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The livelihood effects of industrialization on displaced households: Evidence from Falta Special Economic Zone

CREDIT Research Paper, No. 13/09

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Suggested Citation: Paul, Saumik; Sarma, Vengadeshvaran (2013) : The livelihood effects of industrialization on displaced households: Evidence from Falta Special Economic Zone, CREDIT Research Paper, No. 13/09, The University of Nottingham, Centre for Research in Economic Development and International Trade (CREDIT), Nottingham

This Version is available at:
https://hdl.handle.net/10419/96349

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The Livelihood Effects of Industrialization on Displaced Households: Evidence from Falta Special Economic Zone

by

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Abstract

Much of the debate on industrialization and displacement has, so far, focused on the optimum compensation for affected households. Our recently concluded study, comprising of a sample of 1017 households including 630 affected (displaced and land acquired) and 387 unaffected households, looks at the long-term livelihood effects of the Falta Special Economic Zone (FSEZ) in West Bengal, India. The main findings indicate a lower labour market participation rate among affected household members. However, members of displaced households show the highest work participation rate in the industrial zone but with a lower return to education than others. Women earn about 17 percentage points less compared to men after controlling for education and experience and this gap is 5 to 10 percentage points higher for FSEZ employees; but this gap is narrowing over time likewise the gender education gap.

JEL Classification: O14, J16, J21, J31

Keywords: Industrialization, Special Economic Zones, Rural livelihoods, West Bengal, India

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Outline

1. Introduction
2. Sampling Methodology, Data and Descriptive Evidence
3. Empirical Outcomes
4. Discussion
5. Conclusion

References

Appendices

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1. Introduction

Recent Industrialization efforts in India, particularly in West Bengal, have created widespread social and political tensions. Most of this is attributed to land-grab incidents for building industrial parks (Sarkar, 2007; Shah, 2013), which have been marred with resistance often transgressing into violent riots with casualties. This stirred policy debates that revolve around the trade-off between industrialization and mass welfare, and towards finding an alternative industrial-development policy. Concerns that received much attention are (a) optimum compensation for affected people and (b) livelihood benefits of industrial zones.

A growing number of studies have focussed on the welfare effect of optimum compensation in the context of industrialization-led displacement. In a recent study, Ghatak and Mookherjee (2011) find that the reservation prices of most land owners are higher than the market price of land. As a result, they recommend that the compensation should be higher than the market value. Going one step further, Ghatak and Ghosh (2011) suggest a revision of the Land Acquisition bill enacted in 1894, which binds compensation based on the market value of land at the time of acquisition. The authors suggest an auctioning of land for households willing to give up land and consequently, an extended to a multi-stage auction for the choice of location of a factory. In a related vein, a recent study by Ghatak et al. (2013) finds that under-compensation relative to market value significantly raised the likelihood of rejecting the compensation offer. They also find that forced acquisition of land resulted in reduction in income growth.

However, little is known about the livelihood consequences of the establishment of an industrial area, especially on affected households. The specific concerns, such as whether the promised jobs by the state authority be available to the semi-literate rural households with very little skill formation or would the effects of industrialization trickle down to livelihoods of affected households, have been raised by activists and economists alike (Banerjee et al, 2012). This paper bridges this knowledge gap by addressing the long-term effects of setting up of a special economic zone (SEZ). We focus on assessing the livelihood effects of the Falta Special Economic Zone (FSEZ, hereon), which was established in West Bengal, India in 1984. We chose FSEZ as the subject of our study for several reasons. First, FSEZ is located in West Bengal and the first of its kind. Given the recent incidents of SEZ-led displacement followed by a socio-political upheaval, we like to focus on West Bengal. Second, the FSEZ has been a relatively successful SEZ in West Bengal (Shalti Research Group, 2008) and third, being established in 1984, FSEZ allows a sufficiently long period to assess its livelihood effects.

FSEZ was the first EZ in the state of West Bengal India, and to date, one of the more successful such industrial parks in the country. The zone currently houses 72 companies registered as being operational, however of them, only 52 companies are reported to be fully functioning[1]. The setup of FSEZ was conducted through acquisition of land from two major parties: the Calcutta Port Trust – a state enterprise (contributes to more than 60% of FSEZ land), the villages of Akalmegh and Uttar Simulbera (contributes to about a third of FSEZ land). 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 (hereon referred to as displaced households) had to give up their residence and residential land, most villagers from Gopalpur (hereon referred to as land acquired households) had to give up their agricultural land for the settling of those displaced villagers. We used this FSEZ land acquisition policies as a source of exogenous variation in the livelihood outcomes of different household categories. We conducted a survey in the study area administratively divided into 13 villages under the Kalatalahat Panchayat, within the Diamond Harbour sub division of the Diamond Harbour II block, West Bengal. We surveyed all the directly affected households (630 in total, including displaced households and land acquired households[2]) and a sample of 387 households who are indirectly affected by FSEZ.

We are primarily interested in examining whether the livelihood outcomes of displaced households are comparable to that of other households, directly or indirectly affected by setting up of FSEZ, after a period of almost 30 years since the FSEZ was set up. The specific questions that interest us are:

(a) What is the likelihood of a displaced household member (i) being employed? and (ii) being employed at the FSEZ?

(b) Do members of displaced households enjoy similar returns to education and experience compared to other affected households? Does this result hold for those working at FSEZ?

(c) Does the FSEZ generate employment for women?

(d) Does FSEZ prevent/reduce gender wage discrimination?

1 based on discussions with Panchayat (village-level) authorities from Kolatolahat Village

2 These households' lands were taken to accommodate the displaced households in a model village called "Highland"

A designated industrial area (primarily as export promoting zone) to facilitate trade and investment was first introduced in Spain in 1929. China established its first EPZ in 1979, almost half a century later. However, from 1986 to 2003, the number of such zones increased from 176 across 47 countries to beyond 3000 across 116 countries (ILO, 2003). The success of the Chinese industrialization model motivated other developing to adopt similar growth initiatives contributing to the significant growth of designated industrial areas, globally. In India, the first SEZ (then known as Export Processing Zone), was setup in 1965 in Kandla. While a few decades since then witnessed a modest growth of SEZs, the 2000 SEZ policy announced by the central government has accelerated the growth of SEZs totalling to 143 and an additional 634 proposed SEZ in the pipeline as of 2012 (Ministry of Commerce and Industry, India).[3]

Despite its growing policy relevance especially for the developing world, the research on the potential effect of industrialization on livelihoods of affected persons is relatively scant. Kim (2013) shows that the Chinese led SEZs in Africa, have proved to be unpopular amongst the locals due to (a) lack of respect for basic workers' rights (b) alleged violation of minimum wage legislation and (c) complaints about poor working conditions. A study that is close to ours in spirit, is by Tejani (2011). This study finds that export liberalisation and the setup of special economic zones are positively correlated with the feminsation of the workforce. Historically, women were paid no more than 60% of the wages enjoyed by men in Asian SEZs (with the exception of Myanmar and Sri Lanka) until the 90s. Even to date, in most SEZ around the world women are paid less than their male counterparts for the same work, Myanmar being an exception (Tejani, 2011). In India, SEZ have received wide spread attention for the broad societal hardships they bestow upon rural and indigenous communities (Sarma, 2007). As Sarma (2007) further points out, while SEZ bring in economic benefits to the wider nation and its populous, this is sometimes at the expense of victimizing local communities via adverse measures such as land grabs, loss of land, loss of agriculture and displacements.

A recent study by Shah (2013) addresses similar concerns to ours using three SEZs in Gujarat, India, but focuses on the medium term (5 years since the setup of the factories). The study focuses exclusively on the affected households, and finds the asymmetry in information

3 http://www.sezindia.nic.in/about-osi.asp and http://www.sezindia.nic.in/about-asi.asp

sharing to be a deficiency that impedes the setup of SEZs. This has resulted in the aversion to such zones being exhibited by locals in the more recent past (Shah, 2013). The study finds the setup of the SEZ to benefit those in the higher quantiles of the wealth distribution (those who had land and were adequately compensated) and having political clout, and adversely affect those in the bottom of the ladder, further exacerbating the income divide. The study finds that, communities in the region have gained 'substantial' benefits, including livelihood options at the zones, investments in other agricultural/residential land using compensation receipts. Shah also concludes that the effect of SEZs on peripheral regions is mixed and too premature to be studied in the medium term – a shortcoming that we intend to address in this study.

The empirical findings from this study indicate a lower labour market participation rate among affected household members, however gender gap in labour market activities persist across all households. We find that members from displaced households are 8 per cent more likely to be employed in FSEZ compared to unaffected households whereas members of land acquired households were about 5 per cent less likely to be employed within FSEZ. We find strong positive returns to education among all three categories of households. Completion of secondary and higher education is associated with an increase in wages within the range of 12 to 50 percentage points. However, returns to education are significantly lower for displaced households working within FSEZ, and this outcome is predominantly driven by female employees. Among female employees within FSEZ, members of displaced households earn less consistently across each schooling year. Among the active labour market participants, more than 50 per cent of female employees from displaced and unaffected household groups work in FSEZ. Gender wage gap persist, our estimates show that women earn about 17 percentage points less compared to men after controlling for education and experience. Overall, there is evidence of the narrowing gender education gap over time, likewise a narrowing gender wage gap.

The paper is structured as follows. In section II describes the survey design and provides some descriptive evidence. We discuss the empirical models and empirical findings in section III, which is followed by discussion and implications of the findings in section IV. We forward concluding remarks in section V.

2. Sampling methodology, data and descriptive evidence

2A. Objectives and criteria for sampling frames for villages

Figure 2.1: The villages studied in this paper.

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

Source: Google Maps and authors' own point reference.

The research area is administratively divided into 13 villages under the Kalatalahat Panchayat, within the Diamond Harbour sub division of the Diamond Harbour II block. Our objective was to have households in all the 3 categories: (A) Displaced Households, (B) Land Acquired Households and (C) Unaffected Households. In Figure 2.1, displaced households (category A) are now resettled in the area identified as '2' and land acquired households (category B) are resident in the area identified as '3'.We conducted a complete census of these two villages – Highland and Gopalpur, respectively.

Figure 2.2: 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.

Source: Google Maps and authors' own point reference.

There are a number of villages within a 5km radius of FSEZ that fit the criterion of Category 'C'. However, given that our research objective is to assess the effect of displacement on livelihood impacts, proximity to FSEZ was vital. This is because; distance to FSEZ could be a factor that affects employment prospects and the severity of affects by the setup of FSEZ. As such, we also avoid taking an entire village, because for example, households on either side of FSEZ may be more similarly affected by FSEZ rather than households in an adjacent village but at a greater distance from FSEZ. Therefore, 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 2.1). By measuring a 500m radius cut-off point; we drew an imaginary border through the village of 'Nainan' for our sampling purpose (refer Figure 2.2). And similarly, the proximity of Nainan to Gopalpur and Highland, also means that 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.

2B. Data

Our questionnaire was administered at the household level, but also contains information at the individual level in additional to the household level data. The head/spouse of the head of the household or a 'knowledgeable' member of the family was asked to be the respondent for each administered questionnaire. In addition, we also record whether individuals recorded as part of the survey were at the time of the interview, present, and seen. Our data comprises of 1017 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), and 387 households who were not affected (our control group). At the individual level we have 4,780 observations, a breakdown of this by village and category is summarised in panel B, Table 2.1.

Our summary statistics 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. On average, households had about 5 members, with one of them being a child under the age of 13. Other descriptive statistics relevant to our question of interest are discussed in more detail in the following sections.

Table 2.1: Descriptive Statistics

Village	Displaced	Land Acquired for resettlement	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 per capita adult equivalent expenditure (in INR): Muslim	13,433	13,667	12,367	13,059
Mean per capita adult equivalent expenditure (in INR): Hindu SC/ST	12,813	14,012	14,349	13,593
B: 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

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

2C. Livelihood Effects

One of the long term impacts of forced displacement is the loss of livelihoods (Lam and Paul, 2013). This is even more so the case, when loss of livelihoods is not compensated for. While a negligible share of less than 1 per cent of the displaced households owned cultivable land, almost 48% of the households who lost land due to relocation held cultivable land; and the same for unaffected households' stands at 12%. Also interestingly, while almost all of the land owners among land acquired and unaffected households held deeds for their agricultural land, only 25% of the corresponding households among displaced household had a deed for their cultivable plot (Table 2.2)

Table 2.2: Means of agricultural plot holdings

Category	Share of households owning agricultural plot	Share of households owning deed for the agricultural plot owned
Displaced	0.8%	25.0%
Land acquired for resettlement	47.6%	93.8%
Unaffected	11.6%	100%
Total	12.7%	93.8%

Source: Authors' own calculations.

On a related vein, Table 2.3, which shows that about 7 out of 10 members of the displaced households had to change their occupation or industry in comparison to about 2 out 10 members amongst the land acquired households; the corresponding figure for unaffected households was about 6 out 10. However, a larger proportion of members from displaced households have found employment within FSEZ compared to members of land acquired households.

Table 2.3: Effects of the setup of FSEZ

	Displaced (N=462)	Land Acquired (N=168)	Unaffected (N=387)
A. FSEZ: present and future			
A1. Any HH member changed occupation / industry due to FSEZ	67%	23%	64%
A2. HHs with member(s) currently working at FSEZ	37%	15%	27%
A3. Willing to move with an adequate compensation package	16%	8%	18%
B. Adverse effects due to FSEZ			
B1. Loss of livelihood (Yes=1)	31%	27%	35%
B2. Inadequate resettlement plot (Yes=1)	7%	16%	9%
B3. Lower salary compared to other regions (Yes=1)	44%	53%	52%
C. Benefits due to FSEZ			
C1. Better infrastructure (Yes=1)	33%	30%	36%
C2. Lower unemployment (Yes=1)	14%	14%	18%
C3. Increase in female labour force participation (Yes=1)	14%	23%	14%

Source: Authors' own calculations.

About half of the respondents across all categories also expressed dissatisfaction over the salaries and wages paid at FSEZ and about third of the respondents also identified losing their livelihood due to the setup of FSEZ. Surprisingly though, the highest proportion of those losing livelihoods was reported among the unaffected villagers. Focus group discussion revealed that the setup of the FSEZ encompassed better road infrastructure, which adversely affected the traditional livelihoods of boating (a term locally used to describe the transportation of goods and livestock via boats) and fishing of Nainaners (the unaffected village). Despite the adverse effects of FSEZ, about a third of the respondents also however noted that the setup of FSEZ has brought about better access to utilities such as water, electricity and also better infrastructure. The unaffected villagers reported reaping the highest benefits.

Table 2.4: Labour participation rates

	Displaced		Land acquired		Unaffected	
	ALMP	LFPR	ALMP	LFPR	ALMP	LFPR
Female	88%	77%	88%	72%	83%	78%
Male	12%	12%	12%	12%	17%	12%

Note: ALMP – Active Labour Market Participants; LFPR – Labour Force Participation Rate
Source: Authors' own calculations.

Table 2.4 shows that female labour market participation was about 6-7 times that of men, affirming findings by Tejani (2011), who points out that one of the impacts of industrialisation of rural villages is the feminisation of the workforce. Unaffected household men and women reported higher labour market participation rates compared to both displaced and land acquired households.

3. Empirical outcomes

3A. Determinants of household welfare

We begin with a discussion on the determinants of household welfare. Household welfare is measured as per capita household consumption expenditure measured in the adult-equivalent scale. Table 3.1 reports the OLS regression outcomes. The first two columns show outcomes for the pooled model (N=1017) and the third, fourth and the fifth column shows results for displaced (N=462), land acquired (N=168) and unaffected (N=387) samples, respectively. Household size, a dummy for spilt household, number of male and female working age members, religious identity, total number of children are controlled for at the household level. In addition, we control for standard characteristics of the head of household including gender, age, education level and marital status. The models show between 10 to 15 per cent of the variation in the welfare measure. Our main variables of interest are dummy variables indicating displaced and land acquired households, unaffected households constitute the comparison group. We also include a dummy variable for households having a member working at FSEZ.

Table 3.1: Determinants of welfare (per capita household expenditure)

Dep Var. = per capita household expenditure	(1)	(2)	(3)	(4)	(5)
HH member working in FSEZ (Yes=1)	0.072*	-0.014	0.161***	0.048	-0.042
Displaced	0.044	-0.009			
Land taken	-0.089	-0.094*			
Displaced* HH member working in FSEZ		0.166**			
Individual controls	✓	✓	✓	✓	✓
Household controls	✓	✓	✓	✓	✓
Constant	9.673***	9.689***	9.523***	9.759***	9.766***
R2	0.11	0.12	0.15	0.16	0.15
N	1,017	1,017	462	168	387

Note: *** p<0.001, ** p<0.01, * p<0.05. The first two specifications are run for the pooled sample, while columns three (3) to (5) are run for the restricted sample of each category of household in the order: displaced, land taken and unaffected. Individual level controls include the following covariates: gender, 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.

As evident from the first two columns of Table 3.1, we do not find any statistically significant difference in the welfare level across the three household groups. Households with members working at FSEZ, on average, show higher consumption level however this effect becomes insignificant once we use interaction between this variable and displaced household. Education of the head of the household, especially secondary and higher, has positive return to welfare level whereas larger households tend to depict lower welfare levels. Outcomes in both cases are statistically significant at 1 per cent. Among displaced households, those with members working in FSEZ have almost 17 per cent higher per capita consumption compared to the rest. This outcome is statistically significant, however it does not hold for the other groups of households.

3B. Profiles of the active labour market participants

Next, we compare the factors related to workforce participation in the working age population for displaced and other types of households. The dependant variable is a dummy that takes the value one if an individual is currently employed (this includes both seasonal and permanent

workers). The probit regression outcomes in Table 3.2.1 show that working age members from the displaced households are about 4 to 5 per cent less likely to take part in the labour market compared to working age members from the unaffected households. Similarly, working age members from land acquired group are about 7 to 8 per cent less likely to participate compared to the same group. However, introduction of additional controls at the household level weakens the power and size of the coefficient. Working age members of households with higher per capita consumption level are more likely to participate in the workforce whereas lower female labour force participation is evident across all model specifications. All models use standard individual and household specific controls as discussed for Table 3.1. The inclusion of interaction term shows that females from displaced households are less likely to participate in the labour market; however, the coefficient is not statistically significant.

Table 3.2.1: Profiles of active labour market participants (pooled model)

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

In table 3.2.2, we discuss similar probit estimations for restricted models. The first two columns show probit estimates for female and male samples, respectively. The following three

columns show outcomes for displaced, land acquired and unaffected households, respectively. Both female and male members from affected groups of households are less likely to participate in the labour market activities. Looking at it differently, female working age members are significantly less likely to join the labour market for all groups of households echoing the descriptive evidence discussed in section 2. To conclude, gender gap in labour market activities persist across all households while the activity rate is slightly higher for the members of the unaffected households.

Table 3.2.2: Profiles of active labour market participants (restricted model)

Dep Var. = Labour force participation rate	(1)	(2)	(3)	(4)	(5)
Displaced	-0.148 (-0.024)	-0.057 (-0.016)			
Land taken	-0.350* (-0.052)	-0.066 (-0.026)			
Female (Yes=1)			-2.197*** (-0.694)	-1.955*** (-0.615)	-2.034*** (-0.675)
Individual controls	✓	✓	✓	✓	✓
Household controls	✓	✓	✓	✓	✓
Constant	-2.859***	0.021	-0.928	-2.430**	-0.564
N	1,585	1,707	1,563	567	1,162

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. The first two specifications are run for the restricted samples of female only and male only respectively, while columns three (3) to (5) are run for the restricted sample of members from each category of household in the order: displaced, land taken and unaffected. 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.

Two possible factors could explain this phenomenon. First, the availability of non-labour market related traditional livelihoods – such as farming, fishing, boating etc. and second, the lack of labour market opportunities. We discuss the latter in the next section.

3C. Profiles of FSEZ employees

In the presence of lack of opportunities for affected households, if one can plausibly assume this, it is interesting to see how FSEZ contributes in improving the supply of jobs at FSEZ. In table 3.3.1, we show probit estimations of factors that are associated with being employed at FSEZ. This is an important concern and is directly linked with the main motivations of this paper, i.e., whether the effect of industrialization trickle downs to the households affected directly by the setting up of such economic zones. The outcomes in the first four columns of Table 3.3.1 is based on the sample of working age group members, whereas the probit estimations shown in the last two columns is based on only active labour market participants.

Table 3.3.1: Profiles of FSEZ workers among active labour market participants (pooled model)

Dep Var. = Work in FSEZ	(1)	(2)	(3)	(4)	(5)	(6)
Displaced	0.171**	0.109	0.092	0.224**	0.250**	0.314***
	(0.028)	(0.018)	(0.015)	(0.036)	(0.079)	(0.099)
Land taken	-0.412***	-0.230	-0.211	-0.200	-0.178	-0.167
	(-0.057)	(-0.033)	((-0.030)	(-0.029)	(-0.054)	(-0.051)
Female (Yes=1)	-0.825***	-0.872***	-0.882***	-0.671***	0.591***	0.778***
	(-0.136)	(-0.136)	(-0.137)	(-0.103)	(0.211)	(0.282)
Log(PCHHE)			0.222***	0.222***		
			(0.034)	(0.034)		
Displaced* Female				-0.407**		-0.402
				(-0.054)		(-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 labour market; and the corresponding dependent variable being the percentage of active labour 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.

The marginal effects seem to indicate that members from displaced households are about 3 to 4 per cent more likely to be employed in FSEZ compared to unaffected households, whilst members from land taken households were about 6 per cent less likely to be employed within FSEZ. Once the household characteristics are controlled for, these effects become statistically insignificant. Once we include household welfare indicators and interaction between gender and being displaced, we find that women from displaced households were about five per cent less likely to participate in FSEZ compared to other working age populous in our sample. However, restricting the sample to active labour market participants, we find that displaced household members were about 8 to 10 per cent more likely to be employed within FSEZ and women from displaced households were statistically no different in employability within FSEZ.

Table 3.3.2: Profiles of FSEZ workers among active labour market participants (restricted model)

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 the restricted sample of members from each category of household in the order: displaced, land taken and unaffected.. For columns four (4) to six (6), the sample comprises of those actively participating in the labour market; and the corresponding dependent variable being the percentage of active labour market participants working within FSEZ, for the restricted sample of 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.

This warrants further investigation on female labour market participation within FSEZ from each category of household. Therefore we run probit estimates by restricting the samples by category of household. The first three columns of Table 3.3.2 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. 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.

3D. Determinants of wages for all employees

In this section we employ OLS estimates of the Mincerian wage regression model (Mincer, 1974) to decipher the returns to education, experience and other factors associated with earnings. Returns to education and experience have been widely studied by labour economists using the human capital theory (Mincer, 1958, 1974; Becker 1964). In Mincer (1974)'s proposed earnings function, the natural logarithm of earnings or wage is taken as a function of the key determinants of the accumulated human capital. The latter is identified in the function by a linear term for schooling and a linear and quadratic term for labour market experience. Algebraically,

$$\ln W_i = \beta_0 + \beta_1 (\text{Schooling})_i + \beta_2 \ln(\text{Experience})_i + e_i$$

Ordinary Least Squares (OLS) estimations of the above function using the sample of active labour market participants are reported in Table 3.4.1. We consider log of annual wages as the dependent variable in all models. The results reported in Table 3.4.1 show pooled runs comprising of the three household categories. The first column shows outcomes with only individual level controls, the outcome in the second column account for household level controls. In the third and fourth columns, we show OLS outcomes controlling for occupation and industry fixed effects, where the fifth column shows result after controlling for individual, households, occupation and industry specific controls. We also use interactive terms with gender, education levels and displaced households, the outcomes are shown in the last two columns.

Table 3.4.1: Determinants of wages for all employees (pooled model)

Dep Var. = log(wage)	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Displaced	0.011	0.034	0.018	0.017	0.053	0.059	0.022
Land taken	0.179***	0.126*	0.169***	0.206***	0.112*	0.133**	0.124*
Work in FSEZ (Yes=1)	-0.006	-0.018	0.002	0.022	0.005	-0.021	-0.016
Female (Yes=1)	-0.163***	-0.188***	-0.169***	-0.168***	-0.187***	-0.110*	-0.189***
Log(experience)	0.083	0.064	0.089	0.100	0.084	0.067	0.056
Primary (Yes=1)	0.078*	0.068	0.060	0.060	0.045	0.065	0.032
Secondary (Yes-1)	0.175***	0.160***	0.140***	0.138***	0.117**	0.157***	0.161**
Higher (Yes=1)	0.454***	0.430	0.307***	0.321***	0.243***	0.429***	0.495***
Displaced*Female						-0.178	
Displaced*Primary							0.074
Displaced*Secondary							-0.006
Displaced*Higher							-0.176
Occupation category			✓		✓		
Industry category				✓	✓		
Household controls		✓			✓	✓	✓
Constant	10.328***	10.279***	10.871***	11.013***	10.838***	10.306***	10.255***
R2	0.116	0.131	0.175	0.157	0.210	0.134	0.134
N	1,376	1,376	1,376	1,376	1,376	1,376	1,376

Note: *** p<0.001, ** p<0.01, * p<0.05. The sample comprises of those actively participating in the labour market. At the individual we also control for age and 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.

Two important findings stand out from the regression outcomes shown in Table 3.4.1. First, on average, land acquired households are likely to earn 12-20 percentage points more than unaffected households. This outcome is consistent across all models and statistically significant. The margin is higher when we control for industry specific controls. Second, average earnings for women are 11-19 percentage point lower than that of men, robust outcomes across all models. We also find that members of displaced households on average earn more than members of unaffected households; however the coefficients are not statistically significant. Outcomes from models with interactive terms are particularly dejecting for women in displaced households. Completion of secondary and higher education

is associated with higher returns to wages; the statistically significant coefficients indicate a range of 12 to 50 percentage point increase in wages. Returns to experience are positive but the estimated coefficient is statistically insignificant. Surprisingly, education premium for members of displaced households yield a negative return as shown in the last column of Table 3.4.1. We discuss these issues further in the next section.

Table 3.4.2: Determinants of wages for all employees (restricted model)

Dep Var. = log(wage)	(1)	(2)	(3)	(4)	(5)	(6)
Work in FSEZ	-0.098*	-0.087*	0.034	0.011	0.073	0.064
Female (Yes=1)	-0.261***	-0.293**	-0.275*	-0.361	-0.127*	-0.046
Log(experience)	0.120	0.140	-0.245	-0.224	0.122	0.128
Primary (Yes=1)	0.103	0.101	0.011	-0.039	0.048	0.078
Secondary (Yes=1)	0.135*	0.128*	0.191	0.158	0.169**	0.194**
Higher (Yes=1)	0.337***	0.310**	0.498*	0.512*	0.424**	0.519***
Female*Primary		0.005		0.379		-0.150
Female*Secondary		0.096		0.130		-0.088
Female*Higher		0.321		-0.222		-0.531
Household controls		✓			✓	✓
Constant	10.841***	10.896***	8.163***	8.330***	10.595***	10.610***
R2	0.132	0.134	0.187	0.194	0.109	0.116
N	636	636	225	225	515	515

Note: *** p<0.001, ** p<0.01, * p<0.05. Robust standard errors reported in parantheses. . Columns one (1) and two (2) comprise of the displaced sample of working age population members; columns three (3) and four (4), land take sample of working age population members and columns five (5) and six (6) unaffected working age population members. At the individual we also control for age and 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.

Table 3.4.2 shows outcomes of the Mincerian wage regression models but for restricted samples. The first two columns in Table 3.4.2 shows outcomes for displaced households, the next two column for land acquired households and the last two columns show similar outcomes for unaffected households. Members of displaced households earn less if they work at FSEZ, however for members of other household groups we find the opposite outcome. Likewise, there is significant gender gap in earnings across all models. Education premium for

women is positive among displaced and land acquired households, however the outcome is negative for unaffected households. Overall, the outcomes from restricted model show a more nuanced picture of the nexus between gender, education and experiences in determining annual earnings. The regression models in both tables, on average, explain 10 to 20 per cent variation in wages.

3E. Determinants of wages for FSEZ employees

Table 3.5.1: Determinants of wages for FSEZ employees (pooled model)

Dep Var. = log(wage)	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Displaced	-0.110*	-0.110*	-0.107*	-0.112*	-0.110	-0.038	-0.120
Land taken	0.103	0.084	0.081	0.105	0.070	0.091	0.083
Female (Yes=1)	-0.272***	-0.254***	-0.262***	-0.264***	-0.238***	-0.111	-0.252***
Log(experience)	0.127	0.100	0.132	0.144	0.099	0.144	0.113
Primary (Yes=1)	-0.050	-0.052	-0.038	-0.054	-0.045	-0.056	-0.035
Secondary (Yes-1)	0.021	0.010	0.019	0.018	0.012	0.005	-0.008
Higher (Yes=1)	0.105	0.068	0.066	0.096	0.042	0.074	0.035
Displaced*Female						-0.295*	
Displaced*Primary							-0.026
Displaced*Secondary							0.034
Displaced*Higher							0.072
Occupation category			✓		✓		
Industry category				✓	✓		
Household controls		✓			✓	✓	✓
Constant	10.796***	10.673***	11.386***	11.065***	11.329***	10.945***	10.736***
R2	0.162	0.184	0.199	0.180	0.226	0.203	0.186
N	367	367	367	367	367	367	367

Note: *** p<0.001, ** p<0.01, * p<0.05. Robust standard errors reported in parantheses. The sample comprises of those currently being employed within FSEZ. At the individual we also control for age and 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.

In this section we repeat the discussion of wage determination in light of FSEZ employees. The regression outcomes shown in Table 3.5.1 uses a restricted sample of only household

members working within the FSEZ. The Mincerian wage regression models explain 15 to 25 per cent variation in wages for FSEZ employees. Among FSEZ employees, after controlling for individual fixed and household specific effects, members of displaced and land acquired households are the lowest and highest earners, respectively. In most of the models, the outcome is statistically significant for FSEZ employees from displaced households. Female employees in FSEZ from displaced households earn particularly less, echoing the previous findings for all employees. Returns to education and experience show mixed outcomes, but outcomes are not statistically significant. However, education premium for displaced households yields positive but statistically insignificant returns (especially for those who received secondary and higher education).

To wrap up, the empirical results thus seem to indicate strong positive returns to education among all three categories of households with an exception for FSEZ employees. We find three distinctive features of FSEZ employees in the context of wage determination. First, returns to education and experience for FSEZ employees show a lower, statistically insignificant and often negative coefficient compared to what we find in general. Second, the magnitude of gender wage gap against women is 5 to 10 percentage points higher for FSEZ employees. Third, secondary and higher education premium for members of displaced households yield positive returns when working at FSEZ as opposed to showing a negative relationship in general. One possible explanation for insignificant return on experience, from the focus group discussions, is that the nature of the work within FSEZ and even in some other sectors of salaried employment (such as carpentry, assembly line work etc.) did not necessarily favour those with experience, and therefore the returns to experience were not significantly higher.

4. Discussion

In this section, we put forward a discussion based on the empirical outcomes. Specifically, we compare findings from different age cohorts to get a dynamic picture of the changes in livelihood effects in and around FSEZ.

4A. What is the likelihood of a displaced household member being employed?

The empirical findings indicate a lower labour market participation rate among affected household members, however gender gap in labour market activities persist across all

households. To get a better sense of how persistent this gender participation gap is, across different age groups, we look at the labour force participation (LFP) rate by age cohorts, gender and household categories (Table 4.1). We consider two age cohorts: 15 to 35 years as young group, and 45 to 65 years as old group. For displaced households, the lower LFP rate of members in the old group (stands at only 11% as compared to 20% for land acquired and 26% for unaffected) might explain the overall lower LFP rate. Similarly, for land acquired households lower LFP rate in the young group (stands at 54% as compared to 63% for displaced and 67% for unaffected) could similarly explain the overall lower LFP rate compared to unaffected households. Findings from our focus group discussions suggest that on reasons for lower LFP rates for land acquired households could be that a large number of teenagers and young adults from these households are pursuing higher studies.

Table 4.1: Labour force participation and employment at FSEZ rates

Cohorts	Displaced		Land Acquired		Unaffected	
	Female	Male	Female	Male	Female	Male
A. Labour force participation						
A1. Young: 15 to 35 years	8%	63%	7%	54%	8%	67%
A2. Old: 35 to 65 years	11%	76%	20%	72%	26%	72%
B. Employment at FSEZ						
B1. Young: 15 to 35 years	53%	36%	36%	17%	52%	26%
B2. Old: 35 to 65 years	14%	25%	8%	2%	28%	6%

Source: Authors' own calculations.

4B. What is the likelihood of a displaced household member being employed at the FSEZ?

Among displaced households, about 36% and 25% of active male employees from young and old cohorts respectively are attached to FSEZ related employment (Table 4.1). This rate is higher compared to members from other household groups. The female participation rate within FSEZ is similar between displaced and unaffected households. For land

acquired households, higher likelihood of engaging in salaried or self-employed activities could explain their lower participation rate within FSEZ. The nature of employment at FSEZ remains predominantly informal. Such informal positions are "contracted-out" through "contractors" – a term locally used to refer to middlemen who act as agents recruiting on behalf of the FSEZ companies. Contractors have a regional/locale presence and bias, it defines their area of operation and expertise. The contractors only source for unskilled labour (casual labour) and are not awarded contracts for "desk jobs" (a local term used to refer to semi-skilled and skilled jobs). Based on the accounts of locals, contractors are primarily used by the companies to pass on responsibility, and take no legal binding on the employment of casual labour. The contracting of work to middlemen also allows companies flexibility on the staffing, as one villager noted 'hiring and firing if and when they want'.

4C. Do members of displaced households enjoy similar returns to education and experience compared to other affected households? Does this result hold for those working at FSEZ?

We plot predicted log wages across years of schooling by household categories in Figure 4.1. We get some interesting trends. For all employees, returns to education show similar trends across years of education for all groups. For FSEZ employees, the return is somewhat lower for displaced households and this outcome is driven by female employees. We see a higher gender wage gap in returns to education for female members from displaced households who are employed in FSEZ. Overall, for all FSEZ employees the predicted log wages are constant across years of schooling whereas there is a positive trend for the rest employed elsewhere.

The work-contractor system, which entails the service of a middle-man in recruiting and defining wages for employees on behalf of companies within FSEZ, may explain this disparity. Focus Group Discussions (FGDs) revealed that the number of such 'contractors' were proportionally lower in Highland (village with displaced households), creating an oligopolistic market for work contracts in unfavourable wage terms for women from displaced households. The general negative trend in wage across schooling years also may be explained using the same 'contractor' system. The FGDs reveal a favouring of younger-less educated women by the middleman hiring on behalf of the companies, and thus eventually ensuring a higher wage for them.

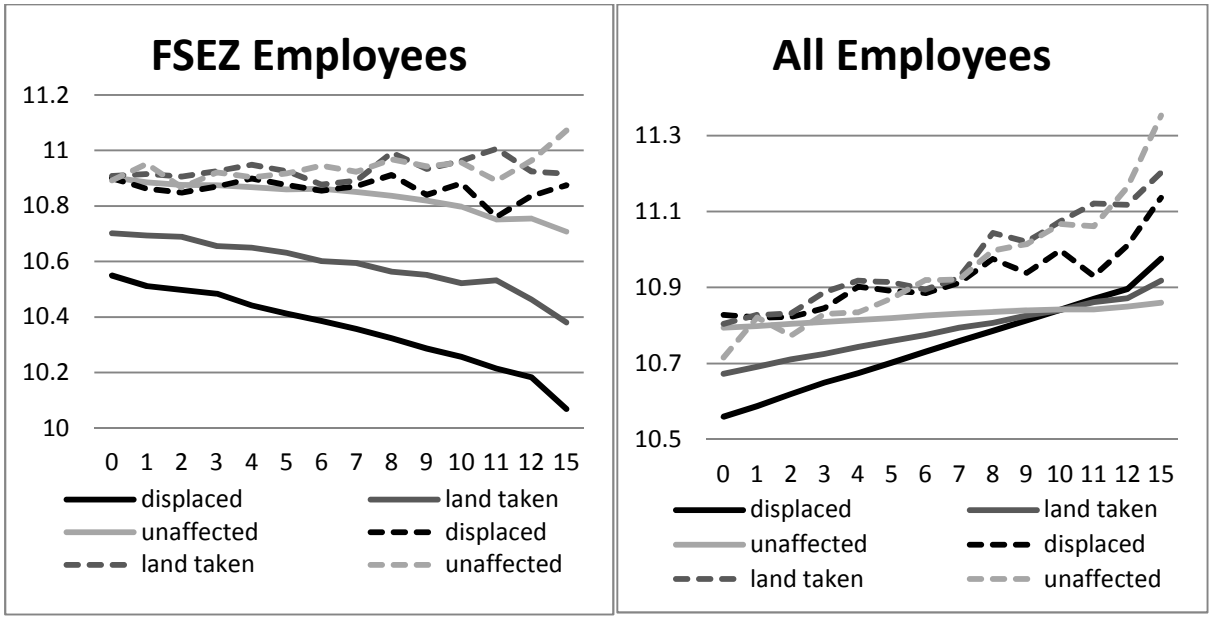

Figure 4.1: Predicted log wages across years of schooling by household categories

Note: The x-axis represents the years of schooling, while the y-axis represents the natural logarithm of wages. The solid lines represent female employees and the dotted lines represent male employees

Source: Authors' own calculations.

4D. Does the FSEZ generate employment for women?

The second panel of Table 4.1 highlights that 'younger' women have a higher participation rate for work within FSEZ, and that nearly half of all labour market participating women are employed within FSEZ (with the exception of women from land acquired households). Among the active labour market participants, more than 50% of female employees from displaced and unaffected household groups work in FSEZ. One of the benefits of FSEZ based on the responses of the households is an increase in labour force participation for women. Thus, univocally it can be inferred that FSEZ has generated employment for women. As voiced by many during the FGDs, contractors have been instrumental in the feminisation of the FSEZ workforce. On the account of one such contractor, of the 12,000 workers in FSEZ an overwhelming 75% are women. The villagers point out that "Women are employed rather than men, because they are easy to control and more work can be extracted from them". Contractors have also according to accounts, been advised to always keep young people in the labour pool and discard older individuals and individuals who are deemed not so efficient.

4E. Does FSEZ prevent gender wage discrimination?

The estimates show that women are likely to earn about 17 percentage points less compared to men after controlling for education and experience, which is significantly lower than the national statistics identified in Mahajan and Ramaswami (2012). However, the magnitude of gender wage gap against women is 5 to 10 percentage points higher for FSEZ employees. The upper panel of Table 4.2 indicates that there is a significant gender gap in the wages, especially among the older affected household members. Land acquired household members seemed to on average earn more than displaced and unaffected household members across both gender groups. Given that the FSEZ participation rate among active labour market members of the land acquired households was lower than the other two categories of household, the statistics seem to confirm that FSEZ wage rates may be lower than wage rates elsewhere. The statistics also indicate a narrowing gender gap in wages as evident from those in the younger age cohort.

Table 4.2: Years of schooling and wage by age, gender and household category

Cohorts	Displaced	Land Acquired	Unaffected
A. Mean Wages (female as % of male)			
A1. Young: 15 to 35 years	76.36%	79.31%	92.62%
A2. Old: 35 to 65 years	75.80%	52.08%	89.41%
B. Mean years of schooling (female as % of male)			
B1. Young: 15 to 35 years	88.46%	89.61%	85.45%
B2. Old: 35 to 65 years	37.78%	57.38%	33.33%

Source: Authors' own calculations.

To shed some light on whether the narrowing gender gap over time is resulting from a narrowing educational attainment, we look at the average years of schooling by gender, age cohorts and household categories. The outcomes are shown in the lower panel of Table 4.2. It is evident that the gender gap in years of schooling has lowered over time for all

categories of households. For older cohorts gender gap in years of schooling was the highest among members of displaced households. The drop in gender schooling gap is about 77 per cent for displaced households, followed by a drop by 69 per cent and 67 per cent for land acquired and unaffected households, respectively. This partially supports other studies such as Tejani (2011), who concludes with the narrowing education gap, the wage gap too has narrowed between the sexes over the years. To conclude, gender wage gap has lowered over time, but still persists and the gap is larger among FSEZ employees.

5. Conclusion

The recent political upheaval transgressing from the state-led industrialization drive in many parts of India, particularly in the state of West Bengal points to the need for a sustainable policy. A framework is avidly sought after that result in a positive sum game, benefiting the indigenous communities without hurting the growth prospects. On-going debates have underscored the importance of an optimum compensation for those who sacrificed their land for industrialization purposes. It takes care of the short-term worries. But, growth dividends from industrialization are likely to be materialized in the long-run, and an optimum compensation may not guarantee a windfall to the affected parties in the long-term. Little is known on the long-term livelihood effects of an industrialization area and thus it has remained more of a speculation exercise to gauge the consequences of industrialization on affected households.

This paper addresses this issue directly. We conducted a household survey near Falta special economic zone (FSEZ), which was established in 1984. Falta special economic zone is the first SEZ in West Bengal and one of the successfully running industrial areas in India. To compare the livelihood effect of FSEZ we consider three types of households: displaced, land acquired and unaffected. We use unaffected households as a control group to examine whether there exists any differential livelihood effects of FSEZ across different categories of households.

The empirical findings indicate a lower labour market participation rate among affected household members, however gender gap in labour market activities persist across all households. There is weak empirical evidence indicating that members from displaced households are 8 per cent more likely to be employed in FSEZ compared to unaffected households whereas members of land acquired households were about 6 per cent less likely to be employed within FSEZ. Returns to education are positive and statistically significant

across all three categories of households. Completion of secondary and higher education is associated with from 12 to 50 percentage point increase in wages. However, returns to education are significantly lower for displaced households working within FSEZ, and this outcome is predominantly driven by female employees. Among female employees within FSEZ, members of displaced households earn less consistently across each schooling year. Among the active labour market participants, more than 50% of female employees from displaced and unaffected household groups work in FSEZ. Gender wag gap persist, our estimates show that women earn about 17 percentage points less compared to men after controlling for education and experience. However, there is evidence of the narrowing education gap over time; similar evidence is found for the gender wage gap as well.

We hope that this study bridges a significant knowledge gap in the literature related to the welfare effect of industrialization especially for the less-privileged members of the society. Our findings thus indicate the need for a policy framework to address SEZ related displacement, livelihood and gender issues. Policy frameworks also require affirmative implementation spearheaded by local administrative units. FGDs revealed that many initiatives such as the vocational training institute setup as part of the FSEZ to train and equip displaced villagers with skills that benefit their employment within FSEZ were abandoned within the first couple of years. Further, the current informal sector recruitments create insecurity in wage and thus welfare – including but not restricted to education for children, healthcare etc. This warrants action from the state to ensure implementation of labour laws that protect affected workers within SEZ – particularly those who had been evicted for the setup of the SEZ, and women.

References

Aggarwal, A. (2012), *Social and Economic Impact of SEZs in India.* OUP Catalogue, Oxford University Press: New Delhi, India.

Banerjee, A., Duflo, E., and Qian, N. (2012), 'On the Road: Access to Transportation Infrastructure and Economic Growth in China'. *NBER Working Papers 17897*, National Bureau of Economic Research, Inc.

Ghatak, M., and Ghosh P. (2011), 'The Land Acquisition Bill: A Critique and a Proposal'. *Economic and Political Weekly*, Vol. 46 (41), 65-72.

Ghatak, M., Mitra, S., Mookherjee, D., and Nath, A. (2013), 'Land Acquisition and Compensation in Singur: What Really Happened?'. *CAGE Online Working Paper Series 120*, Competitive Advantage in the Global Economy (CAGE),

Ghatak, M., and Mookherjee, D. (2011), 'Land acquisition for industrialization and compensation of displaced farmers' . *Working paper // World Institute for Development Economics Research*, No. 2011,35.

Kim, Y. (2013), 'Chinese-led SEZs in Africa, are they a driving force of China's soft power?'. *CCS Discussion paper, February 2013*, Stellenbosch University, Centre for Chinese Studies.

Mahajan, K., and Ramaswami, B. (2012), 'Caste, Female Labour Supply and the Gender Wage Gap in India: Boserup Revisited'. *7th IZA/World Bank Conference: Employment and Development*, November 04 – 06, 2012, New Delhi.

Sarkar, A. (2007), 'Development and Displacement: Land Acquisition in West Bengal'. *Economic and Political Weekly*, Vol. 42(16), pp. 1435-11442.

Shah, A. (2013), 'Mainstreaming or Marginalisation?: Evidence from Special Economic Zones in Gujarat'. *Economic and Political Weekly*, Vol. 48(41), pp. 55-61.

Shalti Research Group (2008), *SEZ in West Bengal: Growth Trajectory Impact*. Shalti Samiti: Kolkata, India.

Tejani, S. (2011), 'The gender dimension of special economic zones'. In: Farole, T. and Akinci, G. (2011), *Special Economic Zones: Progress, Emerging Challenges, and Future Directions.* World Bank Publications: Washington D.C.