

ARE POVERTY REDUCTION PROGRAMMES LESS EFFECTIVE IN TROUBLED STATES? AN EMPIRICAL HOUSEHOLD LEVEL INVESTIGATION IN RURAL INDIA

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Abstract

A large amount of money is spent by developing countries in designing and implementing poverty alleviation and reduction programmes. Many of these programmes have well defined objectives and sub-objectives – but the achievements are quite often uncertain. Most of the studies conducted to investigate the effectiveness of these programmes emphasize structural bottlenecks, asymmetric information, and rent seeking behaviour as hurdles preventing these programmes from reaching comprehensive benefits to their target households. This paper moves the investigation one step further and probes whether effective governance or its absence has any effect on the effectiveness of the poverty reduction programmes. The paper thus provides an analytical characterization of beneficiary households from both troubled and non-troubled Indian states and studies factors that were important in the beneficiaries realizing income benefits from the SITRA programme of the government of India.

JEL classification: O1, R1, I3

Keywords: India, Poverty Reduction Programmes, SITRA, Troubled States, Non-troubled States, Development.

1. INTRODUCTION

Poverty alleviation and reduction has been one of the primary objectives of planned development in India since independence. Over the years the government launched a variety of anti-poverty programmes encompassing the entire spectrum from wage employment programmes on one end through programmes for rural housing and for social assistance to programmes for self-employment and asset creation on the other. Together with

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economic growth these anti-poverty programmes succeeded in reducing the head count index of poverty from 37.27 per cent in 1993-94 to 27.09 per cent in 1999-2000 in the rural areas.

Interestingly along with economic reforms, India is also going through a period of turbulent social and political transformations resulting in many conflict situations. Some of these – like the situation in Jammu and Kashmir – are well known while some others – like the naxal (Maoists followers or Naxal Bari movement) affected states such as Bihar, Madhya Pradesh, Assam, Tripura, Mizoram, Nagaland, Manipur, Jharkhand are not so well documented although both affect the internal security of the country as well as the quality of governance available to the population. The security environment in these troubled states is significantly worse than that in the rest of the country with repeated acts of sabotage and violence, terrorist actions and violation of the rule of law. The troubled states are also notorious as India's poorest and worst governed states. Studies reveal that numerous factors such as continuous neglect to the poor, and corruption are the root causes. Accordingly, effective policy-making has been uncertain or non-existent in these troubled states. Some of these troubled Indian states (provinces) are larger than many independent countries in terms of their geographical area as well as their population. Our study attempts to analyze if the performance of the SITRA programme was different in the troubled states of India vis-à-vis its performance in the other non-troubled states.

The plan of the remaining paper is as follows. Section 2 presents a theoretical background for technology and skill development particularly in the context of improved toolkits to rural artisans. Section 3 discusses the SITRA programme and its design and provides the background for its evaluation. It then details the methodology, sample selection and data collection used in the study. A closer look at poor rural artisans – the beneficiaries of SITRA programme – is provided in Section 4, which then leads to the development of the econometric model described in Section 5. Section 6 presents the results of the logit model and analyses its implications in troubled and non-troubled states. The paper ends with the concluding remarks in Section 7.

2. TECHNOLOGY AND SKILL DEVELOPMENT

An improved toolkit is a gateway to a better technology for an artisan. Access to better technology enables an artisan to improve her productivity, enhance the quality and enlarge the range of her products and services. This also leads to an increase in the formation of human capital.

The issue of supply of skilled labour has been the subject of research for

more than a decade, largely due to the rising inequality in the relative wages of skilled and unskilled labour. Studies on supply of skilled labour can broadly be divided into two groups: those that assume that skill-biased technological change is exogenous versus those that are based on the assumption that the adoption of skill- or non-skill-biased technologies is endogenous. The overwhelming majority of papers belongs to the first group and has argued that skill-biased technological changes have played a central role on the increased inequality in the incomes of skilled workers as well as countering the slowdown in productivity. Central to this argument is the assumption that skill-biased technological change is exogenous (Bound and Johnson, 1992, 1995; Katz and Murphy, 1992; Mincer, 1993, 1995; Kahn and Lim, 1997; Egger and Grossmann, 2001). Endogenous analysis of supply of skilled labour and skill-biased technologies has been carried out in a number of papers (Barro and Sala-I-Martin, 1995; Acemoglu, 1996) but only recently has this phenomenon been given special treatment (Kiley, 1997). Kiley concentrates on the endogenous growth model and argues that an increase in the supply of skilled labour leads to temporary stagnation in the wages of skilled and unskilled workers. Further, an increase in the supply of skilled labour accelerates skill-biased technological change and under plausible conditions, lowers output growth, at least temporarily.

Technology and social capital are powerful ingredients in understanding economic development. Some theories stress the importance of social cohesion for societies to prosper economically and also for sustainable development (Knack and Keefer, 1997). Granovetter (1995) underscores that virtually all economic behaviour is embedded in networks of social relations. It is often argued that social capital can make economic transactions more efficient by providing parties access to more information, thus enabling them to coordinate activities for mutual benefit. Rodrik (1998) finds that social capital plays a significant part in shaping the outcomes of economic action at both macro and micro level. Based on community level field work in Tanzania, Narayan (1997) illustrates that effective social capital helped the community in a variety of ways such as providing effective government services, facilitating the spread of information on agriculture, enabling the groups to pool their resources and the people to participate in the formal credit market.

Poverty alleviation programmes are seen in developing countries as means of overcoming the imperfection of factor markets. Accordingly, sophisticated programmes are often implemented without rural roots. Krishna (2001) finds that the social capital view poses a fundamental challenge to this type of development enterprise. Indeed, Grootaert and Narayan (1999) emphasise that the development agencies should consider *investment* in social capital.

It may be useful to explain an individual's poverty in this context. An individual is poor due to factors such as lack of skill, lack of assets, lack of credit and information, obsolete skill and old age, non-existence of market and other infrastructure. This may lead to distinguishing people with skill from people with non-skill in order to evaluate a specific transfer, or in tracking its impact over time, or in devising policies to reduce poverty (Guiso *et al*).

In developing countries one can observe two categories of people in rural areas – the farms and the non-farms. The non-farms are again subdivided into two groups, the skilled and the unskilled. The non-farms contribute about 40 to 50 per cent on average of the total rural population. The potters, carpenters, masons and other artisans are considered as skilled in the non-farm category. This group as a whole may be able to exploit their skill better if improved toolkits are available to them.

Theory points to a number of possible benefits of skill development and the level of poverty in developing countries. Douglas North (1990) finds incentives that are built into the institutional framework and accordingly play a decisive role in shaping the kinds of skills and knowledge that pay off. In the East Asian context it is the egalitarian education policies, which have played a pivotal role in growth as well as in poverty reduction (Birdsall, Graham, and Sabot 1998). It is further argued that the increased equality has led to enhanced political and social stability, thereby creating a better investment environment (Stiglitz 2000). The cognitive skills, in addition to increase in literacy rate may be considered as a precondition of economic development. Lucas (1988) and Stiglitz (1988) illustrate that the seeming failure of capital to flow to the capital-poor countries due to marginal return to capital. Non-availability of skilled labour and other complementary factors further added to the problem. Pritchett (2001) examined the relationship between quality of education and skills. In some countries, schooling has been enormously effective in transmitting knowledge and skills, while in others it has been essentially worthless and has created no skills.

Literatures on the factors that explain poverty reduction in developing economies are thus vast. The evidence reveals that the success cases of poverty reduction programmes are associated with effective governance and strong intervention by the other stake holders. However, the positive impact on poverty reduction has not been obvious, and country experiences vary considerably.

A possible reason for the failure of broad reduction strategies is that they do not consider the other distortions such as political environment which may not be considered as exogenous factor. It is assumed that outcomes of policies are effectively transmitted to the poor through markets that are well

integrated and responsive to policies. If these were the case, broad policies can be expected to influence the activities of the stakeholders. Interestingly, the distortions are highly elastic to the failures. These highlight the importance of thinking about the poor as people rather than mere numbers and getting a better understanding of the troubled and non-troubled states and linkages within regions.

3. THE SITRA PROGRAMME

Initially during the first three five-year plans (1951-1966), India adopted a development strategy to achieve higher growth rates assuming that poverty would be alleviated through the "trickle down" effect of growth. When that did not happen, the need for direct intervention in favour of the poor was recognised. Consequently a variety of anti-poverty programmes have been designed and implemented over the years encompassing the entire spectrum from wage employment programmes on one end through programmes for rural housing and for social assistance to programmes for self-employment and asset creation on the other. Together with economic growth these anti-poverty programmes succeeded in reducing the head count index of poverty from 37.27 per cent in 1993-94 to 27.09 per cent in 1999-2000 in the rural areas (Planning Commission, 2002).

The Integrated Rural Development Programme (IRDP) was launched in 1978 with the aim of improving the asset base of the poor and involving them in the production and income-generating process of the economy. It has been a major self-employment programme and has been financed partly by bank credit and partly by government subsidies. Although there were similar programmes for farmers earlier, this was the first time that economic activities under the animal husbandry, small business and services sectors were included.

IRDP and its sub-programmes

The IRDP programme has been extensively debated and evaluated both by government agencies (GoI, 1987a, 1987b, 1988a, 1988b, 1989) and independent researchers (Sen, 1996; Gupta; 1995; Dreze, 1990; Kuriam, 1987). While most of these studies have brought many limitations of IRDP to the fore and criticised some aspects of the programme like its insistence on lifting poor households above the poverty line, almost all of them felt there were many positive aspects and some significant achievements to the credit of the programme.

Table 1. Poverty Alleviation Programmes for Self-employment

Programme	Launched in	Programme Objectives
Integrated Rural Development Programme (IRDP)	1978	To improve the asset base of the poor and involve them in the production/income generation processes of the economy
Training of Rural Youth for Self Employment (TRYSEM) †	August 1979	To provide basic technical and entrepreneurial skills to poor rural youth to enable them to take up self-employment in secondary and tertiary sectors of the economy
Development of Women and Children in Rural Areas (DWCRA) †	1982-83	To enable economic empowerment of women and to involve poor rural women in economic activities and matters concerning the rural community
Supply of Improved Toolkits to Rural Artisans (SITRA) †	July 1992	To enable poor rural artisans to enhance the quality of their products, increase their production and income and ensure a better quality of life with the use of improved toolkits
Ganga Kalyan Yojana (GKY) †	February 1997	To provide irrigation through borewells and tubewells to individuals and groups of poor small and marginal farmers
Swarnajayanti Gram Swarozgar Yojana (SGSY) ‡	April 1999	Coceived as a holistic programme of micro-enterprise development in rural areas with emphasis on organising the rural poor into self-help groups, capacity building, planning of activity clusters, infrastructure support, technology, credit and marketing linkages

† Introduced as sub-programmes of IRDP but implemented as stand-alone programmes.

‡ On 1 April, 1999, the IRDP and allied programmes were merged into a single programme known as Swarnajayanti Gram Swarozgar Yojana (SGSY).

After its launch in 1978, the IRDP has been modified, enlarged and diversified to target narrower constituencies like women, youth and artisans as shown in Table 1. All of these were introduced as sub-programmes of IRDP but implemented as stand-alone programmes. Based on the recommendations of a committee constituted by the Planning Commission to review self-

employment and wage-employment programmes, the government merged the IRDP and allied programmes into a single programme called Swarnajayanti Gram Swarozgar Yojana (SGSY) with a shift in emphasis from the individual beneficiary to a group-based approach. The SGSY was launched on 1 April, 1999.

Supply of Improved Toolkits to Rural Artisans

Artisans from a variety of crafts, except weaving, tailoring, needle-workers and beedi-workers, were to be supplied suitable improved hand tools or a set of tools. The average cost of a toolkit was Rs 2000; in the case of power-driven tools, the average cost was Rs 4500. Ninety per cent of the cost of the toolkit was subsidised and 10 per cent was to be contributed by the beneficiary.

Prototypes of improved tools were developed by government design and technical development centres. The state governments were authorised to choose models/tools to suit the specific needs of their artisans. Improved toolkits were developed for cane-bamboo workers, carpenters, cobblers, leather goods makers and jewellery makers, to name a few (GoI, 2000c).

Under SITRA, there was 50 per cent reservation for Scheduled Caste (SC) and Scheduled Tribe (ST) communities. In the absence of SC/ST beneficiaries, the implementing agency could allocate the SC/ST share to other categories of artisans. There was no provision of reservation for women and physically handicapped persons. However, if eligible, preference was to be given to such persons over others.

Evaluation of SITRA

SITRA evaluation studies were conducted to probe the apparent difference in performance in Gujarat and Maharashtra in western India (GoI, 2000a) and Bihar and Haryana in northern India (GoI, 2000b). But a comprehensive evaluation of SITRA at the all India level was conducted during 2000 and it brought out many interesting facets of SITRA (GoI, 2000c). The empirical part of the present paper is based on the data collected during this evaluation study.

Methodology for sample selection and data collection

The data used in this paper was collected from primary sources based on fieldwork conducted during January – July 2000. The study covered 30 states and union territories (UTs) of India. In the first stage of the multi-stage sampling used, 20 per cent of the total number of districts in each state, subject to a minimum of two districts, were chosen. The districts were selected through purposive sampling to ensure that these districts were adequately represen-

tative of the state with respect to geographical distribution and special conditions of the state, if any. A total of 129 districts were chosen at the end of the first stage.

Thirty per cent of the blocks (rounded upward) were selected in each district in the second stage through circular systematic sampling using the Directory of Blocks as the frame of reference with some modifications to accommodate blocks having watershed development programmes.

From each of the selected block five gram panchayats were chosen using convenience sampling. A gram panchayat is the lowest administrative unit in India. In some cases a gram panchayat may consist of only one village, while in others it may have a number of villages, hamlets or *padas*. The selection of villages/gram panchayats was done carefully so that these would properly represent the implementation of the SITRA programme in the blocks. Individual artisans were the final sampling units.

The Government of India enumerated BPL households in two censuses, in 1992 and 1997. The list of BPL households in each village was obtained with due care being taken to identify the reference year. Wherever available, the BPL household list from the 1997 BPL census was used. In all other cases the 1992 BPL census list was used. From this list of BPL households, a frame of artisans (individuals not households) was prepared and beneficiaries and non-beneficiaries under SITRA were identified.

From the frame of BPL artisans, five beneficiaries (selected randomly) or all of the beneficiaries in case there were less than five were selected as beneficiary respondents and the schedule for beneficiaries filled up for each of them. A total of 6788 beneficiary artisans were covered in the entire study.

From an econometric analysis of the data collected it was found that at the all-India level the socially and economically disadvantaged sections of beneficiaries were more likely to have benefited from the programme (Banik and Bhaumik, 2005). This finding itself leads to many policy implications including better targeting of beneficiaries.

In the current paper, the same primary data set is analyzed differently after segregating the states into two categories – troubled and non-troubled. For the purpose of this study, this categorization has been done based on the annual report of the Ministry of Home Affairs for 2005-06. This report presents a comprehensive picture of the internal security of India and the nine troubled states could be identified rather objectively. Interestingly, a fairly large part of the total rural population of India lives in these troubled states. Most states in India have their distinct history, language, culture and aspirations. Thus, although not being sovereign, the troubled states of India may reveal most other characteristics of so-called 'fragile states'.

4. RURAL ARTISANS IN INDIA: A CLOSE LOOK

The distribution of artisan beneficiaries under various social groups is presented in Table 2. It is evident that the percentage of beneficiaries under other backward castes (OBC) category at all India level dominates the total sample (about 38 per cent) followed by the social group SC (24 per cent). However, this trend varies substantially across states. The highest percentage of OBC beneficiaries was from Kerala (about 82 per cent), while the lowest was nil in many states like Andhra Pradesh, Arunachal Pradesh, Goa, etc. In contrast, SC artisans formed the highest percentage in rural Himachal Pradesh (75 per cent) and West Bengal (about 52 per cent) and the lowest (i.e. nil) in states dominated by tribals like Arunachal Pradesh, Lakshadweep, Meghalaya, etc. Variations could also be observed among artisans under women, physically handicapped and 'others' categories.

Table 3 reveals the beneficiary artisan's experience in craftsmanship among the different states of India. At all India level young artisans having up to 10 years of experience formed about 62 per cent of the total respondent artisans. However, there were wide differences from the all India averages. While states like Andhra Pradesh, Jammu and Kashmir, Maharashtra, Kerala, Orissa and Pondicherry had artisans with longer experience in craftsmanship, it was shorter in states like Arunachal Pradesh, Himachal Pradesh, Madhya Pradesh and West Bengal.

The level of education and technical training of the beneficiary artisans are shown in Table 4. The rate of illiteracy (can not read or write) at all India level was reported to be 29 per cent among the artisan beneficiaries. Interestingly, while the rate of illiteracy among artisan beneficiaries was one of the lowest in Kerala (about 3 per cent), the state also had a large percentage of rural artisans with formal education up to SSC/HSC level but with no technical training either formal or informal. The role of formal or informal technical training appears to be an insignificant factor implying that the artisans are in the present profession by inheritance.

Table 5 presents the land ownership of artisan beneficiaries along with their primary occupation and earnings from craftsmanship. Average landholding tends to be higher in hilly and difficult terrain – e.g. Jammu and Kashmir, Lakshadweep, Manipur, Sikkim, etc. and low in fertile plains like in Haryana, Punjab, Tamil Nadu, etc. The average landholding in Uttar Pradesh appears very high (5.044 hectares) again because of dominance of hilly districts in the sample. The primary occupation of the beneficiary artisans is also summarised in Table 5 and it can be observed that while only 3 per cent of the beneficiary artisans reported their primary occupation as

Table 2. Artisan Beneficiaries Under Different Social Groups

Sl No.	States/UTs	Total no. of sample artisan beneficiaries	Percentage of sample artisan beneficiaries who are					
			SC	ST	OBC	Women	Physically Handicap.	Others
1	A & N Islands	105	0.00	39.05	0.00	10.48	1.90	48.57
2	Andhra Pradesh	310	21.29	5.81	0.00	8.71	0.97	63.23
3	Arunachal Pradesh	142	0.00	99.30	0.00	0.70	0.00	0.00
4	Assam	66	10.61	22.73	0.00	0.00	4.55	62.12
5	Bihar	858	24.94	10.49	55.24	5.24	0.58	3.50
6	D & N Haveli	25	0.00	100.00	0.00	0.00	0.00	0.00
7	Daman & Diu	50	16.00	0.00	0.00	0.00	0.00	84.00
8	Goa	12	0.00	0.00	0.00	0.00	0.00	100.00
9	Gujarat	189	23.81	6.35	3.17	0.53	1.59	64.55
10	Haryana	131	19.85	0.00	78.63	0.00	1.53	0.00
11	Himachal Pradesh	16	75.00	0.00	25.00	0.00	0.00	0.00
12	Jammu & Kashmir	125	22.40	5.60	0.00	0.80	0.00	71.20
13	Karnataka	242	12.40	7.44	20.25	3.31	2.07	54.55
14	Kerala	301	9.63	6.31	81.73	1.33	1.00	0.00
15	Lakshadweep	11	0.00	100.00	0.00	0.00	0.00	0.00
16	Madhya Pradesh	701	15.69	19.12	41.94	0.43	1.14	21.68
17	Maharashtra	352	21.88	4.83	72.44	0.57	0.28	0.00
18	Manipur	71	0.00	98.59	0.00	0.00	0.00	1.41
19	Meghalaya	-	(-)	(-)	(-)	(-)	(-)	(-)
20	Mizoram	157	0.00	98.73	0.00	0.00	1.27	0.00
21	Nagaland	99	0.00	100.00	0.00	0.00	0.00	0.00
22	Orissa	521	22.26	18.04	46.07	11.90	1.73	0.00
23	Pondicherry	34	2.94	0.00	0.00	0.00	0.00	97.06
24	Punjab	173	44.51	0.00	44.51	1.73	5.20	4.05
25	Rajasthan	153	37.25	3.92	0.00	55.56	3.27	0.00
26	Sikkim	89	11.24	49.44	0.00	0.00	0.00	39.33
27	Tamil Nadu	249	21.69	1.20	69.88	6.43	0.80	0.00
28	Tripura	135	20.74	2.96	75.56	0.74	0.00	0.00
29	Uttar Pradesh	1127	40.64	1.06	51.55	4.97	1.77	0.00
30	West Bengal	344	51.74	8.72	0.00	1.16	1.16	37.21
	All India	6788	24.03	15.69	38.38	4.80	1.50	15.60

Source: Quick evaluation survey conducted during January-July 2000.

Notes:

- Not reported

Figures in Column 3 for each State and UT are numbers of beneficiary artisans in sample

Figures in Columns 4 to 9 for each State and UT are percentages of total beneficiary artisans in sample

Table 3. Artisan Beneficiaries' Experience in Craftsmanship

SI No.	States/UTs	Total no. of sample artisan beneficiaries	Percentage of sample artisan beneficiaries with experience in craftsmanship of			
			0-5 years	6-10 years	11-15 years	More than 15 years
1	A & N Islands	105	55.24	18.10	9.52	17.14
2	Andhra Pradesh	308	23.70	18.51	21.75	36.04
3	Arunachal Pradesh	139	82.01	17.99	0.00	0.00
4	Assam	66	37.88	31.82	10.61	19.70
5	Bihar	772	32.38	37.44	10.10	20.08
6	D & N Haveli	25	32.00	60.00	8.00	0.00
7	Daman & Diu	44	84.09	11.36	2.27	2.27
8	Goa	12	25.00	41.67	16.67	16.67
9	Gujarat	186	32.80	26.34	12.37	28.49
10	Haryana	131	22.14	22.14	16.03	39.69
11	Himachal Pradesh	16	43.75	31.25	12.50	12.50
12	Jammu & Kashmir	120	24.17	20.00	10.83	45.00
13	Karnataka	241	18.67	34.85	19.92	26.56
14	Kerala	301	16.94	24.58	21.59	36.88
15	Lakshadweep	10	100.00	0.00	0.00	0.00
16	Madhya Pradesh	531	44.63	40.49	9.23	5.65
17	Maharashtra	351	7.41	20.80	30.20	41.60
18	Manipur	67	50.75	38.81	7.46	2.99
19	Meghalaya	-	(-)	(-)	(-)	(-)
20	Mizoram	154	29.22	37.66	20.13	12.99
21	Nagaland	96	50.00	46.88	3.13	0.00
22	Orissa	495	20.40	21.82	18.38	39.39
23	Pondicherry	34	11.76	29.41	11.76	47.06
24	Punjab	173	15.61	42.20	21.39	20.81
25	Rajasthan	144	42.36	27.08	8.33	22.22
26	Sikkim	89	32.58	65.17	2.25	0.00
27	Tamil Nadu	249	8.43	42.97	28.51	20.08
28	Tripura	134	22.39	36.57	22.39	18.66
29	Uttar Pradesh	1095	37.08	26.58	14.34	22.01
30	West Bengal	339	45.72	33.92	11.50	8.85
	All India	6427	31.49	30.62	15.19	22.70

Source: Quick evaluation survey conducted during January-July 2000.

Notes:

- Not reported

Figures in Column 3 for each State and UT are numbers of beneficiary artisans in sample

Figures in Columns 4 to 7 for each State and UT are percentages of total beneficiary artisans in sample

Table 4. Education and Technical Training of Artisan Beneficiaries

Sl No.	States/UTs	Total no. of sample artisan beneficiaries	Percentage of sample artisan beneficiaries who can/ have had					
			cannot read or write	can read or write	some schooling (up to 4 years)	5-9 years of school	SSC/HSC	Technical Training (formal/informal)
1	A & N Islands	105	14.29	29.52	1.90	38.10	15.24	0.95
2	Andhra Pradesh	310	45.81	6.77	4.52	25.48	15.48	1.94
3	Arunachal Pradesh	142	76.06	14.08	4.23	4.93	0.70	0.00
4	Assam	66	18.18	15.15	7.58	15.15	43.94	0.00
5	Bihar	858	37.06	35.20	7.34	8.39	11.54	0.47
6	D & N Haveli	25	80.00	4.00	8.00	4.00	4.00	0.00
7	Daman & Diu	50	28.00	8.00	6.00	34.00	24.00	0.00
8	Goa	12	0.00	33.33	25.00	41.67	0.00	0.00
9	Gujarat	189	28.57	10.58	16.40	34.39	10.05	0.00
10	Haryana	131	22.14	37.40	4.58	22.90	10.69	2.29
11	Himachal Pradesh	16	25.00	12.50	6.25	25.00	31.25	0.00
12	Jammu & Kashmir	125	61.60	8.80	4.00	17.60	7.20	0.80
13	Karnataka	242	23.97	7.85	27.69	28.51	11.16	0.83
14	Kerala	301	2.66	9.63	15.61	29.57	39.87	2.66
15	Lakshadweep	11	0.00	0.00	9.09	54.55	36.36	0.00
16	Madhya Pradesh	701	38.94	16.26	9.70	25.39	9.70	0.00
17	Maharashtra	352	20.17	15.63	17.05	27.84	18.75	0.57
18	Manipur	71	15.49	52.11	11.27	12.68	7.04	1.41
19	Meghalaya	-	(-)	(-)	(-)	(-)	(-)	(-)
20	Mizoram	157	5.10	31.85	23.57	35.67	3.82	0.00
21	Nagaland	99	18.18	59.60	12.12	7.07	3.03	0.00
22	Orissa	521	39.16	16.89	15.93	22.26	5.57	0.19
23	Pondicherry	34	0.00	0.00	20.59	64.71	11.76	2.94
24	Punjab	173	27.17	24.28	5.20	26.01	16.18	1.16
25	Rajasthan	153	32.68	22.88	11.76	28.10	4.58	0.00
26	Sikkim	89	4.49	33.71	46.07	15.73	0.00	0.00
27	Tamil Nadu	249	13.65	43.78	13.65	23.29	5.22	0.40
28	Tripura	135	6.67	18.52	33.33	36.30	5.19	0.00
29	Uttar Pradesh	1127	29.64	15.00	9.94	27.33	17.66	0.44
30	West Bengal	344	12.21	43.90	19.77	20.35	3.20	0.58
	All India	6788	28.93	21.91	12.64	23.41	12.52	0.59

Source: Quick evaluation survey conducted during January-July 2000.

Notes: - Not reported

Figures in Column 3 for each State and UT are numbers of beneficiary artisans in sample

Figures in Columns 4 to 9 for each State and UT are percentages of total beneficiary artisans in sample

Table 5. Artisan Beneficiaries' Land Ownership, Primary Occupation and Average Earnings/Wages from Craftsmanship

Sl No.	States/UTs	Total no. of sample artisan beneficiaries	Percentage of sample artisan beneficiaries with primary occupation of				
			Average land owned (ha)	Craftsmanship	Agriculture	Manual Dom. Labour	Avg. Earnings/Wages from Craftsmanship (Rs per annum)
1	A & N Islands	105	0.333	33.33	39.05	27.62	4535.23
2	Andhra Pradesh	310	0.282	78.39	0.00	21.61	4046.77
3	Arunachal Pradesh	142	0.927	2.82	94.37	2.82	5233.09
4	Assam	66	0.429	80.30	16.67	3.03	4892.42
5	Bihar	858	0.308	84.85	7.23	7.93	2663.63
6	D & N Haveli	25	0.287	72.00	16.00	12.00	4500.00
7	Daman & Diu	50	0.265	22.00	32.00	46.00	5070.00
8	Goa	12	0.708	100.00	0.00	0.00	6958.33
9	Gujarat	189	0.189	93.12	2.12	4.76	7099.47
10	Haryana	131	0.095	94.66	1.53	3.82	5751.90
11	Himachal Pradesh	16	0.457	50.00	25.00	25.00	5250.00
12	Jammu & Kashmir	125	1.136	80.80	18.40	0.80	4326.40
13	Karnataka	242	0.532	74.79	3.31	21.90	5213.63
14	Kerala	301	0.138	93.69	3.65	2.66	14191.70
15	Lakshadweep	11	1.455	18.18	54.55	27.27	2909.09
16	Madhya Pradesh	701	0.650	74.18	16.26	9.56	5474.10
17	Maharashtra	352	0.232	92.33	1.99	5.68	5901.98
18	Manipur	71	1.682	50.70	42.25	7.04	2987.32
19	Meghalaya	-	-	(-)	(-)	(-)	-
20	Mizoram	157	1.522	84.08	12.74	3.18	4754.77
21	Nagaland	99	1.347	17.17	69.70	13.13	2627.27
22	Orissa	521	0.387	86.76	7.10	6.14	4140.01
23	Pondicherry	34	0.000	58.82	2.94	38.24	11691.20
24	Punjab	173	0.017	89.02	1.16	9.83	5034.68
25	Rajasthan	153	0.707	63.40	11.11	25.49	4403.92
26	Sikkim	89	1.039	17.98	71.91	10.11	7210.11
27	Tamil Nadu	249	0.037	99.20	0.40	0.40	6094.37
28	Tripura	135	0.030	85.93	2.96	11.11	6022.22
29	Uttar Pradesh	1096	5.044	76.28	12.68	13.87	4260.33
30	West Bengal	344	0.239	86.34	4.07	9.59	4019.18
	All India	6757	1.19	77.59	12.51	10.36	5039.20

Source: Quick evaluation survey conducted during January-July 2000.

Notes: - Not reported. Average land owned by beneficiary artisan is in hectares.

Figures in Column 3 for each State and UT are numbers of beneficiary artisans in sample

Figures in Columns 4 to 8 for each State and UT are percentages of total beneficiary artisans in sample

Table 6. Artisan Beneficiaries' Ownership of Other Assets

Sl No.	States/UTs	Total no. of sample artisan beneficiaries	Percentage of sample artisan beneficiaries who own							
			Tractor	Power Tiller	Thre/Harv. Comb	Refrigerator	Ceil. Fan	M. Cycle/ Scoot	TV	Three Whlr
1	A & N Islands	105	0.00	0.00	2.86	2.86	31.43	13.33	37.14	12.38
2	Andhra Pradesh	310	0.32	0.32	0.00	0.32	35.48	1.29	16.13	9.35
3	Arunachal Pradesh	142	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
4	Assam	66	0.00	0.00	0.00	0.00	3.03	0.00	3.03	3.03
5	Bihar	858	0.35	0.12	0.12	0.23	1.75	0.47	4.08	5.83
6	D & N Haveli	25	0.00	0.00	0.00	0.00	0.00	0.00	4.00	4.00
7	Daman & Diu	50	0.00	0.00	0.00	2.00	66.00	6.00	24.00	62.00
8	Goa	12	0.00	0.00	0.00	0.00	41.67	0.00	25.00	0.00
9	Gujarat	189	0.53	0.00	0.00	1.59	52.91	2.65	17.99	16.40
10	Haryana	131	0.76	0.76	0.76	1.53	68.70	5.34	29.77	50.38
11	Himachal Pradesh	16	0.00	0.00	0.00	0.00	18.75	0.00	43.75	37.50
12	Jammu & Kashmir	125	0.00	0.00	0.00	4.00	52.80	0.00	16.00	7.20
13	Karnataka	242	0.41	0.00	0.00	0.83	14.88	2.48	21.90	38.02
14	Kerala	301	0.33	0.00	0.00	0.33	35.55	1.00	21.59	15.61
15	Lakshadweep	11	(-)	(-)	(-)	27.27	90.91	18.18	72.73	63.64
16	Madhya Pradesh	701	0.86	0.14	0.14	0.57	18.69	0.57	16.69	5.14
17	Maharashtra	352	0.00	0.00	0.00	0.28	12.50	1.70	21.59	18.75
18	Manipur	71	0.00	0.00	0.00	0.00	4.23	2.82	2.82	1.41
19	Meghalaya	-	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
20	Mizoram	157	0.00	0.00	0.00	1.91	2.55	1.27	1.91	4.46
21	Nagaland	99	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
22	Orissa	521	0.00	0.00	0.38	0.19	8.83	0.77	5.76	12.86
23	Pondicherry	34	0.00	0.00	0.00	2.94	55.88	8.82	32.35	47.06
24	Punjab	173	2.31	3.47	3.47	16.18	84.39	14.45	43.93	34.10
25	Rajasthan	153	1.31	1.96	0.00	1.31	7.84	0.00	7.19	27.45
26	Sikkim	89	1.12	1.12	1.12	1.12	1.12	1.12	2.25	61.80
27	Tamil Nadu	249	0.80	0.40	0.40	0.40	47.39	3.21	13.25	8.03
28	Tripura	135	0.74	0.74	1.48	0.74	24.44	1.48	11.85	1.48
29	Uttar Pradesh	1127	0.35	0.35	0.18	0.18	7.01	0.89	9.41	27.68
30	West Bengal	344	0.29	0.29	0.29	0.29	3.20	0.29	1.45	4.36
	All India	6788	0.43	0.31	0.31	0.99	17.55	1.62	12.26	15.03

Source: Quick evaluation survey conducted during January-July 2000.

Notes: - Not reported

Figures in Column 3 for each State and UT are numbers of beneficiary artisans in sample

Figures in Columns 4 to 11 for each State and UT are percentages of total beneficiary artisans in sample

Table 7. Typical Products Produced and Sold by Artisan Beneficiaries

Sl No.	States/UTs	Total no. of sample artisan beneficiaries	Percentage of sample artisan beneficiaries who sell		
			Standard Products produced and kept for sale	Service/Work per the customer's as needs	Custom Products produced on order
1	A & N Islands	104	10.58	64.42	25.00
2	Andhra Pradesh	218	6.42	38.99	54.59
3	Arunachal Pradesh	141	31.91	21.99	46.10
4	Assam	66	0.00	93.94	6.06
5	Bihar	773	31.44	62.87	5.69
6	D & N Haveli	2	0.00	100.00	0.00
7	Daman & Diu	19	15.79	57.89	26.32
8	Goa	12	8.33	91.67	0.00
9	Gujarat	183	6.01	68.85	25.14
10	Haryana	125	10.40	80.80	8.80
11	Himachal Pradesh	16	0.00	87.50	12.50
12	Jammu & Kashmir	121	9.09	43.80	47.11
13	Karnataka	241	5.39	63.07	31.54
14	Kerala	293	5.80	87.37	6.83
15	Lakshadweep	7	14.29	71.43	14.29
16	Madhya Pradesh	529	2.08	69.57	28.36
17	Maharashtra	344	7.27	64.53	28.20
18	Manipur	62	14.52	66.13	19.35
19	Meghalaya	-	(-)	(-)	(-)
20	Mizoram	156	8.97	33.33	57.69
21	Nagaland	98	15.31	61.22	23.47
22	Orissa	492	36.38	36.59	27.03
23	Pondicherry	34	2.94	82.35	14.71
24	Punjab	171	6.43	73.10	20.47
25	Rajasthan	134	14.93	20.15	64.93
26	Sikkim	88	0.00	71.59	28.41
27	Tamil Nadu	248	4.84	88.31	6.85
28	Tripura	133	21.80	9.77	68.42
29	Uttar Pradesh	1030	11.75	57.48	30.78
30	West Bengal	342	11.99	64.62	23.39
	All India	6182	13.99	59.06	26.33

Source: Quick evaluation survey conducted during January-July 2000.

Notes: - Not reported

Figures in Column 3 for each State and UT are numbers of beneficiary artisans in sample

Figures in Columns 4 to 6 for each State and UT are percentages of total beneficiary artisans in sample

Table 8. Artisan Beneficiaries' Use of Toolkits

Sl No.	States/UTs	Total no. of sample artisan beneficiaries	Percentage of sample artisan beneficiaries who are			
			No/Using none	Using some	Using Most	Using All
1	A & N Islands	104	3.85	23.08	27.88	45.19
2	Andhra Pradesh	310	7.74	39.68	48.06	4.52
3	Arunachal Pradesh	141	0.00	27.66	47.52	24.82
4	Assam	66	4.55	40.91	9.09	45.45
5	Bihar	770	0.26	47.79	22.47	29.48
6	D & N Haveli	25	20.00	0.00	52.00	28.00
7	Daman & Diu	50	6.00	18.00	38.00	38.00
8	Goa	12	0.00	50.00	8.33	41.67
9	Gujarat	186	0.00	8.06	20.97	70.97
10	Haryana	131	1.53	25.95	12.21	60.31
11	Himachal Pradesh	16	6.25	37.50	25.00	31.25
12	Jammu & Kashmir	124	0.00	0.81	33.06	66.13
13	Karnataka	241	19.50	41.08	21.16	18.26
14	Kerala	295	9.15	14.58	16.61	59.66
15	Lakshadweep	11	45.45	18.18	9.09	27.27
16	Madhya Pradesh	533	5.07	46.72	21.95	26.27
17	Maharashtra	345	8.41	42.90	15.65	33.04
18	Manipur	67	1.49	17.91	50.75	29.85
19	Meghalaya	-	(-)	(-)	(-)	(-)
20	Mizoram	157	0.64	38.22	16.56	44.59
21	Nagaland	97	25.77	1.03	29.90	43.30
22	Orissa	512	13.87	47.46	19.53	19.14
23	Pondicherry	34	5.88	52.94	17.65	23.53
24	Punjab	171	9.36	68.42	8.19	14.04
25	Rajasthan	139	4.32	23.02	55.40	17.27
26	Sikkim	89	0.00	0.00	19.10	80.90
27	Tamil Nadu	248	4.03	16.53	21.37	58.06
28	Tripura	131	0.00	16.79	21.37	61.83
29	Uttar Pradesh	1102	5.26	25.68	27.13	41.92
30	West Bengal	342	0.58	21.35	42.11	35.96
	All India	6449	5.75	32.49	25.68	36.08

Source: Quick evaluation survey conducted during January-July 2000.

Notes:

- Not reported

Figures in Column 3 for each State and UT are numbers of beneficiary artisans in sample

Figures in Columns 4 to 7 for each State and UT are percentages of total beneficiary artisans in sample

Table 9. Impact of SITRA on Artisan Beneficiaries' Income from Craftsmanship

SI No.	States/UTs	Total no. of sample artisan beneficiaries	Percentage of sample artisan beneficiaries who are	
			increase in income	no increase in income
1	A & N Islands	105	33.33	66.67
2	Andhra Pradesh	310	88.06	11.94
3	Arunachal Pradesh	142	99.30	0.70
4	Assam	66	89.39	10.61
5	Bihar	858	83.10	16.90
6	D & N Haveli	25	92.00	8.00
7	Daman & Diu	50	38.00	62.00
8	Goa	12	91.67	8.33
9	Gujarat	189	93.12	6.88
10	Haryana	131	91.60	8.40
11	Himachal Pradesh	16	75.00	25.00
12	Jammu & Kashmir	125	87.20	12.80
13	Karnataka	242	69.42	30.58
14	Kerala	301	71.43	28.57
15	Lakshadweep	11	18.18	81.82
16	Madhya Pradesh	701	62.05	37.95
17	Maharashtra	352	93.18	6.82
18	Manipur	71	90.14	9.86
19	Meghalaya	-	(-)	(-)
20	Mizoram	157	95.54	4.46
21	Nagaland	99	83.84	16.16
22	Orissa	521	79.65	20.35
23	Pondicherry	34	29.41	70.59
24	Punjab	173	82.66	17.34
25	Rajasthan	153	86.27	13.73
26	Sikkim	89	8.99	91.01
27	Tamil Nadu	249	92.37	7.63
28	Tripura	135	96.30	3.70
29	Uttar Pradesh	1127	81.37	18.63
30	West Bengal	344	79.94	20.06
	All India	6788	79.49	20.51

Source: Quick evaluation survey conducted during January-July 2000.

Notes:

- Not reported

Figures in Column 3 for each State and UT are numbers of beneficiary artisans in sample

Figures in Columns 4 to 5 for each State and UT are percentages of total beneficiary artisans in sample

craftsmanship in Arunachal Pradesh, the figure was 100 or close to 100 per cent in Goa and Tamil Nadu. Average earnings from craftsmanship varied between a low of Rs 2627 in Nagaland and a high of Rs 14192 in Kerala. It can also be observed that states and UTs with relatively high percentage of artisans with craftsmanship as their primary occupation tended to have correspondingly high earnings from craftsmanship. Kerala having high literacy and being periodically ruled by communist governments tended to have strong labour awareness and unions that ensured relatively high wage rates. The large-scale emigration even from rural Kerala to the Middle East may also have contributed to such high earnings from craftsmanship.

While land owned by the beneficiary artisans is shown in Table 5, the other assets or durables owned by them are presented in Table 6. It appears that ceiling fans and three-wheeler cycles dominate the other assets or durables owned by the artisans. In states like Punjab and Haryana, the number of motorized two wheelers (motor cycle/scooters) owned by artisans appears to be much higher than in most other states.

Table 7 presents the typical products produced and sold by the beneficiary artisans. The percentage of artisans reporting to sell their service/work as per the customer's needs seems to dominate at both all India and state levels. Indeed, the figure is as high as 94 per cent in Assam and 88 per cent in Tamil Nadu, Himachal Pradesh and Kerala. In contrast, majority of the artisans in Rajasthan and Andhra Pradesh produce only custom products produced on order. Finally, the artisans who sell standard products to be sold in the market appear to constitute 31 per cent of all beneficiary artisans in Bihar and 36 per cent in Orissa.

The extent of use of the improved toolkits provided to the beneficiary artisans is captured in Table 8. About 36 per cent of all beneficiary artisans reported to be using all the tools in the toolkit, while another 32.5 per cent used some of the tools. As many as 19.5 per cent of the beneficiary artisans in Karnataka and 13.9 per cent in Orissa did not use any of the tools. On the other hand, in Gujarat, Haryana, Jammu and Kashmir and Tamil Nadu more than 50 per cent of all beneficiary artisans used all the tools received.

Table 9 presents the impact of SITRA on beneficiary artisans' income from craftsmanship. At all India level 80 per cent of the beneficiary artisans were able to raise their income after receiving the toolkits. The largest percentage of artisans who could raise their income was reported in Arunachal Pradesh, Gujarat, Maharashtra, Mizoram and Tripura (between 93 and 99 per cent). About 38 per cent artisans were unable to raise their income in Madhya Pradesh – the highest among the major states.

5. ECONOMETRIC MODEL

The econometric analysis adopted in this study is probabilistic. The model used is a binomial logit model. The dependent variable is a binary variable which measures if there has been an increase in income or not. The probability of the event occurring is determined by:

$$\begin{aligned} \text{Prob}(Y_i = 1) &= F(\alpha + \beta X_i) \\ &= \frac{\exp(\alpha + \beta X_i)}{1 + \exp(\alpha + \beta X_i)} \end{aligned}$$

For the logit model the interpretation of the coefficient is transparent, considering the log odds ratio. The logit model can be written as,

$$\log_e \left[\frac{\text{Prob}(Y_i = 1)}{1 - \text{Prob}(Y_i = 1)} \right] = \alpha + \beta X_i$$

The effect of a unit change in X on the log odds ratio of the event occurring is given by the corresponding beta coefficient. Taking the log odds ratio into consideration is very useful since the interpretation of the coefficient is immediate. As logit models are not linear in the parameters, they are estimated by using maximum likelihood techniques.

Table 10 defines all the variables used in the model in both troubled and non-troubled states. The dependent variable INCEFF is binary with Y_i having a value 1, if the i^{th} beneficiary artisan has had an increase in income and 0 otherwise. Although this may look to be a crude nominal measurement, it reduces the measurement errors inherent in income measurements of poor and quite often illiterate artisans without any regular source of income.

The problem with artisan's income or expenditure is that while it is observable in theory, in practice it is not. For example, the typical household budget survey does not canvass comprehensive information on assets or durable items (Ray, 2000). However, information on these assets and durables may be important indicators in examining the change in income. It is also true that the income spent on assets and durable items is lumpy due to the indivisibilities inherent in most durable goods and assets. In addition there may be contribution of other members' income in the artisan household. Hence assets created due to beneficiary artisan's income after toolkit received may be a noisy indicator of long-run average income.

Table 10. Definition of Variables*Dependent Variable*

INCEFF	Income effect on beneficiary artisan household's income from craftsmanship
=	$\begin{cases} 1, & \text{if income from craftsmanship after receiving toolkits is greater than} \\ & \text{the corresponding income before receiving the toolkit,} \\ 0, & \text{otherwise} \end{cases}$

Independent Variables

BACKCAST	Social Group of the artisan beneficiary
=	$\begin{cases} 1, & \text{if beneficiary artisan belongs to SC, ST or OBC} \\ 0, & \text{otherwise} \end{cases}$
EXPERIEN	Experience in craftsmanship
=	$\begin{cases} 1, & 0-5 \text{ years} \\ 2, & 6-10 \text{ years} \\ 3, & 11-15 \text{ years} \\ 4, & \text{more than 15 years} \end{cases}$
HIGHEDU	Highest education completed
=	$\begin{cases} 1, & \text{cannot read/write} \\ 2, & \text{can read/write} \\ 3, & \text{some schooling (upto 4 years)} \\ 4, & \text{SSC/HSC} \\ 5, & \text{Technical training (formal/informal)} \end{cases}$
LANDOWND	Land Owned (in hectares)
ASSETSOD	Assets or Durables Owned
=	$\begin{cases} \text{Number of asset categories owned by the household among eight categories specified namely Tractor, Power Tiller, Combined thresher/harvester, Refrigerator, Television set, Ceiling fan, Three - wheeler and Motor cycle/scooter} \end{cases}$
TYPIPROD	Typical products produced or services sold
=	$\begin{cases} 0, & \text{standard product produced and kept for sale} \\ 1, & \text{sell the service/work as per customer's needs} \\ 2, & \text{custom produce on order} \end{cases}$
USINGKIT	Use of Tool Kits: extent of use
=	$\begin{cases} 0, & \text{using none} \\ 1, & \text{using some} \\ 2, & \text{using most} \\ 3, & \text{using all} \end{cases}$

The independent variable BACKCAST categorises all beneficiary artisans into two categories *viz.* the relatively backward social groups – Scheduled Caste (SC), Scheduled Tribe (ST) and Other Backward Castes (OBC) – are assigned the value of 1, while all others get 0. While the backward social groups are preferred while selecting beneficiaries, social utility will actually increase only if they can successfully use the improved toolkits and raise their income levels. The network of social relations of beneficiary artisans from different social groups may affect the likelihood of their income increase. This factor may have different implications for both troubled and non troubled states. For example, effect on BACKCAST on beneficiaries' increase in income may have positive impact in non – troubled states. However, such effects on beneficiaries in the troubled states are limited.

The next two variables (EXPERIEN and HIGHEDU) measure the human capital represented by the beneficiary artisan. In an ideal scenario if the number of years in craftsmanship (EXPERIEN) is found significant, then this could perhaps be interpreted as the skill and productivity of the artisan affecting the likelihood of income increase. Both these variables could also affect the way an artisan adopts and adapts the new technology represented by the improved toolkits. These variables could lead to a higher or lower income inequality depending on the sign of the coefficient. The contribution of the factors to the poverty reduction may be different due to differences among troubled and non-troubled states with high and low levels of human capital. Thus, income differences among these states are obvious.

Consider two states ie troubled and non-troubled and two types of beneficiaries. Some beneficiaries in the non-troubled and troubled states are educated and some are either inexperienced or experienced. Because of the externality, variation in the cost of living depends only on variation in incomes. In the non- troubled states, the opportunities for the beneficiaries with experience in the craft are wide but the same opportunities may be limited to the educated beneficiaries because they have less or no experience at all. On the other extreme, the opportunities are limited for both experienced and educated beneficiaries in troubled states. Thus despite their best effort it is difficult to reap the benefits due to constraint which is beyond their control.

Similarly, ASSETSOD and LANDOWND represent the asset holdings (other assets and land respectively) of the beneficiary artisan and as proxy of other factors of production – say capital and land, are expected to explain if the production function of the artisans should include variables other than labour. The artisans owning such categories of assets in the states characterized by troubled and non-troubled indicators may or may not experience in-

crease in income because of many distortions and their limited understanding of institutional mechanism.

The variable TYPIPROD measures an interesting characteristic of an artisan – how exactly is the labour offered in the market. If this variable is found significant, then skilled artisanal labour may not be homogenous and supply of improved toolkits might actually raise wage inequality. The sign and significance of the coefficient for this variable would reflect, for example, if artisanal labour used for standard or commoditised products is valued differently from the same used in customised products or services. It is possible that the effect of this variable is stronger in non-troubled states than the troubled states. This is likely due to the availability of various institutions and supports system that are the precondition of efficient market mechanism.

Finally USINGKIT measures the utility of the toolkit received to the artisan. It is expected that only relevant and useful toolkits would enhance labour productivity and raise income level. An insignificant coefficient would imply income rises unrelated to the use of improved toolkits and should lead to the general characteristics of troubled states.

6. RESULTS AND ANALYSIS

Tables 11, 12, and 13 present the parameter estimates of the logit regression of the binary dependent variable (INCEFF) on a selection of seven explanatory variables as detailed above in all states, trouble states and non-troubled states. The estimation, using the SPSS software package, was performed on the dataset consisting of 6788 observations (beneficiary artisans). We could not use 910 observations because of some missing data. Thus only 5878 observations were considered for the purpose of logit analysis. In non-troubled states, we were able to use 4545 observations. In contrast, we have only 1333 observations in troubled states. We, therefore, have a much larger sample of beneficiary artisans from the non-troubled states vis-à-vis the troubled states. This is also representative of the population as more and bigger states are non-troubled and have a larger number of beneficiary artisans than the troubled ones.

The estimated coefficient for BACKCAST, i.e. ‘social group’ (SC, ST and OBC) is positive and strongly significant implying that with everything else held constant, poor rural artisans from backward social groups are more likely to increase their income from craftsmanship by using improved toolkits than poor rural artisans from other non-backward social groups. Similarly, this aspect is likely to be positive on the probability of increasing income

Table 11. Logit Estimates of Beneficiary Artisans' Increase in Household Income from Craftsmanship on Select Variables: Troubled and non-Troubled states

Variable	Coefficient Estimate
Constant	.613** (.192)
BACKCAST	.460** (.108)
EXPERIEN	-.043 (.032)
HIGHEDU	-.120** (.023)
LANDOWND	.000 (.002)
ASSETSOD	-.088* (.044)
TYPIPROD	.178** (.058)
USINGKIT	.317** (.037)
Total Number of observations (A)	6788
Number rejected because of missing data	910
Number of cases included in the analysis (B)	5878
% B/A	86,59
Log Likelihood for Logistic	5138,406
Chi-square value	140.112**
Cox & Snell R-Square	0,024
Nagelkerke R-Square	0.040

Notes:

Standard errors are in parentheses

** Significant at 1 percent level

* Significant at 5 percent level

in non-troubled states. In troubled states, the effect is negative and insignificant causing a general concern of the feasibility of poverty reduction programmes.

This is a very significant finding of this study. In India, the backward social groups are generally backward in almost all respects – economic, cultural, educational, etc. Special provisions exist for the protection of the socially underprivileged – for example even under the SITRA programme, a minimum 50 per cent of the beneficiary artisans are mandated to be from the SC and ST categories – implying a higher social utility from benefits accruing to the socially backward compared to similar benefits accruing to the non-backward. A statistically significant positive co-efficient implies a reduced income inequality as a consequence of the benefits from SITRA.

It is more difficult to hypothesize possible reasons for this positive co-efficient. It would seem that the disadvantaged status of these rural artisans pushes them harder to exploit the technology made available to them, work harder and more productively and consequently gain income increases. The greater the initial handicap, the stronger the motivation to do better. It could also be that due to their lower opportunity costs they tend to supply higher quantities of skilled labour after receiving the benefit of improved toolkits. In troubled states, the access to the system is limited and sometimes jeopardized and the social backwardness can no more provide increased motivation as perhaps other factors become more important.

The variable EXPERIEN representing 'experience in craftsmanship' exerts a negative but insignificant impact on increase in income earned under the beneficiary category. Other things being equal a young and enterprising artisan will be more prone to be innovative and hardworking, and thus be able to gain more from the improved toolkit. The opportunity costs for such relatively inexperienced beneficiaries are again expected to be lower. This impact is not found to be statistically significant in non-troubled states. Interestingly, the impact is negative and statistically significant in troubled states. This observation is hardly debated. And even if it was, it is unlikely that the poor with all hard work will reap benefit. Their gain may be distant possibility because of uncertainty, and fear of the future. In troubled states, relatively inexperienced and perhaps younger artisans seem to do better than more experienced artisans in increasing their income through use of toolkits.

The variable HIGHEDU, i.e. 'highest education completed' by the artisan reveals an interesting negative and strongly significant coefficient across all states, troubled and non-troubled states. *Ceteris paribus*, lower general education of artisans is more likely to contribute to increases in their income. It is

Table 12. Logit Estimates of Beneficiary Artisans' Increase in Household Income from Craftsmanship on Select Variables: Troubled States

Variable	Coefficient Estimate
Constant	4.067** (.579)
BACKCAST	-.355 (.390)
EXPERIEN	-.469** (.089)
HIGHEDU	-.159** (.061)
LANDOWND	-.131* (-.051)
ASSETSOD	.122 (.170)
TYPIPROD	.029 (-.154)
USINGKIT	.009 (.096)
Total Number of observations (A)	1565
Number rejected because of missing data	232
Number of cases included in the analysis (B)	1333
% B/A	85,18
Chi-square value	42.891**
Log Likelihood for Logistic	759,18
Cox & Snell R-Square	0,032
Nagelkerke R-Square	0,070

Notes:

Standard errors are in parentheses

** Significant at 1 percent level

* Significant at 5 percent level

to be noted that a small and negligible percentage (only 0.5%) of sample beneficiaries had any technical training – either formal or informal.

Both education and experience seem to have a negative relationship with likelihood of income increases. Again, we find that the more disadvantaged an artisan, the greater the resolve to use the new technology effectively and the greater the likelihood of an income increase. Although the basic logic is the same, the strength of the argument is stronger for education with a statistically very significant negative coefficient and not-so-strong for experience with a statistically insignificant negative coefficient. This suggests that lack of experience is perhaps not as much of a handicap as lack of education. However, the nature of administration, political environment are seems to be major contributory factor.

'Land owned' represented by variable LANDOWNND shows insignificant but positive coefficient in all states. On the other hand, the variable ASSETSOD representing other assets or durables owned' significantly affects an artisan's increase in income from craftsmanship. In other words artisans owning more categories of assets are less likely to experience increase in income. This again corroborates the general argument that the more under-privileged and disadvantaged end up gaining more from the facility provided through improved toolkits. In non-troubled states, LANDOWNND is positive but insignificant and ASSETSOD negative and significant. In troubled states, LANDOWNND is negative and significant and ASSETSOD insignificant and positive. It seems that artisans with larger land holdings are affected negatively in the troubled states as they get easily 'marked' by the *trouble-makers*, particularly in the naxalite affected states.

The importance of 'typical products produced or services sold' on income, i.e. variable TYPIPROD, is reflected in the positive and significant coefficient in all states. This implies that artisans are more likely to raise their income when they service/work as per the customer's needs or produce customized products on order than if they produce standard products and offer the same for sale. As it is, the income level of artisans producing commoditised products – i.e. standard products and keeping the same for sale is expected to be lower than the ones who sell service/work as per the customer's needs or produce customized products on order. The new technology would then result in higher income inequality. Interestingly, the variable is significant and positive in non-troubled states but insignificant in troubled states.

Finally, the variable USINGKIT, i.e. 'Use of Toolkits: extent of use' may be considered as a proxy of quality of toolkits. The artisans do not always receive high quality toolkits due to transaction cost, wrong selection of toolk-

Table 13. Logit Estimates of Beneficiary Artisans' Increase in Household Income from Craftsmanship on Select Variables: Non-Troubled States

Variable	Coefficient Estimate
Constant	-.168 (.214)
BACKCAST	.558** (.116)
EXPERIEN	.031 (.035)
HIGHEDU	-.102** (.026)
LANDOWND	.003 (.005)
ASSETSOD	-.078 (.047)
TYPIPROD	.286** (.065)
USINGKIT	.377** (.039)
Total Number of observations (A)	5223
Number rejected because of missing data	678
Number of cases included in the analysis (B)	4545
% B/A	87,02
Chi-square value	162.093**
Log Likelihood for Logistic	4232,778
Cox & Snell R-Square	0,035
Nagelkerke R-Square	0,057

Notes:

Standard errors are in parentheses

** Significant at 1 percent level

* Significant at 5 percent level

its, etc. The positive and strongly significant coefficient implies that when artisans receive toolkits of high quality they are more likely to use all of them and experience increase in income from craftsmanship. This is intuitive and calls for proper choice, design and development of the improved toolkits so that the improved toolkits are used extensively and actually contribute to increasing the artisans' income from craftsmanship. As explained earlier, the variable is significant in non-troubled states and insignificant in troubled states.

7. CONCLUDING REMARKS

A large volume of literature has been generated in India and abroad in understanding the consequence of public expenditure in rural areas. While much of this literature has focused on farm and non-farm aspects on various economic issues, the present study uses field data in both troubled and non-troubled states to analyse some select aspects of the income effect on rural artisans due to SITRA.

As mentioned earlier, most such studies have concentrated on evaluating the effectiveness of government interventions in meeting the stated programme objectives and targets, gaps between desired and actual targeting of beneficiaries and adherence to programme guidelines. The few studies which have been conducted to find the differential marginal impact of different government interventions have all used secondary macro data. The study reported in this paper uses micro-level data obtained from primary sources comprising a fairly large sample of poor beneficiary artisans in troubled and non-troubled states.

The econometric analysis adopted in this study is probabilistic. The model used is a binomial logit model with the dependent variable being a binary variable capturing if there has been an increase in household income or not. Separate logistic regressions are run for the troubled and the non-troubled states. An analysis of data from 6788 households from the troubled and the non-troubled states reveals that the poor despite their socially and economically disadvantaged positions were more likely to have benefited from the program in an environment of effective governance. The effect of other contributory factors like the socio-economic background of the beneficiary, experience in craftsmanship, typical products produced and use of toolkits were also different in the two distinct state groupings. This realization as to which factors emerged as more important in hostile environments is likely to provide deep insight in understanding the role of effective governance and

secure environment in effective delivery of benefits in rural poverty reduction programmes and may have major policy implications while designing such programs in troubled regions elsewhere.

Similarly, narrower targeting on “less-favoured” artisans is more likely to increase their income from craftsmanship and so promote both economic growth and poverty reduction, again leading to a win-win situation. Although such conclusions appear counter-intuitive initially, they may appear entirely plausible if the cost of working with improved toolkits is factored in an artisan’s decision on the supply of skilled artisanal labour with improved toolkits. The role of opportunity costs have been studied in workfare programmes where self-selection has been explained using opportunity cost of a beneficiary (Ravallion and Datt, 1995), but surely its role extends far beyond workfare to all poverty reduction programmes in explaining the economic behaviour of different beneficiaries. Policy implications regarding narrower targeting on more disadvantaged artisans then are apparent.

Our study is based on data from a poverty reduction programme implemented in India. It may not be interpreted as an impact assessment of the SITRA programme. The samples are not statistical and this may affect the strength of the conclusions drawn. However, the sample sizes being very large, the effect of such sampling errors may be minimal. What the study highlights is that the behaviour of the beneficiary artisans is affected not by internal conditions of the artisan alone, but also by the environment. Even if the troubled and non-troubled states are viewed as two distinct geographic clusters with difference in quality of governance, we find that the behaviour of a typical artisan from a troubled state is distinctly different from another similar artisan from a non-troubled state. The only explanatory variable which is significant for both troubled and non-troubled states is HIGHEDU and all other significant explanatory variables are different.

Our findings show that external environment plays an important role in affecting the behaviour of a typical beneficiary of a poverty reduction programme. Although this finding is limited to states within India, it suggests that our results may extend beyond a single country (Cripps *et al.*, 2007). If they do, then the question of how to address deficiencies in governance and enforcement becomes of great policy relevance.

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Résumé

Beaucoup d'argent est dépensé dans les pays en développement pour dessiner et réaliser les programmes de réduction de la pauvreté. Plusieurs programmes ont des objectifs et sous-objectifs bien définis mais les résultats sont incertains. Les études menées sur l'efficacité de ces programmes soulignent les obstacles structurels, l'information asymétrique, et la recherche de rentes empêchent l'achèvement de résultats pour les populations cible. Cette étude pousse l'investigation vers l'analyse des effets de gouvernance efficace sur l'efficacité de ces programmes ; il caractérise aussi analytiquement les unités rurales bénéficiaires des états indien avec ou sans problèmes et étudie les facteurs importants pour la réalisation des bénéfices pour les personnes impliquées du programme SITRA du gouvernement indien.