

Development Programmes, Caste and Capture in Villages in India 1975-2004

The Role of Development Interventions in the ICRISAT villages

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Abstract

This paper provides evidence on the role of development programmes in understanding changes in living conditions in six villages in Andhra Pradesh and Maharashtra between 1975 and 2004. The settings are the six original ICRISAT Village Level Studies villages, initially surveyed in 1975-84, but resurveyed since 2001. Consumption has grown considerably and poverty has declined rather rapidly, especially in the Andhra Pradesh villages in this period. While in the baseline survey period 1975-84, few if any development programmes were active, beyond the Employment Guarantee Scheme in Maharashtra and the Public Distribution Scheme, from the 1980s and especially in the 1990s, more and more specific schemes were established, often targeted in different ways and with different focus, providing some form of direct transfers. Of all the individuals that were present in the baseline in 1975-84, about 50 percent had benefited from one or another form of programme between 1985 and 2001. We evaluate the targeting of these programmes, more specifically whether particular caste and wealth groups managed to capture these programmes. We also evaluate the impact of some of most frequent programmes using a difference-in-difference approach, using power and caste variables to instrument for programme placement. We find that variables measuring caste and positions of influence in the village show evidence of capture; they also provide useful instruments. We use income, consumption and poverty changes to investigate impact. The conclusion is that there is evidence of the targeting of lower castes and poorer households, but in many programmes, forces of capture are occurring, with people who are well-connected in terms of parental influence gaining access more easily. There is also evidence of gender bias in terms of the types of households receiving assistance. In Dokur, lower castes appear to be able to participate more readily, especially compared to the villages in Maharashtra in the sample. Overall, the evidence suggests that the input subsidy programme and the drought relief programme in Andhra Pradesh have had positive impacts on mean income growth, but that despite their apparently partially problematic targeting, many programmes have had a poverty impact, at least as reflected in the income data. In particular, the farm implements and wells programme, the human development programmes, the drought relief programme and the housing programme all appear to have contributed to higher incomes for some of the poorer groups. The input subsidy programme appears to be an exception in terms of poverty impact, perhaps unsurprising given the more problematic targeting.

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1. Introduction

Since the late 1980s, India has been characterized by accelerating growth in its economy. In the 1990s, this appears to have translated into decreasing poverty. Nevertheless, a concern has long existed that in marginal rural areas, income growth and poverty declines have been lacking. In the same period, there has been a rapid increase in specific initiatives aimed at stimulating development in rural areas, increasingly with forms of decentralized targeting of assistance. In this paper, we investigate the impact of development programmes in stimulating income and consumption growth, and poverty reduction in the 1980s and 1990s using a well-known set of villages: the ICRISAT-villages in semi-arid areas of Maharashtra and Andhra Pradesh (AP). In these villages, we can identify a large number of programmes active in the 1980s and 1990s, focused on asset and human capital formation. We assess the nature of the targeting of these programmes, most notably the role of caste, and their impact on consumption, income and poverty.

The ICRISAT-villages are a set of villages, studied since 1975 by the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), near Hyderabad. The core data set used in this paper is based on 240 households from three districts and six villages: Aurepalle and Dokur in Mahbubnagar District in A.P., and Shirapur and Kalman in Sholapur District and Kanzara and Kinkheda in Akola District in Maharashtra. The villages are generally poor, and their main economic activity is dryland farming, with some irrigation. Much descriptive information on these villages can be found in Walker and Ryan (1990). The ICRISAT-villages were first very intensively studied during 1975-84, giving rise to hundreds of scholarly articles. Since 2001, ICRISAT has traced the original VLS households and some split-offs in the villages, and between 2001-04, new data was being collected, using generally comparable instruments. A detailed tracking survey in 2005 documented all sources of attrition at the level of individuals initially included in the 1975-84 households, noting considerable attrition due to migration for marriage and increasingly for work, as well as deaths and some non-coverage of individuals still in the original villages. In this paper, we are not concerned with these issues, but refer to Badiani et al. (2006) where much of the detail is discussed.

A striking feature during the first phase of the VLS in 1975-84 is that there is relatively speaking little evidence of specific programmes targeted at individuals. The exception is the Employment Guarantee Scheme, particularly active in the two Sholapur villages. Its impact is quite widely studied, most notably in Datt and Ravallion (1994) and Gaiha (1996). During the 1980s, the number of programmes active in the villages (not necessarily at the same time) increased considerably, not least in the second half of the 1990s and in recent years. Many used forms of administrative targeting, based on characteristics of the households, contrary to the EGS that initially had been based on self-selection. With increased decentralisation, local political and administrative structures were essential in allocating these programmes. Besley et al. (2004, 2005) studied this and found evidence that both belonging to SC/ST and access to political representation affected access to programmes for public goods provision or receipt of BPL (Below the Poverty Line) cards. In this paper, we will look at a number of programmes aimed at individual and household asset creation that occurred between 1985 and 2001 (after the last round of the old VLS and the first round of the new VLS) and assess their allocation as well as their contribution to consumption and income growth and poverty changes. In terms of method, we will use a difference-in-difference approach but since programmes are definitely not randomly allocated, we will use information on caste, connections and power within the village, both to illuminate the nature of capture in the villages and as statistical instruments to control for placement in the evaluation exercise.

In the next section, we will discuss the nature of development programmes in India in this period, focusing on Andhra Pradesh and Maharashtra, and the programmes that appear most relevant for the study areas. In section 3, details will be given on the villages, in terms of welfare indicators and the programmes active in these villages. In section 4, we analyze programme placement: who benefits from these programmes? In section 5, we provide a basic evaluation of the role of these programmes in explaining consumption, income and poverty change in the period 1985-01. Section 6 concludes.

2. Development programmes in Andhra Pradesh and Maharashtra

Poverty alleviation programs have shaped Indian rural development policy since the late 1960s, and account for a significant share of central and state government expenditures. Broadly speaking, a two-pronged strategy has been implemented to reduce poverty – broad-based initiatives have focused on improving overall health and education in rural areas, often focusing on public good creation, whilst targeted poverty alleviation interventions aim to direct resources at particular marginalised groups (Srivastava, 2004)². In this paper, our focus is on the latter category, with identifiable transfers to individuals and households. Since the beginning of the ICRISAT surveys in 1975, a large number of programmes have been active in Maharashtra and AP, and in the villages themselves. This section will discuss programmes active until about 2001, with the cut-off point determined by our focus to study targeting and impact of programmes active between the ‘old’ VLS survey (1975-84) and the ‘new’ VLS (2001-04).

The best known and widely studied schemes are the Public Distribution System (PDS) and the Employment Guarantee Schemes (EGS). As will be explained further below, they are not the focus of the analysis in the rest of the paper, but they are at least briefly introduced to provide some further context. The Public Distribution System (PDS) is the Indian Government’s most prominent attempt to address the issue of food insecurity and to improve the welfare of the poor by providing access to basic foods at subsidised prices. The state government is responsible for distributing subsidised grains, sugar, edible oil and kerosene through a network of Fair Price Shops (FPS) across each state. Until the 1990s, there was no targeting, even though rationing meant that the FPS were not always present or fully stocked. The earlier VLS data showed this clearly: in the four villages in Maharashtra, nearly all households (over 95% of the 40 households surveyed in all four villages) purchased sugar through fair price shops during 1976. In the two AP villages, however, coverage was more limited, with only wealthier household purchasing sugar in Aurepalle, whilst in Dokur only one household reported any purchase at a FPS in 1976.

² Srivastava (2004) provides an excellent overview of the history and functioning of many of the programmes discussed in this section and the paper.

The PDS provided (theoretical) universal access until 1997,³ when it was converted into the Targeted Public Distribution System (TPDS). Under the TPDS, entitlement was a function of whether the household was identified as living Below the Poverty Line (BPL) or Above the Poverty Line (APL). As consequence, from then onwards, in line with most other currently targeted social programmes in India, targeting has become based on an administrative classification as a means of “tagging the poor”. In principle, since 1997, every five years state governments have to conduct village-level censuses, based on multiple indicators. There is still much controversy over its implementation and impact (Jalan and Murgai (2006), Besley et al. 2005). In any case, in many states implementation has been slow, and it took several years before cards were available in the survey villages, especially in Maharashtra. The issues related to the PDS are quite specific, and both the theoretical universal access and the lack of detailed information on its functioning in the survey villages during our study period means that we will not explore the PDS (and the BPL) further in this period.

The Maharashtra Employment Guarantee Scheme (EGS) was first introduced by the state government to counter the impact of drought, and was formally implemented in 1979. The VLS dataset contains detailed employment data for two villages, Kanzara and Shirapur, that benefited from the scheme during the early stages of the scheme. Some of the best known evaluations of the functioning and impact of the EGS has been based on the VLS data (Datt and Ravallion, 1994; Gaiha, 1996). The particular scheme relies upon self-targeting, whereby the non-needy are deterred by the low wages and hard manual work entailed in participation, even though there is evidence that changes to the scheme and higher wages have made self-targeting increasingly difficult and administrative rationing and targeting have become more relevant (Ravallion et al., 1988).

While the EGS may be the best known, there is a long history of other employment generation schemes in India, although not in the form of self-targeting schemes, that are not state-specific as the EGS in Maharashtra. The first such large-scale schemes introduced on a nationwide level were the National Rural Employment Program and Rural Landless Employment Program in the 1970s. These schemes were merged into the Jawahar Rogzar

³ In 1992 the Revamped Public Distribution (RPDS) was introduced whereby household were targeted geographically (Srivastava, 2004). This form of targeting was aimed primarily at increasing outreach rather than at limiting access.

Yojana (JRY) in 1989 and eventually transformed into what is now known as the Sampoorna Grameen Rozgar Yojana (SGRY), which also brings under its wings the Employment Assurance Scheme (EAS) and various Food-for-Work (FFW) programmes. Their objectives are in general to provide gainful wage employment in rural areas and to assure food security, alongside creating durable community level assets. Programmes under this umbrella have been found in the AP villages in the ICRISAT sample, but mostly only since 2002 and based on administrative targeting. In the rest of the analysis, we will not focus further on any of these employment schemes, since the SGRY programmes did apparently not reach any of the sampled households in 1985-01 (even though a small number of households in the villages were included), while the survey data did not record EGS activity in this period in the other villages.

Beyond employment programmes and the PDS, the period since 1985 is characterized by a vast expansion of specific programmes. By 2005, we found 49 different programmes active in the villages, and for the period 1985 to 2001, we can identify at least four broad groups of programmes, each with different focus and with many particular elements of targeting. Broadly speaking, they all used administrative targeting, with specific rules and regulations, often related to caste or poverty.

A first set of programmes, related to *housing*, was initially directly linked to the SGRY employment scheme. Particular proportions of rural employment funds were earmarked for construction of houses for Scheduled Castes (SCs), Scheduled Tribes (STs) and freed bonded labour. This subsequently developed into the most commonly known and prevalent scheme, the Indira Awaas Yojana ('Indira Housing Scheme'). This is a centrally sponsored housing scheme that provides housing units free of charge to those in the scheduled castes who are identified as living below the poverty line, at a unit cost of Rs.20,000 per housing unit. A requirement of the IAY scheme is provision of smokeless *chulha* (cooking stove) and a latrine in the houses constructed. Preference is given to those that are not in possession of a house and to widows (Srivastava, 2004; Planning Commission, 2001). In 1993, the programme was expanded to cover all families below the poverty line with the proviso that benefits to households not in the SC/ST category not exceed 40% of the overall allocation. The IAY enjoys considerable support since it creates a valuable asset for beneficiaries and is a direct grant-in-aid. However, the size of the grant of Rs. 20,000 is large enough to attract

rent-seekers and has been criticized as a source of corruption.⁴ Similar smaller programmes exist for latrine construction.

A number of programmes can be identified that are directly targeted on *agriculture*. Since the early 1980s input subsidies have been rising. These subsidies were provided mainly on fertilizer, irrigation water and electricity used for irrigation and other agriculture purposes. Some subsidies are also available for inputs such as seed and pesticide. Institutional sources such as commercial banks, cooperatives and regional rural banks were required to supply credit to agriculture at a concessional interest rates. The composition of the subsidies has changed over two decades from being dominated by fertilisers in the 1980s (when they accounted for about 40 percent) to subsidies for electricity use in the 1990s (accounting then for 60 percent of total input subsidies). The rising subsidies have also been a source of patronage by politicians and it is thought that the benefits of input subsidies have largely gone to wealthy farmers rather than small farmers or those classified as vulnerable. Access is by no means guaranteed. A study by Mahadev (2004) for Karnataka suggests that input subsidies do not reach SC/ST farmers.

While very important, these input subsidies are not the only agriculture-related targeted subsidies. One programme, the Million Wells Scheme (MWS, later renamed the Jawahar Wells Scheme) provides subsidies for dug wells and bore wells, as part of efforts to increase the proportion of irrigated land. An initiative of the Ministry of Rural Development, the MWS targets marginal and small farmers of scheduled or backward caste households (Gaiha and Imai, 2004). It was initially confined to farmers beneath the poverty line but was expanded in 1991 to all marginal and small farmers. It has been a focal part of the government strategy to increase productivity in agriculture, promote food security and decrease rural poverty. The subsidies involved can be large – in our sample villages the mean amount obtained was just below 23,000 Rs.

⁴ “Local politicians, including Members of Parliament, Members of Legislative Assemblies, and even village heads view this as an important mechanism for patronage for supporters and there is clear evidence of high proportion of benefits being manipulated towards this end. These machinations are a natural outcome of the context of the scheme, since the total allocation of grants-based IAY, although substantial, is miniscule relative to potential demand based on number of BPL households without houses in the country. The substantial size of individual grants also makes this a popular scheme with local officials, since it is large enough to withstand large “unofficial” fees running into several thousands of rupees.” (Srivastava, 2004, pp.28-9).

Another programme provides targeted subsidies for the purchases of agricultural machinery through a series of Work Plans that fall under the umbrella of the Macro Management of Agriculture (Dept of Agriculture, 2004). Under these schemes, states have the flexibility to develop agricultural programmes based on regional priorities. Subsidies of up to 50% can be found in the villages; eligibility criteria are based on the size of landholdings, caste and whether the household falls below the poverty line, whilst the rate of subsidy varies according to the input type. A related scheme subsidises the purchase of bullocks.

A wide variety of programmes promoting *human development* and protection of vulnerable groups have been present in the villages between 1985 and 2001. These have generally targeted women, children, the elderly and sick. The National Family Benefit Scheme (NFBS) was established to protect families in the case of the death of the primary household earner, providing Rs 10,000. The scheme is only open to families living below the poverty line, identified using government criteria (Planning Commission, 2001).

India was the first country in the developing world to initiate a state wide family planning programme, with the inception of the National Family Planning Programme in 1951 (Visaria et al., 1999). This programme evolved into the Family Welfare Programme, which later integrated into the broader Reproductive and Child Health Programme. Between 1985 and 2001, participation in the national family planning scheme was widely reported in the village samples. The nature of family planning has changed greatly over the period concerned, from a program focusing largely on sterilisation to a more holistic approach including a wider range of family planning initiatives, maternal and child health services. Eligibility criteria, based on age, previous child bearing history and marital status, vary by state and over the course of the period (Visaria et al., 1999). A key element, and picked up by our survey, are the financial incentives schemes attached to it. For example, a cash incentive of Rs 500 is offered at the birth of girl child of birth order 1 or 2 (the Balika Samridhi Yojana). A Maternity Benefit Scheme offers Rs 500 to mother who have their first child after 19 years of age. Further incentives are offered in the case of sterilisation, with some additional incentives for couples below the poverty line.

The village *Anganwadi*, a community centre, offers a series of health care services to children up to the age of six as well as to pregnant and lactating women. *Anganwadis* are the backbone of the Integrated Child Development Service, which was established by the Indian government in 1975 (Young, 1996). The programme offers supplementary nutrition, pre-school education, immunisations, and basic health care to those within the target groups. By 2001, five of the six villages had access to an *Anganwadi*, Aurepalle and Kalman had *Anganwadis* from the mid-1980s, Kanzara, Kinkheda and Shirapur from the mid-1990s and Dokur gained access to services only in 2002.

The uptake of educational scholarships was uniformly high across the six villages between 1985 and 2001, although the nature and availability of the scholarships have varied by state. Scholarships were available in the AP villages between 1980 and 2000, and continue to be available in the Maharashtra villages. Whilst no eligibility requirements were reported for the AP villages, in the Maharashtra villages the schemes were targeted at students above fourth grade from scheduled castes or tribes, with assistance provided increasing with the level of educational attainment sought.

Finally, a number of specific relief programmes, such as the Drought Relief (or other weather related relief) programmes have been active in this period. The Famine Relief Codes, which were put into place after 1880 and revised by some states in the late 1980s, provide administrative guidelines for the identification of a crisis, for the relief measures to be implemented and for the period during which they should do so. The responsibility of providing relief upon the onset of natural disasters lies upon the state government, once a crisis has been identified. For example, in the villages in the sample in AP, a severe drought hit during the 1990s, and for many years, drought relief appears to have been offered. A similar programme has been present in the four Maharashtra villages since 2001. Relief measures employed include increasing the public distribution of food, providing employment through the expansion of public works programme and expanding the provision of low interest loans.

3. The Data and Descriptive Statistics

This study uses the Village Level Studies data collected by the International Crops Research Institute in the Semi-Arid Tropics. The original dataset in 1975 comprised of 40 households in six villages located in Andhra Pradesh and Maharashtra, stratified by land holding and including a group of landless labourers. In 2001, ICISAT recommenced surveying in the six villages. Between 1984 and 2001 many of the original households had witnessed household division, migration and the expiration of members. Amongst the individuals still residing in the village in 2001, attempts were made to pick up at least one branch of each of the the original households from the baseline survey (see Badiani et al. (2006) for further details).

By the time of resurveying in 2001, a myriad of programmes were in place in the six villages, with variations in programme coverage and availability over the villages. The 2001 survey included a recall module which gathered information on household participation in anti-poverty programmes between 1985 and 2001. Respondents reported on having participated in 23 different programmes between 1985 and 2001, which can be broadly divided into four groups: housing and sanitary infrastructure, agricultural programmes, including input, machinery and bullocks subsidies, relief programmes and specific human development and social protection programmes. These human development programmes included programmes aimed at improving child nutrition, increasing levels of educational attainment and improving female health. Table 1 provides a summary of incidence in these programs throughout the six villages. The sample consists of 426 individuals present in 2001 and 2005 and linked to our 'old' VLS households present between 1975 and 1984. Since this is the case, all values are effectively individual weighted, even for household level indicators.

Table 1: Participants in Development Program, percentage in village							
	Total	Aurepalle	Dokur	Shirapur	Kalman	Kanzara	Kinkheda
<i>No Of Observations</i>	426	66	75	77	86	86	36
Participation In at least 1 Programme	47%	50%	49%	56%	73%	29%	0%
Housing	9%	9%	3%	7%	19%	13%	0%
Agriculture	25%	0%	13%	26%	70%	21%	0%
Drought Relief	9%	4%	17%	0%	0%	0%	0%
Human Development	11%	12%	37%	8%	3%	0%	0%

Table 1: Sample based on 426 individuals present between 1975-1983, 2001 and in 2005. “Housing” includes: subsidy on the construction of houses, subsidised toilet construction and housing scheme. “Agriculture” include: agriculture input subsidy, subsidy on the purchase of agricultural machinery, and subsidy of bullocks. Human development programmes consist of: female development programmes (family planning and nutrition), child development programmes (support to bonded and child labour, anganwadi, school boys rice), social safety nets (Cheyutha camps and the national family benefit scheme) and education (educational scholarships).

Both villages in Akola district, Maharashtra (Kanzara and Kinkheda) report relatively low levels of participation.⁵ Participation in the other villages is high, with an average of 47% of respondents reporting having participated in at least one of the four groups of programmes between 1985 and 2001. Amongst those who participated in at least one programme, approximately 50% participated in more than one scheme. Participation rates vary significantly by programme reflecting eligibility criteria, coverage and availability. While participation in drought relief programmes was recorded as operating only in the AP villages between 1985 and 2001, it has been present in the four Maharashtra villages since 2001.

Looking at participation alone does not provide a full picture of the extent to which households benefited from taking part in a programme. Table 2 reports the amount of benefits received under different schemes to households who reported participating in a scheme. The gains to participating can be substantial. For those households who participated in at least one

⁵ Data collected for 2001 to 2005, suggest similarly lower programme participation for these two villages.

programme, the total levels of benefits received were on average approximately 150% of total income in 2001. For those participating in a programme targeted at agriculture, the benefits received between 1985 and 2001 amount to 200% of the stock of farm implements in 2001. Gaining access to grants and subsidies clearly can have a large impact on household wealth.

Table 2: Benefits to Participants (Rs, 2001 Prices)

	Total	Aurepalle	Dokur	Shiapur	Kalman	Kanzara	Kinkheda
Total Benefits Received	4874	1744	4993	2615	7083	7148	0
Housing	6540	3767	2000	2500	11250	3864	6540
Agriculture	4144	0	5400	1333	3844	7567	0
Drought Relief	1009	586	1823	0	0	0	0
Human Development	1472	663	1662	2114	773	0	0

Table 2: Sample based on 179 individuals who were present between 1975-1983, 2001 and in 2005, and reported having participated in a anti-poverty programme between 1985 and 2001. 2001 prices are used.

Table 3 summarises basic characteristics at the end of the baseline 1975-1984 period, by programme participation. The first column splits the sample by whether they reported having participated in any programme between 1985 and 2001 and the following columns examine programmes by type of scheme. Data collected in 2005 on the household's political assets (namely whether the parents of the head of the household held a political or leadership role) are also reported.

Table 3: Socio-Economics Characteristics of those in the Programme																
	All	All Programmes			Housing			Human Development			Agriculture			Drought relief		
		Out	In	Diff	Out	In	Diff	Out	In	Diff	Out	In	Diff	Out	In	Diff
No of Obs	426	247	179		386	40		381	45		318	108		388	38	
Total Area Owned Per Capita, 1983	0.56 (0.54)	0.52 (0.52)	0.60 (0.55)	0.06 (1.10)	0.56 (0.53)	0.53 (0.61)	-0.03 (0.31)	0.57 (0.55)	0.42 (0.35)	-0.16 (1.84)*	0.49 (0.52)	0.74 (0.57)	0.25 (4.16)***	0.57 (0.54)	0.48 (0.45)	-0.09 (0.93)
Total Area Cropped HYV, 1983	0.87 (1.57)	1.09 (1.78)	0.59 (1.77)	0.50 (3.24)***	0.90 (0.09)	0.67 (0.23)	0.23 (0.84)	0.93 (0.09)	0.59 (0.15)	-0.33 (1.31)	1.13 (0.11)	0.29 (0.09)	-0.80 (4.65)***	0.83 (1.57)	1.37 (1.51)	0.54 (1.96)**
Total Income Per Capita, 1983	4457 (3464)	4720 (3288)	4170 (3635)	-550 (1.62)	4372 (3197)	5253 (5346)	881 (1.53)	420 (3533)	2311 (1727)	-2409 (4.50)***	4286 (3079)	4940 (4356)	654 (1.69) *	4608 (3518)	2833 (2290)	-1774 (2.93)** *
Proportion SC or BC	0.11	0.09	0.15	0.08 (2.57)**	0.10	0.28	0.18 (3.12)***	0.09	0.31	0.22 (4.55)***	0.16	0.02	-0.13 (3.63)***	0.10	0.24	0.14 (2.55)**
Total Value Consumer Durables, 1980	2372 (2684)	2688 (2983)	1915 (2107)	-828 (2.98)***	2407 (2693)	1986 (2589)	-421 (0.84)	2526 (2785)	1068 (810)	-1458 (3.25)***	2436 (2826)	2200 (2264)	-235 (0.75)	2434 (2755)	1505 (933)	-927 (0.78)
Literacy	0.42	0.42	0.42	0.00 (0.04)	0.41	0.5	0.09 (1.07)	0.43	0.31	-0.12 (1.57)	0.42	0.43	0.01 (0.56)	0.44	0.21	-0.23 (2.76)** *
Household head literate?	0.45	0.42	0.48	0.06 (1.21)	0.42	0.65	0.23 (2.74)***	0.46	0.31	-0.15 (1.92)*	0.43	0.48	0.05 (0.86)	0.46	0.32	-0.14 (1.69)*
Parent Politician	0.02	0	0.04	0.04 (2.64)***	0.01	0.10	0.09 (4.04)***	0.02	0	-0.02 (0.98)	0.01	0.06	0.05 (3.29)***	0.02	0.03	0.01 (0.73)
Parent Non-Elected Leader	0.01	0	0.02	0.02 (2.05)**	0.01	0	-0.01 (0.56)	0	0.07	0.07 (5.21)***	0.01	0	-0.01 (1.01)	0.01	0	-0.01 (0.59)
Parent Powerful Figure	0.02	0.01	0.04	0.03 (2.20) **	0.01	0.08	0.06 (2.50) **	0.02	0	-0.02 (1.04)	0.03	0	-0.03 (1.80)*	0.01	0.11	0.09 (3.84)** *
Parent Leader of Organisation Overall, Parent holds any position	0.08	0.11	0.04	-0.07 (2.53) **	0.09	0	-0.07 (1.92)*	0.07	0.04	-0.04 (0.87)	0.09	0.04	-0.05 (1.82)*	0.08	0.08	0 (0.04)
	0.11	0.11	0.12	0.01 (0.25)	0.11	0.10	0.01 (0.26)	0.11	0.11	0 (0.03)	0.12	0.09	-0.03 (0.76)	0.10	0.21	0.11 (2.00)**

Table 3 summarizes basic characteristics at the end of the baseline 1975-1984, by programme participation. Beyond a number of basic indicators related to the baseline period (see for details, Dercon et al., 2006), such as literacy, durable assets, land, income and caste, we also include a number of parental characteristics of the household head interviewed in 2001-05. We asked whether the parent was a leader of an organization, a political leader, a powerful, influential or leadership figure in the village. We focus on the parent to avoid an obvious problem in further analysis that access to programmes may have resulted in current leadership positions of the individual interviewed. T-statistics are reported for t-tests comparing the mean of those who participated in the programme with the mean of those who did not. ***=significant at 1%, **=significant at 5%, *=significant at 10%.

The differences in assets between those participating in development programmes and those not are, on the whole, relatively minor, limited to certain assets and show no clear direction. Splitting the data into different programmes makes this more apparent: it is mostly unclear from these data that wealth and income is a basis for targeting. The proportion of SC/ST amongst those who participated in at least one programme is significantly larger than for those who did not, which may be picking up targeting of lower castes in certain programmes.

The last five rows pick up differences in the political participation of the parents of the household head. Specifically, it was asked whether either of the parents of the household head were: politicians, non-elected officials (e.g. teachers or policemen), influential figures in the community (for example, money lenders or progressive farmers) or elected leaders in a village organisation. Whilst the proportion of influential figures within the sample is small (about 10 percent), as would be expected given the limited number of posts in a given village, there are strong significant differences between the political capital held by the two groups. This will be explored further in the next section.

Examining the data by programme type, quite different patterns emerge between the two groups, as would be expected from the varying aims of programmes and forms of targeting used. Turning first to human development programmes, we see that asset and income levels are consistently lower amongst those who participated. In addition, the group of participants is characterised by lower levels of household literacy and literacy of the household head, although this may be partly attributable to the demographic composition of the group targeted. In both the human development programmes and housing programmes, a much higher proportion of SC/ST indicating that the targeting of lower income and SC/ST groups may have been successful. The group of participants receiving housing benefits are characterised by higher levels of literacy, and significantly higher levels of literacy amongst household heads. Furthermore, among those who received a grant from the housing programme the proportion of politicians and influential figures within the sample is also significantly larger, and much higher than for any other programme. Given the large size of these grants, the political affiliations of participants is of particular interest.

There is a large and significant difference in the area of land under HYV between those who participated in agricultural programmes and those who did not. Whilst this is partly attributable to the larger areas under HYV found in AP than in Maharashtra, where the farm subsidies programmes were present in greater number, the difference is still substantial and significant when the sample is restricted to Maharashtra. This suggests that the interventions may have had some success in picking up households with lower levels of technology adoption in 1983. The targeting of certain farm subsidies towards SC/ST and small and marginalised farmers is not apparent when comparing basic data for the two groups. The proportion of SC/ST receiving agricultural subsidies is substantially lower than that within the sample overall, within other programmes, and significantly lower than the group of non-participants. In addition the total area cropped per capita is substantially higher than both the mean within the sample (0.55 ha) and amongst non-participants.

Drought relief programmes were prevalent only in AP between 1985 and 2001, therefore the large differences in assets, incomes and literacy between the two groups picks up differences between the AP and Maharashtra villages, as well as differences between participants and not. The comparison remains broadly unchanged in terms of direction of differences if we restrict the sample to only the AP villages, although the magnitude of differences does decrease. The significantly negative differences in the level of household and household head literacy, the combination of these differences, the lower aggregate income and assets for participants in relief programmes would suggest that targeting may be capturing some of the more needy in the sample.

The large size of these transfers relative to household income and wealth underline that these programmes can be instrumental in lifting households out of poverty, if the transfers are correctly allocated. Whilst considerable work done on the short-term consequences and targeting of anti-poverty programmes (see Ravallion, (2003) for an overview), the longer-term impact on welfare indicators of participation in development programmes is poorly documented, in part due to a lack of adequate data (noteable exceptions include Jalan and Ravallion, 1998, and Garces et al, 2002).

In the next few sections, we will investigate the factors determining participation in these programmes. Furthermore, we will investigate whether we can detect any impact of these

programmes on income, consumption and poverty changes. Table 4 summarizes the underlying changes in these variables. Average incomes are reported between the baseline period (1975-84) and the new VLS period (2001-04), consumption is reported using 1976-1979 as a baseline due to variable quality in consumption thereafter (see Badiani et al, 2006). Poverty is based on a poverty line of Rs 500 in 1975, and calculated using average consumption for each period. It can be seen that income and consumption grew considerably in this period – by between 2.2 and 3.8 percent year. Poverty decreased considerably. It should be noted that this pattern was present in every village, even though the growth and poverty declines were larger in the AP villages compared to the MA villages.

Income, consumption and poverty figures between 1975 and 1983 are remarkably similar for both groups. Income and consumption growth for those participating in programmes was marginally smaller than for those who were not. Poverty reduction across the two groups is remarkably similar, with both groups seeing considerable drops in all measures of poverty between periods. As we saw in table 3, the composition of participants in different programmes varies quite considerably therefore these similarities between participants and non-participants in any programme may be hiding subtleties on the workings of different programmes. We address these issues in the next sections.

Table 4: Mean Income and Consumption per Capita per year across all villages (in 2001 prices)

	Full sample		In programmes		Not in programmes	
	1975-83	2001- 04	1975-83	2001- 04	1975-83	2001- 04
Total income	819	1769	839	1601	787	1884
Total Consumption	429	815	434	781	422	839
Total Poverty (head count)	0.73	0.17	0.73	0.15	0.73	0.18
Total Poverty (poverty gap)	0.25	0.02	0.24	0.02	0.25	0.02
Total Poverty (squared poverty gap)	0.12	0.05	0.10	0.05	0.13	0.05

Total Income includes: Income from crops, livestock income, transfers, income from trade, migration income and labour income. Poverty calculated on consumption data, using Rs 500 in 1975 as a poverty line and using averages for each period.

4. Understanding Development Programme Participation 1985-2001

To explore more completely the role of different programmes on welfare outcomes, we will first present a multivariate exploration of the factors determining participation. This is relevant for its own sake since it will help us to understand the nature and extent of targeting of these programmes in the ICRISAT villages. Furthermore, since we are concerned with the actual evaluation of the programme, it will provide us with a means of assessing the impact on measures of welfare, controlling appropriately for programme placement and other sources of endogeneity affecting a clean impact assessment. Therefore, in this section we report the results of a regression to predict programme participation, which also provides the first stage results for the actual evaluation. The estimation method reported is a linear probability model, since this is suited for a more efficient simultaneous equation IV procedure with several endogenous variables. Logit or probit models were also estimated, but since the results are barely affected, we report only the linear probability model results.

The left hand side is first whether the household participated in one of the development programmes discussed in the previous sections – in the sphere of human development, housing, agricultural programmes and specific safety nets. In subsequent regressions, heterogeneity in the access to and participation in particular types of programmes will be investigated one by one. The set of explanatory variables used are first a set of basic household characteristics in 1983, just before the period of interest for the development programmes. These variables include household composition, the sex of the head, the percentage of adults above 14 years of age that are literate, land holdings, durable assets. Further controls include whether the household experienced any serious health or weather related shocks, based on self-reported data.

Finally, a number of variables are introduced to assess capture and the role of caste. Many programmes are in theory targeted to households below the poverty line and lower caste (SC/ST) groups. In practice, assessing who is poor has long been a tricky administrative process and even the introduction of BPL cards has not taken the risks of capture (partly via the BPL process itself). In any case, BPL cards came too late in most villages to have much

impact on targeting in the period considered. Caste is measured using the Behrman index for caste. This index is 100 for the highest caste and 1 for the lowest, and is based on an assessment within the different ICRISAT villages to make sense of the myriad of caste and sub-caste positions across different states. Walker and Ryan (1994) provide some discussion of the problems of assessing caste in the villages. We used this index, rather than a more rudimentary SC/ST versus BC or HC that is customary, since the Behrman index offers more variation, useful for statistical analysis. The caste variable is interacted with a number of variables. First, it is interacted with the village dummies, to allow us to explore whether caste operates differently as a targeting and access mechanism in different villages. We also interact caste with land holdings and with literacy, to see whether caste reinforces or weakens any of these effects. To capture political capital and access, we use a variable denoting whether the parent of the interviewed head had an 'influential position', whether as a political leader or some position of influence or power, such administrator, teacher, police man, etc. We use the parental characteristics rather than current household political characteristics, in a bid to rule out the possibility that access to programmes may have increased influence, or other forms of endogeneity. This variable is also interacted with caste. A further variation on household political assets is the interaction of the 'influential parent' variable with whether the parent is still alive and living in the village.

Table 5 shows the findings. The first column focuses on whether one participated in any programme. Recall that about half the sample had access to a programme. The correlates with programme participation are striking. The most striking correlates are that programmes appear to have more participation from households with lower assets, lower literacy and from lower castes: in general, some targeting to those likely to be poor and disadvantaged takes place. However, this is not the entire story. Household demographics appear to be correlated with participation as well, with households with more male adults participating more and those with more female adults participating less, suggesting some apparent gender bias. Caste also offsets or reinforces some of the findings. Compared to all other villages, in Dokur the impact of Caste is about 3 times as large, with lower castes more likely to be able to access programmes. Belonging to higher castes helps to offset the impact of literacy as well, so that literate higher castes are relatively speaking more likely to get access to programmes than lower caste literates. Finally, there is some evidence of processes of capture: those with parents that had influential position in the village (about 10 percent of the sample has

someone like this, ranging from political office or a influential post or position) are clearly much more likely to gain access. Higher castes can however not benefit as much for this influential parent.

Considering different programmes separately, some of these effects are somewhat different. Housing and sanitation programmes appear to be more likely to reach lower castes, with low durable assets and those with less land, as in principle they should be. However, for higher castes, this land constraint does not bind as much. Some further evidence of capture is present as well: having an influential parent present in the village helps to access these programmes.

The human development programmes are relatively speaking more accessed by lower castes, and this effect is especially strong in Dokur. Those with higher assets have a lower chance of being included. Those who had suffered in droughts and similar events are more likely to get access. There is nevertheless clear evidence of the possibility of capture: Those with influential parents are more likely to be able to get access and this is especially strong for lower caste people. Those with high levels of household literacy are less likely to gain access but belonging to higher castes can offset that effect.

Agricultural subsidies and support is generally more easily accessible for lower castes, but the effects are rather different across villages. In Dokur in AP, the lower castes participate more, but in Shirapur in MA, there is evidence of capture by the higher castes: belonging to higher castes increases the likelihood of being included. Similarly, literacy helps to get access, and specifically only for higher castes. Finally, male headed households are more likely to be included, while households with many female adults and children are less likely to be included. One issue is that agricultural subsidies, as a category, includes rather differing subsidies, which may be differently targeted, or experiencing different forms of capture. First, focusing on seed, fertilizer and pesticides, we find that in the Maharashtra villages, there is clear evidence that capture takes place by higher castes and larger land owners, even though the interaction effect reduces the overall impact of these two factors. There is also a strong bias towards male headed households. Subsidies for digging wells, for livestock and for machinery appear to be targeted somewhat differently. In Dokur, there is more access for lower caste groups. Still, there is capture by influence and in general, literate and higher caste

interacts to provide more access. Finally, households with substantial numbers of male children and adults appear to participate more.

Finally, the evidence on general relief programmes (for drought but also other weather events) appears to be similar to the case when the programme is restricted to the AP drought relief programmes. Only in one of the AP villages, Dokur, are lower castes more likely to have benefited. Those with lower land and lower literacy are more likely to have access, but belonging to a higher caste makes these effects less strong. Having an influential parent is again strongly significant.

The conclusion is that there is evidence of targeting to lower castes and poorer households, but in many programmes forces of capture are occurring, with well-connected people, in terms of parental influence, gaining more easily access. There is also evidence of gender bias in the types of households receiving assistance. In Dokur, lower castes appear to be able to participate more readily, especially compared to the villages in Maharashtra in the sample.

Table 5 First stage in IV procedure: predicting programme participation 1985 to 2001

	-1	-2	-3	-4	-5	-6	-7	-8
	Any programme?	Housing and sanitation programmes	Human development (health, education)	Farm programmes (input and capital)	Input subsidies	Subsidies for implements, bullocks and wells?	Safety net (drought and snow)	Drought relief
Number of boys up to 14 in 1983	0.041 [1.26]	-0.002 [0.16]	0.003 [0.27]	0.04 [3.22]***	0.01 [1.12]	0.029 [2.69]***	-0.013 [1.16]	-0.015 [1.35]
Number of male adults aged 15 plus in 1983	0.125 [3.24]***	0.03 [2.32]**	0.031 [2.24]**	0.009 [0.43]	-0.01 [0.53]	0.036 [2.83]***	0.036 [2.64]***	0.048 [3.77]***
Number of girls up to 14 in 1983	-0.048 [1.24]	-0.003 [0.21]	-0.02 [1.75]*	-0.036 [1.97]**	-0.027 [1.62]	0.027 [1.86]*	0.018 [1.59]	0.022 [2.04]**
Number of female adults aged 15 plus in 1983	-0.204 [3.86]***	-0.024 [1.78]*	-0.058 [3.64]***	-0.04 [1.56]	0.01 [0.41]	-0.066 [4.34]***	-0.039 [2.50]**	-0.047 [3.18]***
Area of land owned per capita 1983	-0.092 [0.70]	-0.144 [2.09]**	0.112 [1.93]*	0.088 [1.15]	0.198 [2.80]***	0.067 [0.96]	-0.199 [3.15]***	-0.194 [3.19]***
Value of durable assets 1983 /1000	-1.196 [3.36]***	-0.226 [2.00]**	-0.521 [4.50]***	-0.077 [0.38]	-0.07 [0.34]	-0.136 [1.30]	-0.06 [0.44]	-0.056 [0.42]
Sex of the head of the household 1983	0.051 [0.42]	-0.041 [1.11]	-0.097 [1.95]*	0.225 [4.25]***	0.192 [4.74]***	0.072 [1.85]*	0.001 [0.03]	0.003 [0.09]
Serious weather shock (1985-2001)?	0.075 [1.06]	-0.03 [1.18]	0.1 [3.60]***	-0.031 [0.97]	-0.007 [0.22]	-0.061 [2.26]**	0.007 [0.27]	0.011 [0.46]
Serious health shock (1985-2001)?	-0.066 [0.87]	-0.046 [1.81]*	-0.045 [1.67]*	-0.029 [0.82]	-0.057 [1.98]**	0.02 [0.64]	0.049 [1.79]*	0.018 [0.77]
Caste index (Behrman, upper caste is 100)	-0.011 [2.62]***	-0.005 [2.37]**	-0.002 [1.03]	f-0.003 [3.02]***	-0.001 [1.52]	0 [0.51]	-0.001 [0.24]	0 [0.19]
Caste index (Behrman, upper caste is 100) interacted with Dokur dummy	-0.029 [3.64]***	0.003 [1.53]	-0.005 [1.87]*	-0.008 [4.57]***	0 [0.19]	-0.01 [5.82]***	-0.011 [3.34]***	-0.011 [3.32]***
Caste index (Behrman, upper caste is 100) interacted with Aurepalle dummy	0.006 [1.01]	0.002 [0.87]	0 [0.05]	0.007 [3.31]***	0.008 [5.17]***	0.001 [0.77]	-0.002 [0.72]	-0.002 [0.58]
Caste index (Behrman, upper caste is 100) interacted with Kalman	0 [0.03]	0.003 [1.46]	0 [0.13]	0.001 [0.46]	0.003 [1.50]	-0.002 [0.78]	-0.003 [1.06]	-0.003 [1.12]

Caste index (Behrman, upper caste is 100)	0.004	0.005	0.002	0.002	0.004	0	-0.004	-0.004
interacted with Kanzara and Kinkheda	[0.78]	[2.48]**	[1.14]	[0.81]	[2.76]***	[0.33]	[1.49]	[1.53]
Percentage of household members above 14 that can read in 1983	-0.744	0.177	-0.235	-0.22	0.068	-0.135	-0.239	-0.252
	[2.04]**	[1.31]	[1.70]*	[1.16]	[0.47]	[0.80]	[1.67]*	[2.58]**
Percentage of literacy times caste rank	0.02	-0.001	0.006	0.006	0.001	0.004	0.004	0.004
	[3.19]***	[0.72]	[2.42]**	[2.05]**	[0.25]	[1.79]*	[1.81]*	[2.00]**
Parent influential in village	0.862	-0.127	0.543	0.169	-0.002	0.339	0.408	0.32
	[3.29]***	[1.57]	[3.61]***	[1.19]	[0.03]	[2.21]**	[2.68]***	[3.16]***
Caste index* Parent influential	-0.011	0.002	-0.008	-0.004	-0.002	-0.004	-0.002	-0.002
	[2.77]***	[1.20]	[3.75]***	[1.74]*	[1.22]	[2.11]**	[1.15]	[1.24]
Land area*Caste index	0.002	0.003	-0.002	-0.001	-0.002	-0.002	0.003	0.003
	[1.12]	[2.44]**	[2.09]**	[0.96]	[2.01]**	[1.93]*	[2.70]***	[2.86]***
Farther alive and Parent influential	0.144	0.141	0.039	0.041	0.132	-0.087	-0.147	-0.08
	[0.66]	[1.67]*	[0.58]	[0.32]	[1.14]	[1.20]	[1.50]	[0.93]
Father still alive and in village	0.02	-0.034	-0.019	0.025	0.012	-0.005	0.034	0.035
	[0.25]	[1.26]	[0.62]	[0.65]	[0.37]	[0.16]	[1.32]	[1.51]
Observations	402	402	402	402	402	402	402	402
R-squared	0.42	0.13	0.42	0.45	0.49	0.3	0.38	0.43

Robust t statistics in brackets

* significant at 10%; ** significant at 5%;

*** significant at 1%

5. Impact of programmes on growth and welfare outcomes

This section evaluates the impact of the programmes: did they contribute to income or consumption growth? Did they contribute to poverty reduction? The method used combines a number of typical approaches in evaluation. First, we use a difference-in-difference approach, by regressing the change in the (logarithm) of consumption, income and poverty between 1975-1984 and 2001-04 on a dummy on whether the respondent was a beneficiary of particular programmes. To account for observable differences between the beneficiaries and the non-beneficiaries, we control for a number of initial household characteristics from 1983, in particular durable wealth, land, demographic composition, literacy, sex of the head, as well as a number of variables controlling for events that may have occurred to beneficiaries and non-beneficiaries, such as drought or health shocks. The underlying model is similar to the model used in Badiani et al. (2006), and the reader is referred to that paper for more details. However, this specification does not control for unobservables affecting both the selection of the beneficiaries and welfare changes. In order to address this problem, an instrumental variable estimation approach is used treating the programme as endogenous. The first stage model is identical to the model discussed in the previous section, and variables describing caste and influence, and its interactions with other variables in the model (such as land holdings, literacy, and location) are treated as excluded instruments, since they are more closely related to placement and capture in the village than as sources of income and consumption growth per se. Estimation has occurred using a 2SLS estimator, but using GMM method to improve efficiency. For all regressions, a series of tests related to identification, overidentification, weak instruments and relevance of the instruments are run, and reported to the extent that they suggest problems. In general, since we are using a relatively large set of instruments, we dropped programme-by-programme irrelevant instruments especially in order to take as seriously as possible the weak instrument problem (Staiger and Stock, 1997).

Table 6 Evaluating the impact of programmes 1985 to 2001 (OLS regression, no IV)

	Change in log consumption	Change in log income	Change squared poverty gap based on consumption	Change squared poverty gap based on income
Participation in any programme	0.018 [0.49]	0.098 [2.70]***	0.009 [1.00]	-0.038 [4.98]***
Number of boys up to 14 in 1983	0.175 [7.74]***	0.15 [8.17]***	-0.032 [5.81]***	-0.02 [6.47]***
Number of male adults aged 15 plus in 1983	-0.014 [0.45]	-0.024 [0.85]	-0.003 [0.64]	0.003 [0.88]
Number of girls up to 14 in 1983	0.023 [0.77]	0.149 [5.30]***	-0.016 [3.18]***	-0.006 [2.19]**
Number of female adults aged 15 plus in 1983	0.096 [3.23]***	-0.031 [0.91]	-0.007 [1.06]	0.023 [5.76]***
Area of land owned per capita 1983	-0.078 [1.66]*	-0.167 [3.10]***	0.014 [1.67]*	0.006 [1.52]
Value of durable assets 1983 /1000	-0.712 [2.85]***	0.603 [1.86]*	0.238 [5.35]***	0.042 [1.95]*
Sex of the head of the household 1983	-0.126 [1.64]	-0.074 [1.02]	0.023 [1.28]	0.021 [2.30]**
Serious weather shock (1985-2001)?	-0.102 [1.50]	-0.098 [1.64]	0.011 [0.64]	-0.001 [0.15]
Serious health shock (1985-2001)?	0.013 [0.21]	-0.061 [1.12]	-0.008 [0.51]	-0.008 [1.14]
Percentage of household members above 14 that can read in 1983	0.476 [3.99]***	0.284 [2.76]***	-0.02 [0.92]	0.014 [1.25]
Observations	490	518	490	518
R-squared	0.37	0.31	0.4	0.42
Robust t statistics in brackets				

Table 6 gives a flavour of the type of regressions run and the basic results before instrumenting. We report results on four left hand side variables: changes in consumption, changes in income, changes in the squared poverty gap based on the consumption data and changes in the squared poverty gap based on income data. As will be seen, some of the effects are different between income and consumption. As discussed in Badiani et al. (2006), it is not self-evident to choose between the income and the consumption data, and many researchers have used either series to reflect welfare indicators. In any case, in each period and in terms of growth, the correlation between the series is very high. However, in the 1975-84 data, income is substantially higher than consumption data (see table 4), and this problem persists in 2001-04. The exact reasons have never been fully understood by the large number of researchers working on the original data set, beyond that the survey technique used has this impact. Since there is no clear argument to prefer one over the other, we used the series as competing ways of getting at average welfare changes. The squared poverty gap highlights

what happens at the bottom end of the distribution and gives us additional information for our purposes, but again, the income and consumption series offer an alternative way of calculating poverty. Note that the argument that consumption is smoother than income and therefore superior does not apply easily in our case, since we use the average consumption and income in each period (1975-84 and 2001-04), rather than particular years.

Table 6 illustrates what happened beyond the programmes. Broadly speaking, we observe lower growth and poverty reduction for those with more land and assets, although the differences between villages are very substantial. Higher initial literacy contributes to growth, but not to poverty reduction. More children, especially males, in 1983 contribute to growth and poverty reduction in this period. Details are discussed further in Badiani et al. (2006). In terms of the impact of participating in any programmes, the table gives the results before instrumenting. We find no overall impact of participation on consumption changes, but a positive impact on income changes. Poverty changes measured by the income data suggests that this translates into lower poverty as well. When split out in the four broad groups of programmes (farm, relief, housing and human development), the correlations based on the same regression but with the four groups included suggest that farm subsidies correlate positively with consumption and income growth, relief correlates positively with income changes, while housing brings down income and consumption. Finally, income poverty appears to be significantly lower for all four programmes when included together in the same type of regression.

Of course, this is not an appropriate way of evaluating the impact since unobservables correlated with participation and welfare changes may bias these effects. We first estimated the effect of ‘any programme’ on the four welfare indicators. A crucial issue is whether the instruments used (and reported in table 5) are relevant and strong. We experimented with a number of interactions of caste, influence and location, and a specification such as that documented in table 5 appears to offer the least weak instruments. We found that the overidentification test was passed at least 5 percent for all specifications (i.e. a relatively low Hansen J value), that the instruments were identified at 1 percent using the Anderson canonical likelihood ratio test and that the joint significance of the instruments was satisfied at at least 10 percent. Importantly, the Cragg-Donald weak identification test was relatively high at more than 9, suggesting the absence of weak instruments. The IV regression results

of the same model described in table 6 suggested that the indiscriminate participation in a programme did not have a significant impact on consumption and income changes (the latter reversing the result in table 6 before). Consumption poverty was also not affected, but we find strong evidence (significant at 1 percent) that the programmes mattered for the squared poverty gap based on the income data (as reported in table 7 as regression number 1).

There are of course important differences between the programmes. Table 7 provides further evidence and assesses whether programmes can be identified that were particularly relevant for growth and poverty in these villages. In a number of cases, we suspected weak instruments, especially since the Cragg-Donald statistic was relatively low (below 5). The evaluation results of those tests should be considered more cautiously. However, in a large number of cases, instruments seem relatively strong and all other relevant tests were satisfied, so the results are stronger. In order to explore the impact of different programmes, a first approach was tried in which each of the 4 types of programmes were added jointly as dummies in the regression. However, the evidence suggested a problem of weak instruments with low joint significance and Cragg-Donald statistics, so the results cannot be relied on. Therefore, and since the correlation in terms of participation between the programmes was not excessively high, we attempted to explore the issue of which programme mattered for growth and poverty by adding them one by one and splitting them out further into more detail if helpful.

Table 7 Evaluating the impact of particular programmes (IV)

	Regression number	Change in log consumption	Change in log income	Change squared poverty gap based on consumption	Change squared poverty gap based on income	IV
Any programme?	1	-0.092 [0.63]	0.087 [0.81]	0.018 [0.52]	-0.088 [4.91]***	OK
Housing	2	0.287 [0.59]	-0.852 [1.26]	-0.218 [1.28]	-0.29 [2.27]**	?
Farm subsidies	2	0.29 [0.66]	0.887 [1.87]*	-0.028 [0.36]	-0.178 [2.05]**	?
Human development	2	-0.948 [1.74]*	-0.925 [1.65]*	0.088 [0.88]	0.001 [0.01]	?
Relief	2	-0.156 [0.27]	0.262 [0.64]	0.069 [0.64]	-0.103 [1.33]	?
Farm subsidies	3	-0.039 [0.10]	0.803 [2.22]**	0.057 [0.65]	-0.227 [2.70]***	OK
Implements/wells	4	-0.103 [0.20]	0.263 [0.60]	0.122 [0.84]	-0.319 [3.52]***	?
Seeds/pesticides/fertilizer	4	0.386 [0.62]	1.306 [2.00]**	0.006 [0.05]	0.051 [0.44]	?
Implements/wells	5	-0.075 [0.15]	0.454 [1.21]	0.11 [0.85]	-0.331 [4.01]***	OK
Seeds/pesticides/fertilizer	6	0.556 [0.94]	1.382 [2.13]**	0.036 [0.31]	0.016 [0.27]	OK?
Housing	7	-0.332 [0.50]	0.715 [0.69]	-0.371 [2.27]**	-0.216 [1.47]	OK?
Human development	8	-0.617 [1.15]	0.042 [0.09]	0.015 [0.15]	-0.292 [2.22]**	OK
Relief for drought	9	-0.519 [1.01]	0.497 [1.67]*	0.143 [1.36]	-0.335 [5.16]***	OK
Relief drought plus others	10	-0.262 [0.56]	0.165 [0.52]	-0.262 [0.56]	0.165 [0.52]	OK

Numbers 1 to 10 refer to programmes that were evaluated in one regression. For example, regression 4 evaluated implementsubsidies and input subsidies in one regression. All specifications as in table 6, and first stage as in table 5. IV column alerts to cases where there were problems with the IV regression, most particularly a suspicion of weak instruments.

Regression 3 explored the impact of farm subsidies. We found no impact on consumption but a clear impact on income growth and on poverty reduction based on the income data. To explore this further, and recognizing that input subsidies for fertilizer and seeds appear to have had different targeting (see table 5), as well the fact that input subsidies are politically sensitive, we differentiated seed, fertilizer and pesticides subsidies from support to acquire implements or bullocks, as well as support for digging wells. While there appeared to be a weak instruments problem when put together, when split apart the problem was not apparent for implements and wells, and possibly not present for seed and related subsidies either. The findings suggest that input subsidies may have helped for income growth. Possibly related to their quite different targeting, input subsidies have no impact on poverty, but the highly significant results in the poverty regression suggests that it is the support for implements, bullocks and wells that appears to have generated the poverty decline.

Housing and the human development programmes have no detectable income or consumption growth effect, but they do matter for the poor, and contributed significantly to consumption and income poverty declines. Finally, the relief programmes are also noteworthy. When including all the programmes, the impact is zero, but taking the drought relief programmes in Andhra Pradesh separately, then the results suggest a strong impact on income growth as well as on poverty declines.

Conclusion

This paper studied the impact of myriad of development programmes that have emerged in the 1980s and 1990s. We use a recent resurvey of the ICRISAT villages allowing us to evaluate the impact of programmes using changes in welfare indicator between 1975-1984 and 2001-04. We explore the participation to various programmes in areas of human development, farm subsidies, housing and relief. We find that there is evidence of targeting to lower castes and poorer households, but in many programmes, forces of capture are occurring, with well-connected people in terms of influence gaining access more easily. There is also evidence of gender bias in terms of the types of households receiving assistance. In Dokur, lower castes appear to be able to participate more readily, especially compared to the villages in Maharashtra in the sample. Overall, the evidence suggests that the input subsidy programme and the drought relief programme in Andhra Pradesh has had a positive

impact on mean income growth, but that despite their apparently partially problematic targeting, many programmes had a poverty impact, at least as reflected in the income data. In particular, the farm implements and well programme, the human development programmes, the drought relief programme and the housing programme all appear to have contributed to higher incomes for some of the poorer groups. The input subsidy programme appears to be an exception in terms of poverty impact, perhaps unsurprising given the more problematic targeting.

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