The 'God Makers' of Kolkata : Can improved infrastructure mitigate the misery of artisans in Kumartuli?*

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November 1, 2014

Abstract

This paper aims at adding to the burgeoning literature on the informal sector in developing countries. Kumartuli is the traditional home of the artisans who work round the year to supply idols for the various Hindu *pujas*. Plagued with general ignorance and a lack of development, this art form is slowly dying out. In 2007, the government took a baby step towards the development of Kumartuli by sanctioning a rehabilitation project that would see each artisan obtain a permanent concrete studio to work in. Till today, the only steps that have been taken is the make-shift relocation of some artisans so that land for the rehabilitation project could be acquired. However, we find that the artists are stuck in a historically conditioned equilibrium whereby the artists do not want to leave their old studios and shift to the relocated region. This prevents rehabilitation to start in the first place. In this paper we try to obtain the welfare implication of the rehabilitation project in an ex ante sense. We use data from a census survey on the 110 artisans present in Kumartuli to obtain details of the components of revenue and costs for these artisans. We show that while the rehabilitation would benefit the worst off artists, there are limits

^{*}We acknowledge the valuable feedback of our supervisor Prof. Deepti Goel. We would also like to thank Prof. Reetika Khera for helping us design the questionnaire; Kavya Iyer, Shreyasee Chatterjee, and Srijita Chakraborty for helping us conduct the survey in Kumartuli and Surjeet Singh for providing us with resources whenever we needed. We are also grateful to the Sameeksha Trust for funding the research project.

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to this benefit. We further try to ascertain the long term prospects of the profession with the help of an accompanying attitudinal survey conducted by us.

1 Introduction

The amoebic growth of the informal sector has unquestioningly played an essential role in India's development story. Apart from absorbing migrating labour from rural areas, it has played an important role in complementing various sectors of the economy which otherwise would not have attracted large private entrepreneurs. This is particularly true in the rapidly developing countries where the state institutions are yet to be stable enough to complete the formalisation of such sectors. The squalid portrait put forth by the informal sector is nowhere seen better than when one steps onto the streets of Kolkata. For the purpose of our study, we focus on the art of idol making that has been the livelihood of the artisans living in the potter's quarter of Kolkata - "Kumartuli". Our choice for Kumartuli allows us to consider the role of society and culture- often ignored in mainstream economic literature. Kumartuli's place in Bengali culture is certainly unquestionable. Despite the growth of Durga Pujas in recent years, we are looking at a set of artists who are finding it increasingly difficult to make their ends meet. Lack of political will along with coordination failure among the artist of Kumartuli means that they have been shunned the development that other emerging sectors have enjoyed.

A meagre effort on this part has been a rehabilitation project taken up by the then Left Front West Bengal government in 2007. The project was under under the Jawaharlal Nehru National Urban Renewal Mission and the Kolkata Metropolitan Development Authority (KMDA) was given the sole responsibility of implementing the Rs 22-crore project. According to the primary blueprint, the KMDA was supposed to construct houses for artisans over five acres of land at Kumartuli on a ground-plus-three-floor pattern. It would include a guesthouse, improved sanitation and water supply facilities. However, after the initial relocation of a group of artisans in 2010 to make shift studios, the project came to a stall. Using the framework provided in Adsera and Ray (1998) we show that the artists are stuck in an equilibrium state which is historically determined. The makeshift studios had infrastructural facilities that were superior to the originial studios of the artist (in fact, more in line with what we would expect from the new reconstructed studios). We exploit this sort of natural experiment to estimate the impact of infrastructural facilities on the proftability of the artists. This gives us the *carte blanche* about the behaviours and incentives at work. We find that the enhanced infrastructure of the relocated project could only improve the profits of the worst off artisans while having no impact on the relatively better off artists. However, the improvement is limited in the sense that the

worst off artisans could still not reach the profit levels of the upper end artisans. Further enhancement would require factors apart from the ones provided by the relocated studios. We corroborate these results with a parallel qualitative survey where we find general apprehension to the rehabilitation project and the profession in general. We also find idol making to be an ageing profession and most of the artisans did not want their children to move away from this sector. This paper adds to the burgeoning literature on the viability and impacts of the informal sector. The uniqueness of our paper stems from our choice of area of study. As far as our knowledge, there has been no extensive economic analysis of the idol making profession of Kolkata. Most of the studies on this region have been from a sociological or a historical perspective. This paper tries to bridge this gap by combining economic methods to ideas that have deeprooted sociological and cultural values. Another important contribution of this paper lies in the method we use to judge the effectiveness of the rehabilitation policy. We exploit a sort of natural experiment setting to judge the implications of the rehabilitation in an *ex ante* sense. This is very important for policy making, especially when the projects are expensive to undertake.

The rest of the paper proceeds as follows. Section 2 provides a back ground history of the potters. The sample description and setting is described in section 3 while the estimation framework is prvided in section 4. The results are discussed in section 5. We conclude our findings in section 6.

2 The 'Kumbhakars' of Bengal

This section basically describes the background history of the class of idol-makers in Kumartuli. We give a brief overview of the origins of these idol makers and their position relative to the caste system prevalent in Bengal. Our principal source of information comes from various historical texts and sociological articles on the pottery of India. This is then followed up by some of the stories that we heard when we did our primary survey. We also portray a brief picture of the daily life of a typical artisan in Kumartuli.

2.1 History of the potters

The Hindu mythology boasts of a myriad of gods and goddesses whose worship forms an integral part of the daily life of a Hindu family. In the context of Bengal, no other Goddess is celebrated

with so much zest as Durga. Thus, despite the paramount role played by terracotta in the history of pottery in Bengal, it is this religious association that gives the art of pottery an additional dimension. The origin of the worship of Durga in the form of a clay idol is shrouded in uncertainty. One trail leads back to King Jagat Malla of the Malla Dynasty that thrived in the region around Vishnupur in the 10th century AD (Ostör (1984)) (Foster (1956)). A significant turn in the history of idol making in Bengal came with the introduction of the traditions of *pratima* and *Bisarjan*. The latter referred to the immersion of the idol after every puja. Hence what was once a one time affair where the idol was placed permanently in the altar of the temple turned into an annual occasion for the potters. This idea of continuity and sustenance provided an impetus for the potters to actually transform themselves to "Idol Makers". The first recorded Durga Puja in the city of Calcutta was in 1610 at the house of the zamindar Sabarna Choudhury. This annual festival of religious sentiment soon became an outlet to display the socio economic status of the zamindars. As a result, these families hired the idol makers or kumbhakars from various outskirts like Nabadwip, Krishnanagar and Shantipur to build Durga idols for them every year. These groups settled in the northern parts of the city off the bank of the Hooghly, what is now called "Kumartuli". As time went on, these settlers of Kumartuli carved themselves into a distinct occupational caste with their own social order. In order to understand the behavioural patterns of the potters, it is imperative to understand the social structure within which they survive. The idol makers of Kumartuli, all by the surname of *Pal*, forms the most important class of artisans in the culture of West Bengal. In the present context, we use the definition of caste as given by Hutton, "a collection of families bearing a common name; claiming a common descent from a mythical ancestor, human or divine; professing to follow the same hereditary calling and forming a single homogenous community" (Hutton (1961)). Although historical sources of Bengal's caste system is meagre, (Risley (1892)) provides a good insight into the picture. The account mentions that the potters are traditionally considered to be of a ritually higher ranking¹. According to (Sarma (1980)), the Kshatryias and the Vaishyas hardly existed in the Bengali society. The merchants generally came from the Sudra class as opposed to Vaishyas in other parts of the country. These Sudras were further subdivided into three categories with Uttam Sankaras forming the top group and the Adham Sankara forming the lowest. The idol makers or "Kumbhakars" formed a part of this highest stratum Sanyal (1981). An interesting aspect of the idol-making culture of Bengal relates to the status of women that it entails. Women are not debarred from the idol making process. This is in stark contrast to other occupations in the pan Indian context. For instance, in Kerala

¹There are a number of Sanskrit texts that mention the status of artisans in the schema of the caste system in the prevalent society. For instance in the *Satpata Brahmana*, the artisans are mentioned as *'Kulala'*. They are considered in the same footing as the jewellers or the *manikara* and the women who weave embroideries or *pesakari* (Basu (1969))

the women are not allowed to touch the fishing net under any circumstance. Nevertheless, there is hardly any woman artist that we find in our survey in Kumartuli. Exemplary in this regard is China Pal, who took over after her father could no longer work in the studio owing to health reasons.

2.2 Stories from the survey

As a social scientist, there is nothing more interesting than listening to the stories the people have to say in a primary survey. In our case, it is all the more important given the fact that culture and perceptions play an imporant role in understanding the equilibrium to which the society converges to. As mentioned above, Kumartuli principally comprises of the class of idolmakers with the surname of Pal. The squalid portrait of the artisans in Kumartuli is apparent once we turn left from Chitpur Road and enter the Kumartuli Palli (literally translated as *potter*) colony). The daily life of an idol maker is extremely difficult in the peak season. We spent a whole day in Kumartuli to get a good view of a pattern of their daily chores. The morning hour, which start from around 7 am^2 . This is when the labourers clean mix and knead the clay that is bought from the *mahajans*. The clay used in making the idols consists of *belemati* (sandy clay) and *etelmati* (Humus clay). The coating of clay is then applied on a bamboo and hay structure that is commonly called *kathamo*. The bamboos are generally based on the size of the idol to be made. The kneaded clay is then sieved through a very thin piece of cloth to clean all impurities. The later morning hours comprising of 10am to 1 pm are probably the busisest period for the pirncipal artists. It is during this period that they give shape to the basic structure of the idol. The main tool that they use is called a *chiari*, which is a knife like tool made of steel and bamboo. This is the principal tool that the idol makers use to craft the face of the idol and other details. Every artist closes his studio in the afternoon for a siesta. The post afternoon session begins generally at 4pm when the artitst resume their work on the idols. It was found, not surprisingly, that the principal artists concentrated on the face while the labourers worked on the rest of the body. At the later stages of production, which generally takes place from the middle of August, the idols are further solidified using French chalk powder and jute strips. second layering of mud is then applied³. These activities mainly take place in the post afternon hours when the influx of visitors is a bit lower. Work generally goes on till 8 in the evening after which the artisits gather in the union offices for a round of cards or carrom before retiring for the day. Social life in the Kumartuli area, where many of the artists reside, is not different from

 $^{^2\}mathrm{This}$ was mentioned to us by a number of artisans like Sheetal Pal and Shyamal Pal

 $^{^{3}}$ This method is usually applied by artists working in the Type 2 studios. They mention the process as Doemete

any other poor areas in the city. The women folk are mainly housewifes, though they do often contribute to the idol making stages towards the end (mainly during the phase of decorations⁴. We also had the oppotunity to talk to some of the children in the area. While we did not find any dearth of interest in the work of their father, some of them were reluctant to join the idol making job perceiving it to be very hard work. However, some of them claimed that they want to make idols but their parents wont approve of it. This is in line with the perceptions of the artists that we found from our attitudinal survey that we talk more of later. A large number of artisans seemed to complain about the declining aspect of their trade and blamed the government for not looking after them. Majority complained about the rehabilitation project as it never materialised despite a change in government. Some artists, like Nimai Pal, conceded that Kumartuli could not adapt to the changing tastes of the people. With more and more financing from corporate sponsors, huge amounts are invested in "Theme Pujas" which the clay artists in Kumartuli could not create with their clay skills. Hence the onus fell on the the more skilled artists coming out of the Government College of Arts who seems to have thrived in recent years. Narayan Pal also voices the same concern, adding that the lack of technical skills have confided Kumartuli to depend on a set of loyal customers to whom they cannot charge a higher price. Even within the Kumartuli community, there are widespread complains about the artists who have got the relocated studio and still have retained their original studio. In effect, they have two studios to work with and thus economies of scale hits in. Many complain that these artists control a high degree of power in the locality and hence cant be competed against. In particular, Naren Pal complained that the artists who owned the studios teamed up with political parties to stop the rehabilitation project from materialising. Everyone praised the functionings of the union - specifically the fact that the unions allow smoother loan system and provides regular medicine supply to the labourers.

3 The Setting

3.1 Sample description

The potter's district of Kolkata, known more commonly as *Kumartuli*, is a small area of $1.4 \ km^2$ on the banks of the river Hooghly. it falls under ward 9 of the administrative machinery of the Kolkata Municipal Corporation and is surrounded by Shyampukur, Jorabagan, Chitpur Road

 $^{{}^{4}}$ It is widely regarded in the Kumartuli colony that the women folk have a good eye for decorations. This is in stark contrast to some other reports like Dube et al (1986) where the authors find a lack of recognition of the quantum and value of women's work.

and the Hooghly river on each of its sides. A rough idea of the location of Kumartuli and the position of the studios can be seen in Figure 1. Although there were newspaper reports claiming around 300 potters working in the area, our primary survey showed not more than 140 studios owned by about 110 artisans. Some of the idol makers had shifted to other working places while a few of them have left the profession altogether. Given the financial and time constraints available to us, it was very difficult for us to actually trace back all those who left Kumartuli. We traced a couple of them though. One artist, who did not want to reveal his name, opened a workshop in Baranagar on the northern fringes of the city. He had been working on government contracts and on small decorative idols. Another artist, Nitai Pal, had shifted to Ultadanga in 2010 to start a business in catering. We have in our sample around 35 studios that have been given a plot at Golabari as a first step of the rehabilitation program. These studios were selected randomly from block B of the colony (markedin green in Figure 1). Given the relatively small area to cover and the small sample, we decided to do a complete census of the idol makers at Kumartuli. This allows us to bypass any form of sampling bias in our analysis. We began the survey at the main centre of the locality which consisted of two parallel roads (refer to Figure 1). We then radiated outwards and and completed the survey of the fringe areas. Our method of survey was basically akin to a household survey where we visited each studio and interviewed the principal idol-maker for about an hour. The primary survey was done between the end of June, 2014 and the 2nd week of July, 2014. This period coincided with the commencement of monsoon in Kolkata. Hence the plight of the rains on these idol makers could be seen as a first hand experience during our primary survey. Our data consists of 90 artisans for whom extensive data on costs and revenues have been taken. The rest either couldn't be traced or refused to answer. We also took an attitudinal survey of these artisans to reflect on their attitude to their profession and their future prospects. The attitudinal survey also focuses on the aspirations that the idol makers have for their children. The main survey questionnaire was a recall Type of questionnaire wherein we asked them about the costs and revenues for the current year as well as for 2009, when the rehabilitation project first started to be implemented. The reliability of the recall method comes from the fact that these idol makers have been in the profession for a very long time and have detailed record books of these statistics. Demographic details including the age, education, family members and other factors were also collected as a part of the survey. For the purposes of our study, we divided the studios into three distinct categories based on their infrastructural facilities. First, categorised as Type 0, are the most meagre studios that are present. They have temporary walls and roofs, composed mainly of straw and bamboos (sometimes covered in a plastic cover). There is hardly any electricity in these make shift studios and hence working in the dark is almost impossible. the second category, Type 1, are better than Type 0 but still has makeshift boundaries. Some of them have bricke walls but no concrete roofs while some others have temporary walls with asbestos roofs. Most of



FIGURE 1: Full map of Kumartuli

these studios have access to electricity that is sufficient to light a tubelight. The best studios of the locality fall into category 2. These have concrete walls and roofs. This minimises the problems of weather and other factors that idol makers of other studio Types face. Specifically, the frequency of leakages from the roofs are much lower than Type 0 and Type 1 studios. Studio 0 and 1 forms an overwhelming majority of the studios in the locality. The main area comprises of two parallel roads with the studios lined up one after the other. The poorest area is the centre lane and *Kumartuli lane* where most of the Type 0 are concentrated. Type 2 is generally concentrated on the eastern fringes of *Kumartuli Palli*.

3.2 The Rehabilitation Project

The Rehabilitation project of the artisans of Kumatuli was initiated by the then state government of West Bengal in 2007. Under the Jawaharlal Nehru National Urban Renewal Mission, it formed a part of an endeavour to improve the urban landscape in metropolitan cities of India. An initial allocation of Rs.22 crore was provided to the Kolkata Metropolitan Development Authority to start the project. According to the initial blue print, the old studios of the artisans were to be demolished and a new building was to be constructed in-situ on a 5 acre area of land. Apart from new studios, the building was supposed to provide living quarters to the artisans, a gueshouse, as well as a gallery for tourism purposes. The allocation of the new studios was to be based proportional to the area of the original studio of the artists. The new studios were to be characterized by larger space, concrete walls and roof and better infrastructural facilities that includes proper electricity and water supply. For the purpose of construction of this new building, the artisans had to be shifted to a makeshift location. The KMDA allotted a Food Corporation of India building called *Golabari* for this purpose. It was a bit far from the Kumartuli locality, but had concrete walls, roofs and regular water supply. Infrastructurally, these relocated studios were much better than the original studios of the artists. In fact, they were akin to what the artists were supposed to get after the rehabilitated building was constructed. After the initial relocation of artists from two blocks in 2010 (refer to Figure 1), the project faced an impasse. Since then the relocated artists have been working in both their original as well as their new relocated studios. Hence these artists were *de facto* endowed with better infrastructure and larger space after the relocation process. We exploit this sort of natural experiment to estimate the impact of infrastructure on the profitability of the artisans. Given the fact that the relocated studios were very similar what the rehabilitated studios would be, this allows us to judge the effectiveness of the rehabilitation project in an *ex ante* sense.

4 Empirical Strategy

4.1 Conceptual Framework

The plight of indigenous industries in modern times is a story not unheard of. General ignorance, declining profitability due to rising costs and absence of political interest has led these sectors to a point at which they face the danger of dying out. The idol making art of the artists in Kumartuli faces problems that are not different from this general pattern. While a multitude of factors acting simultaneously are at play in the outcomes that we see, this paper tries to elucidate a couple of such factors that the artisans of Kumartuli face. There are widespread complaints from the municipal corporations that the rehabilitation project cannot start unless the artisans shifted their studio to the make shift location in *Golabari*. They fear that a forced eviction could lead to a political backlash. In such a scenario, it is interesting to understand the seemingly peculiar behaviour of the artisans. Rehabilitation would benefit them all, yet they are unwilling to relocate to the make shift studio. What are the incentives at work for such a decision? From a theoretical perspective, the answer that we provide draws largely from the literature on coordination games and the role of history and expectations in equilibrium. A simple yet deeply insightful model by Adsera and Ray (1998) shows that "to break free of historical conditions, negative applementation externalities must be present somewhere, in addition to positive applementation externalities that are needed to create the problem in the first place.". Other models dealing with coordination failures and other aspects of coordination games can be found in Hoff, Weber, Rodenstein-Rodan, Fukao and Benabou (1993), Krugman (1989) among others. Observations from our primary survey, however, has a direct bearing on the results found in Adsera and Ray (1998). The locality of Kumartuli and the relocation area of *Golabari* are two geographically distinct areas. As is obvious from our discussions, the initial historical conditions in Kumartuli is more favourable towards the idol-makers. This means that the initial level of capital is skewly distributed towards the Kumartuli locality. Once the government allotted the region of Golabari as the rehabilitated region, a number of incentives and disincentives comes into the decision making process of the idol makers. From an individual idol maker's point of view, immediately shifting to Golabari has two effects - he will become a monopolist in that region, thereby excruciating the market suplus till other artisans follow him to Golabari. On the other hand, he might lose his business as customers have traditionally been to the Kumartuli locality to buy idols. Moreover, the variety of idols on offer in the Kumartuli locality would be larger than the monopolist working in Golabari. This larger choice set may induce the monopolist's loyal customers to leave him for the Kumartuli market. A loss of market for the monopolist will soon force him to go out of business in search for other profitable ventures. Vis-a-vis, if he decides to shift only after a considerable number of artists have shifted to Golabari, he might lose his opportunity to appropriate the monopolistic surplus. Yet, the presence of a market would allow the opportunity for the artists to charge a higher price in the market. Moreover, the added benefits of better infrastructure might reduce costs of production and invite richer customers, thereby increasing profits. If we assume the individual artists to be rational decision makers with perfect foresight, it makes sense for them to wait for a *critical* mass of idol makers to shift first before making a decision to shift his studio. Thus it is seems to be the case that there is no negative agglomeration externalities associated with a later shift to Golabari. Since each individual can rationalise his decision in a similar way, we are ultimately in the premise of the classic coordination failure. The economy gets stuck in an equilibrium that is historically conditioned. This pattern of decision making is apparent from our attitudinal survey where some of the artists stated the loss of market as an important reason for not shifting to Golabari. However, a lot of respondents' reasons were less economic and more sociological in nature. Many of these studios have been active for many years and the artists were reluctant to lose this hereditary area of land. This is particularly true for the artists who owned the studio. Artists of the rented studios were no different either. They claimed that these studios have been rented by them for centuries and the rent has not increased for decades altogether, enhancing one's attachment to the land⁵. However some artisans have taken advantage of this indecision and have occupied plots in both Kumartuli and Golabari. They are unwilling to give up their original Kumartuli plots as they fear the rehabilitation will not be completed coupled with the fact that the Golabari is itself a temporary arrangement. Thus we are stuck in a self-fulfilling prophecy where people are unwilling to give up their old plots due to a host of reasons including the lack of belief in the project and the project cannot go ahead until the artisans vacate their Kumartuli studios.

4.2 Identification Strategy

It is apparent that the rehabilitation project will not proceed unless Kumartuli can push out of this historically conditioned equilibria. In this situation, one can certainly raise the question of the effectiveness of the rehabilitation project per se. Although the project has not been implemented, it is expected to provide the Kumartuli locality with a well needed boost of infrastructure. In particular, it should ensure the artisans concrete walls and roofs, better

 $^{^5\}mathrm{Most}$ of the studios paid a negligible rent that ranged from Rs 10 to Rs 15 per annum, giving support to their claim

storage facilities and better water and drainage facilities. Given that relocation has taken place, we implicitly estimate the impact of the rehabilitation (if it takes place) using a difference in difference framework on the profitability of Type 0 and Type 1 artisans. At the time of our survey, the relocation of some of the studios had already taken place. We could not perform any baseline surveys. However, we expolited the accurate book keeping records of the artisans to obtain data on profitability, studio characteristics and other variables of interest in the pre-relocation period of 2010 (this wasnt a problem as almost all of our surveyed artisans had been in the profession for much more than 5 years. Hence there was almost no artisan for whom data on both the years 2010 and 2013 were not available. In such a framework, the average treatment effect that we want to measure would be given by

$$\alpha_3 = E[(Y_1^T - Y_0^T) - (Y_1^C - Y_0^C)] \tag{1}$$

where Y^T denotes the profit of the relocated studios and Y^C is the profit of the non-relocated studios. 0 marks the baseline period of 2010 and 1 marks the endline period of 2014 when we did our survey. This measure of the impact of infrastructure on the profitability of the artisans gives an *ex-ante* measure of the effectiveness of the rehabilitation project. In this evaluation, we use the ordinary least squares regression to estimate our coefficient of interest. The specification that we use is of the following form:

$$ln(\pi) = \alpha_0 + \alpha_1 * Relocation + \alpha_2 * Year + \alpha_3 * Year * Relocation + X^T \delta + \epsilon$$
(2)

Our main parameter of interest here is α_3 which is the DID coefficient which gives the effect of relocation to the Golabari. X^T is a vector of control variables which includes Logarithm of Idol Price, Number of Durga Puja Idols sold, Idol Height,Logarithm of Loan Taken, Experience, Studio Length and Studio Breadth. ϵ denotes the idiosyncratic error term⁶. Because the relocated studios have double workspace and the actual rehabilitation project wouldnt provide such a big increase in studio area, the results that we obtain must not be driven by the extra space. We show that the extra space enjoyed by the artisans plays no role in profits. Thus what we end up with is an estimate of the expected effect on the worse off artisans if the rehabilitation policy does go through eventually.

 $^{^{6}}$ We have used the *robust* specification in *Stata 12* to take care of heteroskedasticity and serial autocorrelation effects. Hence our parameters are precise to a reasonable degree

5 Results

5.1 Summary Statistics

We managed to sample 90 out of the 110 artisans present in the Kumartuli area with about 20 artisans refusing to be a part of the survey. In this section we present Summary Statistics (in Table 1) of our sample which is extremely representative of the popuation. The mean age of our sample was about 48 years with the average time spent in the profession about 30 years. In our sample, 35.7% of the artisans had been rehabilitated to the *Golabari* which gives us a fairly large number of relocated artisans. The average length, breadth and height of the studios are 22, 14 and 13 feet respectively though one must treat these numbers with caution as the Type 2 studios have much larger studios than Type 1 and Type 2 studios. Another interesting observation to note is the large increase in the average value of the loan taken by the artisans which is indicative of inflationary pressures which we will look into further detail later.

| Variable | Mean | Std. Dev. | Min. | Max. | N |
|---------------------|--------|-----------|------|--------|----|
| Age | 47.7 | 11 | 28 | 72 | 86 |
| Education | 2 | 1.3 | 0 | 4 | 84 |
| Years in Profession | 29.9 | 13 | 8 | 65 | 85 |
| Studio Length | 21.9 | 12.7 | 6.5 | 75 | 86 |
| Studio Breath | 13.7 | 5.6 | 8 | 36 | 86 |
| Studio Height | 13.6 | 3.1 | 6 | 20 | 68 |
| Leakage Freq '09 | 3.4 | 3 | 0 | 11 | 72 |
| Leakage Freq '14 | 3.2 | 3.4 | 0 | 12 | 82 |
| Idols Sold '09 | 23 | 30.5 | 7 | 270 | 81 |
| Idols Sold '14 | 24.6 | 19.7 | 4 | 150 | 81 |
| Idol Price '09 | 14146 | 9254 | 450 | 40000 | 79 |
| Idol Price '14 | 20909 | 14917 | 550 | 75000 | 81 |
| Loan '09 | 121032 | 123316 | 0 | 450000 | 78 |
| Loan '14 | 193857 | 191918 | 0 | 675000 | 77 |

TABLE 1: Summary statistics

Similarly, we see a secular increase in the average price of an idol sold though the number of Durga idols made per year doesn't really move too much.

Next we present Summary Tables for Type 0 and Type 1 in 2009 classified by Relocation status. In Table2 , for Type 0 artisans we see that there are almost no systematic difference across the set of observables. We performed t-Tests for each of the variables and found all the

| | Non-Relocated | Relocated |
|---------------------|---------------|-----------|
| Profit '09 | 68100 | 75000 |
| Age | 60 | 45 |
| Education | 1 | 1 |
| Years in Profession | 45 | 25 |
| Studio Breadth | 12 | 11 |
| Studio Height | 12 | 12 |
| Idols Made '09 | 6 | 7 |
| Loan '09 | 42500 | 57500 |
| Idol Price '09 | 8800 | 10000 |
| Idol Height '09 | 9 | 10 |

TABLE 2: Summary Statistics of Type 0

differences to be insignificant except for Loans Taken and Years in Profession. Hence amongst the Type 0 artisans, there was no targetted relocation of a few artisans.

We observe the same results in Table 3 when we consider Type 1 artisans as well. We conduct t-Tests here as well and find the same results. Hence, it seems that the block and not the type of studio actually influenced the decision to allocate a plot in Golabari.

| | Non-Relocated | Relocated |
|---------------------|---------------|-----------|
| Profit '09 | 106000 | 86000 |
| Age | 48 | 46 |
| Education | 2 | 2 |
| Years in Profession | 28 | 30 |
| Studio Breadth | 12 | 10 |
| Studio Height | 12 | 14 |
| Idols Made '09 | 9 | 8 |
| Loan '09 | 47500 | 57500 |
| Idol Price '09 | 11000 | 8000 |
| Idol Height '09 | 9 | 9 |

 TABLE 3: Summary Statistics of Type 1

⁷ An important caveat in this is that we omitted Type 2 artisans from the summary statistics as Type 2 studios were not part of 2 blocks which were initially chosen for rehabilitation.

 $^{^{7}}$ This gives an idea that there was negligible non random characteresitsics that were at play during the relocation program. This allows us to interpret our regression results presented later

| | Ν | Percentage | Cumulative Percentage |
|--------|----|------------|-----------------------|
| Type 0 | 13 | 43.3 | 43.3 |
| Type 1 | 15 | 50.0 | 93.3 |
| Type 2 | 2 | 6.7 | 100.0 |
| Total | 30 | 100.0 | |

TABLE 4: Summary of Relocated Artisans

The omission of Type 2 blocks can be justified from Table 4 where we can see that 94 % of the relocated studios were either Type 0 or Type 1. Moreover as we show later from the attitudinal survey, Type 2 artisans were not in much favour of the rehabilitation project as rehabilitation doesn't hold any benefits for them in terms of infrastructural gain. The marginal infrastructural benefit of the rehabilitation project is just too low for the Type 2 studios as they are already endowed with a large amount of initial capital.

5.2 Analysis of Profits

In this section we analyze the movement of Profits earned by the artisans over the time-period 2009-2014.⁸ We do this by subdividing the artisans according to the Type of their studio and then further sub-classifying them based on whether they have been allotted a plot in the makeshift *Golabari* or not. We do this so as to isolate the effect of the relocation on each Type of studio so that heterogenity isn't averaged out.

The results we see in Table 5 are very interesting. From 2009 to 2014, artisans in Type 1 studios who have been relocated don't do much better than artisans who don't have a makeshift plot in the Golabari. Non-Relocated Type 0 artisans had a nominal increase in Profit of approximately 25,000 INR but Relocated Type 1 artisans have a nominal increase in profit of about 1 lakh INR. This same trend however does not seem to hold for Type 1 studios with Relocated and Non-Relocated artisans observing an almost identical increase in Profit. This possibly rules out an argument for capacity constraint for Type 1 studios as most of the orders are of an advanced nature and simply enjoying the luxury of plots both in Kumartuli as well in the Golabari is not enough to push up profits of Type 1 studios. One plausible explanation also might be that given the poor infrastructure of Type 0 studios, they might be withholding production. But given that they have access to plots with proper roofs, this constraint might have been relaxed leading to this spurt in profit. Artisans in such bare studios often have significant costs of buying kerosene

⁸The profits here are median profits for the whole year earned from all the Pujas over the year

| | Profit 2009 | Profit 2014 |
|---------------|-------------|-------------|
| Type 0 | | |
| Non-Relocated | 68100 | 93500 |
| Relocated | 75000 | 176000 |
| Type 1 | | |
| Non-Relocated | 107000 | 153000 |
| Relocated | 86000 | 126000 |
| Type 2 | | |
| Non-Relocated | 176000 | 250400 |

TABLE 5: Profit Over Years By Studio Type and Relocation

Comments: Only 2 Type 2 Studios have been Relocated. So we decided not to include them in the analysis.

to dry the idols due to roof leakages or due to a damp environment. Such costs are difficult to calculate since kerosene for cooking purposes is also bought along with kerosene for drying purposes. Hence we failed to get a quantitative estimate of the increase in expenses due to such poor infrastructure. We have shown this graphically in Figure 2. We shall elaborate more on the infrastructural benefits to Type 0 artisans in the subsequent sections. An important point to take away from all this is the extremely low incomes for all types of artisans irrespective of relocation or not.

Since comparing nominal values especially in a period of high inflation isn't very helpful, we deflated the 2014 values with 2009 as the base year. This is represented in Figure 3. ⁹ Looking at Figure 3, one can immediately see that the only artisans to have gained in real terms are Type 1 artisans who have been relocated. Artisans of all other Types have either stagnated or worsened with the artisans of Type 2 studios taking a massive hit in real terms. This result that we have shown gets further reinforced once we look at the artisans (with basic infrastructure at their disposal) is not going to affect their profitability in a positive manner with inflation being the major source of angst amongst the artisans.

⁹We used the country wide CPI(IW) Figures since we could not find state-level annual Figures for the same



FIGURE 2: Bar Graph for Nominal Profit



FIGURE 3: Bar Graph for Real Profit

5.3 Analysis of Costs

In this section we look at cost components of idol-production and see how input costs have risen over this period of 5 years and then analyze how costs have changed for Relocated and Non-Relocated artisans within each studio Type.

5.3.1 Input Costs

The major inputs required for production an idol are Clay, Wood, Bamboo, Rope, Labour, Paint and Decorations. Of these Decorations are decided by the customer and hence they are charged accordingly. Paint prices also have remained largely stable over this period, but there has been a huge spike in the prices of other inputs with almost all of them increasing by atleast 100%. Bamboo prices especially have skyrocketed and have increased by 300% while the price of wood has increased by 150%.

| | 2009 | 2014 |
|--------------------|-----------|-----------|
| Clay (Per Barrel) | | |
| Humus Clay | 100 | 150 |
| Sandy Clay | 50 | 100 |
| Wood (Per Quintal) | 800 | 2000 |
| Bamboo (Per Piece) | 50 | 200 |
| Rope (Per Kg) | 25 | 60 |
| Labour | | |
| Per Day Cost | 200-300 | 500-600 |
| Monthly Cost | 2000-3000 | 8000-9000 |

TABLE 6: Inflationary Trends in Inputs

Figures are in INR and were found to be more or less same across Artisans

There are labourers of different skill and this is an average payment to a labourer

A common complaint amongst the artisans was the exponential increase in the cost of labour with labourers employed on a daily basis demanding about 600 INR per day while those employed on a monthly or seasonal basis drawing a wage of 8000 INR. The major reason for these as cited by the artisans was an acute shortage of labour supply due to more lucrative options elsewhere in places like New Delhi, Nagpur and Kanpur. Moreover another reason mentioned by the artisans as a reason for ballooning wages was the secular increase in NREGA minimum wages. Also there is also a shortage of skilled labourers who are not passing on the knowledge of their craft to their children causing a glut in the labour market. Hence extreme inflation in the prices of inputs faced by the artisans is a major reason for stagnant or declining profitability of the trade which is slowly causing an exodus from Kumartuli.

5.3.2 Cost Trends Within Studio and Relocated Classifications

Through this section we try to further establish our claim that rehabilitation is not the main solution to alleviate the problems of the artisans by showing that Relocated Type 1 artisans show similar increases in costs as Non Relocated Artisans with no increase in the number of idols made. Here we restrict ourselves to total input cost (excluding labour cost) for just the Durga Pujas and number of Durga idols made. This analysis is valid since Durga Puja is the main festival of the year and hence is extremely representative of the year as a whole.

| | Costs in 2009 | Costs in 2014 |
|---------------|---------------|---------------|
| Type 0 | | |
| Non-Relocated | 45000 | 68500 |
| Relocated | 55000 | 65000 |
| Type 1 | | |
| Non-Relocated | 45000 | 65000 |
| Relocated | 40000 | 65000 |
| Type 2 | | |
| Non-Relocated | 75000 | 100000 |

TABLE 7: Movement of Cost Over Years By Relocated and Studio Type

Comments: Here costs refer to Costs incurred during Durga Puja excluding labour costs

So, if we look at Table 7, we see that within Type 1 studios, there is no perceptible difference in increase in costs over the years while if we look at Type 0 studios, we see that for Non-Relocated artisans, there is an increase of close to 25000 INR while for Relocated artisans we see that the increase is just 10000 INR. To ensure that there is no difference in production of idols in 2009, we look at Table 8, where we see that Non-Relocated Artisans under Type 0 studios have increased their production by about 2 idols while Relocated artisans have increased their capacity by nearly double the amount. To further drive in our argument, we see an identical increase in capacity for Relocated and Non-Relocated artisans under Type 1 studios. Thus we see that Relocated Type 0 studios have a greater increase in production over the period under consideration while they have a smaller increase in cost as compared to Type 1 studios.¹⁰Hence one can infer that rehabilitation overturns the infrastructural constraints of the worst off studios.This is further evidence that rehabilitation should affect costs Type 0 studios through the infrastructural channel. So the earlier argument regarding capacity constraints not affecting Type 1 studios but the constraints being relevant for Type 0 studios gains further credence with this analysis.

| | Idols Made 2009 | Idols Made 2014 |
|---------------|-----------------|-----------------|
| Type 0 | | |
| Non-Relocated | 7.0 | 8.8 |
| Relocated | 6.1 | 9.9 |
| Type 1 | | |
| Non-Relocated | 9.8 | 11.4 |
| Relocated | 8.8 | 10.3 |
| Type 2 | | |
| Non-Relocated | 10.7 | 11.9 |

TABLE 8: No. of Idols Made By Relocated and Studio Type

Comments: These are Durga Puja Idols only

¹⁰This is probably indicative of Increasing Returns to Scale for Relocated Type 1 studios.

5.4 Regression

In this section we use regression to check more rigorously whether our earlier assertions regarding the benefit of the program accruing to only Type 0 artisans holds good or not. Further we comment on how much the proposed rehabilitation project can benefit the worst off artisans and why such an upper limit exists for these artisans. The regression results are summarised in table 9

| Log(Profit) | Type 0 | Type 1 |
|--------------------------------|--------|--------|
| 2014 | -0.06 | -0.13 |
| Relocation | -0.05 | 0.41 |
| $2014 \times \text{Relocated}$ | 0.66** | -0.16 |
| Controls | Y | Y |
| Observations | 40 | 49 |
| Adjusted R^2 | 0.62 | 0.52 |

TABLE 9: DID estimates of relocation on Type 0 and Type 1 Studios

Source: Primary Survey June 2014

* p < 0.1, ** p < 0.05, *** p < 0.01

The important observations about the results are worth mentioning. Firstly, we see that the DID coefficient is positive and significant for Type 0 studios while it is negative and insignificant for Type 1 studios. This is exactly what we had argued before from the summary tables and the graphs. One objection which might be raised is that these results might be driven more space accessible to the Relocated Studios. This is due to the fact that the relocated studios were working in two studios simultaneously (the old and the new) and thereby had almost double the workspace than those who didnt get the relocated studios. While the rehabilitated project was supposed to provide more space, it did not warrant a doubling of workspace. However, we have controlled for the number of idols in the regression equation. This variable is indicative of the space available to the artisans. Moreover, looking at Table 10 we see that within Type 1 there is no difference in production over the years, but within Type 0, we see that relocated artisans doubled production compared to Non Relocated Artisans. This implies that more space need not imply more production. If we couple this with Table 7, we see that within Type 0, for a much higher increase in production, cost increases by less which is strong evidence for the possible impact of the Rehabiliation programme on the Type 0 artisans. This is consistent with the stories we heard from the survey where Type 0 artisans said that they limited production and didn't take on more orders because they feared damage due to the monsoon on one hand and zero inventory value on the other as they had no place to store unsold idols.

| | Idols Made 2009 | Idols Made 2014 |
|---------------|-----------------|-----------------|
| Type 0 | | |
| Non-Relocated | 7.0 | 8.8 |
| Relocated | 6.1 | 9.9 |
| Type 1 | | |
| Non-Relocated | 9.8 | 11.4 |
| Relocated | 8.8 | 10.3 |
| Type 2 | | |
| Non-Relocated | 10.7 | 11.9 |

TABLE 10: No. of Idols Made By Relocation and Studio Type

We were also interested in seeing how much these artisans can benefit from this project and what the upper bounds for the benefits are as these have important implications for policy measures. Regression results mentioned above indicate that the maximum Type 0 artisans can be pushed to is the Type 1 level (as Type 1 studios don't benefit from the rehabilitation). We have conducted t-tests (shown in Table 11) which show us that initial difference in profits between the two groups have narrowed. Since the condition of type 1 studios themselves are not very praiseworthy, it seems that the rehabilitation project could only partially benefit the extremely worse off artisans. There are most probably other factors which need to be addressed tofurther improve the situation of these artisans. For instance, one can argue that factors like access to liquid credit and more labour could be factors that allow these artisans to achieve profit levels that resemble the higher end artisans of Kumartuli. But even these seem difficult to implement. The artisans are in essence entrepreneurs, managers of their own studio and provide labour to it as well. So even if they acquire lots of capital and labour, it might be difficult for them as individuals to expand production beyond a certain level. Thus there are certain doubts about the extent to which this rehabiliation program if it takes place can benefit the artisans.

TABLE 11: t-Tests of Profit Across Type 0 & 1 Artisans

| | Difference |
|------------|------------|
| Profit '09 | -40632.9* |
| Profit '14 | -36972.8 |
| N | 50 |

t statistics in parentheses

* p < 0.1, ** p < 0.05, *** p < 0.01

5.5 Aspirations of the Idol-makers

5.5.1 Ageing profession and Educational Aspirations

In this section we try to gain some insight into the longevity of the art by asking the artisans about whether or not they would want their children to follow their footsteps into the profession. Moreover we also find some patterns in the schooling choices made by the artisans for their children.



FIGURE 4: Distribution of experience in our sample

| | (1) | |
|---------------|-----------|------------|
| | Frequency | Percentage |
| In Profession | 15 | 19.7 |
| Move Away | 50 | 65.8 |
| Undecided | 11 | 14.5 |
| Total | 76 | 100.0 |

TABLE 12: Aspirations of Artisans for their Children

First, we take a disaggregated view of the education and experience profile of the artists we surveyed in order to come up with a better idea of the demographics at play. This can be seen in Figure 4 and table 13. We take a disaggregated view of the education and experience profile of the artists we surveyed in order to come up with a better idea of the demographics at play. Figure 4 shows the distribution of the the number of years in the profession for all the artistans who responded to our survey. As we can see, the distribution follows the normal distribution (denoted in red in Figure 4) with a mean of around 30. This supports our claim that the artists

we surveyed have been in the profession for a very long time and is hence aware of the historical and ahistorical conditions that affect their trade. Moreover, the lack of the younger generation was quite striking. This lack of the younger generation in our sample is a direct consequence of the responses we see in Table 12 where see that around 66% of the artisans want their children to move away from the profession with only 20% of the artisans having their children already in the profession. Thus there are certainly some difficulties if one thinks about the longevity and sustainability of this profession under such conditions of low profitability and uncertainty caused by steeply rising prices.

| | Observations | Percentage |
|------------------|--------------|------------|
| Type 0 | | |
| None | 3 | 14.29 |
| Primary | 9 | 42.86 |
| Secondary | 5 | 23.81 |
| Higher Secondary | 1 | 4.76 |
| Graduate | 3 | 14.29 |
| Total | 21 | 100.00 |
| Type 1 | | |
| None | 3 | 8.11 |
| Primary | 9 | 24.32 |
| Secondary | 15 | 40.54 |
| Higher Secondary | 3 | 8.11 |
| Graduate | 7 | 18.92 |
| Total | 37 | 100.00 |
| Type 2 | | |
| None | 2 | 7.69 |
| Primary | 5 | 19.23 |
| Secondary | 4 | 15.38 |
| Higher Secondary | 5 | 19.23 |
| Graduate | 10 | 38.46 |
| Total | 26 | 100.00 |

TABLE 13: Education Profile of Artisans

Before we look at the schooling decisions made by the artisans for their children, we look at the education profile of the artisans themselves. Table 13 on the other hand gives us a summary of the education profile of the artisans. On the assumption that higher education would lead to better adoption to new technology (although not necessarily increasing the artistic skill) and hence should benefit their livelihoods. We find the education profiles for artists of each category.

It is interesting to find that majority of Type 0 artists did not go beyond primary school while those of Type 1 and Type 2 have proceeded onto secondary and graduates (bachelor's degree) respectively. It might be the case that the Type 0 studio artists, being poorer, required more family labour and hence brought their child (typically males) to their studios. There apart from providing a helping hand, the children received apprenticeship training from their father. This is not true for the Type 2 studios which are relatively richer and hence can hire more labourers, thus allowing thier children more time to spend in school. This gives us a nice segway to study the education profile of the children of the artisans.

Here, we try to ascertain the aspirational component of the artist's psychology. One of the basic components that describe the aspirational aspects is the education that is given to their children. This can be seen from Table 14. It is worth noting that an overwhelming majority of the artists working in studio Types 0 and 1 send their children to public schools. Contrastingly, around 64% of the artists in Type 2 studios send their children to private schools which are generally considered to be better than public schools in the Indian education system. Hence it becomes apparent that the better off artists, i.e. from the Type 2 studios, are prepared to allot a higher proportion for their children's education. The higher profit, and hence a higher saving, allows this marginalised section of the society to atleast pursue their aspiration for their kins.

| | Observations | Percentage |
|---------|--------------|------------|
| Type 0 | | |
| Public | 19 | 95.00 |
| Private | 1 | 5.00 |
| Total | 20 | 100.00 |
| Type1 | | |
| Public | 23 | 85.19 |
| Private | 4 | 14.81 |
| Total | 27 | 100.00 |
| Type 2 | | |
| Public | 9 | 36.00 |
| Private | 16 | 64.00 |
| Total | 25 | 100.00 |

TABLE 14: Schooling Decisions For Their Children

5.5.2 Perceptions about the Rehabilitation Program

The insignificance of the rehabilitation coefficient is also reflected in the perceptions that the artisans have about the rehabilitation project per se. On being questioned about the rehabilitation project, the artists gave a number of responses which are broadly classified in Table 15. It is interesting to note the attitudinal differences that characterize the artists of each studio Type. Given that the poor studios (specifically studio Type 0) can benefit more from the rehabilitation project through better infrastructure, or atleast infrastructure that would allow them to compete with Type 2 studios, their main concern was whether the project would actually materialize. This was the response of 46% of the respondents. However, the set of concerns for the Type 1 and Type 2 studio artists are different.

| | Observations | Percentage |
|----------------------------------|--------------|------------|
| Type 0 | | |
| Allocation Politicized | 2 | 15.38 |
| Higher Competition | 4 | 30.77 |
| Never going to materialise | 6 | 46.15 |
| Tenancy problem | 1 | 7.69 |
| Total | 13 | 100.00 |
| Type 1 | | |
| Allocation Politicized | 2 | 10.00 |
| Higher Competition | 6 | 30.00 |
| Lack of Market in relocated area | 7 | 35.00 |
| Never going to materialise | 4 | 20.00 |
| Smaller size | 1 | 5.00 |
| Total | 20 | 100.00 |
| Type 2 | | |
| Higher Competition | 5 | 55.56 |
| Never going to materialise | 3 | 33.33 |
| None | 1 | 11.11 |
| Total | 9 | 100.00 |

TABLE 15: Perceptions About Problems of Rehabilitation

Most of them feared their loss of comparative advantage of better infrastructure to the Type 0 studios. The new entrants (the Type 0 studio with the new infused technology) would come to compete with the Type 1 and 2 studios and might bring the prices down for the latter studios.

6 Conclusion

Despite being garlanded with history and forming an integral part of Bengal's culture, the potter's district of Kumartuli is in its decline. Sticky prices and ever rising costs have taken a barge into the profitability of the trade. Even after adjusting for inflation, the rise in material inputs like clay, bamboo and wood along with labour has been in an accelerating upward spiral. Moreover, with the advent of the *theme pujo* and other commercial elements attached to Durga puja, these traditional artists are falling behind. They are not equipped to cope up with the changing tastes of their customers. Given this dismal picture, the government initiated the rehabilitation project in 2007 (work started only in 2010). Using the theoretical framework established by Adsera and Ray, we find how coordination failure leads the Kumartuli society to be stuck at the initial equilibrium that is historically conditioned. This prevents the artists to move to the relocated region, thereby preventing any further work in the rehabilitation project. However the people in turn blame the government for the lack of progress on the project and hence we are left with both sides blaming each other for the failure of the project to take off. Thus the rehabilitation project seems to be stalled not only due to political ignorance, but also due to the particular equilibrium that the society remains stuck at. Given relocation to studios similar in character to proposed studios under the rehabilitation project gives us the opportunity to estimate whether the rehabilitation can actually benefit the artists. Our analysis indicates that only Type 0 studios stand to benefit from the rehabilitation, but there are low upper bounds to this benefit. There seem to be huge attrition in the profession with fewer and fewer people of the younger generation joining their fathers in the trade. This seriously endangers the longevity of this profession and certainly merits swift action from the policy makers to prevent this indigenous profession to die out.

References

- Alicia Adsera and Debraj Ray. History and coordination failure. *Journal of Economic Growth*, 3(3):267–276, 1998.
- Jogiraj Basu. India of the age of the brahmanas. Calcutta: Sanskrit Pustak Bhandar, 1969.
- George M Foster. Pottery-making in bengal. Southwestern Journal of Anthropology, pages 395–405, 1956.

- Kyoji Fukao and Roland Benabou. History versus expectations: a comment. *The Quarterly Journal of Economics*, pages 535–542, 1993.
- John Henry Hutton. Caste in India: Its nature, function and origins. Oxford University Press, 1961.
- Paul Krugman. History vs. expectations. Technical report, National Bureau of Economic Research, 1989.
- Ákos Östör. Culture and power: legend, ritual, bazaar, and rebellion in a Bengali society. Sage Publications, 1984.
- Herbert Hope Risley. *The tribes and castes of Bengal: Ethnographic glossary*, volume 1. Printed at the Bengal secretariat Press, 1892.
- Hitesranjan Sanyal. Social mobility in Bengal. Papyrus Calcutta, 1981.
- Jyotirmoyee Sarma. Caste dynamics among the Bengali Hindus. Firma KLM, 1980.