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Opportunities off the Farm as a Springboard out of Rural Poverty: Five Decades of Development in an Indian Village

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The interaction between economic growth and poverty has long been a central theme of economics. An early and influential view of the development process was set out by Arthur Lewis (1954). According to that view, growth takes place against a backdrop of labor transfer from traditional subsistence agriculture to a modern sector, often tacitly assumed to be industrial and urban. In recent years, analysts have increasingly questioned whether such a process of intersectoral transfer must necessarily occur between the rural and urban sectors, or whether the rural non-farm sector can serve as an alternative to the modern urban sector. Closely related has been an interest in tracing the distributional consequences of a growing non-farm sector, especially the impact on poverty.[2]

Present-day India offers a suitable setting in which to consider some of these classic questions. Starting in the 1980s and then with greater emphasis in the early years of the 1990s, the government of India introduced a number of economic reforms. Per capita economic growth picked up significantly following these reforms. By the second half of the 1990s, average growth rates of 5-6 percent a year had become the norm (and are viewed as more sustainable than the initial acceleration of growth during the 1980s). This performance is much higher than the "Hindu rate of growth" (around 2 percent a year) which had seemed the best possible in the decades before the reforms.

A number of questions have been raised with respect to India's recent development path. To what degree has the country's impressive economic performance actually translated into improved standards of living for the population, particularly in rural areas where the bulk of the poor reside? What has been the contribution of the non-farm sector in driving higher living standards in rural areas, if indeed they have risen?

[1] The views presented in this paper are our own and should not be taken to represent those of the World Bank or any of its affiliates. All errors are our own.

Such questions can be pursued on many fronts. Analysis of statistical data has always been a popular activity in India, thanks to a long tradition of data collection in the country. Recently, the National Sample Survey Organization (NSSO) has taken the very welcome step of making its household surveys publicly available at the unit record level.[3] The NSSO data are not the only source available. Other important data collection efforts have been carried out by the National Centre for Applied Economic Research (NCAER), as well as innumerable, smaller-scale efforts. While the volume of work has been considerable and progress is being made, it is probably fair to state that, at this stage, a full answer to the questions raised above has not yet emerged. Research on this front continues.

A second, important, research front has been through the rich tradition of detailed case studies, usually village studies, carried out in India by researchers with a host of disciplinary backgrounds. Many studies have had a longitudinal dimension, and not a few have been specifically concerned with the question of how living standards have evolved over time.[4] A common feature of many village studies is the close detail that they provide about their setting. In this way they have often been able to flesh out, and/or qualify, the broad findings from large-scale sample surveys. They have also been valuable in raising new questions for subsequent statistical analysis.

This chapter presents a detailed description of economic development in one village in Uttar Pradesh between the late 1950s and the early 1990s. Our specific interest is to study the possible role played by the rural non-farm sector in determining living standards. Our expectation is that the reforms of the 1990s, to the extent that they affected rural areas at all,

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[2] Gary Fields (1980, 2000) demonstrates that the Lewis process of intersectoral transfer is able to generate the well-known "inverted U-Curve" of rising and then falling income inequality, first described by Stanley Kuznets (1955, 1963).

[3] G. Datt and M. Ravallion (2002) summarize a major analytical effort that they have been engaged in over the past six years. , in which they have made extensive and influential use of a time series of poverty estimates that they have constructed from the 25-odd rounds of NSSO household surveys that have been fielded since independence. See also, Sen (1996). Recently, controversy has raged around the question of the extent of poverty reduction in India during the 1990s, fueled by concerns about comparability of the 50th (1993) and 55th (1999) rounds of the NSS survey (see Deaton 2001; Tarozzi 2001; Datt, Kozel and Ravallion 2001; Datt and Ravallion 2002; Bhalla 2001).

[4] J. Breman, P. Kloos, and A. Saith (1997) bring together a selection of recent village studies. R. Jayaraman and P. Lanjouw (1999) and Barbara Harris-White (1992) survey a range of village studies, focussing on rural poverty. Special mention should be made of the extensive range of studies arising out of the village-level data collected by the International Centre for Research in the Semi-Arid Tropics (ICRISAT). T. Walker and J. Ryan (1990) provide a valuable overview.

are likely to have influenced the range and variety of economic activities taking place in rural areas: agricultural, but also non-agricultural. The general improvement in the Indian investment climate, ushered in by the reforms and still very much on the policy agenda, should translate into more opportunities for small and medium enterprises (SME), in both the formal and informal sectors. Many of the non-farm SMEs operate in rural areas, and we can thus hope to see an expansion of non-farm activities in rural areas. Will such a process be pro-poor? We investigate that question by looking at the record of the non-farm economy on poverty in Palanpur, a village in the state of Uttar Pradesh, north India, over a period of five decades before the introduction of reforms in the early 1990s. Our goal is to better understand the impact of an expanding rural non-farm economy on rural poverty.

The chapter first presents a brief description of the Palanpur study and examines the main forces of change for the village economy. Three such forces can be identified. First, between 1957 and 1993, the village population more than doubled. Second, agricultural practices have been transformed as a result of new technologies. Third, occupational diversification has been far-reaching. This latter process is the subject of our attention here. The third section of the chapter looks in some detail at the growing importance of "outside jobs" to the village and the factors that appear to influence access to such jobs.

We turn , in the fourth section, to a brief examination of the evolution of poverty in Palanpur and a basic profile of the poor in the village. We document a gradual and fairly steady decline in income-poverty over time. We show that despite this progress, agricultural laborers and low-caste households have remained highly represented among the poor.

We consider, in the fifth section , the contribution that the non-farm economy has played in reducing poverty. We suggest that some "outside jobs" can be viewed as offering a safety net to the poorest of the poor. While they are not highly remunerative, they do help protect the poor from falling even further into poverty. The other, more attractive non-farm jobs have not typically gone to the poor; they lack the education, skills, contacts, and wealth to compete for those jobs that offer high and stable returns. We suggest that such non-farm jobs have been prone to "capture" by the non-poor in Palanpur and as such, are not likely to have directly contributed in a major way to the reduction of poverty over time. However, that assessment does need to be nuanced in two important respects. First, we find evidence that as

the non-farm sector has expanded over time, it has gradually come to involve more of the relatively poor in the village. The dynamic, marginal incidence of non-farm employment may well be more pro-poor than what a snapshot at any specific point in time might suggest. Second, despite steady population growth over time, and an accompanying decline in percapita land endowments, agricultural wages have risen in Palanpur. This is no doubt in part due to the labor-intensity of new agricultural technologies, but it is also likely that growth of the non-farm sector has contributed to a general tightening of labor markets, resulting in rising agricultural wages. Given the importance of agricultural labor to the poorest of the poor in Palanpur, the tightening of agricultural labor markets has been extremely important in raising living standards of the poor. The important role played by the non-farm sector in sustaining rising agricultural wages, in the face of continued population growth, merits wider recognition.

The Palanpur Study

Palanpur is a village in Moradabad District of west Uttar Pradesh in north India. The village has been the subject of study since 1957/58, when it was surveyed by the Agricultural Economics Research Centre (AERC) of the University of Delhi.[5] The AERC resurveyed the village in 1962/63. In 1974/75, Christopher Bliss and Nicholas Stern selected Palanpur as a village in which to study the functioning of rural markets and the behavior of farmers, as well as factors that shape the role and impact of technical change (such as the green revolution). They spent just under a year residing in the village and collecting quantitative data, based on a set of questionnaires they designed and fielded, as well as qualitative information emerging out of informal discussion and observation. Bliss and Stern published a book based on their investigations (Bliss and Stern 1982), which has a primary focus on the 1974/75 survey year.[6]

A fourth resurvey of Palanpur took place in 1983/84 when Jean Drèze and Naresh Sharma, in close consultation with Bliss and Stern, lived in the village for 15 months, once again collecting data for the entire village population.[7] The most recent re-survey of the village,

[5] N. Ansari (1964) reports on the findings of this village-wide survey.
[6] Some comparisons with the earlier survey years were reported, but a longitudinal perspective was not given a major emphasis.
[7] One of the relatively special features of the Palanpur study is that detailed information is collected from *all* the households in the village, rather than a sample of households.

once again by Drèze and Sharma, was conducted in 1993. This survey was carried out over a shorter period and is consequently somewhat less comprehensive. In particular, the 1993 survey did not collect income data, and our discussions below of income sources and levels thus refer only to the first four survey years in the study period. Shorter revists to Palanpur have occurred on many occasions between the major survey years. One of the most recent of these was by Nicholas Stern in late November 2000.

A considerable body of research output has emerged from the Palanpur study.[8] A recent edited volume by Lanjouw and Stern (1998b) brings together a set of these studies and attempts to synthesize the main findings of the overall project. This volume touches on most of the themes discussed in the earlier book by Bliss and Stern (1982), but includes a more explicit focus on outcomes and processes of change over the entire period from 1957/58 to 1993. The material in this chapter is taken largely from the various contributions included in Lanjouw and Stern (1998b), and the reader is referred to this study for further details on what, for reasons of space, will often have to be rather cursory treatment here.

Snapshot of the Village in 1993

At the beginning of the last survey (in mid-1993), Palanpur had a population of 1,133 people, divided into 193 households (table 1). Hindus represented 87.5 percent of the village population, and Muslims the remaining 12.5 percent. Hindus were divided into six main castes (ranging from 14 to 48 households in size), and three minor castes of three households or less (table 2). The shares of Hindus and Muslims in the total population, and the relative sizes of the main castes, have remained fairly stable throughout the survey period.

[Insert tables 1 and 2]

Three castes - Thakurs, Muraos and Jatabs, - can be seen, in many respects, as the main players in Palanpur's economy and society. The other castes are numerically smaller and also tend to be less cohesive, so that their collective influence on the village economy and

[8] For example, Ansari (1964), Bliss and Stern (1982), Drèze (1988, 1990a, 1990b, 1997), Drèze, Lanjouw, and Stern (1992), Drèze and Mukherjee (1989), Drèze and Saran (1995), Kynch (1994), Kynch and Maguire (1986, 1989), P. Lanjouw (1992, 1994), J.O. Lanjouw (1999), Lanjouw and Stern (1989, 1991), Mukherjee (1991, 1993), Mukherjee and Ray (1991), Sharma (1992), Sharma and Drèze (1990), and van Bastelaer (1986).

society is more restricted. At risk of caricaturing somewhat, Thakurs can be viewed as representative of Uttar Pradesh's traditional martial castes, Muraos comprise the cultivating castes, often occupying a central position in the village economy, and the Jatabs represent the largest group among the "scheduled castes".[9] Scheduled castes on aggregate (comprising a wide range of groups, including Jatabs), account for nearly one-quarter of the population of Uttar Pradesh.

The economy of Palanpur is essentially one of small farmers. The proportion of landless households (23 percent) is relatively small by Indian standards and there are no clearly outstanding large farmers. The bulk of economic activity is in agriculture, both in cultivation and in agricultural wage labor, but a non-negligible share of village income also comes from wage employment outside the village. The economy is by and large a market economy, with few restrictions on production and exchange. However factors such as incomplete markets, imperfect information, transactions costs, and extra-economic coercion are also important features of the village economy.[10]

Income Growth, 1957/58--1983/84

The growth rate of private incomes in Palanpur is not easy to assess, for several reasons. First, the coverage of income sources and the method used for calculating household incomes were not exactly the same for each survey, although the estimates for each survey year were based on the same notion of income as net returns to all household assets. While some error certainly remains in individual income estimates, the individual errors are not likely to invalidate comparisons of per capita incomes between different years. Second, nominal income figures for each year must be deflated by a price index to become comparable, and the resulting real income estimates can be quite sensitive to choice of index. Sensitivity analysis to different price indices revealed, however, that in our context broad observations were quite robust. Finally, it is important to note that private incomes can fluctuate a great deal from year to year, as a result of the varying quality of harvest. Available evidence suggests that the harvest was fair in 1957/58, poor in 1962/63, good in 1974/75, and poor in 1983/84. The impact on incomes of harvest fluctuations depends both on the quality of the

[9] Those castes formally recognized in the constitution as occuping the lowest rankings in the caste hierarchy.
[10] These factors are scrutinized in some detail in Lanjouw and Stern (1998b).

harvest and on price fluctuations. In Palanpur prices sometimes, but not always, moved to offset the impact on incomes of harvest fluctuations. Crop failure was as often a household-specific event as a village- or even district-wide phenomenon (due to plot-specific pest attacks, for example). These fluctuations in the quality of harvest must be borne in mind while examining income trends and related economic changes in Palanpur. Bearing these qualifications in mind, table 3 presents income levels for the survey years from 1957/58 to 1983/84. [11]

[Insert table 3]

Real per capita incomes in Palanpur grew between 1957/58 and 1983/84, but not rapidly. Without any correction for fluctuating harvest quality, real per capita incomes grew by 1.4 percent. One way of adjusting for harvest quality is to estimate the growth rate between the 1957-63 sub-period and the 1974-83 sub-period (where each sub-period is the simple average of the two respective survey years, and each pair includes one good and one poor agricultural year). The trend growth rate calculated in this way is about 2.2 percent. Irrespective of the type of adjustment, economic growth in Palanpur was sluggish, as in most parts of India during this period. Even so, per capita income growth in Palanpur is widely acknowledged by villagers themselves to have resulted in an expansion of purchasing power.

Forces of Change

As has already been noted, there have essentially been three, largely exogenous forces of change that have exercised a profound influence on the Palanpur economy. These are population growth, agricultural change, and occupational diversification.

Population growth. Between 1957/58 and 1993, the population of Palanpur roughly doubled (table 4).[12] This has presented the village with a crucial challenge, given that the amount of

[11] Recall that the shorter duration of the 1993 survey prevented collection of the detailed economic information necessary to construct an income measure for 1993 that is comparable to that of the earlier survey years.

[12] As can be seen in table 2, the migration-adjusted population growth rate is somewhat higher than what obtains by simply looking at the village population. Over this survey period. there has been net out-migration. This has most commonly taken the form of whole households migrating out of the village (although some offsetting in-migration of households has also occurred). Migration of households has most often involved the movement of households of the same caste, often related to one another, to and from the village.

land has remained more or less constant over the same period. By 1993, land owned per person had declined to no more than 0.33 acres. This implies that, if Palanpur farmers had retained the same cultivation practices as in the 1950s, total agricultural output would be equal to no more than 125 kgs of grain per person per year. Because of population growth, it was simply not possible for villagers to maintain the same occupational patterns and technological practices as in the 1950s.[13]

[Insert table 4]

Agricultural change. Technological change in agriculture has occurred in three important respects: an expansion in irrigation (from about half the village land in 1957/58 to virtually all by 1974/75); the adoption of modern cultivating practices involving new seeds, chemical fertilizers, better irrigation, and higher yields;[14] and some mechanization toward the end of the survey period. The first two aspects of technological change can be seen as land-augmenting technological change (permitting double cropping, for example), while the last is more clearly associated with labor displacement.

Technological change in agriculture has been associated with dramatic increases in yields (table 5) between 1957/58 and 1983/84. Wheat yields (the principal crop grown in the winter season) have more than doubled and even more dramatic improvements have been recorded for paddy (one, among several, important summer crops). It is clear that in the face of sharp population growth, these changes in agricultural practices have been vital in preventing incomes from collapsing. However, while these achievements are remarkable, it would be misleading to imply that cultivation in Palanpur is now on the frontier in terms of best-practice techniques. In fact, there is still much room for improvement. Palanpur farmers tend to sow late (especially with the expansion of double-cropping, which puts greater time pressure on land preparation); they usually sow second-rate or adulterated seeds; and they are casual about other cultivation-related details, such as weeding and application of fertilizer.

[13] While population growth has been an important factor of economic change, demographic change itself has been quite slow in Palanpur. The very high share of children in the population suggests that the growth of the Palanpur population is not likely to slow markedly in the near future.

[14] New seed varieties and fertilizers were first introduced in Palanpur in the mid-1960s. Thus, the first two survey years can be viewed as describing the situation before the introduction of these new technologies and the later surveys describing the situation afterwards. It should be stressed that although the term "green revolution"

These shortfalls are associated with suboptimal investment levels (linked to the operation of the credit market) and slow innovation (linked to poor basic education levels).

[Insert table 5]

Occupational Diversification

The third main force of change in Palanpur has been the marked expansion of income opportunities outside of agriculture. Economic development is often viewed in terms of the transfer of labor from the traditional low-productivity sector to the modern, high-productivity sector. In Palanpur two, related trends have taken place. First, there has been a steady weakening of the traditional caste-based pattern of occupations. By 1993, among castes other than the Muraos, only three households in Palanpur (a barber, a sweeper, and a carpenter) were engaged in their traditional occupation in the strictest sense of the term. Essentially, each caste is now engaged in some combination of cultivation and (mainly non-agricultural) wage employment.

The second major development on the occupational front has been the expansion of non-agricultural wage employment in Palanpur. This has mainly taken the form of regular or semi-regular employment outside the village. This is distinguished from "casual" daily wage employment by a modicum of employment security, and usually involves monthly as opposed to daily wage payments. The distinction between regular and semi-regular employment in this chapter relates essentially to the notion that the former implies secure employment, locally known as "service" (*naukree*), often in the form of permanent positions in the public sector.

In Palanpur, wage employment outside the village usually involves commuting on a daily basis to the nearby towns within the district. Much of the commuting occurs by train, as a railway line runs by the village. Although relatively few trains actually stop in Palanpur, villagers with jobs in the nearby towns of Chandausi or Moradabad are usually able to catch a

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is often employed, the process of technological change in Palanpur has been rather more incremental and cumulative than the term suggests.

morning outbound and evening return train so that they can continue to reside in Palanpur, and maintain an involvement in village economic and social life.[15] With the exception of the railways, most employment outside the village occurs in the private sector. Work conditions in the railways tend to be relatively undemanding, but in the private sector, wage employment often involves long hours, night shifts, and a fast pace of work. Even so, regular non-farm employment is much sought-after by villagers in Palanpur, particularly among the younger adult males in the village, and such indications of excess demand for employment in the non-agricultural sector raise the question as to how these are allocated. We return to this question below.

The Growth of Outside Jobs

Tables 6 and 7 present information on wage employment outside the village ("outside jobs." for short) in each survey year. The focus of these tables is on wage employment of a regular or semi-regular nature, as opposed to casual labour. Some laborers in Palanpur, particularly Jatabs, occasionally work as casual laborers outside the village, but such activity is excluded from this discussion. In some survey years, there are also a few cases of regular or semi-regular wage employment *within* the village. For example, in 1983/84, this included one teacher and two watchmen. For convenience, these cases have been retained in the tables, but for practical purposes, regular or semi-regular wage employment can be considered as identical to non-casual labor outside the village.

[Insert tables 6 and 7]

As table 6 indicates, the number of regular jobs held by Palanpur households outside the village has increased from only 9 in 1957/58 to as many as 57 in 1983/84, before declining again to 32

[15] In other villages, similar commuting occurs by road vehicle. In Palanpur, the nearest road is several kilometers away.

in 1993.[16] Semi-regular and seasonal wage employment has expanded significantly from each survey year to the next, including between 1983/84 and 1993. Regular outside jobs are regarded as very desirable employment opportunities by most villagers. This attitude is not difficult to understand. Earnings from regular jobs outside Palanpur are high by village standards, and equally importantly, they are relatively stable and secure. Villagers frequently comment on the harshness and frugality of peasant life compared with the soft and affluent lifestyle of those who have made it in the urban labor market. While there is no doubt some truth to this, it is also the case that some of the regular outside jobs in question are physically demanding and involve serious health hazards. The share of outside job income in total village income rose from 12 percent in 1962/63 to 15 percent in 1974/75 and 34 percent in 1983/84. Recall that we do not have income data for 1993 and are therefore unable to comment on the importance of outside job income in that year.

The growth of outside jobs represents an expansion of opportunities that has been seized by many in Palanpur, both better-off and worse-off. The distribution of outside employment opportunities has shown clear patterns, perhaps the most important being that they tend to cluster around well-defined locations and socio-economic groups. Certainly in 1974/75 and 1983/84, a small number of employers account for the majority of outside jobs. These include a cloth mill in Moradabad, bakeries in Chandausi, a liquor bottling plant, steel-polish workshops in Moradabad, and the railways. Similarly, the composition of the group of employees shows identifiable sub-groups: Jatabs have virtually no involvement in regular outside jobs, Passis had a heavy share of semi-regular jobs in steel-polish workshops in Moradabad in 1983/84, while in the same year young Thakur men were found mainly in bakeries. This phenomenon reflects the nature of the job search process in this segment of the labor market, which operates through

[16] The specific reasons for this decline are discussed further below. Note that the decline does indicate that numbers are opportunity- driven, rather than a supply side phenomenon.

"contacts" rather than through "impersonal" search by prospective employees (or employers).[17] Those who have already secured a job outside the village are usually in a privileged position to help their friends, relatives, or fellow caste members take advantage of possible vacancies in their own place of employment; and employers themselves often use their existing employees as recruiting agents. This kind of search is in sharp contrast to labor market models where all searchers have equal opportunities to fill new vacancies.[18]

In one respect, Palanpur is somewhat better placed than the "average" village in the area as regards access to outside employment opportunities: its location near the railway line. However, reasonable connections with urban areas are by no means unusual in this area, where in most villages a significant proportion of adult males commute to nearby towns by train, bus, cart, or bicycle. Moreover, a significant involvement in the labor market outside the village is now a widespread phenomenon in large parts of rural India.[19] Of course, the exact nature of those employment opportunities varies a great deal from region to region.

The growth of outside jobs may be seen as part of a process of intersectoral transfer of the labor force from agriculture but, as mentioned earlier, it is associated with commuting of some household members out of the village and a shift in the balance of activities within the household. What we observe, from the household (and village) perspective, is commuting and diversification, not migration and exit from agriculture.

[17] There may also be caste disadvantages in connection with certain types of work. For example, groups ranked low in the social hierarchy may find it difficult to gain employment in an activity involving the handling of food. Note that employment in bakeries is monopolised by Thakurs, the highest-ranked caste in Palanpur.

[18] The Harris and Todaro (1970) model, for example (at least in its most simple form) has all jobs shuffled at random in each period.

[19] See, for example, the contribution of J. Hariss in Hazell and Ramaswamy (1991). See also Sharma and Poleman (1993) for Uttar Pradesh, specifically.

The radius within which employment outside the village takes place seems to have progressively increased. While in 1957/58 most outside employment occurred in the railways, in nearby villages or in Chandausi, the network of outside jobs had expanded considerably by 1983/84 and 1993. Palanpur villagers now have a strong involvement in the labor market of Moradabad and several of them work in a number of other nearby towns such as Sambhal and Bhejoi. Some villagers have found jobs as far as Nainital, Delhi, the Punjab, and even Bhopal in Madhya Pradesh. These more distant jobs do entail migration, on either a permanent or semi-permanent basis. The process of diversification, apart from generally sustaining incomes by providing new income sources, has also introduced a stronger element of stability in incomes and reduced the vulnerability of income earning in the village to weather conditions and pests. A diversified "household portfolio" of jobs is key in cushioning against uncertainty, and may be as helpful against sudden loss of some specific non-farm job (see below) as against agricultural shocks.

Outside jobs can have a pronounced impact on the economy and living standards of a village such as Palanpur through numerous routes. Some of these may be linked only indirectly to earnings from such employment. It has been argued that a reduction in the covariance of household incomes, as brought about by the spread of outside jobs, for example, can be of importance in promoting the viability of credit or insurance arrangements (see Binswanger and Rosenzweig 1986; Platteau and Abraham 1987; Alderman and Paxson 1994). Such arrangements exist, at least in part, to offer villagers the means to smooth expenditures in the face of fluctuating incomes. If incomes for different households fluctuate in concert, then demands from individual households for loans or insurance payments will increase together and any agent seeking to offer such a service may encounter serious liquidity problems. We will examine below how far the degree to which incomes "covary" in Palanpur has fallen, and we suggest that this may be associated with the expansion of outside earnings.

Before turning to an analysis of the determinants of outside employment and incomes, we should comment briefly on the decline of regular outside employment at the end of the survey

period. As table 6 indicates, the number of regular outside jobs declined from 57 to 32 between 1983/84 and 1993. However, taking regular and semi-regular employment together (the latter having continued to expand), we find that the decline of outside wage employment between 1983/84 and 1993 is entirely accounted for by the closure of local cloth mills. This development has had an important impact in Palanpur, where as many as 17 adult males were employees of these cloth mills in 1983/84, but it is not necessarily symptomatic of a general decline in non-farm employment in the area. Further, it should be borne in mind that by the end of the survey period, the radius of wage employment outside the village had expanded considerably, with temporary migration (as opposed to commuting) playing an increasingly important role. For instance, in 1993 quite a few adult males from Palanpur had found employment in Delhi, and these adult males are not included in the village census; by implication, their jobs are not included in tables 6 and 7. In short, we have no strong evidence of generalized and sustained decline in outside wage employment after 1983/84, even though the closure of local cloth mills is an important problem for Palanpur villagers in the short term.[20]

The Determinants of Outside Employment and Incomes

We noted above that there are patterns to the gaining of outside jobs. In this section we examine those patterns in a slightly more formal way using some simple models. In table 8 we present results from three probit regressions exploring the determinants of outside job employment. Table 8a provides basic descriptive statistics of the variables included in our model, while table 8b presents the estimation results. For 1974/75 we examine the relationship between certain household characteristics and the probability of having at least one member employed in a regular outside job. For 1983/84 and 1993 we are able to examine employment data at the level of the individual to investigate the determinants of outside employment.

[20] In a revist to Palanpur in November 2000, Nicholas Stern noted that the expansion of outside jobs has contined to such an extent that a majority of households now have at least one family member involved in some non-farm activity.

[Insert tables 8a and 8b]

In 1974/75, the significant variables are land owned per household the number of adult males in the household, and the Jatab dummy. The likelihood of a household having at least one member regularly employed outside agriculture decreased with land owned and was lower for households of the Jatab caste. Households with more adult males were more likely to have an outside job (as one might expect, since an extra person provides an extra chance). The dummies for Murao and Thakur castes did not contribute to the explanation of the probability of outside employment.

In 1983/84, the significant variables were land owned per household, number of adult males, years of completed schooling of the individual with the outside job, and the dummy for the Jatab caste. Once again, land owned per household and the number of adult males contributed in a significant way to the probability of employment in a regular outside job (although note that now the data are at the individual level). Jatabs were less likely to have regular outside employment.

The more of years of schooling, the greater the probability that an individual would have a regular job in 1983/84. However, of the 57 Palanpur villagers with regular outside jobs, 27 had not had any formal schooling at all. As can be seen in table 6, "regular" outside jobs comprise a heterogeneous group of activities, some of which apparently do not require formal qualifications.

While the coefficient on the Thakur dummy was insignificant for both 1974/75 and 1983/84, it switched in sign (from negative to positive) across the years. This switch accords with the impression that by 1983/84 individuals of this caste were becoming increasingly interested in outside employment, perhaps as a way to counter their apparent decline in economic status within the village.

The results for 1993 are similar to those for 1983/84, though the fit is markedly lower and only the number of adult males is significant (though education is not far from significance). The less informative nature of the 1993 results may well reflect the fact that a large group of young men had lost their outside jobs in the cloth mills just before that year, as discussed in the previous section.

We turn next to an examination of the determinants of household *earnings* from regular outside jobs (table 9). For this purpose we use the Tobit model.[21] From the estimated coefficients in 1974/75, an additional *bigha* owned - about 0.15 acres - reduced household earnings from regular outside jobs by Rs (rupees) 83 (at 1974/75 prices).[22] An additional adult male increased regular outside job income by Rs 1,403, while a household with at least one literate member, other things being equal, earned Rs 2,225 more from regular outside employment. Controlling for other household characteristics, Thakur households tended to earn roughly Rs 2,000 less than reference households from regular outside employment and Jatabs earned about Rs 3,400 less. Passi households, on the other hand, earned about Rs 2,500 more from regular outside employment.

[Insert table 9]

In 1983/84, an additional bigha of land owned reduced the average amount earned from regular outside employment by Rs 94 (again at 1974/75 prices). An additional adult male increased earnings from regular outside employment by Rs 1,452, and an additional year of schooling (for the most educated family member) raised these earnings by Rs 742. Once again, Jatabs earned substantially less from regular outside employment than other villagers.

[21] In the absence of income data for 1993, we focus our attention here on 1974/75 and 1983/84. Note that in *both* years, the unit of observation is the household (unlike in table 8).

[22] We are speaking loosely here in interpreting the coefficient as the derivative of income with respect to a variable. In the Tobit, as in other limited dependent variable models, the expectation of the left-hand side variable, *y*, conditional on the right-hand side variable should take into account the probability of *y* being positive.

This simple econometric exercise suggests that certain factors have had a consistent influence, over time, on the acquisition of regular outside employment. For example, in both 1974/75 and 1983/84, Jatab households were less likely to obtain regular outside employment and also earned less from regular employment outside agriculture. Similarly, households with more adult males were more likely to obtain regular employment outside the village and had a greater income from outside sources. This latter observation, while not terribly surprising, is consistent with the notion that the pressure of population growth was being felt in Palanpur and that outside employment has a role to play in helping households combat the threat of falling per capita incomes in the face of a growing population and a fixed land area. In both survey years, households with large landholdings tended to figure less prominently among those with outside jobs and to earn less from regular outside employment. Finally, education was clearly and positively associated with outside employment and outside incomes.

In other respects, there is evidence that between 1974/75 and 1983/84 the distribution of regular outside jobs and incomes shifted. There is some suggestion that Thakurs switched from having a lower probability of regular employment outside the village to having a higher probability of such employment (as well as higher incomes). Passis seem to have lost the advantage that their greater historical exposure to the outside world (in particular through railway work) had conferred on them.

Outside Jobs and the Diversification of Income Sources

We have noted above that a diversification of sources of income, for example through the spread of outside employment opportunities, can reduce the extent to which total incomes covary across households. With incomes derived from different sources, the set of shocks to which households are exposed is not identical. This could, in principle, have important

implications for the viability of insurance or credit arrangements within a village such as Palanpur.

Establishing whether, in fact, the covariance of incomes in Palanpur has declined over time is not a straightforward exercise. It is difficult, for example, to isolate expected or "permanent" income for a household in any one year from the "transitory" component. One way forward is to take the four observations of per capita income (corrected for price changes)[23] for each continuing household and average them. This average per capita income can be interpreted (somewhat tentatively) as a measure of expected or "permanent" income. Accordingly, the difference between actual income in any one year and this permanent income can be defined as transitory income (possibly negative). We express the difference between actual and permanent income as a proportion of permanent income, so that shocks are interpreted as percentage deviations from permanent income.

Clearly, in an agricultural setting, income shocks often take the form of harvest failures or bumper crops due to climatic conditions.[24] These shocks would affect all households engaged in agricultural production. Where all households are exposed to the same shocks, their actual incomes in any one year will tend to deviate in similar ways from their permanent income levels. The question is whether in Palanpur, with the expansion of outside jobs over time, households have become differentiated in the shocks they face. As table 10 shows, the distribution across households of transitory income within a period, represented by the coefficient of variation, became more equal over time for the first three survey years. This may be interpreted as saying that household income became more covariant over time in the sense of proportional movements becoming less dispersed. By 1983/84, however, the coefficient of variation of transitory income increased dramatically. This suggests there was a sharp reduction in the degree to which household incomes were governed by common forces in the last survey year.

[23] But not allowing for a trend.

[24] Note that pests and other mishaps can be local and that farmers can differ in the steps they take to mitigate risks.

[Insert table 10]

While it is tempting to attribute the rise in the dispersion of transitory incomes between the earlier years and 1983/84 to the expansion of outside employment opportunities, it is worth remembering that the expansion of outside employment started between 1962/63 and 1974/75, and the inequality of income "shocks" between those two years actually declined. Nevertheless, the types of activities in outside jobs in 1983/84 were much more varied in number and nature than in 1974/75.

Poverty In Palanpur

Examining the determinants of poverty and the characteristics of those who are poor requires operational definitions of poverty. Poverty lines are usually defined in terms of income or expenditure and absolute poverty is generally defined in terms of an income or expenditure required to meet some specified living standard. This has been the dominant practice in India. We use the poverty line for rural areas proposed by V. Dandekar and N. Rath (1971): Rs. 15 per person per month at 1960/61 prices. Relative prices between Uttar Pradesh. and India as a whole for 1963/64 were used to obtain a corresponding poverty line for Uttar Pradesh in 1960/61 (see the contribution of N. Bhattacharya and G.S. Chatterjee 1974). This figure is then deflated using the appropriate year's price index to obtain a poverty line in terms of current income per person for each of our survey years. Based on this procedure, 40 percent of Palanpur households (accounting for 34 percent of the village population) were below the poverty line in 1983/84 (see table 3).

In this chapter we are interested not only in the number of persons who are poor in an absolute sense, but also in the characteristics of those at the lower end of the income distribution. For this reason we shall also examine relative poverty measures, concentrating in particular on the

bottom 40 percent in terms of per capita income. The choice of 40 percent has its arbitrariness, just like any absolute poverty line, but we shall not be concentrating solely on the bottom 40 percent as an undifferentiated group and will also look at the characteristics of individual households and their specific circumstances.

Our analysis of poverty is largely based on current household per capita income. This is a fairly common procedure, but it does require caution. Short-run income fluctuations do not necessarily reflect underlying levels of living because consumption can be smoothed over time, if credit or savings opportunities are available. Further, income may be measured with error. In both cases the implication is that the data are noisy. The presence of noise will tend to increase the estimated incidence of poverty (as measured by the "head count" ratio).[25] Moreover, if we consider two groups within the population such that one group is concentrated above the poverty line and the other below, then the presence of noise will lead us to overstate the incidence of poverty for the former group and understate the incidence for the latter group. Further, these biases will be larger in the case of groups for which the "noise" component of income is particularly important.

Using the Dandekar and Rath absolute poverty standard (see above) we find that the proportion of households below the poverty line was 47 percent in 1957/58; 55 percent in 1962/63; 13 percent in 1974/75; and 40 percent in 1983/84 (table 3). The year 1983/84 was poor for agriculture, 1974/75 was quite good, 1962/63 was somewhat below average, and 1957/58 was average. The fact that the incidence of poverty was lower in 1983/84 than in either 1957/58 or 1962/63,in spite of bad harvests in 1983/84, suggests that there has been a sustained (though not large) decline in poverty during the survey period. Broadly speaking, we would suggest that

[25] For any unimodal distribution, if the poverty line lies below the distribution's mode (and vice versa). This result is specific to poverty as represented by the headcount measure. For poverty measures that belong to the Foster Greer Thorbecke (FGT) class, M. Ravallion (1988) shows that the presence of noise leads to an increase in measured poverty incidence regardless of where the poverty line is relative to the mode of the distribution; see also Ravallion (1994).

around the earlier pair of years poverty was around 40-45 percent in years of normal harvests, compared with 20-30 percent around the later pair. These judgements take into account the quality of harvest and also the shapes of the income distributions in the respective survey years.[26] In general, this decline in poverty is consistent with complementary evidence on asset ownership and real wages, as well as with the villagers' own perceptions. What is difficult to say with any confidence on the basis of income data is what happened between 1974/75 and 1983/84. The headcount index rose substantially between those two particular years (after a large decline between 1962/63 and 1974/75), but the fact that 1974/75 was a good agricultural year and 1983/84 was not undoubtedly accounts for at least part, and possibly all, of the apparent increase in poverty.

The Correlates of Poverty

In table 11, we provide figures for the incidence of poverty in terms of the per capita income for each of the four survey years, looking at a range of household characteristics. As our focus is on the characteristics of households at the bottom of the income distribution rather than some notion of absolute poverty, the poverty line has been set at a level such that 40 percent of all households are poor in each year. Consistent with our emphasis in this chapter on non-farm employment as a route out of poverty, we see that the poverty incidence of households with regular outside jobs is invariably below the village average. Particularly high poverty incidence in all four survey years is observed for agricultural labor households, as well as Jatab, Dhimar, and Teli households. Thakur and Murao households were consistently less likely than average to be among the poor in all four survey years.

[Insert table 11]

[26] For example, the poverty line cuts the distribution of income for 1962/63 at a point where a large number of households are clustered. This means that were a better harvest in 1962/63 to have boosted all household incomes by, say, 15 percent, then a large number of households would have crossed the poverty line, and the incidence of poverty among households in 1962/63 would have fallen considerably, from 55 percent to 47 percent.

Looking at poverty across years for different groups, there is little evidence of particular groups becoming increasingly vulnerable to poverty (in the sense of being in one of the four bottom deciles) over time. However, it is clear that variations in income components relating, for instance, to the quality of the harvest, will affect the identity of the poor in any one year. For instance, the (comparative) poverty incidence of households with regular jobs was lowest in the two years during which harvests were poor (1962/63 and 1983/84), at least partly because cultivating households had depressed incomes. Similarly, households of the Murao caste, with their heavy focus on agriculture, registered their highest incidence of poverty in those two years. Only for landless agricultural labor households did the incidence of poverty never fall between any two years, and it rose from 0.33 in 1957/58 to 0.64 in 1983/84. These households do not appear to have been able to take advantage either of outside jobs or increasing yields. Their experience, as well as that of Jatab households (also increasingly over-represented among the poor over time), suggests the possibility that such households have experienced a relative decline over time in the village economy.

To summarize, the poor in Palanpur form a varied and heterogeneous group. Certain household characteristics, such as employment as an agricultural laborer or being of the Jatab caste, appear sufficient to ensure a high risk of poverty. Other characteristics that one might have thought to be closely linked to poverty, however, are less successful in identifying the poor. Landlessness or the absence of a family member who is able to work, for example, do not, of themselves, guarantee that the household will be poor. This observation, while simple, is important. Although one might be tempted to target the poor in a village like Palanpur on the basis of a few obvious household characteristics, at best only a subset of the poor would be identified in this manner --- and possibly no small number of the non-poor.

Poverty and the Non-Farm Economy

We have seen in the preceding sections that the occupational diversification in Palanpur was substantial in the period 1957-93. We have also provided evidence of some, albeit modest,

decline in absolute poverty during this time period. For the purpose of this chapter the key question concerns the contribution of the non-farm sector to this poverty decline. In this section, we look a bit more closely at the specific linkages between the rural non-farm economy and poverty. We suggest that the relationship is fairly complex and involves both direct and indirect paths of influence. On the whole, we find that the non-farm sector plays a significant role in both mitigating and reducing poverty.

Non-Farm Employment as a Safety Net

In the second section of this chapter, we highlighted the expansion of regular and semi-regular non-farm employment in Palanpur during the survey period and pointed to the strong interest among villagers in such jobs, as well as the relatively high and stable incomes with which they are associated. We also noted , however, that at least some of the non-farm activities villagers are engaged in are of a more casual, low-return nature. These non-farm jobs take a variety of forms, including rickshaw pulling or casual coolie-work in the nearby towns of Chandausi and Moradabad. The jobs typically require very low levels of education and few specific skills. They are often physically strenuous, pose serious health risks, and are typically poorly remunerated.

Rather than representing a promising source of upward mobility, these casual non-farm employment opportunities are best seen as "last resort" options that villagers turn to in times of hardship, after having exhausted other options. In this respect, casual non-farm jobs and casual agricultural employment resemble each other closely; they are unattractive options that villagers turn to only when they have no choice. Not surprisingly it is poor people who are most highly represented in these occupations. The incomes that derive from these jobs do not suffice to lift the poor above the poverty line and in that sense they do not contribute noticeably to a reduction in poverty. In fact, they are perhaps better viewed as a *symptom* of poverty.

However, it is important to recognize that absent these last-resort income sources, the poor would in all likelihood be even worse off. As such, residual-employment in the non-farm sector serves an important function as a safety net. With continued population growth, a fixed land endowment, and only modest technological progress in agriculture, such a safety net is

of critical importance, particularly when the evidence suggests that certain segments of the village population are badly placed in terms of access to regular non-farm employment.

The Functioning of the Regular Non-farm Labor Market

Regular and semi-regular non-farm employment yields high and, equally importantly, stable, income in Palanpur. Discussions with villagers point unambiguously to the widespread desirability of these jobs. Earlier, we noted that the process of allocating non-farm employment favored groups in Palanpur that enjoyed relatively high social status, and that possessed good networks of contacts outside the village. The payment of bribes in order to gain access to a particularly appealing job (such as "lifetime" employment in the railways) is not uncommon. Factors such as female gender, low-caste status, and low levels of education are associated with lower probability of employment in the non-farm sector, and with lower incomes where such employment does occur. These observations are consistent with rationing of the more attractive non-farm jobs, and with an allocation mechanism that favors the village elites.

Thus, unlike with casual non-farm employment, the poor do not appear to directly benefit from the more dynamic sub-sector of the non-farm economy. To the extent that this observation holds more widely in rural India, it serves as a reminder to policymakers to remain realistic when looking for direct impacts on poverty from an expanding non-farm sector.[27] As we shall see below, however, there are dynamic and indirect impacts that may provide grounds for greater optimism.

A Pro-poor "Marginal Incidence" of Non-farm Employment

There is an important sense in which the preceding assessment of the non-farm sector's contribution to poverty might be overly pessimistic. Tables 12-15 present an individual examination of the 25 households in each of the four survey years that are located at the bottom of the distribution in that year. These are listed by rank of current income per capita in each respective year between 1957/58 and 1983/84. As has already been noted,

involvement in casual labor (both agricultural and non-agricultural) is over-represented in all four survey years, confirming that these jobs are of particular importance to the poor (increasingly so over time). However, what is also evident from these tables is that the number of poor households with some regular non-farm employment has also been rising. In the first two survey years, at most one or two of the bottom 25 households had some employment in regular or semi-regular employment outside the village. In 1974/75, there were 44 regular and semi-regular non-farm jobs reported in the village. Of these, 12 were held by the bottom 25 households. In 1983/84, of the 57 regular and semi-regular non-farm jobs, 7 were held by the bottom 25 households.[28] There is some suggestion that as the non-farm sector has expanded the poor have become better able to tap into various types of non-farm employment.

[Insert tables 12-15]

This observation is given strong support from the personal observations of Nicholas Stern, during his visit to Palanpur in November 2000. He noted that a significant majority of Palanpur families now have at least one family member working outside the village. What is particularly noteworthy is that this observation applied to all castes, including the Jatabs who had hitherto been virtually excluded from regular non-farm employment. Stern noted significant housing investments by Jatab households financed out of these non-farm occupations: for example, the conversion of *kaccha* (mud) houses to *pukka* (brick)ones). Much of this employment was in the construction sector and as such does not imply marked improvements in skills or educational qualifications amongst the Jatabs.

The above discussion points to the important distinction between a static, snapshot impression of the incidence of non-farm employment (as examined, for example in the probit models described in the second section) and the evolution of that incidence over time. We suggested earlier that access to non-farm employment, particularly the well-paid regular jobs, has tended to be captured by the relatively advantaged segments of the village population.

[27] Peter Lanjouw and Abusaleh Sharriff (2002) estimate state-level models of the probability of employment in non-farm jobs using nationally representative NCAER data for rural areas, and obtain findings that are qualitatively very similar to those observed in Palanpur.

[28] Due to the particularly good harvest in 1974/75, the bottom 25 households in that year include few cultivating households. For this reason, households reliant on non-farm sources of income are particularly highly represented among the bottom 25.

One can readily imagine that when non-farm opportunities first present themselves, the village elites (defined in terms of wealth, contacts, education levels, and so on) are the first to avail of these new opportunities. The advantaged position of these segments generates a snapshot impression of a highly regressive incidence of non-farm employment. However, as the non-farm sector continues to expand, the relatively less well-off might start to gain access, as well. Eventually even the poorest segments of the population are able to gain access. The experience in Palanpur suggests that such a process might well be taking place, especially if one takes note of the observations from the re-visit in 2000. For policymakers, the lesson is clear. An assessment whether to pursue efforts to expand the non-farm sector should not be based solely on a static analysis of who the beneficiaries of such employment opportunities are at any given moment. Rather, possibilities for other potential beneficiaries should also be considered.

Evolution of Agricultural Wages

Our discussion of the profile of poverty in Palanpur above indicated that agricultural labor households are highly represented among the poor in all the survey years covered in the study. This close association between agricultural labor and poverty is a well known feature of rural India.[29] A key question of interest in this connection relates to the evolution of agricultural wages over time. In Palanpur, agricultural wages at any one moment in time tend to be quite uniform across the village (although not necessarily the same as in the neighboring village).[30] However, over time, these wage rates have been on an upward trend. In Palanpur in 1957/58, a day's work as an agricultural laborer yielded an income sufficient to purchase about 2.5 kgs of wheat (at the post-harvest wheat price). This had risen to about 5 to 6 kgs of wheat in 1984/84 and up to 8.3 kgs of wheat in 1993. In the 2000 revisit to Palanpur by Nicholas Stern, a day's work as an agricultural laborer was reported to yield about 11 kgs of wheat.[31]

[29] See for example, Singh (1990).
[30] Mukherjee (1998) and Drèze and Mukherjee (1989) provide a detailed description of the features of Palanpur's agricultural labor market and discuss the possible factors that account for the widely observed uniformity of agricultural wages within villages in rural India.
[31] It is of some interest to note that in Palanpur in 1993 nominal agricultural wages stood at 25 Rs. per day, and at the time of Stern's revisit in 2000, they stood at 50 Rs per day. Analysis of National Sample Survey data for

Such a rise in real wages is rather noteworthy, especially in light of a fairly rapidly growing village population and a fixed endowment of land. All things equal, with a static technology and fixed land, one would have expected that declining per capita landholdings would have released growing numbers into the village labor market and that this would have exerted downward pressure on wages. We have noted, however, that alongside population growth, another important force of change in Palanpur has been agricultural intensification associated with new technologies. Some of these technologies have been land-augmenting (such as the use of irrigation, fertilizers, and new seeds) and as such would have contributed to a growing demand for agricultural labor (and upward pressure on wages). However, alongside these technological changes, there have also been labor-displacing innovations (the use of tractors and other mechanized inputs) and these would tend to dampen pressure on wages. In fact, it is possible that labor-displacing technological change has been more pronounced in recent years than the land-augmenting form. Yet wage increases have continued. The expanding non-farm sector (including both regular and casual employment) is likely to also have played a role in tightening the village labor market.

It is difficult to document systematically how the non-farm sector in Palanpur has contributed to rising agricultural wages in the village. In this specific setting we must appeal to our general knowledge of the evolution of the village economy, and the absence of any other factor that could convincingly account entirely for this time-path of agricultural wages. However, econometric evidence of a relationship between nonfarm employment and agricultural wages at the national level also supports this conjecture. Peter Lanjouw and Abusaleh Shariff (2002) estimate a regression of village-average agricultural wages on village-level "yields" (gross agricultural output divided by land cultivated), population density, and non-farm employment shares across 1300 Indian villages in the 1994 NCAER dataset (controlling for state-level fixed effects) and find an independent, positive, and significant effect of non-farm employment shares on agricultural wages. This evidence thus also points to an important role played by the non-farm sector in addressing rural poverty: namely, in raising the wages upon which the rural poor are heavily dependent.

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the 50th (1993/4) and 55th (1999/2000) rounds finds respective average nominal agricultural daily wages in Western Uttar Pradesh of Rs 27 and 50 per day (World Bank 2002).

Conclusion

This chapter opened by posing a set of questions regarding the evolution of poverty in rural India during the past decade and the mechanisms that have been influential in this process. It is clear that this chapter has not been able answer all these questions. First of all, we have been concerned in this chapter with the experience of development in only one village in rural India (out of perhaps half a million or more). Second, we have not focused our attention specifically on the evolution of poverty in Palanpur during the past decade. Rather we have been concerned with taking a long-term view of development in Palanpur over as many as five decades. We have tried to use this perspective to identify some of the mechanisms that could be playing a role in determining poverty outcomes during the 1990s.

Our focus in this chapter has been on the role of growth of the rural non-farm economy in determining income-poverty in Palanpur. Interest in this sector of the rural economy is prompted by the fact that the reform process that was initiated in India during the 1980s and early 1990s, and which continues today, has as a major objective the creation of a better investment climate. In a country such as India, one would expect that such an improved investment climate would be reflected in an expansion of a wide variety of non-farm activities. The question that then arises is whether, and how, such an expansion would influence the lives of the rural poor.

Our analysis suggests that under the umbrella of the non-farm "sector," there is a value to distinguishing between casual non-farm activities on the one hand, and regular or semi-regular non-farm employment, on the other. The former "outside jobs" can be viewed as offering a safety net to the poorest of the poor. While they are not highly remunerative, they help protect the poor from falling even further into poverty. The latter, more attractive, non-farm jobs have not typically gone to the poor; they lack the education, skills, contacts, and wealth to compete for those jobs that offer high and stable returns. We suggest that such non-farm jobs are prone to "capture" by the non-poor (in Palanpur and elsewhere) and as such, are not likely to have directly contributed in a major way to the reduction of poverty over time.

However, that assessment does need to be qualified in two important respects. First, we suggest that as the non-farm sector has expanded over time, it has gradually come to involve more of the relatively poor in the village. The dynamic, marginal incidence of non-farm employment seems to be more progressive than the incidence in a given survey year would suggest. Second, despite steady population growth over time, and an accompanying decline in per capita landholdings, agricultural wages have risen in Palanpur. This is no doubt in part due to the labor-intensity of new agricultural technologies, but it is likely that growth of the non-farm sector has also contributed to a general tightening of labor markets, resulting in rising agricultural wages. Given the importance of agricultural labor to the poorest of the poor in Palanpur, and in rural India more generally, the tightening of agricultural labor markets has been extremely important in raising living standards of the poor.

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Table 1. A Village Profile of Palanpur, 1993

Location	13 kilometres north of Chandausi, a small town in the Moradabad district, in Uttar Pradesh
Population	1,133
Number of households	193
Proportion of Muslims (%)	12.5
Main Hindu castes[a]	Thakur, Murao, Dhimar, Gadaria, Passi, Jatab
Literacy rate, age 7+ (%)	
Female	9
Male	37
Main economic activities	Agriculture, livestock, wage employment outside the village
Total land owned[b]	2,383 bighas (372 acres)
Proportion of landless households (%)	23
Proportion of land irrigated (%)	96
Main crops	Wheat, rice, sugarcane, bajra, jowar, vegetables, pulses
Main public amenities	Primary school, railway station temples, wells, pond

Note:
[a] On the size and other characteristics of different castes, see table 2.
[b] Not including residential plots.

Source: Drèze and Sharma 1998.

Table 2. Caste Composition of the Village Population, 1993

Caste	*Number of individuals and households*[a]	*Traditional caste occupation*	*Main current occupations*[b]	*Annual growth rate of population, 1957-93*[c]	*Literacy rate, age 7*[+] *(percentage)*		*Land owned per capita*[d] *(bighas)*	*Percentage of households with at least one regular job*	*Percapita income, 1983/84 (Rs/year)*
					Male	Female			
1. Thakur	283 (48)	Warriors	CT, RJ	2.8 (2.7)	56	19	2.4 (1.9)	21	1,119
2. Murao	294 (44)	Cultivators	CT	2.6 (2.7)	39	2	3.5 (3.5)	14	1,265
3. Dhimar	82 (14)	Water-carriers	CT, RJ	1.1 (1.8)	35	8	0.5 (1.3)	36	1,026
4. Gadaria	89 (14)	Shepherds	CT, RJ	2.1 (2.5)	26	11	1.9 (2.2)	7	1,112
5. Dhobi[e]	31 (5)	Washermen	CT, RJ, CL	4.6 (n/a)	15	0	1.6 (2.0)	0	922
6. Teli[e]	109 (20)	Oil-pressers	CT, RJ, CL	2.3 (2.2)	21	3	1.1 (1.9)	15	784
7. Passi[f]	62 (15)	Mat-makers	CT, RJ	0.3 (1.2)	46	7	1.3 (0.6)	13	1,202
8. Jatab[f]	133 (24)	Leather workers	CT, CL	1.7 (2.0)	12	0	1.3 (1.4)	0	436
9. Other	50 (9)	Miscellaneous	RJ, SE	1.5 (-1.3)	57	29	0.5 (0.8)	44	1,023
All castes	1,133 (193)	Miscellaneous	CT, RJ, CL	2.1 (2.3)	33	8	2.1 (2.1)	17	1,025

Note: The arrangement of castes in this table follows Bliss and Stern 1982. The term "regular job" refers to wage employment with monthly salary and some security of employment.

[a] Number of households in brackets.

[b] CT = cultivation; CL = casual labour; SE = self-employment; RJ = regular job.

[c] In brackets, migration-adjusted population growth rates (see chapter 1 of Lanjouw and Stern 1998 for details).

[d] In brackets, land cultivated per capita (bighas).

[e] Muslims. [f] Scheduled caste.

Source: Drèze and Sharma 1998.

Table 3. Real Incomes in Palanpur, 1957-84

	1957/58	*1962/63*	*1974/75*	*1983/84*
Per-capita income at current prices (Rs/year)	173	149	1,039	1,025
Index of per-capita income at current prices (1957/58=100)	100	86	602	594
Real per-capita income at 1960/61 prices[a]	161	152	275	194
Inequality indices Gini coefficient				
Coefficient of variation	0.336	0.390	0.253	0.307
Atkinson index ($\varepsilon = 1$)	0.649	0.871	0.504	0.545
Atkinson index ($\varepsilon = 2$)	0.178	0.251	0.105	0.158
Atkinson index ($\varepsilon = 5$)	0.338 0.647	0.485 0.821	0.206 0.483	0.342 0.741
Poverty indices Head-count index Poverty-gap index Squared-poverty-gap index	0.47 0.18 0.09	0.54 0.24 0.14	0.11 0.03 0.02	0.34 0.12 0.07

Note: The inequality and poverty indices appearing in this table are based on treating each individual as one observation, with each individual within a household having the same per-capita income.

[a] Calculated by deflating the nominal per-capita income figures by the Consumer Price Index for Agricultural Labourers for Uttar Pradesh, with 1960/61 as the base.

Source: Drèze, Lanjouw, and Sharma 1998.

Table 4.

Palanpur: Population In Different Survey Years

	1957/58	*1962/63*	*1974/75*	*1983/84*	*1993*
Population	528	585	790	960	1,133
Number of households	100	106	117	143	193
Average household size	5.3	5.5	6.8	6.7	5.9
Female-male ratio	0.87	0.87	0.85	0.93	0.85
Annual growth rate of population since previous survey[a] (%)	-	2.2 (2.3)	2.5 (2.7)	2.2 (1.9)	1.7 (2.2)
Age distribution of the population (%)					
0-14	39	38	46	44	41
15-24	21	19	15	20	21
25-44	23	25	25	23	22
45-64	14	13	12	10	12
65+	3	5	2	3	4
Proportion of the population in different caste groups (%)					
Thakur	20	21	22	23	25
Murao	22	23	23	23	26
Muslim	10	10	12	12	12
Jatab	13	12	12	12	12
Other	35	34	31	30	25
Proportion of households of different types[b]					
Single-person	6	6	3	3	3
Nuclear	45	44	41	44	54
Stem	28	28	29	33	31
Joint	21	22	28	20	12

Note: The 1974/75 population includes 6 households excluded by Bliss and Stern (1982) on the grounds that these households were not involved in cultivation.

[a] In brackets, the corresponding "migration-adjusted growth rate," defined as the population growth rate for the set of households that stayed in the village throughout the survey period.

Source: Drèze, Lanjouw, and Sharma 1998.

Table 5.
Cultivation Details for Selected Major Crops in Palanpur

Crop	*1957/58*	*1962/63*	*1974/75*	*1983/84*
Wheat				
Area cultivated (bighas)	879	767	1030	1573
% of total cultivated area[b]	52%	48%	46%	57%
Yield (kg/bigha)	41	41	114	101
Real Output Value/bigha[c]	16.46	22.07	41.17	26.53
Paddy				
Area cultivated (bighas)	70	274	125	266
% of total cultivated area[b]	5%	17%	6%	12%
Yield (kg/bigha)	11	26	103	130
Real Output Value/bigha[c]	2.13	9.77	32.63	34.32
Bajra (*millet*)				
Area cultivated[a] (bighas)	644	638	610 (730)	137 (363)
% of total cultivated area[b]	46%	40%	29%	6%
Yield (kg/bigha)	34	27	59	48
Real Ouput Value/bigha[c]	10.16	11.76	20.05 (20.31)	11.69 (13.68)

Note:
The average yield figures for 1962/63 are somewhat misleading in that they exclude cases of zero output, which were not uncommon in that year due to total crop failure on a number of plots. The true average yields, inclusive of cases of zero output, would be lower.

[a] The figures in brackets include plots sown with mixed crops. In these cases, the area figures are upper bounds on the effective areas.

[b] Proportion of area cultivated refers to percentage of area under the specified crop for the relevant season (rabi for wheat; kharif for paddy and bajra).

[c] Real values are obtained by deflating with price deflators used elsewhere based on the Consumer Price Index for Agricultural Labourers (CPIAL) for Uttar Pradesh. All values are in 1960/61 rupees.

Source: Bliss Lanjouw, and Stern 1998.

Table 6. Regular Wage Employment Outside Agriculture, 1957–93_(number of persons with the stated job)

Job	*1957/58*	*1962/63*	*1974/75*	*1983/84*	*1993*
Regular jobs involving good education or skills					
Teacher	0	0	3	2	4
Mechanic	1	1	0	0	0
Electrician	0	0	1	0	0
Insurance salesman	0	0	0	1	0
Cook	0	0	0	1	0
Skilled work in bakery	0	0	0	1	5
Clerk in factory	0	0	1	0	0
Accountant	0	0	0	0	1
Regular jobs involving limited training or skills					
Chowkidar (watchman)	2	0	1	3	1
Permanent railway employee	3	5	6	10	9
Non-permanent railway employee	1	0	3	6	2
Permanent servant	1	0	0	0	0
Cloth mill employee	0	1	11	17	closed
Cane center employee	0	0	2	0	0
Bakery employee	0	0	0	7	0
Security guard or policeman	0	0	0	2	2
Coal depot employee	0	0	0	1	0
Sugar mill employee	0	0	0	1	1
Bank employee	0	0	0	1	1
Press employee	0	0	0	0	1
Permanent coolie	0	0	0	1	1
Sweeper	0	0	0	0	3
Service in tehsil	0	0	0	1	1
Unspecified regular job	1	3	9	2	0
Total	9	10	37	57	32

Source: Bliss, Lanjouw, and Stern 1998.

Table 7. Semi-Regular and Seasonal Wage Employment Outside Agriculture, 1957-93 (number of persons with the stated job)

Job	*1957/58*	*1962/63*	*1974/75*[1]	*1983/84*	*1993*
Semi-regular and seasonal jobs involving training or skills					
Tailoring in shop	0	0	0	1	0
Temporary teacher	0	0	0	0	1
Anganwadi manager	0	0	0	0	2
Semi-regular and seasonal jobs involving limited skills					
Sugarcane factory employee	0	0	1	1	1
Oil mill employee	0	0	1	1	0
Chowkidar (watchman)	2	4	1	0	0
Steel-polish worker	0	0	0	8	5
Flour mill employee	0	0	0	1	0
Coolie	0	0	0	1	2
Helper in shop	0	0	0	1	0
Liquor factory employee	0	0	0	1	2
Coal depot employee	0	0	0	1	1
Salesman	0	0	0	1	0
Domestic servant	2	0	0	0	0
Cement shop employee	0	0	0	0	2
Ice factory employee	0	0	0	0	2
Peppermint factory employee	0	0	0	0	2
Operating marble machine	0	0	0	0	3
Silverware factory employee	0	0	0	0	1
Assistant to doctor	0	0	0	0	1
Unspecified	0	2	0	0	0
Total	4	6	7	17	25

Note:
Data for semi-regular occupations in 1974/75 were not complete, and for that year the figures provided are likely to understate the incidence of such occupations.

Source: Bliss, Lanjouw, and Stern 1998.

Table 8a. Descriptive Statistics

	1974/75		*1983/84*		*1993*	
Total observations	112		485		359	
	Mean	Std.	Mean	Std	Mean	Std
Regular job	0.34	0.23	0.12	0.32	0.09	0.08
Land owned per household	22.51	416.7	24.7	25.9	13.8	191.8
Number of adult males	1.99	1.99	2.83	2.07	1.36	0.86
Literate household member	0.17	0.14	-	-	-	-
Years of education	-	-	1.98	3.48	3.39	17.08
Murao	0.24	0.19	0.23	0.42	0.23	0.18
Thakur	0.23	0.18	0.22	0.42	0.23	0.18
Passi	0.07	0.07	0.08	0.27	0.06	0.06
Jatab	0.13	0.11	0.14	0.34	0.13	0.11

Note:
For 1983/84 and 1993, the unit of observation is the individual, whereas for 1974/75 it is the household

Table 8b. Probit Results for the Probability of Holding a Regular Outside Job (estimated coefficients with probability values in parentheses)

	1974/75	*1983/84*	*1993*
Total observations	112	485	359
Observations at 0:	75	428	329
Observations > 0:	37	57	32
Variable			
Constant	-0.78	-1.24	-1.67
	(0.022)	(0.000)	(0.000)
Land owned per household	-0.03	-0.02	-0.01
	(0.017)	(0.000)	(0.182)
Number of adult males	0.45	0.10	0.27
	(0.003)	(0.036)	(0.004)
Literate household member	0.61	-	-
(dummy)	(0.146)		
Education of individual	-	0.09	0.04
(years of schooling)		(0.000)	(0.120)
Murao	-0.28	-0.23	-0.12
	(0.498)	(0.419)	(0.677)
Thakur	-0.53	0.11	0.16
	(0.197)	(0.605)	(0.524)
Passi	1.18	0.22	-0.11
	(0.072)	(0.389)	(0.800)
Jatab	-0.95	-0.94	-5.69
	(0.051)	(0.026)	(0.999)
Log likelihood (model)	-52.006	-151.474	-97.011
Log likelihood (constant)	-71.056	-175.803	-107.89

Note:
1. For 1983/84 and 1993, the unit of observation is the individual, whereas for 1974/75 it is the household.
2. For the 1983/84 and 1993 regressions, the household variables (land owned and number of adult males) apply to the household of which the relevant individual is a member.

Source: Bliss, Lanjouw, and Stern 1998.

Table 9.
Tobit Results for Household Earnings from Regular Outside Employment
(estimated coefficients with probability values in parentheses)

	1974/75	*1983/84*
Total observations[a]	112	143
Observations at 0:	75	96
Observations > 0:	37	47
Variable		
Constant	-1827	-3439
	(0.042)	(0.000)
Land owned per household	-83	-94.3
	(0.002)	(0.007)
Number of adult males	1403	1451
	(0.000)	(0.000)
Literate household member	2225	-
	(0.022)	
Education of individual[b]	-	742
		(0.000)
Murao	-1064	-2130
	(0.309)	(0.173)
Thakur	-2051	-1344
	(0.052)	(0.286)
Passi	2537	1816
	(0.028)	(0.179)
Jatab	-3377	-4672
	(0.012)	(0.023)
Log likelihood (model)	-375.5	-488.9
Log likelihood (constant)	-403.4	-526.4

Note:
1. Coefficents for 1983/84 have been normalized in terms of 1974/75 rupees to facilitate comparisons.
[a] Note that there are 47 *households* with regular job income, although there are 57 *individuals* with an outside job, in 1983/84. The difference reflects the fact that in some households more than one member has an outside job.
[b] In 1983/84, the education variable corresponds to the highest level of education achieved by those family members with an outside job. For 1974/75, this variable indicates whether *any* household member is literate or not.
Source: Bliss, Lanjouw, and Stern 1998.

Table 10.
Distribution of Deviations from Permanent Income across Households

	Mean deviation	*Coefficient of variation of income deviations across households*	*Coefficient of variation of total income across households*
1957/58	-0.125	2.930	0.649
1962/63	-0.209	1.850	0.871
1974/75	0.368	1.293	0.504
1983/84	-0.061	7.423	0.545

Note:
Income deviation is defined as the difference between actual household per capita income in the reference survey year and household per capita income averaged over the four survey years, expressed as a proportion of the averaged income.

Source: Bliss, Lanjouw, and Stern 1998.

Table 11.
"Poverty Risk" for Different Household Groups (proportion of households in the four lowest deciles of the per capita income scale)

	Per Capita Income Terms[a]			
Household characteristic	*1957/58*	*1962/63*	*1974/75*	*1983/84*
With regular job	0.25 (8)	0.00 (9)	0.34 (35)	0.15 (47)
Landless	0.50 (14)	0.25 (12)	0.50 (10)	0.44 (27)
Landless without regular job	0.54 (13)	0.30 (10)	0.40 (5)	0.53 (17)
Agricultural labor	0.54 (26)	0.75 (16)	0.78 (32)	0.63 (41)
Landless agricultural labor	0.33 (6)	0.33 (3)	0.60 (5)	0.64 (11)
Without adult male	0.67 (3)	0.00 (6)	0.00 (0)	0.60 (5)
Landless without adult male	0.50 (2)	0.00 (4)	0.00 (0)	0.33 (3)
With widow	0.48 (27)	0.37 (27)	0.38 (21)	0.48 (33)
Widow without adult male	1.00 (1)	0.00 (4)	0.00 (0)	0.75 (4)
Joint family	0.39 (38)	0.40 (35)	0.41 (44)	0.22 (37)
Thakur	0.29 (17)	0.37 (19)	0.16 (25)	0.30 (30)
Murao	0.14 (21)	0.28 (25)	0.15 (27)	0.26 (27)
Dhimar	0.70 (10)	0.78 (9)	0.75 (8)	0.46 (13)
Gadaria	0.33 (9)	0.33 (9)	0.50 (8)	0.33 (12)
Dhobi	0.00 (2)	0.00 (1)	0.67 (3)	0.25 (4)
Teli	0.63 (8)	0.56 (9)	0.67 (12)	0.44 (16)
Passi	0.45 (11)	0.19 (16)	0.25 (8)	0.36 (14)
Jatab	0.56 (16)	0.54 (13)	0.79 (14)	0.89 (19)
Other	0.50 (6)	0.60 (5)	0.50 (4)	0.38 (8)
All households	0.40 (100)	0.40 (106)	0.40 (111)	0.40(143)

Note:
[a] In brackets, the total number of households with the specified characteristic in the relevant year.
Source: Lanjouw and Stern 1998a.

Table 12. The Bottom 25 Households in the Income Distribution, 1957/58

Household number	*Real per capita income*	*Land owned (bighas)*	*Land cult. (bighas)*	*Household size*	*Principal occupation*
608	21.5	20	20	6	Cultivation
907	29.0	0	0	5	Carpentry
804	37.4	13	17	6	Cultivation, casual labor
109	43.1	19	19	7	Cultivation
710	43.2	0	0	4	Casual non-agricultural labor
904	45.3	0	12	8	Barber, cultivation
112	48.1	10	10	2	Cultivation
604	50.4	14	14	9	Cultivation, casual labor
306	50.8	10	10	5	Cultivation, casual labor
212	51.4	10	10	3	Cultivation
220	67.2	23	23	7	Cultivation
301	68.2	12	2	8	Cultivation, casual labor
703	69.2	7	7	7	Cultivation
810	69.9	7	7	5	Cultivation, casual labor
603	72.3	6	19	3	Cultivation, casual labor
307	73.4	30	30	11	Cultivation, casual labor
310	73.5	6	0	5	Guard
706	75.7	7	7	8	Cultivation, casual labor
809	77.4	7	7	7	Casual labor
302	79.1	0	0	6	Casual labor
905	79.4	0	0	2	Barber
403	81.8	25	25	6	Cultivation
107	84.1	16	24	3	Cultivation
807	84.3	10	10	6	Cultivation, casual labor
103	86.0	0	71	7	Cultivation, livestock products
Average	62.5	10	14	6	
Village average	177.6	27	23	5	

Note: 1. Incomes are in 1960/61 rupees.

2. The first digit of each household number indicates caste, in accordance with the number ordering in table 2

Source: Lanjouw and Stern, 1998a.

Table 13. The Bottom 25 Households in the Income Distribution, 1962/63

Household number	*Real per capita income*	*Land owned (bighas)*	*Land cult. (bighas)*	*Household size*	*Principal occupation*
8050	10.3	13	11	4	Cultivation, casual labor
1040	12.4	50	34	5	Cultivation
1050	14.4	39	49	7	Cultivation
8040	18.8	15	15	7	Cultivation
7610	28.4	11	0	6	Cultivation
2160	30.4	32	32	4	Cultivation
8030	30.7	36	36	7	Cultivation
9610	31.1	0	0	7	Carpenter
2030	31.5	108	108	7	Cultivation
6061	44.8	1	14	4	Cultivation, casual labor
3071	45.3	20	20	9	Cultivation, casual labor
9010	48.5	28	28	5	Cultivation
9040	48.8	8	18	7	Barber, cultivation
1030	50.4	0	40	5	Cultivation, livestock products
8130	56.5	7	7	6	Cultivation, casual labor
2120	62.0	10	0	2	Cultivation, casual labor
1020	67.7	35	35	4	Cultivation
7020	69.1	24	34	7	Cultivation, casual labor
3090	71.2	6	6	4	Cultivation, casual labor
6080	72.1	20	20	8	Cultivation, shopkeeping
2143	72.8	23	23	5	Cultivation
2144	72.8	23	23	5	Cultivation
3050	73.5	6	17	5	Cultivation, casual labor
8120	75.0	9	20	2	Cultivation
6010	81.1	25	32	8	Cultivation
Average	48.8	22	25	6	
Village average	186.4	26	26	6	

Note:

1. Incomes are in 1960/61 rupees.

2. The first digit of each household number indicates caste, in accordance with the number ordering in table 2.
Source: Lanjouw and Stern, 1998a.

Table 14. The Bottom 25 Households in the Income Distribution, 1974/75

Household number	*Real per capita income*	*Land owned (bighas)*	*Land cult.(bighas)*	*Household size*	*Principal occupation*
21000	54.5	25	10	6	Cultivation
80901	71.2	5	5	6	Cultivation, casual labor
60503	79.7	0	0	6	Casual labor, railways
57390	80.4	2	8	6	Cultivation
11200	83.8	2	2	4	Cultivation, casual labor, watchman
57190	100.4	0	8	6	Cultivation, washerman
40302	105.5	12	12	6	Cultivation
60502	111.6	0	6	5	Railways
81000	119.3	10	10	11	Cultivation, casual labor, work in mill
60501	120.1	0	0	4	Railways, casual labor
81300	122.5	8	0	8	Cultivation, casual labor
30100	127.5	12	26	3	Cultivation, casual labor
40101	128.5	8	0	7	Railways
60400	138.5	13	23	7	Cultivation, casual labor
70100	143.0	0	0	6	Casual labor, goat trading
81600	143.1	20	22	7	Cultivation, casual labor
21800	143.5	11	3	7	Cultivation, sugarcane factory
80902	151.8	5	26	6	Cultivation, casual labor
60800	160.5	22	26	11	Cultivation, cloth mill
30720	162.2	16	21	9	Cultivation, casual labor
80500	165.8	10	30	7	Cultivation, casual labor
40800	172.4	20	7	7	Cultivation
31000	175.6	3	13	7	Casual labor, unspecified outside job
60620	177.1	1	40	5	cultivation
70410	179.4	3	0	13	Casual labor, service outside the village
Average	128.7	8	12	7	
Village average	285.3	23	22	7	

Note:

1. Incomes are in 1960/61 rupees.
2. The first digit of each household number indicates caste, in accordance with the number ordering in table 2.

Source: Lanjouw and Stern 1998a.

Table 15. The Bottom 25 Households in the Income Distribution, 1983/84

Household number	*Real per capita income*	*Land owned (bighas)*	*Land cult. (bighas)*	*Household size*	*Principal occupation*
108002	-41.0	36	36	6	Cultivation
108001	14.3	10	3	3	Salesman
711091	20.2	7	0	5	Job search
802001	25.8	10	15	5	Cultivation
813001	28.1	12	6	8	Mason, casual labor (also non-farm)
607020	30.6	0	0	4	Casual farm and non-farm labor
602003	37.2	0	0	4	Casual farm and non-farm labor
711093	38.6	0	0	1	Casual farm and non-farm labor
802002	43.6	18	12	8	Cultivation
815000	46.5	23	20	8	Cultivation, casual labor
812000	51.1	14	14	7	Cultivation, casual labor
208010	53.9	40	36	6	Cultivation
606200	57.1	1	19	6	Cultivation, casual labor
805002	62.2	0	0	5	Work in *chakki*
904000	63.1	0	17	4	Barber, cultivation
306002	66.2	0	0	4	Rrailways, casual labor
901000	66.4	14	0	6	Spinning factory
807002	67.1	5	0	7	Farm and non-farm casual labor
606100	67.8	1	18	3	Cultivation, casual labor
402001	69.9	11	11	7	Domestic work only
814000	72.8	23	20	7	Cultivation
304090	73.9	4	0	5	Farm and non-farm casual labor
681990	79.1	0	38	8	Cultivation, casual labor
601001	80.0	2	25	4	Cultivation
805001	81.2	9	2	3	Rrope-making, casual labor
Average	50.2	10	13	5	
Village average 182.9		18	19	7	

Note:

1. Incomes are in 1960/61 rupees.
2. The first digit of each household number indicates caste, in accordance with the number ordering in table 2.

Source: Lanjouw and Stern , 1998a.