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Urban-Suburban Disparity in Program Effectiveness Fostering Self-Reliance Among Indian Sex-Workers

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Abstract: The purpose of this paper is to evaluate a few non-governmental organizations (NGOs) helping the sex workers to become self-reliant in West Bengal, India. A stratified random sampling method was adapted to survey 400 sex-workers using a structured survey questionnaire. A Program Effectiveness Index (PEI) is developed to measure the level of disparity in the effectiveness of these NGOs operating in the urban vs. suburban areas of West Bengal, India. The effectiveness is manifested through the level of self-reliance achieved by the participating sex-workers. The self-reliance gap between the participating sex workers in the two regions is measured by the weighted average status gap (WASG) using several social, economic, psychological, political, and legal status indicators. The estimated Program Effectiveness Index value of 66.16 indicates disparity in effectiveness of the intervention programs between the two regions. A negative WASG value implies the suburban sex-workers to be more self-reliant than the urban sex-workers, mainly in their 'economic' and 'health' status. A simple sensitivity analysis suggests how policy makers can benchmark a certain rate of progress per year to achieve zero disparity within a set number of years. The index developed in this paper can provide a guideline for the policy makers as to where, on a scale of 0 to 100, the disparity is desirable to achieve the targeted balance in regional development. This kind of findings could be relevant for policy makers in allocating resources to programs in different regions to achieve desired outcomes. No attempt has been found in any prior studies to *compare the effectiveness* of the intervention programs operating in different regions in creating self-reliance among the sex-workers. In that sense, the current research is a novel approach trying to quantitatively measure the regional disparity in effectiveness of the intervention programs targeted specifically for sex-workers. The index developed in this paper measures the *extent* of disparity in the effectiveness of the programs through the difference in the *level* of self-reliance of the sex-workers while geographically separated into the urban and sub-urban areas.

Keywords: Empowerment; self-reliance; community development; sex-workers; NGOs; intervention programs.

JEL classifications: I38, J16, J71, J78

1. Introduction

World Bank (2001) was among the early entities to recognize empowerment as one of the three pillars of poverty reduction and a precursor for self-reliance. Following the World Bank's effort, today, policies and projects all over the world also embrace women's self-reliance as a key component to be addressed and measured while considering developmental issues. Broadly speaking,

women's self-reliance may be defined in terms of an individual woman's ability to gain access to resources and take decisions affecting her own well-being. Many human right activists and feminists propose that women should be able to define self-interest and choice and consider themselves as not only *able* but entitled to make choices (Sen 1999; Kabeer 2001; Rowlands, 1995). In most developing economies, however, women do not play a vital role in any decision-making process - be it at the community level or at the domestic level (Chakrabarti and Sharma-Biswas, 2008). In these developing countries, several national and international non-governmental organizations (NGOs) have come forward to facilitate women in understanding their choices and provide support to participate in activities that promote capacity building which ultimately make them self-reliant. These NGOs not only play a key factor in helping women in general to become self-reliant but some of them work exclusively with even more marginalized women who are HIV positive and/or are sex-workers. There is anecdotal evidence that the intervention programs are instrumental in empowering these socially marginalized women to become effective game changers (Olson 2012). Swendeman et al., (2009) studied the impact of the Sonagachi Intervention's empowerment strategies in lowering the sex-workers' vulnerability to HIV/AIDS. However, attempts to measure the effectiveness of these programs are sporadic and warrant more formal structuring.

The objective of this paper is to provide a tool to evaluate the effectiveness of such intervention programs operating in West Bengal, India, to help the sex workers become self-reliant. A composite index is developed to measure the extent of disparity in effectiveness of the programs operating in the urban and suburban areas. A higher value of the index implies a lower disparity in effectiveness of the intervention programs between the two regions. No attempt has been found in any prior studies to *compare the effectiveness* of the intervention programs operating in different regions in creating self-reliance among the sex-workers. In that sense, the current research is a novel approach trying to quantitatively measure the regional disparity in effectiveness of the intervention programs targeted specifically for sex-workers.

The rest of the paper proceeds as follows. The theoretical background is set in Section 2. Section 3 describes the Index and section 4 describes the data and its collection method. Section 5 details the data analysis and findings and finally, section 6 concludes with discussion and policy implication.

2. Theoretical Background

2.1. Self-Reliance

In gender studies literature, women's empowerment have been addressed through systematic transformations in patriarchal structures (Kabeer 2001; Bisnath and Elson, 1999); through the gender related power differentials in

the household (Acharya and Bennett, 1981); or through the recognition of the fact that women and men have different needs, preferences and interests. These studies address equality through differential treatment of men and women (Reeves and Baden, 2000).

An interesting study by Longwe and Clarke, (1999) differentiates between the concepts of women's empowerment and women's self-reliance in the context of participation level. They conceptualize women's self-reliance as "individual capacity to advance in terms of her education, training, and access to resources" whereas women's empowerment is "actual exercise of power over the allocation of resources and ability to control public policy… such as seats in parliament, and top management positions." Unlike most other studies, their study finds no correlation between increased empowerment and increased self-reliance at the African inter-country comparison level. In the context of the sex-workers in this study, it is the self-reliance being measured through the level of health, economic and social, political, and psychological conditions while participating in the intervention programs and not so much their empowerment.

2.2. Role of Non-Governmental Organizations

In most developing countries, the non-governmental organizations (NGOs) have been especially successful in providing support to women. In Nepal, for example, a strong network of NGOs exists to prevent women trafficking; to offer women micro-credit loans for starting their own business and becoming self-reliant (Mahat, 2003). In Nigeria, the local government supports NGOs to set up programs for the local women to participate in social and economic activities that help them gain self-reliance (Ekesionye and Okolo, 2012).

In India, female sex workers are a highly marginalized group in the community. They suffer multiple forms of disadvantage, including stigma, poverty and exploitation by police, clients or agents of the sex trade. Given such an adverse context, it is common for interventions to take a community development approach to address the wider issues of security and support as well as the specific issue of HIV. The national AIDS control organization (NACO) has set up intervention programs in all parts of India to facilitate citizens build up AIDS awareness. Majority of the intervention programs in India that target sex workers are directly under the supervision of NACO or affiliated to some international foundations. Accordingly, an accountability effort becomes imperative in terms of the outcome of the intervention operations.

A qualitative and quantitative research on the effectiveness of one such intervention program, Karnataka Health Promotion Trust, in Karnataka, India (Mohan *et al.*, 2012) shows that following the community-mobilization framework, the sex workers' awareness of the epidemic improved and the rate of HIV prevention increased significantly. Another successful intervention program, the Sonagachi Project in West Bengal, India, initially started as a

STD (sexually transmitted disease) clinic targeting sex-workers but eventually became a community-based intervention program providing the sex-workers empowerment and self-esteem (Jana et al.,, 2004). The unique feature of this intervention program is the participatory aspect of the sex workers – training as peer educators; participating in decision-making meetings; and running a co-operative bank that leads to their empowerment (Cornish 2006). This participatory aspect evolved into community mobilization, which allowed the sex workers to achieve some recognition in the mainstream society and led to its sustainability (Basu et al., 2004). Ray (2016) evaluated this intervention program using a framework of short-term outcome and long-term impact. However, no effort was made in that study to make any quantitative assessment of the *effectiveness* of the program in making the sex-workers self-reliant.

3. Index Description

The framework in this study has been built to measure the difference in effectiveness of the intervention programs operating in the urban and sub-urban areas of West Bengal, in fostering self-reliance among the participating sex-workers. The research hypothesis is that the intervention programs in the urban areas and the sub-urban areas are equally effective in building the sex-workers' self-reliance.

The general presumption among social activists is that the intervention programs in the urban areas have better access to resources and can therefore be more effective in making the participants self-reliant compared to their counterparts in the suburban areas. The attempt in this paper is to capture such bias in effectiveness by defining an index called the 'Program Effectiveness Index' (PEI). This index tries to capture the extent of disparity in program effectiveness between the two regions through the extent of disparity in self-reliance between the sex-workers in the two areas. The PEI is measured as follows:

$$PEI = 100 - |WASG| \tag{1}$$

where WASG is the weighted average status gap between the sex-workers in the urban areas and those in the sub-urban areas. The WASG is defined as

$$WASG = (w_1 g_1 + w_2 g_2 + w_3 g_3 + \ldots + w_n g_n)/(w_1 + w_2 + w_3 + \ldots + w_n) \tag{2}$$

where 'g_i's are the legal and political, social, psychological, and economic indicators measuring the status gap and 'w_i' s are the weights in each indicator. Specifically, the weights are the number of indicators in each status category. All gaps are measured as percentage differences between the urban and suburban groups. As hypothesized, if the urban and the suburban sex-workers are equally self-reliant then the value of WASG should be zero. On the other hand, a non-zero value of WASG implies a disparity in self-reliance and hence a possible disparity in effectiveness of the programs in the two regions. To

measure the *extent* of disparity in the effectiveness of the programs, the index is formulated on a simple 100-point or percentage scale as in equation (1). The range of the value of PEI varies between:

PEI = 0 with WASG=100

PEI = 100 with WASG=0

Thus, a higher absolute value of the PEI index implies lesser disparity in program effectiveness between the two regions.

If this research was simply trying to measure the effectiveness of the intervention programs in making the sex-workers self-reliant, then the WASG should be measured between the sex workers participating in the intervention program and those not participating in any intervention program. However, as mentioned in the previous section, most *a priori* research had established the fact that participation in a relevant intervention program makes women more self-reliant in some form compared to those not participating in any intervention program. Therefore, this study implicitly assumes that the participating sex-workers were all experiencing self-reliance. It rather tries to measure any difference in the *level* of self-reliance while geographically separated into the urban and sub-urban areas. This kind of findings could be relevant for policy makers in allocating resources to programs in different regions to achieve desired outcomes.

4. Data Description

A survey questionnaire was developed following the guidelines for behavioral surveillance survey for female sex-workers laid by Family Health International (FHI, 2000) to obtain data on the indicators. In order to conduct the survey, an independent market research and analyst group operating in the city of Kolkata was contacted. The organization employed trained field researchers to visit the different sites in the urban and sub-urban areas to interview the subjects. A stratified random sampling method was used within each group to appropriately represent at least one-third of the population. IRB approval was obtained from the author's host institution prior to data collection and the sex-workers provided voluntary informed consent form written in local language or delivered verbatim if illiterate.

Kolkata is the capital city of the state of West Bengal. Its municipal corporation area is about 185 sq.km (Wikipedia, 2008). Four sites were visited within this corporation area and 200 sex workers were interviewed. The suburban survey area encompassed 30-mile radius beyond the city limits of Kolkata. From the suburban area, about 200 sex workers were interviewed from four different sites. The data cleanup process finally produced the sample size for the urban and suburban area as 148 and 152 respectively. All the data

were collected in the month of June and July of 2007. Details about these data collection areas for the two regions are described in Table 1.

Table 1
Description of the Urban and Suburban Sample Areas

Kolkata (Urban)				*Suburban Area*			
Site	*Area*	*NGO Name*	*Sample Size*	*Site*	*Area*	*NGO Name*	*Sample Size*
Tollygunge Brothel	Tollygunge Phari	KSCRI	51	Ghutia Sharif	Ghutia Sharif Majar area	LAMP	42
Sasan Bazar	Baruipur	CINI	40	Thakur-pukur Road	Naihati	Naihati Prolife	20
Nutan Bazar	Budge Budge	CINI	24	Kali Bazar	Diamond Harbour	CWRC	70
China Goli & Bashkhola	Metiabruz & Khidirpur	CWRC	33	Dighir Par	Canning	LAMP	20
Total			**148**	**Total**			**152**

Table 2 is a description of the intervention programs that were targeted for this study. The organizations have been operating in this state as early as 1974. All of these organizations had initially started as helping the street children or abused women but eventually evolved into full-fledged programs to educate people and counsel about HIV/AIDs including sex-workers. These organizations were chosen based on the similarity of the interventions provided to the sex workers. Some of these organizations are operating both in Kolkata and suburban areas and the objective here is to see if they are equally effective. The websites of these organizations provide detailed information of their mission and their activities.

Table 2
Description of Intervention Programs (NGOs) Operating in the Sampled Areas

NGOs (year founded)	*NGO Description*	*NGO Website*
KSCRI (2000)	Kolkata Socio Cultural Research Institute	*http://www.kscri.org/*
CINI (1974)	Child in Need Institute	*http://www.cini-india.org*
CWRC (1989)	Chittaranjan Welfare and Research Centre	*http://ngochittaranjanwelfare.org*
LAMP (1979)	Liberal Association for Movement of People	*http://www.lamp-ngo-india.org/*
Naihati Prolife (1995)	Naihati Prolife	*http://naihatiprolife.in/*

Table 3 is a description of the various status groups used in this study to signify self-reliance of the participants in the two regions. Out of the 72 questions in the survey questionnaire, due to missing data and disclosure issues, only certain questions could be used in each status group. Accordingly, this study could create the composite index based on 11 questions on social status, 15 on economic status, 16 on health status, 10 on psychological status and 8 on legal/political status.

Table 3
Indicators Measuring the Status Gap between Urban and Suburban Areas

Status Categories	*Number of Indicators*
Social Status	11
Economic Status	15
Health Status	16
Psychological Status	10
Legal/Political Status	8
Total	**60**

5. Data Analysis

Table 4a provides the descriptive statistics of the sex workers sampled in the urban and suburban areas for the social status indicators. The average age of the sex workers in both the areas is thirty years. Five out of the eleven indicators turned out to have a negative gap implying suburban sex workers to be more self-reliant in these aspects. Positive gaps are revealed for sex-workers who were in this profession for more than ten years (Kolkata = 45.95% versus Suburban area = 34.21%); sex-workers in the urban areas seemed to face violence from their clients more frequently than their counterparts in the suburban areas (Kolkata = 49.23% versus Suburban area = 44.00%); and a higher percentage of urban sex-workers if ever got married, was married off before the age of 18 years (88.51%) compared to their counter parts in the sub-urban area (78.29%). Interestingly, most of the urban sex-workers were brothel-based whereas most sub-urban sex-workers were not. The average gap in this status (ASG) is 0.68. However, as the p-value reveals, the ASG was not statistically significant at the 5% level.

Table 4b describes the indicators for the economic status. In this group, some of the gaps are positive implying the urban sex-workers are experiencing a higher status than their counterparts in the suburban areas. For example, a bigger percentage of the urban sex-workers serve more than 10 clients per week, but the sub-urban workers earn more than their counter parts in urban area for each sex act. Urban sex-workers also have greater access to condoms either from the NGO educator or a government health clinic. This supports the presumption that the intervention programs in the urban areas are providing better resources than their counterparts in the suburban areas. The sub-urban sex workers, however, have more dependents to support financially

Table 4a
Descriptive Statistics of the Social Status of the Sex-workers in the Sampled Areas

Social Status	*Kolkata*	*Suburb Area*	*Gap[a] (K-S)*
Number of Indicators	11	11	
Mean	50.26	49.58	
Standard Deviation	28.00	26.00	
Average age (years) of the Sex-Workers	30	30	0.00
SWs having a Primary level or above education	18.91	21.71	-2.80
SWs who are in this profession for more than10 years	45.94	34.21	11.73
SWs who have ever been married	66.21	80.26	-14.05
SWs who got married before the age of 18 years	88.51	78.29	10.22
SWs who are permanent residences of the city in which the Intervention operates	98.64	97.37	1.27
SWs who willingly joined this profession	10.13	16.45	-6.32
SWs who faced violence in the past 12 months	41.22	46.05	-4.83
SWs who faced violence from their Clients	49.23	44.00	5.23
SWs who travelled to other places to sell their sex act	33.78	57.89	-24.11
SWs who are brothel-based	70.37	39.25	31.12
Total Gap			**7.46**
ASG			**0.68**
p-value (test of significance at α =.05)			**0.88**

a: gap measured as difference in percentages for each indicator (except 'age')

Table 4b
Descriptive Statistics of the Economic status of the Sex-workers in the Sampled Areas

Economic Status	*Kolkata*	*Suburb Area*	*Gap[a] (K-S)*
Number of Indicators	15	15	
Mean	35.09	37.28	
Standard Deviation	27.84	28.46	
SWs who served more than 10 clients in a week	56.76	40.13	16.63
SWs receiving more than [1] 45 per sex act[b]	66.22	79.61	-13.39
SWs who frequently consume alcohol	29.73	40.79	-11.06
SWs who could easily obtain condoms for sex act	75.68	75.66	0.02
SWs who Purchased Condoms at a shop	41.89	52.63	-10.74
SWs whose Client provided the Condoms	7.43	2.63	4.80
SWs who obtained Condoms from Govt. health clinic	6.08	5.92	0.16
SWs who received Condoms from NGO educators	35.14	29.61	5.53
SWs who have children	68.92	71.71	-2.79
SWs who have other sources of income	4.73	5.92	-1.19
SWs financially supporting anyone	77.03	78.29	-1.26
SWs who are able to save any money out of their income	32.43	34.87	-2.44
SWs who own a house and/or land	8.78	15.78	-7.00
SWs who have any right to family property inheritance	2.03	7.24	-5.21
SWs who have a bank account with any bank	13.51	18.42	-4.91
Total Gap			**-32.85**
ASG			**-2.19**
p-value (test of significance at α =.05)			**0.278**

a: gap measured as difference in percentages for each indicator; **b**: ≠ 45 = $1 in 2007;

and also have greater rights to family property inheritance, ownership to land or house. Contrary to the presumption, a lesser percentage of sex-workers in the urban areas have a bank account than those in the sub-urban area. The ASG in this status is -2.19 showing the sub-urban sex-workers in general to be more economically self-reliant than their counterparts in the urban areas. However, the p-value in this category is not statistically significant.

Table 4c describes the indicators for the health status of the sex-workers in the two areas. In this category, thirteen out of the fifteen indicators have a negative gap in percentages except that a larger percentage of the urban sex-workers underwent an HIV test voluntarily than their counterparts in the suburban areas; a greater percentage of the urban sex-workers felt that HIV could be prevented and a greater percentage of the sex-workers believed that HIV could be transmitted to a child through breastfeeding. Interestingly, the suburban sex-workers took less than a month to visit a doctor when experiencing a STI symptom and much quicker in obtaining the prescribed medicines. This contrasts the presumption that the intervention programs in the urban areas are providing better services than their counter parts in the suburban areas to make the sex-workers more self-reliant. The ASG in this category is -8.14 and the p-value is statistically significant at the 5% level to imply that there is sufficient evidence that the suburban sex-workers are enjoying a better health status than the urban sex-workers.

Table 4c
Descriptive Statistics of the Health Status of the Sex-workers in the Sampled Areas

Health Status	*Kolkata*	*Suburb Area*	*Gap[a] (K-S)*
Number of Indicators	16	16	
Mean	65.71	73.85	
Standard Deviation	24.93	22.63	
SWs who ever heard of diseases that can be transmitted through sexual intercourse	88.51	92.76	-4.25
SWs who had an ulcer/sore in your genital area during the past 12 months	8.11	11.84	-3.73
SWs who took less than a month to visit a health practitioner after experiencing an STI symptom	62.84	78.29	-15.45
SWs who obtained the medicine prescribed	72.30	88.16	-15.86
SWs who ever heard of or seen a female condom	36.49	61.18	-24.70
SWs who are aware of STDs and HIV/AIDS	95.27	99.34	-4.07
SWs who have ever had an HIV test	63.51	67.11	-3.59
SWs who voluntarily underwent the HIV test	82.43	70.39	12.04
SWs who were approached in the past one year to educate them on spread or prevention of STI/HIV/ AIDS	71.62	93.42	-21.80

contd. table 4c

Health Status	*Kolkata*	*Suburb Area*	*Gap[a] (K-S)*
SWs who believed HIV or AIDS can be prevented	83.11	65.79	17.32
SWs who think a woman with HIV or AIDS can transmit the disease through breastfeeding	87.16	65.79	21.37
SWs who felt they have a very high chance of contracting HIV/AIDs	52.70	75.66	-22.96
SWs who felt they could get a HIV/AIDs test done confidentially	75.00	92.11	-17.11
SWs who say they have heard about VCTC	79.05	92.11	-13.05
SWs who received any free medical treatment for STI/HIV/AIDS in the past one year	73.65	86.18	-12.54
SWs who said they personally knew anyone who is infected with HIV/AIDS	19.59	41.45	-21.85
Total Gap			**-130.23**
ASG			**-8.14**
p-value			**0.04***

* Significant at $\alpha = 0.05$; **a**: gap measured as difference in percentages for each indicator

Table 4d describes the indicators for the psychological status of the sex-workers in the two areas. In this category, most of the indicators have a positive gap in percentages implying that the urban sex-workers are overall more psychologically comfortable in their profession than the suburban sex-workers.

Table 4d
Descriptive Statistics of the Legal/Political Status of the Sex-workers in the Sampled Areas

Legal/Political Status	*Kolkata*	*Suburb Area*	*Gap[a] (K-S)*
Number of Indicators	8	8	
Mean	44.00	42.92	
Standard Deviation	32.38	32.55	
SWs below the age of 18 years	2.04	2.63	-0.59
SWs who sold their first sex act before the age of 18	33.78	24.34	9.44
SWs who usually insist their clients to use condoms	95.27	90.78	4.49
SWs who could reject clients because they refused to use condoms (in the past 12 months)	4.05	10.52	-6.47
SWs who could successfully persuade clients to have sex with condom (in the past 12 months)	43.24	25.66	17.58
SWs who were forced into sex act by clients (in the past 12 months)	47.29	57.89	-10.60
SWs who discussed HIV/AIDs with their clients	47.29	49.34	-2.05
SWs who participated in any campaign on STI/HIV/ AIDS in the past one year	79.05	82.24	-3.18
Total Gap			**8.62**
ASG			**1.08**
p-value (test of significance at α =.05)			**0.75**

a: gap measured as difference in percentages for each indicator

Surprisingly, even though a greater percentage of urban sex-workers said they wouldn't hesitate to reveal their status as sex-workers, a greater percentage of suburban sex-workers were actually willing to fight for their legal status as a sex-worker. Again, the p-value is not statistically significant to support the hypothesis that the urban sex-workers are enjoying a higher psychological status than the suburban sex-workers.

Table 4e describes the indicators for the legal and political status of the sex-workers in the two areas. In this category, the gap between the two regions for most of the indicators are negative except that a greater percentage of urban sex-workers entered this profession before 18 years of age; urban sex-workers insist and are more successful in persuading their clients to use contraceptive during each sex act. The p-value in this category is also not statistically significant to support the hypothesis that the urban sex-workers are overall enjoying a better legal and political status than the suburban sex-workers.

Table 4e
Descriptive Statistics of the Psychological Status of the Sex-workers in the Sampled Areas

Psychological Status	*Kolkata*	*Suburb Area*	*Gap[a] (K-S)*
Number of Indicators	10	10	
Mean	42.13	38.17	
Standard Deviation	29.75	30.65	
SWs whose children are aware of their mother's status as a sex-worker	31.68	25.00	6.68
SWs who want their children to complete college education	17.35	11.45	5.90
SWs who want their daughters to get married after 18 years of age	40.82	40.46	0.36
SWs who want to help their child/children be in some other profession	53.06	30.53	22.53
SWs whose other family members are aware of their sex trade	55.41	53.95	1.46
SWs who have some form of ID card (voter's ID, ration card etc.) with their current profession	56.76	55.92	0.84
SWs who faced some difficulty in obtaining their IDs with their current profession	1.19	0.00	1.19
SWs who will allow their child to get into the sex trade	1.96	1.83	0.13
SWs who would not hesitate to reveal their social status as sex-workers	68.49	66.45	2.05
SWs willing to fight for legal rights as a sex-worker	94.55	96.15	-1.61
Total Gap			**39.51**
ASG			**3.95**
p-value (test of significance at α =.05)			**0.11**

a: gap measured as difference in percentages for each indicator

6. Findings

Based on the 60 indicators representing the various social, economic, health, political, and psychological status, the weighted average status gap (WASG) and the Program Effectiveness Index (PEI) is reported in Table 5. The surprising finding is that the g_i values (calculated as the difference between percentage observed in Kolkata and the percentage observed in suburban area) for most of the indicators in two important categories – 'economic' and 'health' turned out to be negative numbers. Accordingly, the ASG for these two categories as well as the overall WASG turned out to be a negative number implying a disparity in self-reliance in the reverse order. As table 5 shows, the WASG turned out to be -33.84%. The table also reveals that there exists a gap in self-reliance in all the status groups ranging from 0.68 in the social group to -8.14 in the health. The positive gaps imply that the urban sex-workers are enjoying a greater self-reliance than their counterparts in the sub-urban areas whereas the negative gaps imply otherwise.

Table 5
Average Status Gap in each Status Group and the Index Value

Status Groups (Number of Indicators)	*Average Status Gap (ASG)*
Social Status (11)	0.68
Economic Status (15)	-2.19
Health Status (16)	-8.14
Psychological Status (10)	3.95
Legal/Political Status (8)	1.08
WASG	-33.84
PEI = (100 -|WASG|)	**66.16**

A closer look into the details of the ASG in table 5 reveals some interesting facts. The first thing to observe is that out of the five groups, the biggest gap occurs in the 'health' status with a reverse gap. Usually, big metropolitan cities like Kolkata have greater media coverage like TV, newspaper, billboards etc. to build health awareness among the people, whereas in the suburban areas, time and distance delays the exposure. Nevertheless, as table 4c revealed, the sex workers in the suburban areas had greater awareness about STDs, female contraceptives, and more eager to attend a health class on HIV/AIDs. The intervention programs in the suburban areas were also more effective in educating the sex-workers (93%) compared to the programs in the urban areas (72%) and in providing free treatment for STD/HIV/AIDS. One point to be noted here is that this research did not consider any preexisting factors that could impact locational biases for example, distance from the city, access to clients etc.

The next big reverse gap is in the 'economic' status. As revealed in table 4b, although urban sex-workers were performing more sex act per week than

their counterparts, the suburban sex-workers were earning more per sex act than their counterparts in the urban area and had some form of property ownership. One implication could be the intervention programs in the suburban areas are being more effective in helping these sex workers gain economic power (e.g. savings, inheritance to family property etc.) even though it is generally presumed that these programs have difficulty in accessing resources due to their locational disadvantage. On the other hand, it could also mean that sex-workers in the urban areas were exposed to a greater oppression from the local pimps, police force or their madams and end up having fewer saving to own any property.

The three groups of indicators with the positive value of ASG are the 'social', 'legal/political' status and 'psychological' status with the social status having the least gap. Socially, the suburban sex-workers are mobile than their counterparts for their profession, but the urban sex-workers remain in this profession for a longer period than those in the other group. This may be an indication that the intervention programs in the urban area has been effective in helping the sex workers become more confident in terms of their work rights and accordingly have better negotiating power with their clients to protect their sexual health. The survey revealed that 95 percent (90 percent in suburbs) of the sex workers in Kolkata insist their clients to use contraceptive during sex trade and when the clients refused to do so, 43 percent (25 percent in suburbs) of these women were able to successfully persuade the clients and have safe sex trade. Psychologically, (as revealed in the survey) the urban sex workers were more 'open' in sharing the news about their trade practice with their off springs or immediate family members like siblings, parents etc. Likewise, the urban sex workers were keen that their children should adopt a different profession. However, as is revealed by the p-values in table 4a, 4d, and 4e, none of these status gaps were statistically significant to prove that the urban sex-workers were more self-reliant in these aspects than the suburban sex-workers. With this kind of disparity, the value of the PEI turned out to be 66.16.

The value of PEI being above the midpoint in the scale of 0 to 100 implies that there exists a gap in the effectiveness of the intervention programs between the two areas. A straightforward interpretation of the PEI value is that this region is about 34 points away from achieving complete equality in effectiveness of the programs in the two areas in terms of providing self-reliance to their participants. The policy makers can use this index to lower the disparity by either empowering the urban intervention programs to make the sex-workers become more self-reliant in their 'health' and 'economic' status or focus on empowering the sub-urban intervention programs in making their participants more self-reliant in their 'social', 'psychological', and 'legal' status.

A simple sensitivity analysis of how the PEI value may improve when the ASG is lowered by 1 percentage point even in one group of indicators is

provided in Table 6. Since the health status had the biggest gap of -8.14, if its gap is lowered to -7.14, the WASG is lowered to -29.57 and the value of the PEI increases to 70.43 experiencing a 6.45 percentage increase from the baseline value. A bigger improvement in the value of PEI is observed if instead of lowering the ASG in health status, or the economic status individually, the two are targeted simultaneously. A one-percentage fall in the ASG of 'economic' and 'health' status leads to a little above 12% improvement in the value of the index. One reason for this big improvement could be because these two groups weighed more than any other group. The ASG in the other three categories, which had a positive gap, yielded a fall in the index value when tried to lower the gaps individually. This is because the negative values in the health and economic status has a stronger impact on the overall WASG. Alternatively, a 1% fall in ASG in the social status combined with a 1% fall in the ASG of either the health or economic status group gave a better improvement in the value of PEI.

Table 6
Possible Improvements in PEI by Lowering the ASG Values

One Percentage Decrease in Average Status Gaps	*Expected fall in WASG value*[a]	*Expected rise in PEI value*[b]	*Projected Improvement in PEI Value*
AHSG only	-29.57	70.43	6.45%
AESG only	-30.08	69.92	5.68%
AESG & AHSG	-25.82	74.18	12.13%
AESG & ASSG	-30.29	69.71	5.37%
AESG & APSG	-31.75	68.25	3.16%
AESG & ALSG	-31.16	68.84	4.06%
AHSG & ASSG	-29.77	70.23	6.15%
AHSG & APSG	-31.24	68.76	3.93%
AHSG & ALSG	-30.64	69.36	4.83%

If complete equality in effectiveness (PEI=100 with WASG=0) is the target, then policy makers can benchmark a certain rate of progress per year within a set number of years to achieve this target. For example, with the current value of the index as 66.16, if the policy makers want to reach the target value of 100 in 15 years, then each year the WASG should be reduced by 2.26% (assuming a projection of linear progress). The general formula to benchmark an improvement in PEI to achieve complete equality in effectiveness in the intervention programs in the two areas is

$$WASG^* = (100 - E)/n \quad (3)$$

where E is the current value of PEI and *n* is the number of years targeted to achieve complete equality in effectiveness.

7. Discussion

This research is an attempt to make a quantitative assessment of the disparity in the effectiveness of the intervention programs separated by geographical location in improving the self-reliance of the participating sex workers. The target study area is the State of West Bengal, India where several intervention programs operate mostly as NGOs to help the sex-workers. The self-reliance of the sex-workers is studied in the context of their health, economic, social, psychological and political status. The status gap is measured for each indicator in these categories between the urban and suburban sex-workers and a weighted average status gap (WASG) reflects any disparity in self-reliance of the sex-workers in the two regions. The sample area was specifically segregated into urban and suburban areas to make a comparative study between the effectiveness of the programs offered in the two areas. The effectiveness is measured through the level of status gap for the sex-workers between these two regions. A zero gap (WASG=0) implies that the sex-workers in both the areas are equally self-reliant in all the status aspects and thereby implying the programs in both areas to be equally effective. The index PEI, as defined by equation (1) is measuring the *extent* of the disparity in the effectiveness of the programs in the two areas using the disparity in the self-reliance among the sex-workers in the two locations. Therefore, this index also indicates how self-reliance of the sex workers as a marginalized group is affected by regional diversity.

This research, however, has some limitations. It was not possible to collect information specifying locational characteristics like average income, population density, political affiliation, local government budget support etc. Furthermore, no data was collected about the resource constraints the NGOs face in each of the sampled areas. Time and budget constraint also did not permit the creation of control group of sex-workers for the sampled areas. Further research can be done to include these variables in the study to compare effectiveness of the intervention programs operating in multiple regions.

8. Conclusion and Policy Implications

In this research, a composite index - PEI is created to evaluate the effectiveness of a few intervention programs operating in the urban and suburban areas of West Bengal, India, helping the sex workers become self-reliant. The index measures the *extent* of disparity with its absolute value ranging from '0' to '100' implying a movement from maximum disparity to complete parity. Statistical analysis with the sampled data revealed the value of PEI to be 66.16. This implies that the intervention programs in the two regions are about 34-points away from achieving complete equality in effectiveness of providing self-reliance to their participants.

This study provides a sensitivity analysis in table 6 that can become very useful for the policy makers. If the aim is to make the intervention programs

in the two areas equally effective, the policy makers can reallocate resources based on this sensitivity analyses. The reallocation can be made in an iterative process addressing the gap in one group at a time or multiple groups together depending on the budget. Furthermore, taking into consideration the budget and time constraints, the policy makers can benchmark their progress rate to meet the target level of effectiveness using the formula mentioned in section 6, based upon the existing level of disparity in effectiveness. Should they look for zero disparity? Maybe not - sometimes disparity is required to correct regional developmental imbalances. This index can provide a guideline as to where, on a scale of 0 to 100, the disparity is desirable to achieve the targeted balance in regional development. Bottom-line – the PEI value of 66.16 shows there is ample scope for the intervention programs to make the sex workers in both the areas of the State of West Bengal, India more self-reliant by lowering the gap in their economic, social, health, psychological, and legal/political status!

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