : evidence form West Bengal, India

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Saumik Paul*
and Vengadeshvaran Sarma**

July 2014

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Using data from a self-administered survey of 1,017 households we assess the long-term impact of establishing a special economic zone, on those who are exogenously selected to be displaced. We find those who are displaced suffer from lower land compensation and lack of adequate property rights. There is also some evidence of lower labour market participation among those who are displaced. However, in the long term, across measurable welfare indicators, we do not find that displaced households are significantly different from other households. One source of this resilience is through employment at the special economic zone – which is higher among displaced households compared to other households. Another factor that contributed to the absence of differences is spill-over effects; which made access to employment, education and other facilities about homogenous across displaced and non-displaced households.

Keywords: Special Economic Zones, Compensation, Property Right, Rural livelihoods, India

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*Saumik Paul is the corresponding author. This version is completed during his visit to Institute of Developing Economies (IDE-JETRO) as a visiting Research Fellow in 2014, June-September.

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1. Introduction

Special Economic Zones (SEZs hereon), directly employ more than 40 million people worldwide, or 1.3% of the global working force, and account for more than US\$ 200 billion in global exports (FIAS, 2008; ILO, 2013). According to FIAS (2008), SEZs are primarily designed to attract foreign direct investments, to create jobs and to support wider economic strategies. Empirical findings on SEZs' achievements on these objectives have been mixed¹. Expropriation and land-grab incidents relating to the establishment of SEZs have in the meantime attracted much attention in the developing world (Sarkar, 2007; Mahalingam and Vyas, 2011).

The rapid increase in the establishment of SEZs in India has increased policy debates; on the trade-off between mass welfare from industrialisation and the welfare of those who are 'evicted'. Recent land-grab incidents for the establishment of SEZs have been marred with resistance often transgressing into violent riots with casualties (Sarkar, 2007). We attempt to seek if 'evicted' (or forcibly displaced) households indeed are worse-off in the long-run by the establishment of SEZs, thus enduring sufferance for the greater good of the nation.

A handful of studies have attempted to address similar research questions, but they are focused on the short term and in some instances (for example Gatak et al. 2013) on an *ex post facto* basis on failed SEZs. Ghatak

¹ See Farole and Akinci (2011) and Kim (2013) for a more recent summary of the debate.

et al. (2013) find that land acquisition resulted in ‘substantial’ economic hardship for those affected in the Singur debacle for the setup of TATA factory. Shah (2013) concludes that the SEZ related displacements have adversely affected the livelihood of certain sections of the affected villages, especially those marginalized in the rural communities. Shah further highlights that the income distribution is further widened in the aftermath of the setup of the SEZ. Ghatak and Mookherjee (2011) and Ghatak and Ghosh (2011) propose providing a compensation higher than market rates to potential households that are to be evicted, to deter resistance and to ensure their welfare.

One issue that has sparsely featured in studies that focus on SEZs in India is the promise of livelihoods to affected households. Kanbur (2003) and Cernea (2003) assert that cash compensation is not self-fulfilling and propose additional non-cash based incentives for evicted households. In fact, *the right to fair compensation and transparency in land acquisition, Rehabilitation and Resettlement Act 2013* enacted by the Government of India since the start of this year explicitly addresses livelihood based safety nets as an added compensation measure. In addition to our focus on measurable indicators of welfare as a *stock* (static) measure, we also focus on livelihood effects of displacement as a *process* (dynamic) measure to identify more inclusively how displaced households are affected in the long run.

We use the case of Falta Special Economic Zone (FSEZ hereon) in West Bengal, India to identify the effects of displacement on welfare. FSEZ was setup in 1984, and was the first of such SEZs in the state of West Bengal – once the epicentre of British India. We chose the FSEZ for three reasons: It is based in West Bengal – the state home to much of the recent violent rioting against establishment of SEZ; it is a successful SEZ, and therefore we differ from studies that focus on failed SEZs; given three decades since establishment, we are able to identify long-term effects.

We summarize the main findings here. Descriptive evidence suggests that an overwhelming majority of displaced households have not yet been fully compensated – three decades since displacement. There is also evidence of a skewed compensation policy in favour of small land owners; a 1% increase in the amount of land lost, translated to a 2.5 percentage point lower share of the land being compensated. Evidence also indicates that evicted households are less likely to own residential plots now, and are also significantly less likely to have deeds for such, compared to non-displaced households. This deprivation of property rights for displaced households is likely to adversely affect them across other welfare factors, especially through lower access to capital.² There is also evidence of a lower labour market participation rate and lower returns to education among affected household members.

² See Banerjee and Duflo (2011) for a discussion on how this transpires.

Over time however, the welfare status of displaced households seems to converge to that of the unaffected households. In particular, we find evidence to suggest that members from displaced households were 8 per cent more likely to be employed in FSEZ compared to unaffected households – which possibly helped displaced households, overcome some of the transitional difficulties in shifting occupations. We also find that SEZs increase female participation in the labour market (in line with Milberg and Amengual, 2008; Tejani, 2011) – especially for displaced households. There is also some evidence to suggest that historical differences in the welfare level of households prior to displacement may have been homogenised by availing access to facilities and infrastructure more homogenously, and through spill-over effects since the establishment of FSEZ.

The paper is structured as follows. In section 2, we provide a brief history of the FSEZ. Section 3 describes the design of the study and the data. Section 4 outlines how compensation was provided in reality. We discuss empirical findings on the effect of displacement on welfare effects in section 5, and on livelihood effects in Section 6. Section 7 provides our concluding remarks.

2. The establishment of the Falta Special Economic Zone (FSEZ).

In 1984, the Government of India approved an area of 253 acres on the bank of the river Hooghly in Diamond Harbour for the setup of a Special Economic Zone. The site lies in ‘Falta’, 60km off Kolkata (the state capital)

connected by the Diamond Harbour national highway. Initially labelled as a ‘customs area’ in 1985, the first exports from the zone have been recorded as being in 1986, when 14 companies were in operation at the zone (Shalti Research Group, 2008). At present there are 72 companies registered as being operational in the zone, however of them, only 52 companies are reported to be fully functioning. At the time of the initiation of the SEZ, a 5-year tax-free loan was provided to companies that were to setup in FSEZ. After the lapse of the 5-years, many companies either re-registered under different names or left the SEZ, reducing the number of companies from over a 150 to its current level of 72.

2.1. LIFE PRIOR TO FSEZ

Villagers in the region, prior to the setup of FSEZ engaged in two main occupations: agricultural farming, fishing and *boating* – a locally coined term that refers to the ferrying of goods across the river on boats. Villagers with access to the river ‘hoogly’ (the body of water identified to the extreme left in Figure 1) predominantly engaged in either boating or fishing, although boating was not a source of constant income. Villagers further away from the river engaged in farming, in their own farm or others farm. Those who were less endowed engaged in work in the informal sector, often as carpentry assistants on daily wage in the state capital – Calcutta.

Qualitative evidence from our Focus Group Discussions (FGDs) with villagers indicate that most villagers who did not own farms, had difficulties

in coping with their life – often surviving on one to two meals. There is also evidence to indicate that literacy levels were extremely low at the time, and gender gaps were wide in reference to both education and labour force participation (see Paul and Sarma, 2013). Evidence from our FGDs and Shalti Research Group (2008) also indicate that at the time of land acquisition and prior to that, owning land titles was not common among households. This however, has not hampered the land entitlements for villagers as the practice is wide spread across the rural areas in the country and state legislature conducts a census of land ownership prior to land acquisition.

2.2. ACQUISITION OF LAND IN 1984.

The land for the FSEZ was acquired under the Land Acquisition Act, 1894. The colonial era act gave absolute power to the state for forcible acquisition of land for ‘development’ purposes and to promote ‘national interests’. The Government’s Notification No. S.O 782 (E) dated 25th October, 1984 declared that land was to be acquired for the FSEZ. The land acquired was rich in alluvial soil and was very fertile; and most people who were affected and living in nearby villages at the time engaged in farming.

According to a study by the Shalti Research Group, prior consultation with villagers was not enacted by the authorities in charge of setting up the SEZ. Findings from the Shalti Research Group (2008), Aggarwal (2012), and evidence from our FGDs with affected villagers reveals that the notification

read that the villagers should evacuate 'within 30 days', and failing such, 'forcible acquisition' would be carried out.

A committee was thus set up to look after the compensation and rehabilitation packages. The committee consisted of a number of people of from the locality and also the then District Magistrate, and a member of the Akalmegh Gram Panchayat. The Committee promised five things:

- (a) A job per family
- (b) Housing with basic amenities
- (c) Free electricity to all households
- (d) Better standard of living for the evicted party.
- (e) Resettlement of evicted households in a model village

The committee had also decided that the evicted parties would be resettled in a model village (presently known as Highland). Highland was previously a low lying agricultural land, 1-1.5km away from Gopalpur where most of the agricultural land owners continue to reside from pre-FSEZ era (see discussion below and Figure 1). Soil from these agricultural areas was dug to raise and develop the residential plots, leaving behind two excavated ponds. The total number of resettled families in the 1980s was about 420 (Shalti Research Group, 2008).

3. Objectives and criteria for sampling, and data.

3.1. IDENTIFICATION OF THE AFFECTED

A significant proportion (over 60%) of the land for the development of the Special Economic Zone (SEZ) came from the Calcutta Port Trust (a state enterprise) and more than a third of the required land was acquired from two villages - Akalmegh and Uttar Simulberia. 80 acres of Land was also acquired from a third village – ‘Gopalpur’, to resettle affected villagers from the aforementioned two villages of Akalmegh and Uttar Simulberia. While most villagers from Akalmegh and Uttar Simulberia had to give up their residence and residential land, most villagers from Gopalpur had to give up their agricultural land for the settling of those affected villagers (Shalti Research Group, 2008; and our discussions with Panchayat officials).

We conducted our field work in May/June 2013, and our objective was to have households in all three categories: (A) Displaced Households, (B) Land Acquired Households and (C) Unaffected Households. In some analysis non-displaced households includes both land acquired and unaffected households. In Figure 1, displaced households (category A) are now resettled in the area identified as ‘2’ – Highland, and land acquired households (category B) are resident in the area identified as ‘3’ – Gopalpur. We conducted a complete census of these two villages.

[Figure 1 about here]

3.2. SELECTION OF A CONTROL GROUP

There are a number of villages within a 5km radius of FSEZ that fit the criterion of Category ‘C’. In order to ensure that access to facilities, infrastructure and the FSEZ itself was similar across affected and unaffected households, we restricted our sample to households that were within a 500m radius of FSEZ. This effectively narrowed down to about the northern half of ‘Nainan’ village (identified as ‘1’ in Figure 1). Nainan shares similar characteristics to the affected villages in terms of infrastructure and access to facilities such as schools, health clinics, banks, and local administrative offices. The total population of the village at the time of displacement was 4,303 based on figures presented in Shalti Research Group (2008). The 2011 census report puts the figure at 5,144 across 1,136 households – we survey about 34% of these households, by measuring a 500m radius cut-off point from FSEZ. An imaginary border we drew through the village of ‘Nainan’ for our sampling purpose is depicted in Figure 2.

[Figure 2 about here]

3.3. DATA

Our data comprises of 1,017 households. This includes 462 households from the first category (those who were physically displaced), 168 from the second category (those whose land was acquired to settle those in the first group; but were not displaced), and 387 households who were unaffected.

Summary statistics (reported in Appendix A) show that individual and household characteristics to a large extent balanced across the three villages, at most within a 10 per cent deviation from the total population mean for each variable (with the exception of education attainment). Members from Gopalpur were older and tended to be on the extreme ends of the education attainment spectrum compared to those from Highland and Nainan. Households in Gopalpur tended to have the highest per capita adult expenditure, followed by Highland and closely trailed by Nainan.

4. Compensation; three decades on.

4.1. UNKEPT PROMISES OF COMPENSATION

Evidence suggests that compensation was hard to come by. Findings from a study by the Shalti Research Group (2008) indicate that the first batch of 10-12 relocated households was given Rs. 1,200 (about USD 65 based on historical exchange rates) per household. Further anecdotes in the study indicate that the compensation for evicted villagers from Akalmegh and Simulberia was fixed at Rs. 5,700/- per bigha of land. In addition, the people of Gopalpur, who lost their agricultural land for the purpose of resettlement, received very low amounts of compensation. Compensation paid to them in some instances was as low as Rs.5/ (about USD 0.27 based on historical exchange rates) - per bigha (Shalti Research Group, 2008).

Until recently, 2007/8, most villagers had not received their compensation in full. These pay-outs in 2007/8 were politically motivated and coincided with parliamentary elections and the upheavals in the state, specifically incidents surrounding Nandigram and Singur (see Sarkar, 2007). However the pay-outs failed to adjust compensation payments for inflation. Displaced households, who lost residences, were severely under-compensated; more than 2/3rds of the villagers received compensations of less than Rs. 5,000 (approximately USD 100, based on 2008 exchange rates). Given that in the state of West Bengal the current minimum wage is Rs. 5000/- per month, villagers pointed out that the received compensation was not significantly different from their regular income, and therefore was fungible; and did not represent an exogenous addition to their wealth. To further add to the quandary, the evicted villagers do not have deeds to their present residential plots.

Qualitative evidence from FGDs also reveals that due to compensation not forthcoming immediately, displaced and land acquired households suffered in the short-term; from a transition of being agricultural land owners/workers to being jobless. Villagers identified cutting down on food consumption, moonlighting (when opportunities were available), and signing up for work in the informal sector as remedial measures undertaken for consumption smoothing during this period. Some households however did identify the existence of opportunities within the FSEZ as a blessing – a lack of which they identified would have severely strained their source of income.

4.2. THE CURRENT STATUS OF COMPENSATION RECEIPTS

[Table 1 about here]

The descriptive statistics from Table 1 indicate that, post 2008, a lion share of the households had received compensation for 80% of their land, both residential and agricultural. Locally weighted polynomial regressions show that land compensation for displaced households depicted a bimodal distribution (not reported here for brevity). In contrast for households who lost land for relocation, median households on the scale of amount of land lost, received the lowest compensation rate. This illustrates some heterogeneity in the receipt of compensation.

[Table 2 about here]

Ordinary Least Squares (OLS) estimates of land size on share of compensation received indicate a skewed compensation policy favouring small land holders: a 1% increase in the amount of land lost translates to a 2.5 percentage point lower share of the land being compensated. This is corroborated by findings from our Focus Group Discussions (FGDs) and Shalti Research Group (2008). Displaced households who also possessed cultivable land were affected worse; they received 67% lower cash compensation compared to land acquired households (refer Table 2).

[Table 3 about here]

We find share of compensation received inversely affects current land holdings (Table 3); but, this is because large land owners, received lower shares

of compensation, and were at the same time now more likely to hold land. Results from Table 3 also indicate that a 1% increase in the share of compensation received translates to a 27 percentage point higher probability of having the deed for the owned residential plot and an increase in the size of residential land owned by about 1.4 kattas.

4.3. SKEWED COMPENSATION POLICY

As highlighted above, we find evidence of heterogeneity in compensation receipts based on the size of land lost – the wealthier agrarian households tend to have been significantly disadvantaged due to the eviction. FGDs indicate that compensation policies were skewed to elicit support for the transfer of land to the state, based on objectives of appeasing the majority. Poorer households formed the majority of those evicted and therefore this exerted pressure on the more affluent households to accept offers for displacement and compensation in terms that were not necessarily favourable towards them.

A comparison of the total land lost (Appendix B-I) to the current land holdings (Appendix B-II) demonstrates a more homogenous distribution of land among displaced households – a product of the skewed compensation policies. Land loss was compensated in cash –and cash compensation entails additional problems of self-control on spending (see Banerjee and Duflo, 2011). If evicted households used their cash compensation for investment purposes, they should be better off now, with their investments paying-off three decades since their eviction. However, individuals do not always act rationally, as Banerjee and

Duflo (2011) point out. Therefore taking away revenue generating cultivable land or residential plots that can be used as collateral, and replacing them with cash, two and half decades since eviction in fact adversely affects those evicted households – especially the large land owners. To further add to their quandary, as we outlined before, the compensation rates were significantly low and were only paid two and half decades since their eviction.

To summarise, affected households are yet to receive full compensation; and while about 80% of the households have received 80% of the compensation, they were unadjusted for inflation. There is also evidence that the compensation policy was skewed in favour of small land holders; however, there is some evidence that large land owners were more likely to hold deed for their lands.

5. Displacement, compensation and welfare effects.

5.1. ARE DISPLACED HOUSEHOLDS WORSE-OFF?

Historically, land acquired households were rich agrarian households, and as Appendix 1 reports, had higher schooling levels compared to other types of households. Historically, displaced households used to be adjacent to unaffected households (where the current FSEZ site in Figure 1 lies) and therefore shared access to the river ‘hoogly’ similar to unaffected households. Given this historical pretence, we compare the welfare effects of displaced

households with those of unaffected households – we drop land acquired households from the analysis for clarity.

[Table 4 about here]

Results from Table 4 indicate that three decades since displacement, displaced households are not statistically very different from unaffected households in terms of per capita adult equivalent household, food expenditure, nor the share of food in the household budget. However, unaffected households reported a higher average mean asset index score, which is statistically significant at the 0.1 percent level. The latter results however have to be interpreted with caution; given that the asset holdings is an equally weighted index, and that material loss of assets was higher among the displaced households due to the displacement exercise. These however, contradict conventional knowledge, and findings from studies that have taken a short to medium term perspective (for example, Shah (2013)). We hypothesize two factors that contribute to this: employment (which we elaborate in the next section), and spill-over effects.

5.2. SPILL-OVER EFFECTS

Qualitative evidence from our FGDs highlights that one of the factors that contributed to the displaced and non-displaced households being similar now – three decades since the establishment was spill-over effects. Despite unaffected households not losing land or being forced to move, they

too lost their traditional livelihoods based on accounts of the villagers. Most men from unaffected households engaged in *boating*. With the advent of FSEZ, and new road infrastructure their traditional livelihood was threatened by road transport. New facilities such as a secondary school, post office, state bank office, the local administrative office and FSEZ were located within a similar short distance from all three villages. All of these factors made unaffected households endure a similar struggle and share a similar gain to the affected households – albeit retaining assets they managed to accumulate historically (as evident from Table 4).

To summarise, three decades since their eviction, displaced households are not statistically different from unaffected households along measurable welfare outcomes, albeit having less durables assets. Spill-over effects, especially the thriving trade and commerce since the establishment of the SEZ, also subdued traditional livelihoods of unaffected households – thereby equalising the transition from the primary sector to the manufacturing sector, for both affected and unaffected households.

6. Displacement and livelihood effects.

6.1. WHO'S MORE LIKELY TO BE EMPLOYED?

Probit estimates reported in Table 5 indicate that working age members from displaced households were about 4% to 5% less likely to take

part in the labour market compared to working age members from unaffected households; members from land acquired households were about 7% to 8% less likely to participate in the labour market compared to unaffected households. However, introduction of additional controls at the household level weakens the power and size of the coefficient. There is also evidence of lower female labour market participation across all specifications.

[Table 5 about here]

6.2. FEMALE LABOUR MARKET PARTICIPATION

In restricted samples by gender and category of household (which we do not report here for brevity), we constantly find that women were less likely to participate in the labour market – across all specifications and all samples. Two factors explain this: traditional gender roles prevalent across the developing world that discourage female labour market participation and second a lack of job opportunities. However this latter is in contradiction to what Tejani (2011) argues – that in areas with SEZs, female labour market participation is high. We ascertain this below.

[Table 6 about here]

The first three columns of Table 6 report the results for each category of household for all working age members while the last three columns report the results by the category of household for only active labour market

participants. The results from the table indicate that while women on average are less likely to participate in the labour market in general, of those who were already participating in the labour market, women were more likely to be employed within FSEZ than elsewhere – affirming findings in Tejani (2011). The results are significantly large in the range of 6 to 20 per cent, and are statistically significant at the 5 and 0.1 per cent levels.

6.3. EMPLOYMENT AT FSEZ

[Table 7 about here]

In Table 7 we assess if employment in FSEZ was forthcoming for villagers – a condition of compensation laid out in 1984. The outcomes in the first four columns of Table 7 are based on the sample of working age group members, whereas the probit estimations shown in the last two columns are based on only on the sample of active labour market participants. The marginal effects seem to indicate that members from displaced households are about 3% to 4% more likely to be employed in FSEZ compared to unaffected households, whilst members from land taken households were about 6% less likely to be employed within FSEZ. Once the household characteristics are controlled for, these effects become statistically insignificant. An interaction of gender and being displaced indicates women from displaced households to be about 5 per cent less likely to participate in FSEZ. However, restricting the sample to active labour market participants, we find that displaced household members were about 8% to 10% more

likely to be employed within FSEZ and women from displaced households were statistically no different in employability within FSEZ.

6.4. IS EMPLOYMENT AT THE FSEZ A BLESSING?

Conditions of employment however in general, at the FSEZ, are not merry – based on qualitative evidence we gathered during FGDs. An informal market for workers driven by middlemen – referred to as *contractors* locally, have ensured that employees at FSEZ have no formal contract of work and are employed on an ad-hoc basis. This also results in non-constant remuneration and creates difficulty in expenditure smoothing for households dependent on the FSEZ for income.

The positive selection of females into work at FSEZ has also been credited to these *contractors* who under-pay women.³ Evidence from Paul and Sarma (2013) indicates that the gender wage gap within FSEZ was 5 to 10 percentage points higher than the general average, disavouring female employees. Despite this, our FGDs indicate that about 75% of the workforce within FSEZ is women. Discussions with villagers indicate that women are primarily employed in six factories that manufacture and export plastic ware at the FSEZ. Based on the account of one contractor, women are

³ Some descriptive statistics not reported here for brevity also indicate a widening gender pay gap within FSEZ. See Paul and Sarma (2013) for a more detailed discussion of this widening gender disparity.

preferred over men because organised demands for pay and reform are absent among women – and they are cheaper to be hired. Discussions with some of the female employees indicate that their employment at FSEZ cannot be seen as female empowerment, because in fact their decision to work at FSEZ was exogenously determined by either their husband or their father – out of necessity rather than choice. They also credit their employment at FSEZ for lower years of schooling for their children – which they feel would not be the case, if they were at home taking care of their children and their husbands/fathers could find employment with FSEZ.

Villagers also highlight the lack of training and in-migration of workers from outside the locality (and in some instances from outside the state) as hampering the likelihood of having a regular stream of income from work within FSEZ. There is also some qualitative evidence to suggest that men from displaced and non-displaced households are increasingly seeking work outside the locality (out-migration), especially in the informal sector.

To summarise, there is some evidence to suggest that displaced households are generally less likely to participate in the labour market, but among those who do, there exists a statistically significant positive selection into working within the FSEZ – this is especially true for women from displaced households. This extension of employment at FSEZ we hypothesise is one of the reasons that displaced households are not

significantly worse-off compared to non-displaced households as evident from the previous section.

7. Concluding remarks.

We do not find statistically significant evidence to suggest that displaced households are worse-off in the long run due to the establishment of a SEZ. Our results indicate that displaced households did suffer from lower compensation, lack of property rights, lower asset holding and generally lower labour market participation – but they benefitted from employment at the SEZ. The setup of a SEZ also involves disruptions in the status quo of activity in the vicinity and via spill-over effects is likely to affect households that were not chosen to be ‘evicted’ – levelling the welfare effects across households that are affected and unaffected. Qualitative evidence from FGDs however, does indicate that displaced households suffered in the short-term, especially from a transition from the primary sector of the economy to the manufacturing sector, but in the long-run they are no different from unaffected households.

We conclude from our findings that with sound policy initiatives, difficulties imposed on displaced households can be overcome. Two factors that need to be addressed: (a) affected households are guaranteed employment thus allowing them a smooth transition from their traditional livelihoods to industry based livelihoods. (b) Compensation both cash and in-kind (including land titles) is made immediately available to those who are

affected. Addressing these factors would ensure that in addition to *evicted* households being not worse-off in the long-run, their short-term worries are also addressed. The recent legislation enacted in India with reference to land acquisition and resettlement is a step in the right direction in this regard. Successful implementation of it, within specified timelines of action, would ensure that affected parties, especially *evicted* households do not view the need for SEZs for national progress as a curse on them.

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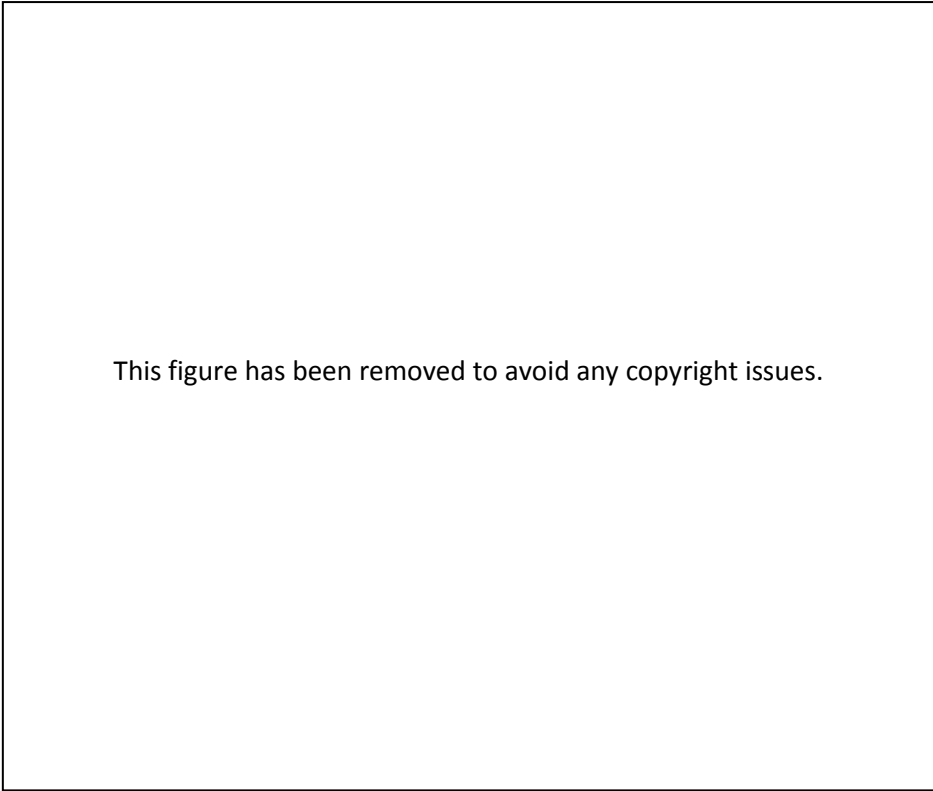


Figure 1: The villages.

Note: 1 – Nainan, 2 – New Gopalpur (“Higland”), 3 – Gopalpur.

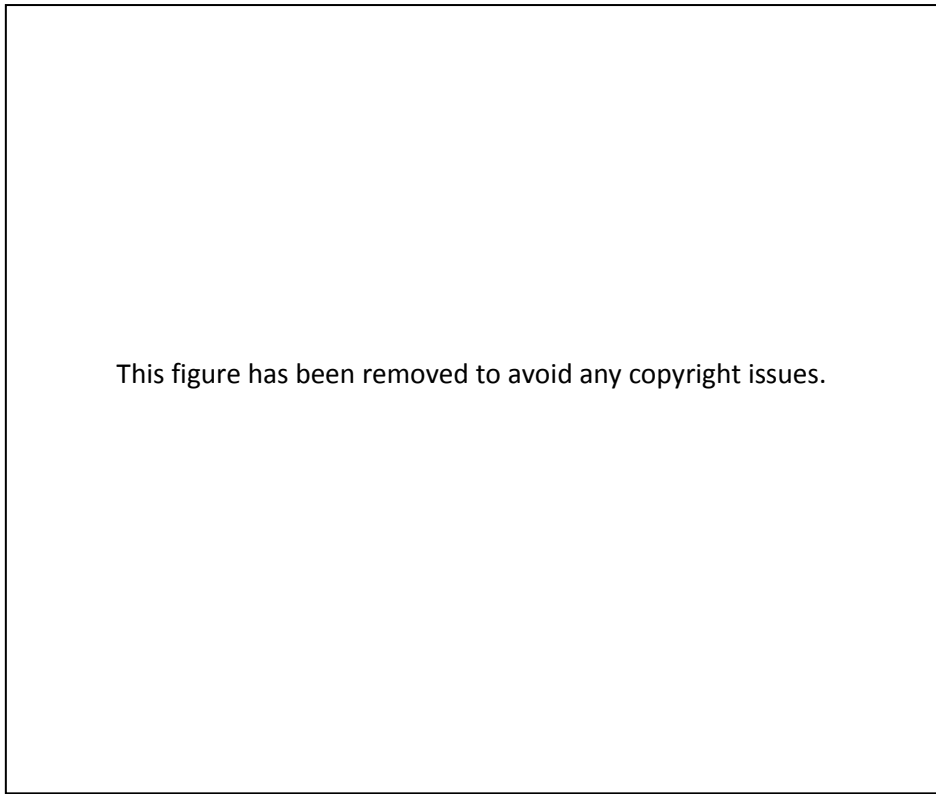


Figure 2: Map of Nainan Village

Note: The yellow line running across the village is the 500m radius mark from FSEZ. Houses to the north of this imaginary line were surveyed for our study. The grey lines indicate pathways.

Table 1: Compensation of land by category of household

Proportion of compensation received	Displaced	Land Acquired	Total
0	0.00	1.24	0.70
1-49%	4.84	3.72	4.2
50-79%	4.03	4.35	4.21
80%	90.32	77.64	83.16
100%	0.81	13.04	7.72

Source: Authors' own calculations.

Table 2: Displacement and receipt of compensation

	Share of land compensated	Log compensation rate per katta	Log cash compensation for land	Log cash compensation for residence
Displaced and owned cultivable land	0.137* (0.062)	-0.296 (0.187)	-0.673* (0.283)	-0.319 (0.180)
Displaced and did not own cultivable land	-0.158** (0.061)	-0.347 (0.193)	-1.128*** (0.287)	
Total land lost (natural logarithm)	-0.024** (0.009)	-0.015 (0.033)	0.787*** (0.045)	0.436*** (0.070)
Disp_1984	0.134* (0.056)	-0.015 (0.052)	0.211 (0.189)	-1.262*** (0.227)
Disp_1985	0.081 (0.058)	-0.022 (0.065)	0.139 (0.199)	-1.193*** (0.233)
Other controls	✓	✓	✓	✓
Constant	1.033*** (0.133)	6.268*** (0.593)	7.603*** (0.711)	8.415*** (0.826)
R ²	0.084	0.064	0.749	0.345
N	583	567	567	435

Note: *** p<0.001, ** p<0.01, * p<0.05. Robust standard errors in parantheses. Other controls include the following covariates: household size, a dummy for split households, number of children, number of female and male working age members in the household, religion, and the following characteristics of the head of the household: gender (Female=1), log of age, educational attainment and marital status.

Table 3: Regression outcomes of Deed, Ownership and Size of Residential Plot Holdings

	Own Residential plot	Deed for residential plot	Size of residential plot
Share of compensation received	-0.215* (0.084)	0.272* (0.112)	1.383* (0.694)
Displaced and owned cultivable land	-0.485*** (0.101)	-0.250* (0.099)	-3.718*** (1.057)
Displaced and did not own cultivable land	-0.505*** (0.107)	-0.171 (0.094)	-3.371** (1.104)
Total land lost (natural logarithm)	-0.009 (0.014)	0.033 (0.018)	0.074 (0.167)
Disp_1984	-0.082 (0.077)	-0.067 (0.091)	-0.667 (0.462)
Disp_1985	-0.075 (0.082)	-0.221* (0.096)	-0.534 (0.417)
Other controls	✓	✓	✓
Constant	0.812*** (0.223)	1.038** (0.348)	0.219 (2.556)
R ²	0.798	0.259	0.258
N	444	583	424

Note: *** p<0.001, ** p<0.01, * p<0.05. Robust standard errors in parantheses. Other controls include the following covariates: household size, a dummy for split households, number of children, number of female and male working age members in the household, religion, and the following characteristics of the head of the household: gender (Female=1), log of age, educational attainment and marital status.

Table 4: Welfare outcomes across displaced and unaffected households

	Unaffected	Displaced households	t-statistic
Per capita adult equivalent household expenditure	177802.70	184230.90	-1.54
Per capita adult equivalent food expenditure	98555.22	100493.50	-1.41
Food share of total expenditure	0.5854	0.5927	-1.74
Household total asset holdings	3.93	3.33	10.28***

Note: *** p<0.001, ** p<0.01, * p<0.05

Table 5: Profiles of active labour market participants

Dep Var. = Labour force participation rate	(1)	(2)	(3)	(4)
Displaced	-0.126*	-0.100	-0.106	-0.054
	(-0.048)	(-0.035)	(-0.037)	(-0.018)
Land taken	-0.223**	-0.195*	-0.178	-0.171
	(-0.082)	(-0.073)	(-0.067)	(-0.064)
Female (Yes=1)	-2.041***	-2.077***	-2.088***	-2.029***
	(-0.661)	(-0.673)	(-0.675)	(-0.661)
Log(PCHHE)			0.200**	0.202**
			(0.078)	(0.079)
Displaced* Female				-0.128
				(-0.048)
Individual controls	✓	✓	✓	✓
Household controls		✓	✓	✓
Constant	-1.146***	-0.873**	-2.730***	-2.767***
N	3,292	3,292	3,292	3,292

Note: *** p<0.001, ** p<0.01, * p<0.05. Marginal fixed effects reported in parantheses. The sample comprises of the working age population, defined as those between the ages of 15 and 65 inclusive. Individual level controls include the following covariates: natural logarithm of the age, dummies for level of education and dummies for marital status. Household level controls include the following covariates: household size, dummy for split households, number of children, ethnicity/religion, and the number of male and female working adult members. PCHHE – Per capita household expenditure

Table 6: Profiles of FSEZ workers among active labour market participants (restricted model)

Sample:	Working age population			Active labour market participants		
Dep Var. = Work in FSEZ	(1)	(2)	(3)	(4)	(5)	(6)
Female (Yes=1)	-1.073***	-0.719***	-0.700***	0.417*	0.765*	0.711***
	(-0.185)	(-0.059)	(-0.106)	(0.157)	(0.209)	(0.244)
Log(age)	-0.186	-0.154	-0.338	-0.621**	-0.592	-0.909***
	(-0.030)	(-0.013)	(-0.065)	(-0.204)	(-0.111)	(-0.282)
Primary (Yes=1)	0.035	-0.172	0.133	0.179	-0.369	0.101
	(0.005)	(-0.015)	(0.018)	(0.063)	(-0.073)	(0.020)
Secondary (Yes=1)	0.146	-0.272	0.200	0.327*	-0.280	0.359*
	(0.024)	(-0.022)	(0.031)	(0.114)	(-0.051)	(0.104)
Higher (Yes=1)	0.280	-0.415	0.353	0.546*	-0.564	0.797*
	(0.053)	(-0.025)	(0.064)	(0.201)	(-0.080)	(0.283)
Individual controls	✓	✓	✓	✓	✓	✓
Household controls	✓	✓	✓	✓	✓	✓
Constant	-0.240	0.793	0.175	2.228**	3.707*	2.380**
N	1,559	545	1157	637	215	513

Note: *** p<0.001, ** p<0.01, * p<0.05. Marginal fixed effects reported in parantheses. For columns one (1) to three (3), the sample comprises of the working age population, defined as those between the ages of 15 and 65 inclusive. For columns four (4) to six (6), the sample comprises of those actively participating in the labor market; and the corresponding dependent variable being the percentage of active labor market participants working within FSEZ. These are reported for members from each category of household in the order: displaced, land taken and unaffected. Individual level controls includes the marital status. Household level controls include the following covariates: household size, dummy for split households, number of children, ethnicity/religion, and the number of male and female working adult members. PCHHE – Per capita household expenditure.

Table 7: Profiles of FSEZ workers

Sample	Working age population				Active labour	
	(1)	(2)	(3)	(4)	(5)	(6)
Dep Var. = Work in FSEZ						
Displaced	0.171** (0.028)	0.109 (0.018)	0.092 (0.015)	0.224** (0.036)	0.250** (0.079)	0.314*** (0.099)
Land taken	-0.412*** (-0.057)	-0.230 (-0.033)	-0.211 (-0.030)	-0.200 (-0.029)	-0.178 (-0.054)	-0.167 (-0.051)
Female (Yes=1)	-0.825*** (-0.136)	-0.872*** (-0.136)	-0.882*** (-0.137)	-0.671*** (-0.103)	0.591*** (0.211)	0.778*** (0.282)
Log(PCHHE)			0.222*** (0.034)	0.222*** (0.034)		
Displaced* Female				-0.407** (-0.054)		-0.402 (-0.110)
Individual controls	✓	✓	✓	✓	✓	✓
Household controls		✓	✓	✓	✓	✓
Constant	-0.847**	0.187	-1.850***	-1.916**	2.311***	2.312***
N	3,292	3,292	3,292	3,292	1,377	1,377

Note: *** p<0.001, ** p<0.01, * p<0.05. Marginal fixed effects reported in parantheses. For columns one (1) to four (4), the sample comprises of the working age population, defined as those between the ages of 15 and 65 inclusive; for columns five (5) to six (6), the sample comprises of those actively participating in the labor market; and the corresponding dependent variable being the percentage of active labor market participants working within FSEZ. Individual level controls include the following covariates: natural logarithm of the age, dummies for level of education and dummies for marital status. Household level controls include the following covariates: household size, dummy for split households, number of children, ethnicity/religion, and the number of male and female working adult members. PCHHE – Per capita household expenditure.

Appendix A: Descriptive Statistics

Village	Affected and displaced	Affected but not displaced	Unaffected	Total
A: Household Level				
Number of households in each Village:				
Highland	460	1	5	466
Gopalpur	0	107	52	159
Nainan	2	60	330	392
Total	462	168	387	1,017
Characteristics:				
Household Size	4.9	4.5	4.4	4.6
No. of Children (<13 years)	1.2	0.8	1.1	1.1
No. of female in WAP	1.4	1.4	1.2	1.4
No. of male in WAP	1.5	1.6	1.3	1.4
Age of the head	43.6	50.9	44.3	45.0
Female head (Yes=1)	0.13	0.15	0.14	0.14
Head of the HH with no formal schooling (Yes=1)	0.40	0.26	0.45	0.40
Mean log per capita avg expenditure	11.99	11.98	11.99	11.99
Mean log wage	11.28	11.54	11.25	11.31
Share of food in budget spending	0.59	0.57	0.59	0.59
Average asset holding index	3.33	4.53	3.93	3.74
B: Access to facilities (time taken in minutes by foot)				
Primary school	12.71	9.69	8.52	10.79
Secondary school	20.12	16.00	20.48	19.38
Health centre	19.17	36.67	22.29	22.81
Bank	20.27	15.37	16.58	17.92
Bus stop	8.88	9.64	9.21	9.13

C: Individual Level

Number of individuals in each Village:

Highland	2,269	13	33	2,315
Gopalpur	0	468	214	682
Nainan	9	290	1,484	1,783
Total	2,278	771	1,731	4,780

Characteristics:

Female (Yes=1)	0.49	0.45	0.48	0.48
Age	25.4	30.3	26.1	26.4
No schooling (Yes=1)	0.36	0.23	0.38	0.35
Primary education (Yes=1)	0.33	0.27	0.30	0.31
Secondary education (Yes=1)	0.26	0.38	0.28	0.28

D: Individual Level (Age ≥ 45)

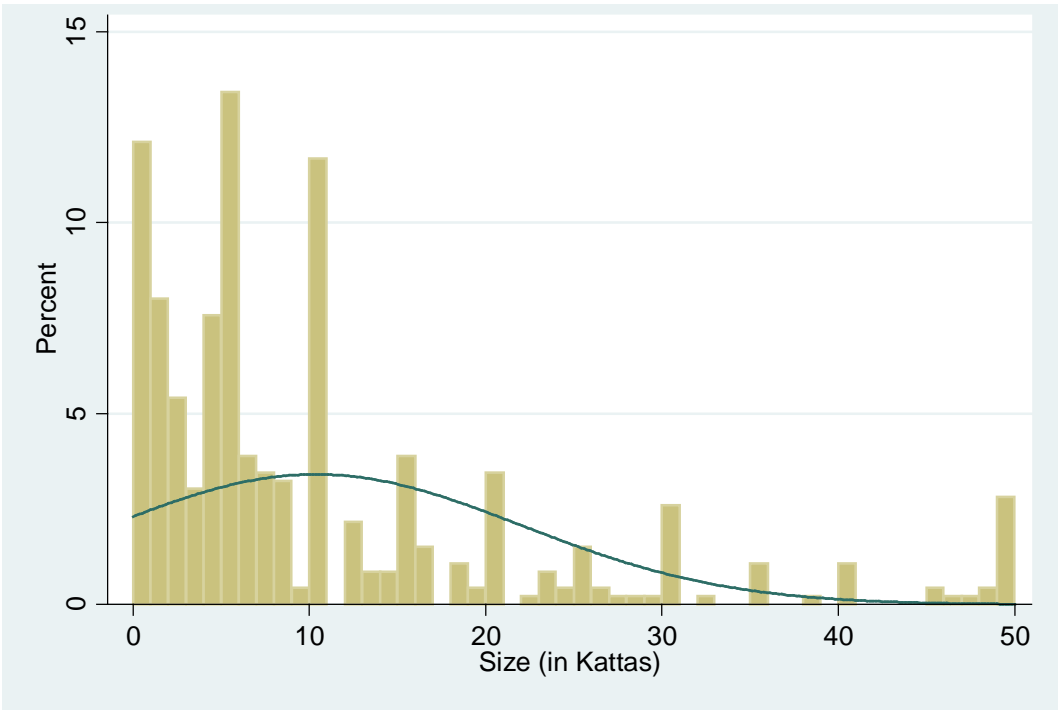
Number of individuals in each Village:

Highland	360	1	5	366
Gopalpur	0	116	44	160
Nainan	2	63	247	312
Total	362	180	296	838

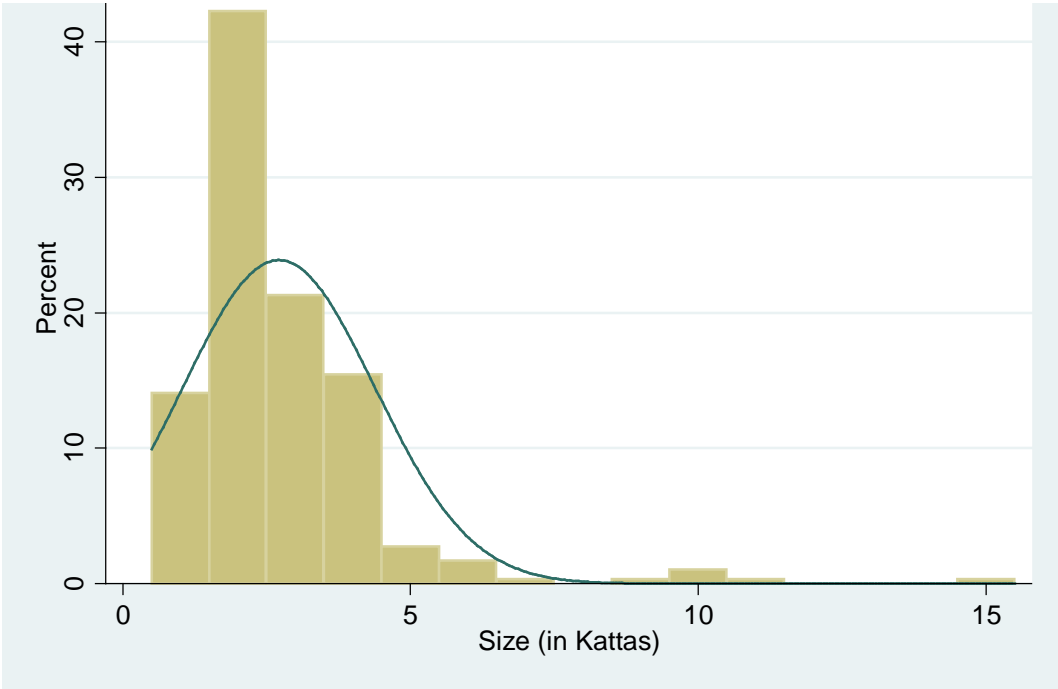
Characteristics:

No.of elders in household	0.94	1.19	0.88	0.97
Female (Yes=1)	0.46	0.43	0.49	0.46
Age	54.5	57.8	56.5	55.9
Years of schooling	0.48	0.64	0.37	0.48
No schooling (Yes=1)	0.51	0.38	0.63	0.52
Primary education (Yes=1)	0.27	0.22	0.23	0.25
Secondary education (Yes=1)	0.18	0.29	0.11	0.18

Note: WAP – Working Age Population. INR – Indian Rupee. Source: Authors' own calculations.



Appendix B-I. Total land lost (cultivable and residential) by displaced households.



Appendix B-II. Total land held (cultivable and residential) by displaced households